The Cognition of Residential Areas

—

A Study in Leicester

Thesis

Presented for the degree of Ph.D.

University of Leicester

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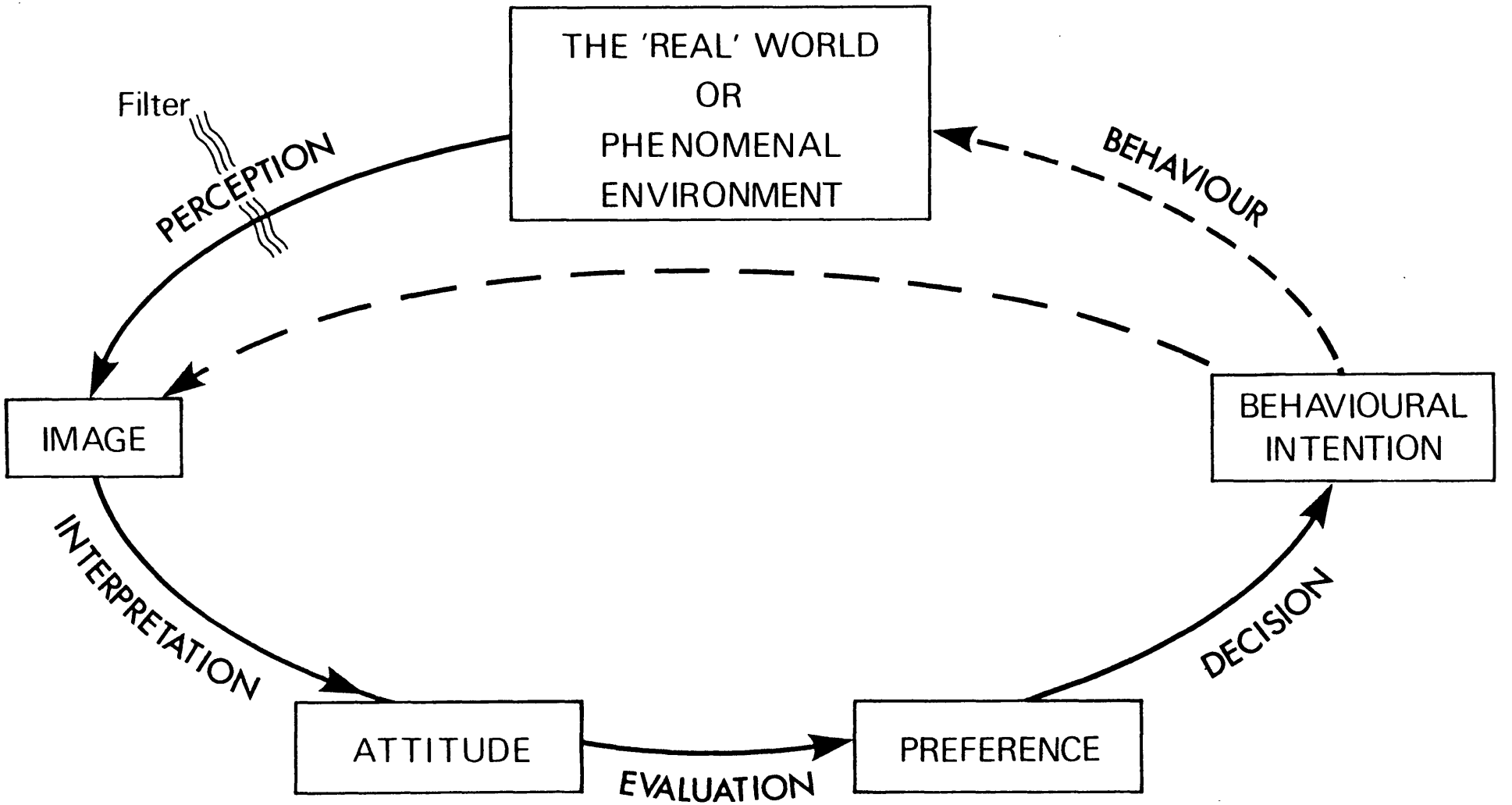
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'As human geographers reach out across traditional disciplinary boundaries to the other social and behavioural sciences, it is increasingly apparent that the truly satisfying explanation they seek is going to come from emphasising the human as much as the geography. We may, perhaps, define our subject as essentially efforts to understand the spatial aspects of man's behaviour.'

Peter Gould, 1966.

The Perception - Behaviour Process

FIG 1.1 THE PERCEPTION-BEHAVIOUR PROCESS



(FRONTISPIECE)

Introduction

This study is concerned with the nature of environmental cognition within an urban context. After a consideration of how the cognition process may be studied in Human Geography, there follows a detailed examination of married women's cognition of residential areas within a city in the English Midlands.

Cognition may be defined as the psychological process by which individuals come to know and experience their environment. Within Human Geography, the study of cognition has developed as a reaction to the normative prescriptions which characterise the work of the locational analysts (Haggett, 1965). The analysis of cognition has now developed to the stage where it forms the essential feature of that branch of the subject usually referred to as Behavioural Geography.

This form of analysis is potentially applicable to all types of environment, but this study will concentrate on one particular environment - the residential area within the modern western city. This environment has been chosen since, for the great majority of the population of Europe and North America, the home and neighbourhood are urban. An understanding of the cognition of such residential areas is vital in any explanation of residential mobility. Although there is a vast literature on residential mobility patterns, which refers to the significance of cognition, it fails to explore the nature of the process; in particular, how

different groups of people experience their home environment, what information they derive from it, how they selectively organise and use this knowledge and how they perceive and evaluate alternative areas.

Such studies of cognition as do exist have tended to use samples of schoolchildren or students, who have not been directly involved in the locational decision making process. In the present case study, married women were chosen as the respondents on the grounds that the choice of residential location is of particular significance to them since they are likely to spend a greater proportion of their time in the home area and make greater use of the range of local facilities than their husbands or children. In view of their commitment to their home and neighbourhood, it could be expected that the women chosen would be prepared to co-operate in the study and be able to understand questions concerning the attributes of residential areas.

Leicester was chosen for several reasons. The area selected needed to be small enough to be conceived of as a whole by the respondents, yet large enough to contain a diverse range of residential environments. It is of medium size (1971 population: 283,549) and throughout the 1960s was popularly known as one of the most prosperous cities in Western Europe as a result of its diverse and rapidly expanding industrial and commercial base. Despite the city's motto 'Semper Eadem', changes in its economic structure have been overshadowed by the rapidly altering ethnic composition of the inner city and, to a lesser extent, of the suburban areas resulting from the need to accommodate the large numbers of immigrants from the Indian sub-continent and East Africa. The range of

residential environments thus includes Highfields, the inner city home of many Asians, and the exclusive residential areas such as that between Leicester Road and the Gartree Road in Oadby. The details of the social patterning of Leicester have already been clarified, and therefore provide a sound basis for a study of environmental cognition (Lewis and Davies, 1974).

The rapid growth of interest in Behavioural Geography has led to some confusion in the basic terminology, and it is therefore necessary at this early stage to clarify the terms which will be employed in the present study.

As far back as 1951, Kirk recognised the need to distinguish between the environment 'as it is' and the environment 'as it is perceived'. He used the term Phenomenal Environment to refer to the former and Behavioural Environment for the latter. From the Phenomenal Environment, an individual extracts those elements which have meaning for him, perceives, interprets and evaluates them and incorporates them into his personal milieu on which he will eventually base his decisions.

The nature of the framework adopted in the present work for examining the way in which an individual translates the Phenomenal Environment into his Behavioural Environment, is shown in Fig. 1.1. Starting with the Phenomenal Environment, or real world, an individual perceives those aspects of objective reality which he considers are relevant and have meaning for him.

This action is affected by a filter formed from the

individual's culture, traditions, social norms, group values, previous experience, needs and basic desires which serves both to influence what is selected from the Phenomenal Environment and how this information is ordered and stored in an Image of that environment.

Image thus forms the first element of the process, a representation of reality which is extracted from the Phenomenal Environment by an individual and used as the basis for his future actions. Such images are not wholly visual or structural; a further contention of this thesis is that, since it is formed for a given purpose, an image must contain some measure of meaning which has relevance to the individual who forms it, otherwise it can be of little use to him in his everyday spatial behaviour.

The image of the environment is interpreted in the light of the individual's past experience, expected needs and other knowledge which he possesses, and attitudes towards the images themselves and towards the expected outcomes of possible actions are formed. Attitude therefore forms the second element of the process. Several attitudes may be related to one particular image, and these will be evaluated by the individual; differential evaluations will lead to preferences for different images and expected outcomes from behaviour.

Preference becomes the third element of the process, and is the basis on which decisions concerning behaviour are made and notions of Behavioural Intention, the fourth element, are formed. Overt behaviour is not regarded as an element in the process but as a link between Behavioural Intention and the Phenomenal Environment. Behavioural Intentions may not be

capable of translation into behaviour for a number of complex reasons, although inability to predict behaviour from Image, Attitude and Preference does not invalidate the operation of the process up until and including the Behavioural Intention stage. Behaviour will influence the Phenomenal Environment which will in turn be likely to produce different images of reality when the process is repeated.

Perception as defined in the operation of this process and used throughout this study is thus restricted to refer to the means by which an individual selects, encodes, organises and stores incoming messages from the Phenomenal Environment and transforms them into an Image of reality. This agrees quite closely with the term as used by Downs and Stea:

> 'Thus we reserve the term perception for the process that occurs because of the presence of an object, and that results in the immediate apprehension of that object by one or more of the senses. Temporally, it is closely connected with events in the immediate surroundings and is (in general) linked with immediate behaviour.'
>
> (Downs and Stea, 1973; p. 14)

In order to assess the utility and validity of such a framework in understanding the cognition of residential areas, the process needs to be approached in its entirety, from the Images formed of residential environments through to the Behavioural Intentions with respect to them, using the same groups of individuals in the same environmental context throughout.

The procedure, common in the literature of Behavioural Geography, of using samples of Geography students needs to be

replaced by the more realistic consideration of ordinary members of the community, permanently rather than temporarily resident in the Leicester urban area, unbiassed by specialist knowledge of maps, questionnaires or techniques of spatial problem solving. Married women living in three socially and spatially differentiated areas of Leicester were therefore chosen for this examination of the Perception - Behaviour (or Cognition) process.

The organisation of this thesis is based on the structure of the Perception - Behaviour process outlined in Fig. 1.1. Chapter 1 discusses the background to the development of Behavioural Geography and its emergence in its present form. It considers the early attempts to define and study the field of human behaviour, the evolution of more precise analytical techniques and the eventual recognition of the importance of studying process as well as the observed patterns of activity, from which interest in cognition was able to develop.

Chapter 2 examines some of those studies which have been conducted in the field of Behavioural Geography which are relevant to the design of the present research. Many of these investigations are unrelated either to each other or to an overall framework, and the results which have emerged and which have a bearing on the study undertaken here are analysed. The Perception - Behaviour process provides a framework for organising these studies and evaluating their findings in a more systematic way.

Chapter 3 attempts to unravel some of the intricate problems posed by the measurement of the subjective phenomena

involved in an understanding and explanation of cognition. The different elements of the process suggested in Fig. 1.1 require the use of separate but related measurement techniques to encompass the complexities of each in an adequate manner. Cognate subjects such as Psychology have much to offer in this respect. The nature and purpose of measurement itself are considered, followed by a consideration of the approaches most appropriate for use in the present context.

Chapter 4 deals with the theoretical concepts of Image, Attitude, Preference and Behavioural Intention and how they are defined for use in the present study. The concept of Image differs from other studies in so far as a measure of meaning is considered to be essential if the image is to be of use to the individual who forms it. The purely structural aspects of images which have been more commonly dealt with in the geographical literature, are largely incapable of incorporation into a process oriented approach to an understanding of spatial perception and behaviour. Images as defined here have more in common with 'beliefs about the nature of an object' than with 'beliefs about the existence of an object' (Fishbein and Ajzen, 1975).

Chapter 5 concentrates on the design of the fieldwork, the structure of the questionnaires used and the collection of the data required to achieve the stated aim of analysing the residential Perception - Behaviour process (as the cognition process will be referred to throughout the text) in an intra-urban context.

Chapters 6, 7, 8 and 9 are devoted to the four elements of Image, Attitude, Preference and Behavioural Intention, the

measurement procedures employed in uncovering the nature of each and the evidence which emerged concerning the existence and operation of the process in three socially and spatially differentiated groups of respondents.

Chapter 6 examines the extent to which images of residential areas within Leicester vary between persons occupying different locations in physical and social space. It starts with an examination of the perceived locations of ten selected residential areas within the city and goes on to consider the images which groups of respondents hold of these environments across a range of different attributes; connections are drawn between inaccurately perceived locations and areas evoking images of little meaning to individuals. Finally, the image of the respondent's own home environment is examined, measured along the same attribute dimensions as before.

Chapter 7 measures overall attitudes of favourability towards areas using techniques drawn from Psychology. In particular, the scoring procedure from the multi-dimensional technique of the semantic differential is adapted and used to produce attitude profiles towards different areas and varying attributes within areas, and associated generalised distance scores are used to assess the degree of similarity between attitudes towards these areas. It examines the existence of any possible connection between the image and attitude elements of the Perception - Behaviour process.

Chapter 8 adapts another technique originally developed in Psychology, that of paired comparisons, to analyse the preference structures of the different samples towards residential areas and towards attributes of areas. An overall preference

surface for the city of Leicester is constructed by means of Trend Surface Analysis and separate preference surfaces of the city seen from twenty different viewpoints are analysed and compared.

Chapter 9 deals with Behavioural Intentions. Brief consideration of the patterns of contact made by members of the samples visiting their families, friends and travelling to work provides a framework against which areas of positive intention and areas of negative intention may be set. Areas to which respondents would like to move (positive intention) may be traced through the image, attitude and preference elements of the process and contrasted with both the home area as it is experienced and perceived and with areas which respondents wish to avoid (negative intention). It is in this final chapter that the links between the four elements of the Perception - Behaviour process are most apparent.

1

History

'We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.'

There can be no more appropriate way of beginning a Geography thesis than with those words of T. S. Eliot. In those four lines from 'Little Gidding' lies the essence of that body of knowledge and methodology known as Science and, therefore, of Human Geography, as that subsection of Science concerned with the analysis and explanation of human behaviour in space through time.

The behavioural approach to Human Geography, which this work adopts, is more open than most others to accusations of employing circular arguments, of 'proving' something which was already common knowledge or investigating phenomena generally believed to possess 'obvious' causes. Hopefully, it will become apparent in the following chapters that, although we may end up not too far distant from where we started, the journey will not have been circular and that, in making it, we shall come to fully understand 'and know the place for the first time'.

The nature of this thesis will probably cause it to be placed somewhere within the so-called Behavioural Revolution movement in Geography, but although such a designation might adequately reflect its content, it would not accurately represent its concept which, concisely stated, is one of Behavioural Evolution.

This philosophy views the behavioural approach to the subject as a challenging, exciting and intellectually satisfying, but thoroughly logical development from the studies of Human Ecology and regions which characterised the earlier days of Human Geography. As each successive goal has been realised and each problem solved, new goals have presented themselves, and new problems have emerged as a result. Our aims have, of necessity, changed in direction and emphasis, but only in response to perceived inadequacies in the concepts and methods which were previously employed, a process regarded by at least one writer concerned with the philosophy of science as entirely inevitable:

> 'The history of science is the history of the successive replacement of one explanation by another.'
>
> (Kaplan, 1964; p. 354)

The purpose of this chapter, therefore, is to provide

a) an analysis of the evolution and development of the behavioural approach to the subject of Geography, and the parts played in this process by three cognate disciplines
   - i) the Biological Sciences
   - ii) Economics
   - iii) Psychology

b) an assessment of the nature, role and status of the explanation offered by Behavioural Geography at the present time.

a) The evolution of the behavioural approach to Geography

At the present time, Behavioural Geography represents the culmination of the successive replacement of three different types of explanation for human behaviour, derived from three different disciplines; in roughly chronological order these were the Biological Sciences through Human Ecology, Economics and Psychology.

i) The contribution of the Biological Sciences

The work of the Human Ecologists in the second quarter of this century is one of the earliest, and one of the clearest examples of the direct translation of theories, models, observation and measurement techniques from the physical sciences and their application to the social sciences (see, for example, Barrows, 1923; or, for a more recent comment with some of the original papers, Theodorson, 1961).

Nowhere is this better seen than in the work of Park and Burgess (1925) concerning the spatial organisation of land uses within a city, and which became known as the 'Chicago school' of urban sociology as a result of most of their studies being based in that city. Using analogies and terminology drawn from plant ecology, Park suggested that the general form of a city was the result of the same processes which governed the growth and development of plant communities. The basic organising principle was that of competition; people and land uses competed either for the most desirable residential or industrial location within the city, or the most accessible tract of land which

suited their proposed requirements and which they could afford.

Park postulated that an area of dominance would emerge within the system which, in the city, he equated with the Central Business District as a consequence of its maximum accessibility and prime land values. The other users were segregated according to their ability to pay for the central location, and 'by their differential ability to cope with impersonal competition' (Park, 1936).

This principle of dominance was linked closely to the twin concepts of 'invasion' and 'succession', which were invoked to describe the encroachment of an incompatible land use upon a hitherto stable area, and the eventual conversion of this area to the usurping land use. According to this view, all forms of residential and social differentiation within urban areas were the result of competition, invasion and succession, influenced by economic considerations of the ability to pay for desired locations.

The delimitation and differentiation of areas thus became and remained an end in itself rather than the means towards the end, and its replacement by a more realistic model of explanation was hindered by the misinterpretation of much of the work of the classical ecologists of Park's era.

E. W. Burgess, for instance, attempted to give spatial expression to Park's suggestions by likening the process of city growth and its consequent form to a series of five concentric circles, whose relative positions were determined by the dominance of the Central Business District and the city users' ability to pay for desired locations, (Burgess, in Park and Burgess, 1925).

Over-familiarity with Burgess' work now tends to breed contempt, although it was undoubtedly a major contribution to the field at that time. It was a very formal, early exposition of a model of the process of city growth, and the difficulties which arose when some workers adopted it as a substantive theory of spatial form produced two results. The first, and more undesirable, was the fact that the problems encountered were used to invalidate rather than enrich the model, and the approach tended to fall eventually into disrepute (a fate which has befallen subsequent models - see, for example, the discussion concerning mental maps in Chapter 2 of the present work).

The second, and far more profitable, was a very rapid increase in the number of studies concerned with city growth and structure, and the increasing mood of curiosity encouraging the discovery of an alternative replacement explanation.

Two themes from this early work in urban sociology need to be emphasised as being of particular relevance to the present study. The first involves the borrowing of concepts and techniques considered suitable and/or relevant from other subjects, and their application to geographical problems. It will already be clear that this is a long-established procedure within the social sciences, and although controversy has sometimes resulted from the direct application of techniques which later proved inappropriate unless modified or adapted to the new situation, it has undoubtedly proved to be of great value in the advancement of knowledge. Geography was rather late on the scene it is true, but derivative concepts are now an integral part of the subject

and are probably better developed than purely indigenous theory and postulates (Harvey, 1969; see especially Chapter 9). The studies of 'personal micro-space' discussed in Chapter 2 of the present work owe their origins to a similar adaptation of the theories concerning animal territoriality to human behaviour in space.

The second, and more important theme in the context of this thesis centres around recognition of the fact that Park was, in effect, arguing for a very elementary form of process-oriented approach to an understanding of human spatial organisation. By analogy with plant communities, he aimed to study the entire process of city growth and development from its beginnings, through the various intermediate stages (invasion and succession) to the spatial patterns eventually produced, in order to better understand and explain those patterns. Geography, however, tended to concentrate on the undeniably easier task of perfecting measurement of pattern, or even more simply on its description, at the expense of investigation of process; the behavioural approach to the subject has now to redress the balance and it is hoped that the present work can make a small contribution to that task.

A major advance in urban sociology came in 1949 with the development of the technique of Social Area Analysis by Eshref Shevky and Marilyn Williams, for identifying and classifying socially differentiated sub-areas of a city. The definitive version appeared in 1955 (Shevky and Bell) and is the more widely referenced. The aim of areal differentiation was still apparent, but their claim went much further than a

purely physical delimitation of space:

> 'The social area ..... is not bounded by the geographical frame of reference as is the natural area, nor by implications concerning the degree of interaction between persons in the local community as is the subculture. We do claim, however, that the social area generally contains persons having the same level of living, the same way of life and the same ethnic background, and we hypothesise that persons living in a particular type of social area would systematically differ with respect to characteristic attitudes and behaviour from persons living in another type of social area.'
>
> (Shevky and Bell, 1955 p. 23)

Again, there followed much dissent and criticism, both of the method used and of the results so gained, and applications of the technique in other situations were used to cast doubt on or even 'disprove' the validity of Social Area Analysis (Hawley and Duncan, 1957). Shevky and Bell had suggested that seven census variables, which collapsed into three main 'constructs' - Social Rank (or Economic Status, Bell, 1955), Urbanisation (Family Status) and Segregation (Ethnic Status) - were sufficient to account for the observed differentiation within a city.

It became clear from subsequent studies that rather more than these seven variables were in operation, many of them in complex relationships (McElrath, 1962; Herbert, 1967 ; van Arsdol, Camilleri and Schmid, 1962). A more complex approach was required, but since Geography into whose province these matters had increasingly moved, possessed no indigenous techniques to deal with such problems, attention was turned

towards the search for more sophisticated and rigorous multivariate procedures.

Of greatest immediate relevance was the technique of Factor Analysis, a mathematical method of extracting the underlying factors, which consist of clusters of related elements, from a matrix of correlation coefficients. Its major attraction at this time lay in its capacity to reduce the correlations between a large number of variables to a few factors, fundamental in accounting for the vast majority of total variance in the universe under study. The closely related technique of Principal Components Analysis, which transforms the initial variables into a similar number of components (factors), was the more widely used of the two. Both these methods, however, were, and remain, powerful tools in uncovering the multivariate nature of the city, each enabling isolation of the diagnostic and redundant variables in city structure (Goddard and Kirby, 1976; Daultrey, 1976).

Computerised analysis of this type obviously greatly extended the range and amount of data which could be handled in any research project. Census material was in a form which was readily adaptable to fit the factor analytic models, and also provided the data then being sought by workers seeking to uncover the bases of differentiation within urban areas.

Mapping the distribution of the factor scores derived from Factor and Principal Components Analyses of census-derived variables related to residential differentiation, enabled the separation of those unit areas which were highly correlated with a particular factor (cluster of related variables) from other areas correlated with another

factor. The result thus achieved, a sophisticated form of areal differentiation was termed a 'Factorial Ecology' of which the geographical literature contains many examples (Herbert, 1968; Berry, 1970; Berry and Rees, 1969; Abu - Lughod, 1969; Murdie, 1969; Davies and Lewis, 1973; Johnston, 1973a, etc.)

A major contribution of Factorial Ecology to a greater understanding of urban social structure lies in its partial vindication of the unsophisticated and subjective technique of Social Area Analysis. A remarkable feature of many of the analyses conducted so far, despite locations as diverse as Calcutta, Cairo, or Chicago (Berry and Rees, 1969; Abu-Lughod, 1969; Berry, 1970) is the general consistency of their findings. There have been, of course, criticisms of the logic and methodology employed (see especially the supplement to the June 1971 issue of Economic Geography, and, in particular, Berry, 1971; Rees, 1971), but the meteoric rise of a quantitative approach to data analysis and the coincidental need for greater precision in techniques of urban analysis have left their mark in the form of literally dozens of studies of urban Factorial Ecologies in the geographical journals and text books.

However, there is a depressingly familiar ring to the observation that Factor analysis, as an explanatory procedure, has a limited value, and that the blame for its shortcomings may more correctly be laid at the feet of those who overestimated or misapplied it. The quality of the census material, the size of areal unit considered, the definition of an 'urban area', the choice of initial variables for inclusion

in the analysis, and the subjectivity involved in the final interpretation are all problems which have a direct bearing on the quality and use of the finished product and which must be accorded serious consideration, (Rummel, 1967).

More importantly, the Factorial Ecologies seemed to mark the end of the road for social area analysts, who had perfected the means of achieving their aims, only to find that the results failed to provide the total explanation which they had been seeking and, indeed, set them newer, more difficult problems. They knew 'how' but were still a long way from knowing 'why' human populations were differentiated in social and spatial terms.

They were not alone in their disillusionment; the economic geographers had also not fared too well in understanding rather than describing and modelling human behaviour, and were also in need of a revitalised conceptual basis for their research.

ii) The contribution of Economics

Economic Geography, as practised in the 1950s and early 1960s could claim a much longer history than Social Geography and was consequently possessed of a stronger grounding in cognate economic theory and a better understanding of relevant observation and measurement techniques in the Social Sciences in general. It was much plagued, though, by a devotion to problems of absolute space and physical location, resulting in the largely sterile delimitations of different 'economic', 'industrial' or 'agricultural' regions, exhaustive economic histories of single industries or industrial complexes, or

fairly sophisticated forecasting programmes concerning transportation or Regional Planning (Garrison, 1960; Isard, 1956, 1960 ; Kansky, 1963).

Desire to refine the mechanistic models of von Thünen, Weber or Lösch served to delay attention to the similarities as opposed to the differences between areas, and to postpone recognition of the importance of human motivations and behaviour, either at an individual or group level of analysis, in locational decisions.

One of the major stumbling blocks was that, in accordance with their allegiance to Economics, economic geographers formulated their questions within the normative framework of the concept of 'economic man'. There were three important assumptions implicit in this approach:

a) that hypothetical 'economic man' the decision maker, possessed perfect knowledge of every detail of the situation with which he was faced

b) that within the demands of economic theory, he was entirely rational and that

c) he therefore aimed to maximise his profits and minimise his efforts and expenditure in locating and managing his enterprise.

Assuming perfect knowledge of the available opportunities and the costs likely to be incurred by choosing one or other of them, it was theoretically possible to devise an optimum solution to the problem concerning the 'best' location for a particular enterprise in the given circumstances. Simulation techniques reached a high degree of sophistication in attempts to model various decision-making situations as it

was gradually realised that locational decisions which might have been 'rational' at the time at which they were made could cease to be so with the passage of time, additional information and/or changing external conditions by the time geographers came around to studying them. Some economic decisions, unlike the shopping or even residential behaviour studied by the urban analysts, were taken with such long-term implications as to be virtually irreversible, and simulation techniques were obviously a valuable aid in this type of situation.

Deviations and 'exceptional' cases provided interesting material for debate, and only very slowly was it realised that man's behaviour in space was far more complex than the deterministic model of 'economic man' suggested.

A major challenge to research in the 'economic man' genre came from a study by Julian Wolpert in 1964. He was concerned with the organisation of resources by farmers in Middle Sweden, and investigated the actual technology and organisation of resources, followed by a calculation of the optimum potential technology, organisation and production levels which could be achieved from the given resources if the assumptions of optimisation and perfect knowledge inherent in the normative concept of 'economic man' were in operation. Thirdly, he compared this optimum level with the actual observed productivity of the area, and established that the average farmer achieved only two-thirds of the productivity of which his resources were potentially capable.

Wolpert concluded that:

> '..... one or both of the prerequisites for economic rationality - perfect knowledge and optimising behaviour - are absent.'
>
> (Wolpert, 1964; p.544)

He was uncertain whether he had examined

> '..... an optimising population with imperfect knowledge, or a population with goals other than pure profit maximisation.'
>
> (Wolpert, 1964; p.545)

Either way, and he did not think that the distinction was particularly important, Wolpert suggested that the concept of 'satisficing man' was a more useful tool in the task of explanation than 'economic man'.

Simon, a psychologist, had originally proposed this idea with the suggestion that an individual sought merely to satisfy certain basic and perceived needs; rarely did he choose to optimise, either because his goals were not set that high, or because his aims differed, or because he was not in possession of full and accurate information about the situation, (Simon, 1956).

It was, in effect, a model of decision making based on what Kirk called

> '..... the Behavioural Environment..... the environment in which rational human behaviour begins and decisions are taken.....'
>
> (Kirk, 1963; p. 366)

Simon described his 'satisficer' concept as:

> '..... an alternative approach (i.e. to economic man) to the description of rational

> behaviour that is more closely related to the psychological theories of perception and cognition, and that is in closer agreement with the facts of behaviour as observed in the laboratory and field.'
>
> (Simon, 1956; p.138)

Wolpert accepted man as a being with ability to perceive, store and select information which he could then use as a basis for his future behaviour. He established too, that the flow of information over an area was uneven, and that certain variables such as age, culture and tradition could affect an individual's perception of a situation and, by implication, his behaviour. Since these intervening variables were also distributed unevenly over space, perception, like behaviour, clearly possessed a spatial component. In later articles, Wolpert pursued this same theme with reference to migration behaviour, and the inadequacy of the gravity models then in use to account for observed patterns (Wolpert, 1966a; Wolpert, 1966b).

With this consideration of the works of Simon, we have already begun to realise the part played in the evolution of the behavioural approach to Geography by the third subject we wish to examine, Psychology. It was from this source that the spark which eventually ignited the flame of Behavioural Geography and provided the reasons for and means of effecting the much needed paradigm change in Human Geography came.

iii) The contribution of Psychology

The early 1960s had thus found two of the major branches of Human Geography in a state of disillusion. Both Economic and Social Geography possessed some sophisticated techniques for measuring and analysing locational patterns, but neither possessed any comprehensive framework for specific research or an overall sense of purpose or direction. 'Economic man', soon to be almost completely abandoned, was found to be seriously wanting in its ability to explain locational decisions, and the ecologically-derived theories of the urban social geographers were found to be inadequate to fully explain the nature and bases of residential differentiation and the social patterns evident within cities. Historical geographers were having to deal with past 'errors' of perception (Brookfield, 1969) by decision makers who also had clearly not been good disciples of 'economic man'.

Drawing on the terminology of Harold and Margaret Sprout (1956), Lowenthal's thought provoking paper examined the importance of individual differences in the perception of reality, the 'terrae incognitae .... within the minds and hearts of men' spoken of by Wright (1947)(Lowenthal, 1961). Lowenthal concluded:

> 'What we accept as true or real depends not only on what we think we know about the external world but on what we have previously believed..... Every image about the world is compounded, then, of personal experience, learning, imagination and memory.....'
>
> (Lowenthal, 1961; pp. 259, 260)

Two years later William Kirk published an article entitled 'Problems of Geography' in which he developed some of the ideas put forward in an earlier paper in 1951 (Kirk, 1951, 1963). This was a major attempt by a geographer to incorporate the work on human behaviour already well developed in Psychology into his own subject, in which Kirk sought to establish the relevance of the school of 'Gestalt' Psychology to Geography.

'Gestalt' Psychology originated in Germany with Max Wertheimer, and was developed and refined through the works of Köhler and Koffka. Koffka distinguished between

> '..... two very different environments ..... and the question has to be raised: in which of them has molar (i.e. overt) behaviour taken place ?
>
> (Koffka, 1935; p. 27)

He explained:

> 'The relationship between behaviour and the geographical environment must remain obscure without the mediation of the behavioural environment. Behaviour takes place in a behavioural environment by which it is regulated. The behavioural environment depends on two sets of conditions, one inherent in the geographical environment, and one in the organism.'
>
> (Koffka, 1935; p. 31)

The difference between the geographical environment and the behavioural environment

> '..... co-incides with the difference between things as they really are, and things as they look to us, between reality and experience.

> And we see also that appearances may deceive, that behaviour well adapted to the behavioural environment may be unsuited to the geographical.'
>
> (Koffka, 1935; p. 33)

Kirk realised the profound implications of this approach to human behaviour for Geography, and translated Koffka's geographical environment into what is now known as the 'Phenomenal Environment' - the world of physical, objective phenomena - and used the term 'Geographical Environment' to refer to the total subject matter of Geography, the sum of the Behavioural and Phenomenal Environments.

He described the Behavioural Environment as:

> ' ..... a psycho-physical field in which phenomenal facts are arranged into patterns or structures (Gestalten) and acquire values in cultural contexts. It is the environment in which rational human behaviour begins and decisions are taken which may or may not be translated into overt action in the Phenomenal Environment...Facts which exist in the Phenomenal Environment but do not enter the Behavioural Environment of a society have no relevance to rational spatial behaviour, and consequently do not enter into problems of the Geographical Environment.'
>
> (Kirk, 1963; p. 366, 367)

The terms 'Phenomenal' and 'Behavioural' Environment have caused a certain amount of misunderstanding since they are not synonymous with the 'phenomenologist' or 'behaviourist' schools of thought in Psychology. Behaviourism, identified with the work of Clark Hull and subsequently B. F. Skinner (see, for example, Skinner, 1971) maintains that overt behaviour should be the focus of a psychologist's attention,

and that mental processes, perceptions and decision sequences underlying such behaviour are not a legitimate field for study in themselves, although they may, if necessary, be inferred from observed behaviour.

Phenomenology, on the other hand, is

> '..... a doctrine or school which postulates that the significant role of sense data lies in the form of the object as perceived, however erroneously or distorted, by the individual, and not in the object itself nor in material descriptions, locations or identifications of the object.....'
>
> (Liebersohn, 1977 p. 469)

and is therefore the mentor of Behavioural Geography. The relationships between Phenomenology and Geography have been explored by Relph (1970), Buttimer (1976) and Yi Fu Tuan (1971). The two standpoints are also characterised by their methodology; behaviourism is associated with closely controlled, experimental laboratory studies, with passive human, and sometimes animal, participants, whereas phenomenology, concerned with the world as it is experienced by those actually living within it, clearly cannot be.

The separation of the world of physical, objective facts from the inner psychological world in which people make their decisions, was a major breakthrough, especially since it displayed a healthy disregard for the idea of human infallibility inherent in the assumptions of the 'economic man' models. Not only were people accorded a place of primary importance in the scientific investigation of their spatial behaviour, but they were people who were accepted as

being capable of acting 'irrationally' or on the basis of imperfect knowledge, or of possessing goals other than profit maximisation. It enabled a more realistic explanation to emerge of apparently 'irrational' past decisions which had been 'adapted to the behavioural environment but unsuited to the geographical ' (Koffka, 1935). Such an approach allowed the varying nature, ability and aspirations of the individual to be crucial variables intervening between the environment and the spatial patterns of behaviour observed, and theories of probability, games, information, catastrophe and others were developed in response to the new found subject matter and problem areas (Gould, 1963; Harvey,1969). At the very least, it was possibilism on a far grander scale than anything envisaged by Lucien Febvre, and at most it represented a fundamental change in the approach to an understanding of the patterns of human behaviour.

Although the idea of a 'real' and a 'perceived' world is intuitively appealing, a serious conceptual difficulty arises when one attempts to distinguish objectively a portion of the 'real' world without involving someone's perception of it. Controversy, both in philosophy and psychology, has failed to resolve the question of whether a 'real' world can have any existence other than people's perceptions and interpretations of it. Perhaps the uncertainty is desirable, at least for a while; the social sciences possess precious few methods for analysing and measuring such an abstract concept should it be somehow 'proved' to exist, and it is difficult to see what function it could have anyway.

The principles of Gestalt Psychology have a direct bearing on the philosophy of this present thesis, not least as a result of its being firmly committed to the belief in a Behavioural Environment, extracted from the Phenomenal by the process of perception by each and every individual. It is this Behavioural Environment which contains the Image, Interpretation, Attitude, Evaluation, Preference and Behavioural Intention parts of the Perception-Behaviour process previously outlined.

The word 'gestalt' is best translated as 'configuration' or 'structure' and was envisaged by Koffka as the product of a well-differentiated 'figure' set in an undifferentiated 'ground'. The difference between the two was illustrated by means of well known optical illusions, the best examples being those of pictures which could be interpreted in two completely different ways by a simple reversal of the figure and ground (usually distinguished by black and white shapes) observed. But seen together, the figure and ground acquired a meaning over and above that which could be attributed to them when they were each viewed separately, and once seen in that manner, the image gained a certain stability and limited (or directed) future perceptions. In the familiar illusion of a grecian vase, individuals tend to see either a white vase or two black facial profiles on either side of it; the ability to 'see' the alternative picture often takes a long time to develop, and once the other has been 'seen', the earlier view is lost.

These concepts of separate figure and ground are not dissimilar from Lewin's use of the terms 'Life space' and

'Field' (Lewin, 1952). He described 'Life space' as encompassing both the person and the psychological environment and suggested that:

> '..... all behaviour depends to a large degree on the cognitive structure of the life space.....'
>
> (Lewin, 1952; p. 74)

Although the two notions of 'ground' and the 'field' within which Lewin believed an individual to act are not entirely compatible, the similarities of approach are marked, and the underlying theory of the separation of the Behavioural from the Phenomenal Environment (the two terms which will be used throughout the rest of the present work) is common to Koffka, Lewin and Kirk.

b) The nature, role and status of Behavioural Geography

Faced as it was in the early 1960s with such an immense, virgin field ripe for investigation, that branch of the subject which we have come to call Behavioural Geography should perhaps be forgiven for appearing to fall overboard with enthusiasm. The parent discipline did not possess adequate conceptual or theoretical frameworks and there was consequently little to guide those workers who tentatively ventured into the new and hitherto unexplored territories of human spatial behaviour. It was inevitable that, in the course of seeking and refining explanations of observed phenomena, mistakes would be made. After all, the professional

research workers were only as human as the populations they were attempting to investigate, and it was easier for those who remained behind in well charted lands to declare that the developing ideas and methods were 'not Geography' than it was for them either to demonstrate what Geography was, or to suggest viable alternative methods of investigation to their (usually) younger colleagues.

Within the realm of urban social geography, which possessed considerable growth potential owing to the increased attention being paid to the rapidly expanding urban areas, the mechanistic principles of the ecological approach could now be replaced by a sympathetic investigation of the relationship between the behavioural traits of a population and its residential area. The aim was to gain a deeper understanding of the degree to which an individual identified with his own particular social and residential area, and the extent to which that spatial area had meaning for each person, and how that meaning differed from the meaning attached to other areas in the city. The spatial components of perception and behaviour attained recognition in social geography on a wider scale than in the other branches of the subject since the transition to be made from the traditional to the modern approach was much smaller, and a great deal of the groundwork had already been achieved by the spatial simulation and diffusion studies associated with Hagerstrand and the Swedish geographers, (Hagerstrand, 1952 and, later, Morrill, 1965; Brown, 1968).

Although dissatisfaction with 'economic man' had reached the stage where the formulation of an alternative model was

almost inevitable, it is impossible to say what form this development might have taken had it not been for the re-examination of Gestalt Psychology and the recognition that decisions having a spatial component should be related not to the physical, external environment alone, but to the internal cognitive process in the individual which produced them.

It is quite possible that Economic and Social Geography would have diverged still further, but the coincidence in timing meant that the behavioural approach to Human Geography provided a strong, unifying framework, then desperately needed by both branches of the subject, and which has now come to encompass Historical and Political Geography as well.

Man, a realistic non-rational being this time returned to the focus of geographical attention. He was now, to use Aronson's phrase, 'rationalising' rather than purely 'rational' (Aronson, 1972). No other subject is concerned so deeply with the spatial implications of human behaviour through time, and, in developing this field, Geography has begun to contribute to, as well as gain from, other disciplines in the Social Sciences. In doing so, it has evolved some intriguing and, possibly, some indigenous as well as derivative theories. It has also acquired the expertise at measuring and analysing the often subjective material necessary for answering the questions it has begun to pose.

The best way of demonstrating how the nature of the explanation offered has developed during the last fifteen years or so is by a careful consideration of the studies which have contributed to the growth of the subject. The

realisation that the underlying processes were fundamental in accounting for observed spatial patterns was not, unfortunately, accompanied by a change of emphasis in the subject; geographers attempted either to analyse the spatial distributions of mental processes (Gould, 1966) or to infer the nature of the processes from overt patterns (Adams, 1969; Rushton, 1969).

The dangers of inferring process from pattern had been commented on as early as 1951 by Kirk, a theme later taken up by Lowenthal (1961) and Brookfield (1969). The suggestion that it was necessary to separate the objective reality of the environment from the subjective interpretation of it made by individuals was of fundamental importance in the developing awareness of the vital role cognition had to play in the understanding and explanation of human behaviour.

> 'What matters in shaping human attitudes and decisions (and in explaining and predicting these) is not how the 'real world' actually is, but rather how it is perceived and reacted to by the individual in question.'
>
> (Sprout and Sprout, 1965; p. 100)

However,

> '..... the fact that the human species has survived (so far) suggests that there must be considerable correspondence between the milieu as people conceive it to be and as it actually is.'
>
> (Sprout and Sprout, 1956; p. 61)

The sudden upsurge in interest among geographers in the subjective world of the individual and the need to borrow concepts and methods from other social sciences more

experienced in this field led, almost inevitably, to a great deal of imprecision and confusion in the field. Examination of the literature produced two conclusions: firstly, that there was no doubt concerning the accepted importance of environmental perception in the study of human behaviour. Thus we find:

> 'Perception is fundamental to all science'
>
> (Kaplan, 1964; p. 74)

and again:

> 'Perception is not a sub branch of the discipline of geography, but an all pervasive and supremely important intervening variable in any analysis of the spatial expression of human activities.'
>
> (Golledge, Brown and Williamson, 1972; p. 73)

Secondly, there was virtually no agreement over the definition of the terms used, and particularly of the word perception itself. Perception as a process was not distinguished from perception as a product of that process and 'Perception Studies' covered a wide range of loosely related work including urban images (Lynch, 1960), evaluation of shopping facilities (Downs, 1970b) and preferences for different areas of a country (Gould, 1966). All were subsumed under the title of Behavioural Geography despite few, if any of them, actually involving measures of behaviour.

> 'To many geographers, perception is an all-encompassing term for the sum total of perceptions, memories, attitudes, preferences, and other psychological factors which .... might better be called environmental cognition.'
>
> (Downs and Stea, 1973; p. 13)

Cognition is therefore more broadly defined than perception, and is preferred as the framework for this thesis. In considering the literature which has helped to develop the field, however, the range is so wide that, in the amount of space appropriate to a study of the size undertaken here, some casualties have inevitably occurred. In any exercise of this type, it is usually more difficult to decide which studies to omit rather than which to include. Chapter 2 is devoted to a discussion of those studies which, in the opinion of the author, best illustrate the development and current status of Behavioural Geography, and those which, for a variety of reasons, are of particular relevance to the empirical part of this thesis. Chapter 3 deals more explicitly with the problems of measurement, and contains a detailed examination of salient methodological contributions to the subject.

If the number of studies included at first appears to be rather large, we should do well to ponder the interdisciplinary nature of the field with which we are concerned. As well as 'cognitive behaviouralism', the term used by Harold and Margaret Sprout, the field has variously been called:

> '..... environmental psychology, environmental perception, environmental behaviour, environics, human ecology, environmental biomedicine, man-environmental relations, humanics, sociophysical design, ecological psychology, environmental physiology, human engineering, environmental design, environmental science, ergonomics, urban environmentalism, sociological psychology, behavioural geography, psychological ecology, psychogeography and man-environment systems.'
>
> (Saarinen, 1976; p. 2)

We have already considered Human Ecology earlier in this chapter; from now on we shall be concerned only with Environmental Perception, Environmental Behaviour and Behavioural Geography and, except where quotations are included, will endeavour to keep these terms consistent. Environmental Perception will thus relate to the process of initially perceiving the environment, the process whereby an individual translates the external Phenomenal Environment into his Behavioural Environment on which he will subsequently base his decisions. Environmental Behaviour will refer to the observed spatial patterns resulting from that process, through the formation of attitudes and preferences towards the image which the individual has formed of reality and his consequent behaviour. Behavioural Geography, therefore, is the discipline which addresses itself to the operation of the entire Perception - Behaviour process, owing allegiance both to the Behavioural Sciences and to the science of Geography.

2

Literature

> 'The trouble with behavioural science is not that it has not arrived, but that so often it seems unwilling to get going.'
>
> (Kaplan, 1964; p. 352)

The acceptance, reluctant by some, but more than enthusiastic by others, that there was some kind of difference, albeit ill-defined, between 'the world as it is' and 'the world as it is perceived' was only the beginning of a multitude of problems for Behavioural Geography.

Many of these problems stemmed from the diverse range of studies undertaken during the early years of the subject's development, and the associated failure to develop a structural framework or to generate indigenous theories or testable hypotheses. This was apparent as early as 1968:

> 'We do not have any theoretical basis since all that remains is a collection of intuitively plausible ideas that await theoretical structure.'
>
> (Downs, 1968; p. 18)

Two years later, the situation had shown little improvement, as Downs again remarked that geographic space perception was in great need of a philosophic stage to produce some direction and guidance for future research in the subject (Downs, 1970a).

It is difficult to decide whether the lack of a theoretical base was largely the cause or the effect of the wide variety

of empirical studies conducted, although to a certain extent, such 'fact gathering exercises' are crucial in the early stages of a developing discipline. By 1975, we find the observation:

> 'It is in the nature of a new field to venture out boldly without too much concern for the appropriateness of terms, the significance of concepts, and logical respectability. A time comes, however, when a new field must pause in its flight to reconsider the soundness of its foundation and the kinds of questions it asks. Perceptual Geography has reached such a stage.'
>
> (Yi Fu Tuan, 1975 p. 213)

Some would agree with Cullen (1976) that such a framework is still lacking, and that many of the difficulties result from

> '..... the central problem of behavioural geography: that its basic premises have no independent origin. ..... the derivative status of behavioural geography has so structured its approach that it has been unable to break out of the mechanistic theoretical infrastructure of the parent discipline ...'
>
> (Cullen, 1976 p. 400,408)

Others would support Saarinen in the view that the recency of development in the subject has contributed both to the lack of a well developed methodology, and to the interdisciplinary nature of the approach and its concern with current environmental problems. He points to the researchers'

> '..... choice between roughly outlining the significant factors in real human decisions related to environment with the hope of developing theory later or

> precisely measuring limited and isolated aspects of behavior in artificial environments to build up a gradually more rigorous methodology and theory that can then be applied to the real world.'
>
> (Saarinen, 1976 p. 9)

Most studies have opted for the former approach, but the fact remains that, in order to obtain a fuller understanding of people's behaviour in space, we need to have a theory and related methodology for investigating how space is perceived, organised, stored, evaluated and recalled for use by those people with whom we are concerned. Although the stated topic is therefore individual decision behaviour, the level of analysis traditionally employed has almost invariably been that of the group, or aggregations of individual units, partly as Cullen points out, because that was the scale of analysis with which Geography had previously been concerned (industrial location, city growth and structure and regional studies for example) and partly because the new models of quantitative analysis set rigid limits on the type of behavioural measures which could be devised.

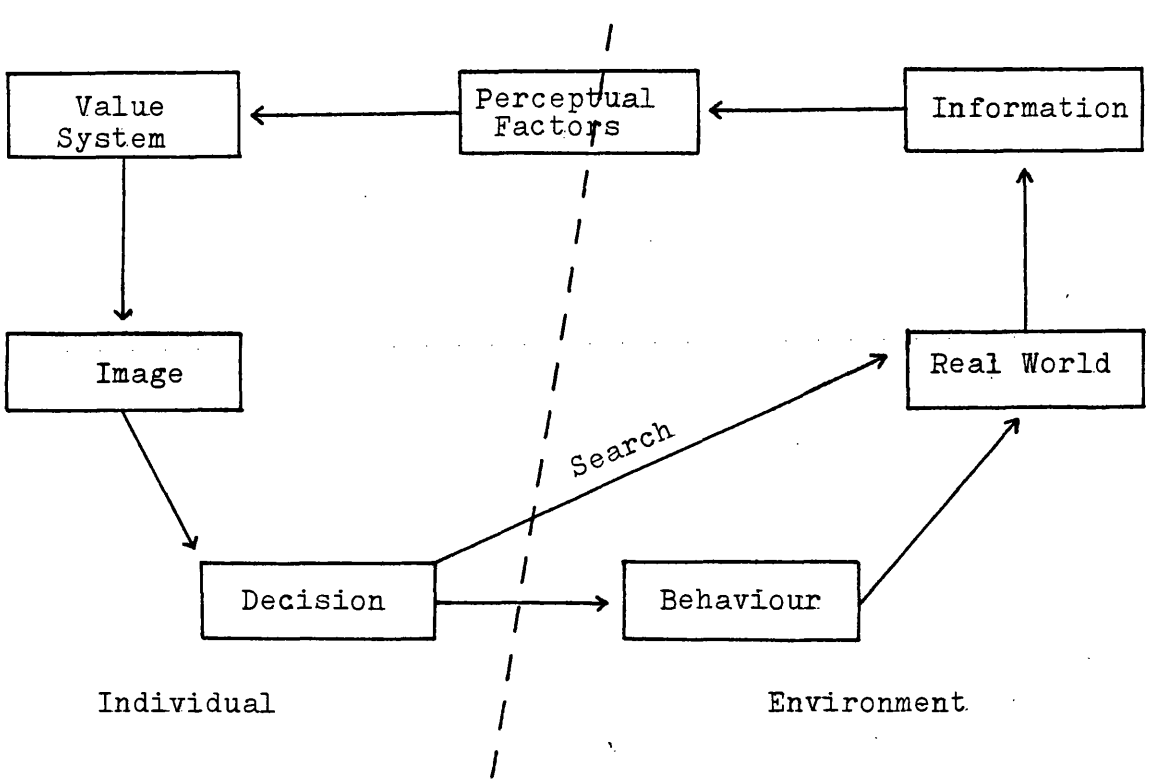
One response to this which has recently been attracting increased attention from human geographers has been to set the study of behaviour within a Marxist framework, one consequence of which has been to diminish the desirability and/or necessity for aggregation rather than to solve the dilemma. Rieser, for instance, believes that

> 'Behavioural geography ..... mystifies mainly by complex exposition of single isolated problems; it obscures the more obvious social and economic conditions operating independently

> of the individual, and it limits understanding of social change through its ahistorical approach and the frequent focus on trivial matters ..... It is the reduction of social process to a matter of individual psychologies that is so dangerous.'
>
> (Rieser, 1973; pp. 205, 206)

Whatever position one adopts on this matter, it is clear that the integrating frameworks proposed for research into Behavioural Geography are few, and the classifications of existing empirical studies not very illuminating. The scheme most frequently quoted is that devised by Downs to encompass the relationships between environment and behaviour through the process of perception, as shown in Fig. 2.1.

Fig. 2.1 Conceptual schema for research into Geographic Space Perception proposed by Downs (1970a).

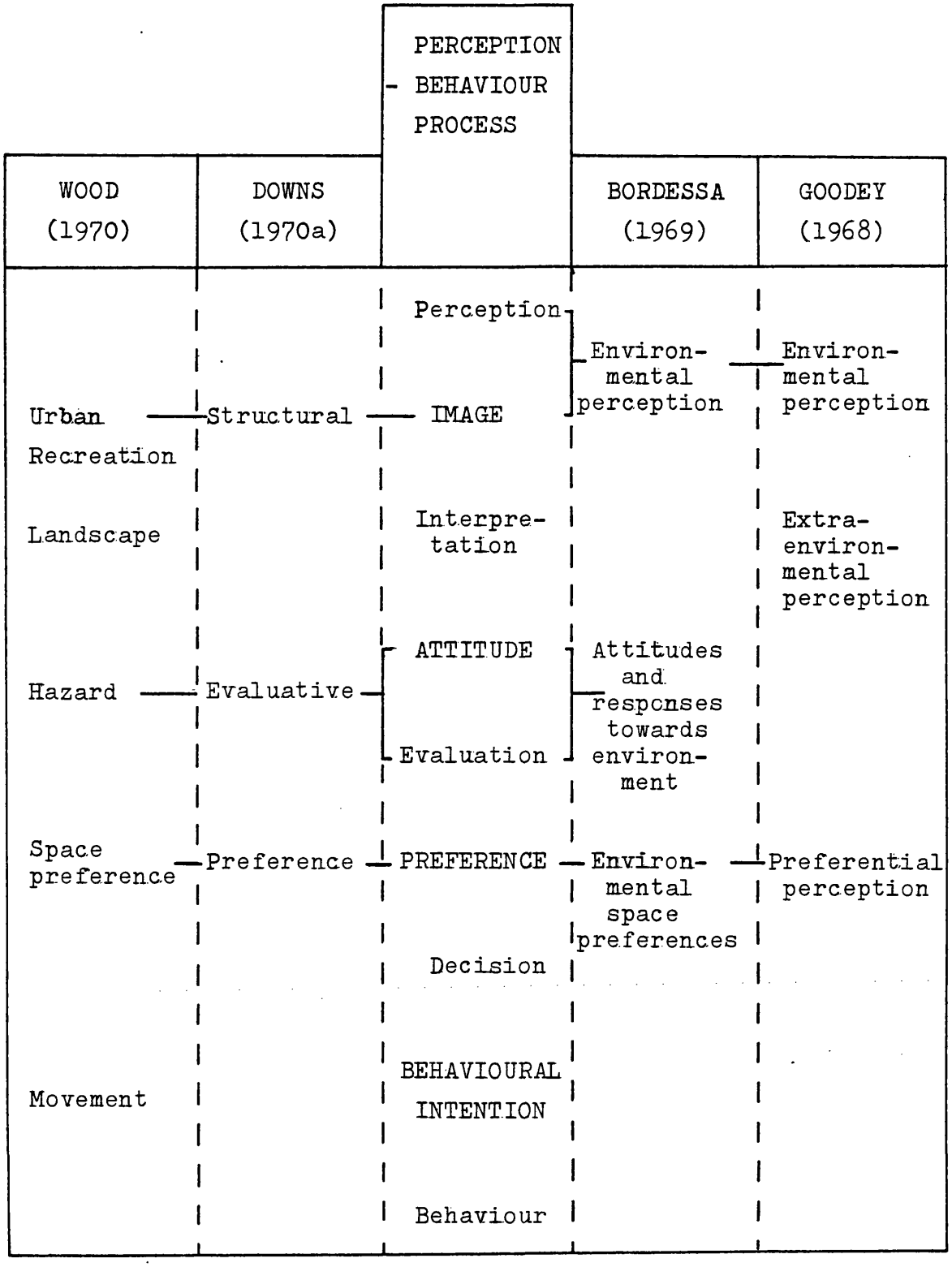


The process starts with the 'real world' (our Phenomenal Environment) which acts as a source of information which is perceived by the individual and filtered through a mesh of culture, traditions and values, until it forms an image of the real world. Using this information, an individual makes decisions, which either require searching the real world for more information, or result in patterns of behaviour. The real world changes as a consequence of this action and the process can repeat itself in space as well as time. The parallels with the Perception - Behaviour Process which we have proposed earlier are obvious, although the 'decision' stage envisaged by Downs has been expanded to include interpretation, attitudes, evaluation and preference, and the rather nebulous 'perceptual factors' have no separate equivalent in the process and are subsumed within the 'Perception' link.

Of the classifications of studies of perception and behaviour, that by Downs (1970 a) is again probably the nearest in concept to the process proposed here, and uses a three-fold typology based on analyses of the structural, evaluative and preference components of space. Table 2.1 demonstrates how these three divisions correspond to the Image, Attitude and Preference elements of the process, and how three other suggested classifications relate to them both.

Goodey suggested three categories, separating environmental perception (roughly analagous to the Image element and Perception link in our process) from extra-environmental and preferential perception; Bordessa adopted four groups, environmental perception, attitudes and responses to

Table 2.1 Approaches to the study of Geographic Space Perception and related classification schemes



environment, environmental space preferences and environmental perception and behaviour, again similar to the stages of our process suggested here (Goodey, 1968 and Bordessa, 1969). Wood identified six different types of study, based mainly on the entity perceived rather than the approach adopted or the stage of the process investigated. Like the other proposed classifications, his categories of landscape, hazard, recreation, urban, movement and space preference studies, were not mutually exclusive and although each of the six was usually associated with one element or link in the Perception - Behaviour process, this was not universally so, and a study in the 'landscape' category could, for instance, be concerned with perception, image, attitude, evaluation or preference (Wood, 1970).

The scale of the problem investigated clearly affected the approach selected and, as a very general rule, the larger the scale, the further through the Perception - Behaviour process lay the approach adopted. Thus Downs' study of a shopping centre (Downs,1970 b), Lynch's study of a city or Lee's of a neighbourhood (Lynch, 1960 and Lee, 1968) involved images, whereas Gould and White's mental maps of regions of a country or different states of a country concerned preferences (Gould and White, 1968).

The potential field ripe for investigation was vast, and problems of comparability loomed large. Behavioural Geography came to possess a formidable battery of empirical data yet a great deal of it was quite unstructured and unrelated; there was information about the perception of neighbourhoods, the images of cities or of shopping centres,

the interpretation of virgin lands by potential settlers, attitudes towards natural hazards, the evaluation of landscapes, preferences for regions or countries, and sectorally patterned intra-urban migration behaviour.

The genesis of this thesis came from a desire to attempt, for one well defined population group, a complete picture of the whole process, from initial perception of the environment to eventual behaviour within it, keeping the scale of analysis and the perceived 'object' constant throughout. The various ideas and problems connected with the aim derive, as we have seen, from a plethora of diverse empirical ancestors, and in order to review the nature of the contribution from each source, or group of sources systematically, it is necessary to organise the material in a meaningful and relevant way.

The criterion adopted here is believed to be more logical and intuitively appealing to a geographical approach to the field of environmental perception and behaviour than most of the classifications discussed earlier, and rather more exhaustive than Downs' typology. It is based on the resource paper prepared for the Association of American Geographers' Commission on College Geography in 1969 by Saarinen, which differentiated empirical studies according to the scale of the analysis. The methodological attraction of this scheme results from an ability to distinguish which problems, questions, results and approaches are relevant to the design of the present study, and how they have been examined or suggested previously in unrelated instances.

We can then appreciate how individual contributions relate

to the total sum of knowledge amassed by the subject. The original eight divisions of the A.A.G. Report have been amended here to six, and are discussed in increasing order of scale (Saarinen, 1969).

Micro-scale Investigations

1) Studies of Personal micro-space

Investigation of human behaviour at this micro-level developed from psychologists' and naturalists' studies of an animal's sense of territoriality, or the extent to which an animal considers itself dominant within a given area (see, for example, Esser et al., 1965; Edney, 1974; Calhoun, 1966). E. T. Hall used the term 'proxemics' to mean

> 'the interrelated observations and theories of man's use of space.'
>
> (Hall, 1966 p. 95)

He examined the works of Sommer (1959, 1966) and Osmond (1957) which were largely carried out in hospital wards, libraries and other institutions in the United States concerning the use people make of space, and which differentiate between sociofugal spaces, which act to keep people apart, and sociopetal spaces which encourage interaction. Much has to do with the micro-scale arrangement of chairs and tables within a given space, and, not surprisingly, what is sociopetal in one culture may be sociofugal in another.

Hall examined the types of space used by an individual and defined four distances used for different types of personal

contact - Intimate, Personal, Social and Public - which he represented as four concentric zones around the individual at maximum distances of eighteen inches, four feet, twelve feet and twenty five feet respectively. He further suggested that behaviour within each of these zones, and the zone selected, depended upon the nature of the transaction and the relationship between the individuals concerned.

The idea of 'personal space' (Sommer, 1969) suggested the concept of an individual's 'action space', the immediate physical area within which an individual lives, works and moves, and that area, therefore, with which he is most familiar. This concept of an individual's action space was particularly appealing to architects, designers, planners and environmental engineers, and became a focus of their attention. Kira considered the various uses which an individual makes of a bathroom area in an exercise aimed at the improvement of interior domestic design (Kira, 1966); Lipman, on the other hand, investigated personal space within the setting of housing projects for the elderly (Lipman, 1967) whereas Sommer (1969) and Manning (1965) have considered behaviour and personal space within offices and classrooms in the context of design and the internal organisation of the room.

Canter (1977) reviews similar studies of the use of space within hospital wards and discusses the technique known as 'behavioural mapping' introduced by Proshansky, Ittelson and Rivlin (1970) as a means of recording and analysing patterns of behaviour within such settings.

Territoriality possesses a long history dating back to the work of the human ecologists in the 1920s (see previous chapter)

whose models were borrowed from plant rather than animal communities. Not surprisingly, such crude analogies between human and animal behaviour are anathema to many behavioural geographers, and particularly to those adhering to the Marxist framework of analysis mentioned earlier, who see such work as negating the ability of human beings to act 'out of reasoned and rational thought' (Rieser, 1973). Such studies of personal micro-space are very much in the tradition of behaviourist rather than phenomenological psychology, and appear to many geographers to be profoundly deterministic.

Attention has been drawn to this group of studies in order to establish what research has been conducted at the individual and micro-scale before turning to the larger scale observations which more readily fall within the subject matter of Geography. Group perceptions are, rightly or wrongly, regarded as multiple agglomerations of individual responses to the environment, and Doherty is not alone in believing that it is the group image which is vital to geographic research (Doherty, 1969).

As Haggett pointed out, there is little to do with the unique, whether it be an individual, a specific behaviour, or, as in the original case, a region, except to contemplate its uniqueness (Haggett, 1965). Although this work is not concerned with studying personal micro-spaces or activity spaces, it is very much concerned with the validity of grouping individual responses towards an environment to produce a 'consensus' view. The small scale studies have been discussed in an attempt to illustrate the great conceptual and methodological gulf which separates them from the so-called 'grouped' perceptions which characterise the larger scale studies.

2) Neighbourhood - District Scale

One of the first pieces of published research which concentrated specifically on both the perception of and behaviour within urban residential neighbourhoods was again the work of a psychologist. In 1964, he argued:

> 'I think the most profitable way for the psychologist to help the architect is to develop and apply a theory of the way in which the human being perceives, learns about and reacts to space.'
>
> (Lee, 1964)

Lee's ideas had derived from Frederick Bartlett, who had explored the notion that an individual's mental representation of the environment, built up over a period of time from different experiences, enabled him to cope with that environment by providing a 'schemata' which could be referred to when required and enlarged and restructured as necessary (Bartlett, 1932).

The research which Lee conducted in Cambridge with a sample of 219 housewives applied the idea of a 'schemata' to a physical setting. He argued that none of the rigid definitions of the term 'neighbourhood' correctly balanced the physical and social elements inherent in the concept, and so he aimed to discover what kind of area constituted a 'neighbourhood' for the actual residents. The method he adopted was an extensive questionnaire, the most important part of which, in terms of relevance to the present work, involved each woman drawing a line on a base map to enclose the area which she considered to form her neighbourhood.

75% of those interviewed were able to communicate a well defined impression of their neighbourhood, and although each housewife was given a slightly different base map centred on her own home, considerable agreement was apparent between the maps drawn by people living in close physical and social proximity. Lee suggested that the well structured and dynamic neighbourhood area drawn by each respondent represented the 'figure' (schemata) which was outlined against the 'ground' of a dimly perceived urban background.

Several of the themes in Lee's study are of direct relevance to the present work. The most obvious is the common selection of housewives as the sample population. Lee believed them to be more easily accessible to the researcher amd to possess greater knowledge and more information about their own neighbourhood than any other member of the household, and there is no reason to dispute this view.

He also assumed that mental space was areally continuous, an inevitable outcome of asking his respondents to enclose their perceived neighbourhood with a solid line on the base maps which he provided. Although the women who formed the sample population in the present work were similarly requested to represent their 'local area' on a base map by any means they chose, the purposes were merely to ensure that information concerning their perceptions of their local areas was related to the correct locations. No meaning was attributed to the size or shape of the area represented, nor to the method of representation selected.

A related study in Boston, U.S.A., had as one of its aims:

> 'To develop an understanding of areas subjectively defined as neighbourhoods by urban adolescent black boys through their graphic representations of their neighbourhoods.'
>
> (Ladd, 1970 p. 74)

Florence Ladd asked her sample to draw maps of their neighbourhoods on blank sheets of paper, and grouped the types of maps she obtained according to the size of the area represented, the number of streets included, the number of landmarks, the organisation of the map, the identification and position of the subject's residence, and the overall accuracy of the map. She discovered that there was no clear relationship between perceived neighbourhood size and any of the factors that might be thought to influence it, such as length of residence in the area, distance between home and school, age, education and so on. But in the topical interest aroused by such details as the gross exaggeration of road width between black and white housing blocks, one of Ladd's conclusions is often missed:

> '.... we cannot infer that the subjects apprehend differently, only that their representations differ.'
>
> (Ladd, 1970 p. 83)

Bordessa chose a random sample of people in the southern suburbs of Liverpool, and asked them to indicate their perceptions of the housing and social class characteristics of ten districts of the city (Bordessa, 1969). More women answered his questionnaire than men, a tempting confirmation of Lee's choice of respondent. Bordessa believed that

the ability of a respondent to accurately perceive the content of certain districts of a city and inaccurately perceive others was to be explained by the nature of the districts themselves, and that the smaller the social distance between a district and a particular respondent, the more likely that respondent is to perceive the content of the district accurately (Bordessa, 1969).

This last conclusion is one which is specifically examined in the course of the present work, where it is expanded by hypothesising that the ability of an individual to perceive the content of an area accurately also reflects that person's attitudes towards residential areas and their constituent attributes in general, and his knowledge of, and attitudes towards the particular area in question.

Rieser (1972), Eyles (1968) and Peterson (1967) also investigated the perception of residential areas and neighbourhoods, but concentrated mainly on methodological problems and the measurement techniques appropriate to such situations. Eyles identified the inhabitants' group image of Highgate village, and showed how those respondents living beyond the village proper extended their definition of the village area towards their own homes, whereas Rieser worked in East London and provided a iseful critique of available measurement techniques which is more fully discussed in Chapter 3.

Peterson's contribution to the present work is more direct, though equally unwitting, since he attempted to formulate a

model of preference based on the perception of the visual appearance of residential neighbourhoods. He examined ten hypothetically desirable attributes of a neighbourhood by means of twenty three colour slides of differing types of area shown to a sample population. By means of Factor Analytic techniques, he obtained four orthogonal factors, accounting for 99% of the variance in the data. These were Closeness to nature (greenery, open spaces etc.),Age (of the housing), the quality of the photography and 'random noise'. By using pre-selected photographs Peterson largely determined the range of available responses, but several of his ten initial variables were considered, modified and eventually incorporated into the present study.

Another study of neighbourhood perception was conducted by Lansing and Marans in Detroit, where respondents evaluated their neighbourhoods in terms of the degree of 'pleasantness', the degree of openness, and the degree of interest. The research team then arranged for a professional planner to evaluate a sample number of neighbourhoods independently; the only group of residents with whom the planner demonstrated a significant amount of agreement were those possessing a measure of higher education, in common with the planner himself (Lansing and Marans, 1969).

The lack of a consensus perception between the 'planner' and the 'planned' has also been highlighted by Appleyard in Cuidad Guyana (Appleyard, 1970), who observes:

> 'When professionals plan new towns and cities they usually structure them so that they read well at an altitude of three thousand feet. What about the methods used by people on the ground ?'
>
> (Appleyard, 1970 p. 116)

In a related article, he suggests:

> '..... the evidence suggests that the urban vocabulary of architects and urban designers, while it may serve some purposes, is in fact substantially incongruent with the public's urban vocabulary.'
>
> (Appleyard, 1969 p. 154)

Boal approached the perception of neighbourhood rather differently, by using the action spaces of residents in the Shankill-Falls area of Belfast to define the sharp border in the mental space between the two religiously and residentially segregated neighbourhood groups. This combined the methodology concerning action spaces from the studies of personal micro-space discussed previously with that characteristic of studies in neighbourhood perception (Boal, 1969). Abrupt 'faults' in the perception surface of a city analogous to the sharp line dividing the activity spaces of the residents in Belfast evident from Boal's work, are another facet of the empirical part of the present research.

A sociological contribution to planning the urban environment was provided by Michelson (1966), who conducted unstructured, open-ended interviews with a sample of seventy-five Italian and Irish-Americans, in an attempt to establish their preferences for different types of urban neighbourhood and environment. He made a content analysis of the tape recordings from these interviews and pointed to

> '..... two elements of social diversity in the population as prominent for planning physical aspects of the city: value orientations and the nature and extent of social interaction.'
>
> (Michelson, 1966 p. 360)

The studies discussed so far in this section, and the majority of those in the following section, are examples of Downs' 'structural' category of space perception studies (although difficulties of interpretation arise over those studies dealing with preferences for neighbourhood environments). Into this group, Downs placed those investigations concerned with the identity and structure of perceived space - the Image element of our suggested process - and the vast majority of such studies have used the city as their basic observational unit, either as a whole, or in terms of its constituent areas.

There is a physical and theoretical link between the perception of neighbourhood districts and the city scale of investigation, and this lies in the work on the perception of paths and routeways, pioneered in the United States by such workers as Appleyard (1964), and Carr and Schissler (1969). Their overall study design and methods of notation owe much to Kevin Lynch (whose work is discussed more fully in the following 'city scale' level of analysis, and who was a co-author of Appleyard's 1964 book), but they have been concerned chiefly with the stimuli presented by the essentially linear environment experienced by car drivers and other commuters during their journeys along the expressways and freeways of the typical large American city. Their work's

> '..... principal focus is not on the aesthetic qualities of the highway trip, but rather on the way in which people achieve, organise and transform these sequential perceptions in forming a representation of such an experience.'
>
> (Carr and Schissler, 1969; p.9)

Their results are obviously of value to environmental designers and traffic engineers, who have used them to design more interesting, less hazard-bound routes. Again, few of these workers have been geographers, and yet they are dealing indisputably with the interaction of man with his environment and trying to provide relevant information in a form amenable to practical application for the improvement of an undesirable environmental situation.

Meso-scale Investigations

3) The City

The pioneering work at this level of analysis was undoubtedly Kevin Lynch's 'The Image of the City' published in 1960. Central to this work was the concept of 'The Image' put forward by Kenneth Boulding in a book of the same name four years earlier (Boulding, 1956). Although differing in terminology from Kirk's exploration of the geographical implications, Boulding shared the belief in the existence of two separate environments:

> '..... for any individual organism or organisation there are no such things as facts. There are only messages filtered through a changeable value system ..... at the gate of the image stands the value system demanding payment.'
>
> (Boulding, 1956 p. 11, p. 50)

Boulding suggested that man's image of the world and his own place in it possessed ten different aspects: a spatial image, temporal image, relational image, personal image, value image, affectional image, a conscious/unconscious dimension,

a certainty/uncertainty dimension, a reality/unreality dimension and a public/private dimension. The relative importance of each of these varies between individuals and between cultures and results in

> '..... a value ordering of potential acts and their consequences. The act which stands highest on the ordering will be the one performed, and as soon as it is performed a new ordering comes into view and a new act is selected.'
>
> (Boulding, 1956 p. 50)

He concludes

> 'We can now see all behaviour as governed by the image and its value system, Rational behaviour is that which is governed by that part of the image which is accessible to consciousness .... in the case of so-called irrational behaviour, however, both the expected consequences and the value scales may be hidden in the subconscious.'
>
> (Boulding, 1956 p. 54)

To a geographer, Boulding's simplistic schema presented several possible lines of investigation - to uncover the nature of the value system of an individual and the effect which it exerted on his behaviour; to determine the relative importance of each of the ten aspects of the image mentioned and to ascertain whether there were any others; to establish whether behaviour was the simple and inevitable outcome from a rank ordering of possible actions, and to investigate the nature of the image itself - what exactly it contained, and how its contents were organised and used by the individual possessing it.

Kevin Lynch was, in fact, a planner, and his book has subsequently become the authoritative work on the last named of these possibilities - the nature and structure of the image held by residents of an urban environment. (Lynch, 1960). He was not interested in spatial behaviour per se, but with which elements of the urban landscape inhabitants were concerned and how these elements were extracted from the Phenomenal Environment and formed into an image of the city within the individual's Behavioural Environment.

Lynch regarded environmental images as

> '..... the result of a two-way process between the observer and his environment. The environment suggests distinctions and relations, and the observer - with great adaptability and in the light of his own purposes - selects, organises and endows with meaning what he sees. The image so developed now limits and emphasises what is seen, while the image itself is being tested against the filtered perceptual input in a constant interacting process.'
>
> (Lynch, 1960 p. 6)

He continued

> 'Different environments resist or facilitate the process of image making ..... Each individual creates and bears his own image, but there seems to be substantial agreement among members of the same group.'
>
> (Lynch, 1960 p. 7)

Three important themes emerge from these extracts which are examined during the following chapters of the present work. First of all is the notion, evident elsewhere in the literature, that the purposes and intentions of the individual will direct, limit, influence or perhaps, even determine the image which he forms of 'reality'.

Indeed, this observation compares well with Boulding's comment that

> '..... we see the world the way we see it because it pays us and has paid us to see it that way.'
>
> (Boulding, 1956 p. 50)

and with Hall's truism of six years' later

> 'Man learns while he sees, and what he learns influences what he sees...'
>
> (Hall, 1966 p. 62)

Kaplan too, was of the opinion that

> 'We always know something already, and this knowledge is intimately involved in what we come to know next ..... We see what we expect to see, what we believe we have every reason for seeing ..... For we do not observe 'everything that there is to be seen'. An observation is made; it is the product of an active choice, not of passive exposure. Observing is a goal-directed behaviour.....'
>
> (Kaplan, 1964 p. 133)

There was also a good deal of evidence in experimental psychology to support the suggestion that the purposes of the individual could affect his image of reality; a lighthearted though pertinent one was presented by Bruner and Goodman (1947) who demonstrated that the size of gold coins was always perceived far larger by the poorest members of their sample groups.

Secondly, Lynch raises the fascinating possibility that some environments enable individuals to form images of them more easily than others - that the legibility and

imageability of areas, to use Lynch's own terms, varies. He then extends these two points and develops them into a third - the possibility of the existence of 'group images' of environments. The similarity should also be noted between Lynch's words ..... '.. the image so developed now limits and emphasises what is seen ..... ' with those of Kirk, speaking in a slightly different context:

> '..... yet, once established, each picture resists change and has a certain momentum.'
>
> (Kirk, 1963 p. 366)

The varying imageability and legibility of areas leads to a consideration of which types of environment are most easily read by the resident population and why this should be so. How does the purpose of the individual affect the image which is formed of reality ? How do pre-existing ideas concerning the nature of a specific area influence the way in which an image is formed of it and the content of that image ?

To Lynch's study therefore, is owed the initial formulation of some of the questions which are posed and examined in Chapter 6 of this work, concerning the images of different residential areas in the city of Leicester. However, for reasons more fully discussed in Chapter 3, none of Lynch's methods were adopted for use in the present research, but a brief description of the methodology which he employed will be helpful in assessing the contribution made by the empirical studies which followed his lead.

He selected three samples of members of the professional and managerial classes, thirty people in Boston, and fifteen each in Jersey City and Los Angeles. From a mixture of tape recorded unstructured interviews, more specific directed questions and accompanied walks through each of the cities he elicited a perceptual image of each urban environment consisting of the elements which featured most prominently in the view of each individual. As well as portraying these images in an imaginative form of 'elemental map', he reduced the image of each city so obtained to what he considered to be the five constituent elements:

Paths - 'the channels along which the observer customarily, occasionally or potentially moves'; for many people these are the dominant elements in their image, especially if they are familiar with the city (Lynch, 1960 p. 47)

Edges - 'the linear elements not used or considered as paths'; these were usually boundaries between two different areas of the city (p. 47)

Districts - a two-dimensional medium occupying large extents of the city ; a self-explanatory term, to which Lynch added the criterion that it should be equally recognisable from either the inside or the outside (p. 47)

Nodes - 'points - the strategic spots in a city into which an observer can enter and which are the intensive foci to and from which he is travelling ...'; these can also be the dominant element, or the second most important, after paths (p.47)

Landmarks - another point-reference....which remains external ; usually simply defined physical objects such as distinctive buildings (p. 48).

Perhaps it is no longer surprising to us that these five elements collapsed neatly into Haggett's new-found subject matter for Geography of points, lines and areas (Haggett, 1965) but in 1960, 'The Image of the City' came as something of a revelation, as the first systematic attempt to isolate and identify the structure of the image held by a population of its environment.

There are, however, several points to be raised about Lynch's study. His samples were both small and biassed in favour of businessmen, public officials and professional people in his three cities;negroes, middle class people, poor whites and ethnic minority groups were not represented. Equally, it is pertinent to question the dominance of 'paths' in an individual's mental image of space. Lynch believed that the major purpose of forming such an image was to permit the individual to move through space more efficiently, a belief shared by Downs and Stea (1977). Indeed, the earliest mention of imaginary maps, by Trowbridge in 1913, was in connection with orientation and direction finding in unfamiliar territory.

The very fact that Lynch accompanied his subjects on walks around each city, asked them for directions and for instructions about how to reach one location from another, meant that they were obliged to structure their answers by reference to paths and routeways. Hall suggests that the European practice of stressing paths and assigning names to them is not a world-wide occurrence, and is certainly not shared by cultures such as the Japanese, who stress the intersecting points (nodes) to which they assign names.

Houses, instead of being related in space, are related in time, and numbered consecutively in the order in which they were built. In this way, Hall warns convincingly against the dangers of cross-cultural application of techniques and theories without careful modification to the new situation (Hall, 1966 p. 99)

One of Lynch's conclusions suggested that

> 'Rather than a single comprehensive image for the entire environment, there seemed to be sets of images, which more or less overlapped and interrelated. They were typically arranged in a series of levels, roughly by the scale of area involved.'
>
> (Lynch, 1960 p. 85)

He doubted whether a consistently imageable and legible metropolis was, in fact, possible, and if it were, whether it would be recognised as such by its inhabitants.

The suggestion that mental space was not, then, areally continuous (as Lee had suggested in 1964) but rather fragmented was elaborated by several studies of the perception of the central areas of European cities. Klein, working in Karlsruhe, found that the perception of the form of the city centre depended upon the individual's location in physical space, since the perceived shape of the city centre was distorted in the direction of the individual's home, and the perceived location of the actual centre of the city was similarly misjudged (Klein, 1967).

In Amsterdam, Heinemeyer established that there was a positive relationship between the distance separating an individual's home from the core of the city and the perceived distance between the entrance to the city centre and the core

itself (Heinemeyer, 1967). In Berlin, Sieverts worked with a sample of children of varying ages and likened the growth of the perceptual image of the city to the development of the personality. He suggested that during childhood, the image consists of a series of disconnected districts and that rather later the perceptual image of the whole town emerges. Perhaps, in some socially or educationally underprivileged groups, the image might remain at an 'adolescent' stage, (Sieverts, 1967). Was this further confirmation of Lee's observation that members of the lower social classes possessed spatially restricted neighbourhoods and activity spaces, or did it mean, as Ladd had cautioned, that people did not perceive differently, but communicated their knowledge differently ?

De Jonge validated Lynch's methods and results in six Dutch towns, establishing that the most legible were those possessing a well defined and easily recognised street plan and structure, epitomised by the predominantly semi-circular paths characteristic of Amsterdam (De Jonge, 1962). Gulick investigated the image of Tripoli, Lebanon, also using Lynch's methodology (Gulick, 1963) and Goodey, Duffett, Gold and Spencer (1971) constructed a group image of central Birmingham. Appleyard's study of Cuidad Guyana has already been mentioned in a different context; unlike the image of the city held by the planners and architects, the inhabitants viewed their city as possessing an essentially linear form, (Appleyard, 1970).

Francescato and Mebane compared the inhabitants' views of two very different metropolitan areas - selecting Rome as an example of an old, artistic city, and Milan as an old industrial

city. Their aims were to investigate the image that citizens hold of their city, their attitudes towards that city and the relationship between various images and attitudes (Francescato and Mebane, 1973 p. 131). Their study is thus of direct relevance to the present work as one of the few dealing overtly with Image and Attitude as stages in the proposed Perception - Behaviour process, and with the links between them. In the light of Lynch's findings, their aims reduced to:

> 'a) The differences in the composite images of Milan and Rome
> b) Whether there are differences in the image maps drawn by age, sex, socio-economic or resident groups within each city
> c) Whether map sketching as a tool has limited applicability; that is whether some groups such as the less educated and older people will be less able or willing to use a tool which may be perceived as requiring a drawing skill.'
>
> (Francescato and Mebane, 1973 p. 132)

They restricted their samples, unlike Lynch, to middle and lower class inhabitants of each city; sixty in Rome and fifty eight in Milan. Although a higher proportion of elderly residents in both cities declined to draw maps, both Milan and Rome appeared highly legible, and there were no apparent differences in the images obtained from male and female respondents. In both cities, the spatial extent of the middle class maps was greater than that of the lower class maps, and there were further differences between native and non-native and between older and younger respondents (e.g. the under 30s placed more emphasis on streets than landmarks, whereas the

middle classes stressed districts rather than streets.)

However, despite using Lynch's methods in their study, Francescato and Mebane are well aware of a serious flaw in the approach:

> '..... only the complete analysis of the verbal responses will elucidate what importance physical elements have in the total picture of Rome and Milan, especially since verbal methods are less skewed toward favouring physical locational elements than mapsketching methods. Clearly, what people can locate on a map are streets, nodes, districts, landmarks and edges; they cannot put down how they feel about a city, what they normally do in it, what they like, dislike or deem important.'
>
> (Francescato and Mebane, 1973 p. 147)

The implications of this observation lead to a reassessment of the suppositions concerning the mental images of space possessed by different socio-economic groups, and particularly by those lower down the scale; their perceptions of their urban environment may not be amenable to the traditional academic map-drawing exercises inflicted on them by researchers, who thus unwittingly bias the results against them. Chapter 3 of the present work discusses this problem in greater detail.

Perhaps the most striking example of a spatially restricted urban image was obtained by Orleans from the Spanish speaking residents of Boyle Heights, a district of Los Angeles (Orleans, 1973). Their image of the city consisted only of a few city blocks in the immediate vicinity of their homes, and a small part of the 'Downtown' area - very little different in fact from the maps which they also produced to illustrate their neighbourhood. In contrast, the white upper-class residents of

Westwood, near the University campus, had a composite image of the city more resembling a detailed atlas map, with a very extensive knowledge of specific landmarks, districts and connecting paths.

Orleans attributed this to a variable of 'social contacts' and suggested that

> '..... respondents from narrower scale populations with more constricted social contacts had a more attenuated world view, frequently limited to an image of the city extending just a few blocks.'
>
> (Orleans, 1973 p. 126)

He continued

> 'We would expect to find in any city, indeed, in any differentiated aggregate of people, a mosaic of social worlds, each one productive of a distinctive environmental imagery ..... attention can be focussed on differences in environmental imagery from one social world to another.'
>
> (Orleans, 1973 p. 128)

The purpose of Chapter 6 of this work is to attempt to identify and focus on just these differences in the context of the differing images of residential areas in Leicester formed by three socially differentiated sample groups. Concerning the use of mapped images, however, Orleans was critical of the method of using blank sheets of paper to elicit them:

> '..... it appears that a mapped imagery is not necessarily consonant with knowledge of the environment elicited in a verbal form. ..... This much seems clear: a blank sheet

> of paper as a stimulus for obtaining a mapped image of the city is more of a liability than an asset. It confounds too readily the respondent's ability to make a map with knowledge he might have of the city but cannot represent in map form.'
>
> (Orleans, 1973 p. 129)

The evidence against the use of maps as the sole manner of eliciting accurate urban images is now so overwhelming that they have been extensively supplemented in the present study, and are used largely in an 'advisory' capacity alongside other data.

The problems inherent in using unstructured, verbal responses however, are equally acute, and fall natural prey to accusations of observer bias and subjectivity. This may in part account for the existence of those studies attempting to observe behaviour in a given situation and infer from this the nature of the individual's image or mental representation of the environment thought necessary to have produced that behaviour.

Adams, for instance, in a frequently quoted study, has suggested that an individual's view of his city of residence resembles a narrow wedge shape, and that this image will bias his knowledge of other areas and therefore, his propensity to move into them (Adams, 1969). Perceived housing supply will also vary with the consumers' image of the city, and if these images are indeed wedge shaped, then consumers will be possessed of a highly distorted information field on which to base their space-searching and residential relocation decisions.

Adams analysed three different samples of migrants within

Minneapolis at different time periods - 1890-95, 1920-25 and 1946-51. He divided each move into three items; the length of the move, the distance of origin of the move from the city centre, and the angle of the move with respect to the location of the downtown centre. He established that the distribution of the angles of move in each of the three samples was bimodal - the pattern which would be expected if his assumption of sector-specific moves were correct; people would move inwards or outwards from the city centre, but not laterally into another sector. Adams argued that if there were no directional bias then the angles of the moves would be approximately uniform or random in distribution.

It is neither pertinent nor necessary to discuss Adams' results in detail, but his conclusions give rise to a certain amount of concern. He certainly found evidence of sectoral bias in the pattern of residential relocation in Minneapolis during his selected time periods, but whether he found

> '..... ample basis for the argument that intra-urban movements of city dwellers depend on limited mental maps or mental images of the city .....'
>
> (Adams, 1969 ; p. 322)

or that this limited 'mental image' was wedge shaped is debatable. It may well be that he was unable to offer convincing proof of a correct assumption, but the backward leap in inference by attempting to infer process from observed pattern is neither defensible on the grounds of logical consistency, nor likely to further the advance of a process - oriented approach to an understanding of human

spatial behaviour. Pocock and Hudson (1978) also doubt the validity of Adams' approach and comment that his link between mental maps and mobility patterns is assumed rather than proven (Pocock and Hudson, 1978 p. 73).

Horton and Reynolds adopted a position similar to that of Adams and worked in the smaller urban setting of Cedar Rapids, Iowa, where their results lent further credence to the notion that individuals sharing similar residential locations in an urban area share similar images of the urban spatial structure. (Horton and Reynolds, 1971). Brown and Holmes, also working in Cedar Rapids, examined the sequence of the residential moves made by a sample of the population, and the relationship between these moves and the spatial structure of the city, (Brown and Holmes, 1971). In this case, their conclusions were that their research

> '..... finds little sectoral bias (i.e. in residential relocations) ..... By implication our work also does not support Adams' characterisation of the individual's perceptual image of the city as it relates to migration behaviour being essentially elongated, sectoral and wedge shaped.'
>
> (Brown and Holmes, 1971 p. 118)

To a certain extent, Rushton's concept of 'Revealed space preference' is also guilty of attempting to infer the process of perception from the analysis of observed behaviour. His claim that

> '..... the purpose of studying spatial behaviour should be to derive a description of preferences .....'
>
> (Rushton, 1967 p. 223)

is pursued in later works on a similar theme (Rushton, 1969 and 1971) and the debate concerning the existence or otherwise of sectoral mental maps continues. Johnston (1971) accepts that Adams' causal link is unsupported, but concludes, from his own studies of preference patterns of suburbs in New Zealand, that it may, after all, be valid. Donaldson, replicating the methodology of Brown and Holmes (1971), also in New Zealand, agrees (Donaldson, 1973).

Further discussion of this theme, however, is largely irrelevant. Even were we to establish without doubt that individuals possessed wedge shaped images of their city of residence (something which cannot be inferred simply from observation of their migration behaviour), we should still be no nearer an understanding of how these images are formed and how an individual makes use of them in his everyday spatial behaviour. Once again, we should wish to abandon the largely sterile position of the behaviourists in favour of the phenomenological stance.

Another group of studies which should be included at the city level of analysis, have not involved the actual structure of the image so much as perceptions of distance and direction within the city. Their concern has been with what has now come to be known as 'cognitive distance'.

Immediately after the second world war, an investigation was undertaken in Wolverhampton of the patterns of ration book registration for groceries by a sample of housewives (Brennan, 1948; Lee, 1962). It was expected that, according to the principle of least effort, the distribution of registrations would be roughly circular, centred on each grocery store, and

that each housewife would register with the shop nearest her home. In fact, the distribution more resembled a semi-circle with its base nearest the city centre. Many registrations, and therefore shopping trips, were made not to the nearest shop but to the nearest shop in the direction of the town centre.

Lee suggested that this work was of considerable importance to the planning profession (Lee, 1962); neighbourhood shopping centres should be situated on the downtown side of the unit rather than in a central location, in order to maximise the potential use by residents. The reasons for such choices, however, remained unclear. Did housewives, for some reason, prefer shops consistently located in the direction of the town centre, or was their image somehow distorted that they didn't realise that they were actually travelling a greater distance to patronise such shops, or was physical distance an inappropriate measure to use when considering this particular type of consumer behaviour ?

Lee tested Brennan's evidence again in 1970 in Dundee, and found that when two landmarks, equidistant from the observer were mentioned, the one lying in the general direction of the city centre was consistently perceived as being nearer, (Lee, 1970) It may be that here was another reflection of Lynch's words

> '..... the observer, with great adaptability and in the light of his own purposes, selects, organises and endows with meaning what he sees ...'
>
> (Lynch, 1960 p. 6)

or it may represent some centripetal force exerted by the city centre and as yet imperfectly understood.

Evidence has been produced to suggest that routes which include a large number of junctions, hazard points or moments of decision are perceived as being longer, in time and distance, than routes of identical length but simpler construction (Briggs, 1973; Day, 1976; Canter and Tagg, 1975; CadwalLader, 1976; Pocock, 1978). It has even been suggested that the number of roads to be crossed and whether the route involves negotiating corners or hills will influence whether a person will venture out to vote in a local government election (Taylor, 1973).

Methods of measuring and analysing cognitive distance have been suggested by Golledge, Briggs and Demko (1968), Lowrey (1970, 1973) and by Briggs (1976) who had suggested earlier that

> '..... cognitive distance is a function of both city structure and the behaviour by which this structure is learned.'
>
> (Briggs, 1973 p. 387)

The ways in which city structure is learned are still very largely unknown, although Pocock's work in Dundee has shown how complex shapes and interrelationships in the urban fabric are simplified when coded into an individual's image of that environment (Pocock, 1973).

These studies of perceived or cognitive distance are discussed here only in so far as they are relevant to the present work. Their findings suggest that it is likely that knowledge of an urban area, and of the different residential

areas within it, is almost certainly affected in some way by the distance separating the respondent from each of the other areas, and also by the distances between areas. In this sense, it is clearly perceived rather than actual physical distance which is important, and this may vary too with, for example, the degree of emotional involvement with the other area (Ekman and Bratfisch, 1965; Lundberg, 1973), or with the degree of similarity between a distant location and the respondent's own home location, and will probably bear little relation to straight-line physical distance.

The final group of studies at the city scale of analysis which are relevant to the problems addressed in the present work involve, in the main, the perception of shopping facilities. In 1960, Huff had proposed a model of 'Consumer Space Preference' which, although not capable of being made operational, traced the connections between the initial stimulus, the individual's value system and the variables affecting evaluation of and preference for the alternative actions available at each stage of the model of consumer behaviour, (Huff, 1960).

Downs' major empirical contribution concerned 'the cognitive structure of an urban shopping centre', Broadmead, in Bristol. He suggested that the image of a shopping centre is based on a set of nine structural and evaluative dimensions, and varies with the personal characteristics and relative location of the consumer. He too discovered that his chosen measurement technique biassed his results against the lower socio-economic and older age groups, and when he came to hypothesise on the existence of group images, he found that

> '..... at best one can argue that there is a functional relationship between the personal characteristics of the perceiver and their spatial image.....'
>
> (Downs, 1970c p. 300)

Hudson and Harrison both used the methodology of repertory grid tests (see Chapter 3 for a more detailed discussion) to investigate consumers' images of the available shopping facilities and retailers' images of the same, respectively. Both were working in Bristol at the same time as Sarre was using the same techniques with a sample of twenty housewives in Bath to elicit their images of the city (Hudson, 1974; Harrison and Sarre, 1975; Sarre (1973).

Studies such as these which involve a degree of evaluation by the subjects of some specified entity overlap into the next scale of analysis in which the empirical studies divide fairly evenly between Downs' categories of evaluative and preferential components of space (Downs, 1970 a).

4) 'Countryside' scale

The remaining evaluative studies are concerned largely with physical phenomena and are consequently not of direct relevance to the present work. Their generalisations are of interest, however, mainly in highlighting the importance of recognising distinctive and differing group images rather than providing us with a means of measuring them.

Studies concerning the perception of the physical environment have pointed to immense problems involved with attempts to measure something as intangible and subjective

as an individual's response to stimuli emanating from 'landscape' or 'the countryside'. Clearly, far more than a simple visual image is involved, and equally clearly, the nature of this image in all its complexity, is of interest and relevance to planners, architects, designers, recreationists and engineers as well as to the academic geographer.

The majority of studies in this field involve the perception, evaluation and adaptation to natural environmental hazards, of which floods have probably occupied the bulk of the published literature. Development of this line of research was already well underway by the time behavioural geographers realised its full potential, having originated with Gilbert White and a team of colleagues in the University of Chicago immediately after the second world war. Their first projects concerned human adjustment to floods and flood threats (White, 1945), to which have subsequently been added drought (Saarinen, 1966), frost (Jackson, 1974) earthquake (Kates and Haas, 1973) snow (Rooney, 1967) and a host of other natural disasters, collated in volumes such as White (1974) and Burton, Kates and White (1978). Natural hazards in general have been dealt with by Kates (1971) and Burton and Kates (1964).

These studies have demonstrated how the degree of accuracy in the perception of a hazard increases with its frequency of occurrence, and with the experience and length of residence of the individual within the affected area, but decreases with greater age of the individual and the length of time which has elapsed since the last disaster. The manner

in which the hazard is perceived and the alternative courses of evasive action evaluated by the individual, determine his behaviour in adapting to the uncertainty, and the success of his economic enterprise in the affected area.

It is not, perhaps, stretching the point too far to again draw parallels between Lynch's observations concerning the purposes of the individual influencing his perceptions of a given situation and the work on natural hazards. Preconceived notions, or more correctly, established images about the type, frequency or severity of the threat characterise natural hazard research, and are often the major stumbling block to the prediction or adaptation of behaviour. Nothing comparable to Lynch's study of the urban environment exists for the natural, physical environment, however, and the dangers of subjectivity, inaccuracy and imprecision are as great as they are in studies of man-made environments with which the human geographers are more usually preoccupied.

Research into the perception of natural resources, like natural hazards, again closely concerns the interaction of man with his environment, and has added further proof to the suggestion that the proposed use of a resource will affect the way in which it is perceived and the image formed of it. Such work has a direct bearing on the 'feedback' loop between Behavioural Intention and the Image elements of the Perception Behaviour process proposed for the present work.

A resource does not become 'a resource' until it has acquired significance as such in the individual's Behavioural Environment. It is not sufficient for it merely to be recognised; a meaning, value or significance must be attached to it before use of the term 'resource', implying future use,

is justified. Presumably, the world contains many potential resources which we have not yet discovered; similarly it is likely to contain many other features of which we are aware but which have not yet assumed significance as resources for us. Chapter 4 of this thesis argues a similar case for the image of an urban, indeed any, environment; an image cannot be said to exist unless it possesses a measure of meaning and communicates that meaning to the individual possessing it.

For this reason, studies of landscape perception and evaluation are more properly considered under the umbrella of natural resources, since landscape is being investigated as an actual or potential resource, and attempts are being made to measure its size and assess its significance for various people and in various locations before deciding on the appropriate course of conservation or exploitation.

Lucas found that there were two very different views concerning the definition of a wilderness area held by the planners and managers of the area on the one hand, and the prospective recreationists on the other, (Lucas, 1964). Differences in the views of planners and residents have already been mentioned in connection with studies in Detroit (Lansing and Marans, 1969) and Cuidad Guyana (Appleyard, 1970). Costantini and Hanf (1972) were concerned with the differing perceptions of the environmental and ecological decline of the Lake Tahoe Basin area on the border of California and Nevada. They interviewed

> '303 persons, who, by virtue of their acivity, position and reputation were identified as having a significant impact on environmental decision making in the Lake Tahoe Basin.'
>
> (Costantini and Hanf, 1972 p. 212)

They were able to demonstrate that there existed different levels of concern among these decision makers, and concern was lowest among the local officials (ironically those with the greatest amount of power) and among those people who actually lived in the basin area; friction was very likely to occur between the residents who felt that they needed the development accompanied by the noise, cars, building and pollution which was causing concern to the 'outsiders' who owned weekend cottages or holiday property there. Yet again, different purposes were creating different images and hence different attitudes.

Shafer (1969), in dealing with what he terms 'natural environments' suggests that the most important question which a planner may need to answer is not how people react to and feel about a whole area, so much as how the total variation in that environment is distributed among its various elements. He also used factor and multiple regression analyses to determine the quantitative variables in photographs of landscape which were significantly related to public preferences for those landscapes in an attempt to produce a technique which would be of use to resource planners, (Shafer, Hamilton and Schmidt, 1969).

Spoehr, relating his work to Human Ecology, examines how different cultural groups will interpret natural resources, whether animal, mineral or vegetable or 'total' landscape, within the framework of their own social structure, (Spoehr, 1956). Sonnenfeld has demonstrated how the images of the Arctic environment vary between native and non-native Eskimo in different locations (Sonnenfeld, 1967).

Several observations have been made concerning the difficulties posed by measuring perceptions of the physical landscape. One of the earliest systematic attempts was made by Fines (1968), and although subsequently much criticised (see, for example, Brancher, 1969), it is interesting to note that the problem is still sufficiently unresolved and controversial to warrant examination in an entire recent issue of the Transactions of the Institute of British Geographers (Number 66, November 1975).

However, it is to be regretted that this particular examination did not offer any concrete suggestions or reliable guidelines for future research on the topic. Although such a collection of pertinent references and reviews is undoubtedly welcome, one is left with the impression that this is perhaps the one branch of Behavioural Geography which has not made significant progress during the last ten or fifteen years. Several reasons may account for this lack of development.

Firstly, landscape perception and terrain evaluation have been dominated by physical geographers, and relevant work concerning the perception and evaluation of neighbourhood or city landscapes by human geographers and planners has not been incorporated into the field. Secondly, there has been a consequent failure to examine the potential contribution from psychology, and particularly from attitude theory, towards interpretation of the environment. Finally, there has been a confusion evident in the literature between landscape evaluation by the people actually living, working and enjoying their leisure time in specific areas, and the type of terrain

evaluation promoted by David Linton, a much more detached exercise, performed as a kind of shorthand, at some distance from the landscape concerned, by an 'outside' observer (Linton, 1968). The difference lies between landscape experience (Fines, 1968; Shafer, 1969) and Linton's landscape description, which has been criticised by various writers (see, for example, Gilg, 1974).

Related to the landscape perception studies are those which have attempted to reconstruct the Behavioural Environments of decision makers in the past. Brookfield (1969) suggested that the problem of error first arose to the historical geographers who were faced with assessing and explaining past errors or 'irrational' decisions or perceptions.

Several geographers have examined the regional geography of areas as seen by famous authors or literary figures (Darby, 1948; Paterson, 1965; Buchanan, 1968) and others have shown how the conflicting and fluctuating perceptions of virgin territory influenced the behaviour of early settlers (Jackson, 1978; Lewis, 1962; Watson, 1969).

Macro-scale studies

5) National scale

Studies conducted at this level of analysis fall almost exclusively into the 'space preference' category of Downs, 'preferential perception' of Goodey and 'environmental space preference' of Bordessa (see Table 2.1). The designations are virtually interchangeable, and all are concerned with the

'Preference' element of our proposed Perception-Behaviour process.

Among the earliest attempts to identify a national view of an entire country were those of Lowenthal and Prince (1964, 1965), in which they constructed a view of 'the English landscape' and 'English landscape tastes'. These were subsequently extended to 'the American scene' (Lowenthal, 1968), and similar, though deliberately satirical portrayals include the New Yorker's and Bostonian's images of the United States and the Londoner's supposed image of the north of England (reproduced in Gould and White, 1974).

By far the greatest volume of work on preferential perception and that which is of most relevance to the present work, has involved the use of 'mental maps', discussion of which has been postponed until now. The term 'mental map' is, at one and the same time, easily the most familiar, but overworked, ill-defined and misused concept in the entire repertoire of geographic space perception methodology.

It is a term which owes its geographical origin to Peter Gould, who offered what he described as:

> '..... a limited enquiry into the mental images that men have of geographic space.....'
>
> (Gould, 1966; p.182 in Downs and Stea,1973)

entitled 'On Mental Maps'. He continued:

> '..... I offer you no theories or even explicit hypotheses. On the contrary, you will find only unstructured, intuitive hunches and interpretations pushed, in many cases, beyond the limits that the data allow. Of these speculations, many will undoubtedly be wrong. They will have served their purpose and more if they stimulate others to replace them with better notions.'
>
> (Gould, 1966; as above, p. 182)

In the years which have elapsed since publication of this work, it is clear that the concept has certainly stimulated a large number of other studies concerning the perception of space and, in particular, residential desirability, the topic with which Gould originated the term 'mental map'. Gould himself later ascribed to it 'a modest catalytic role' (Gould, 1973 p.218). Unfortunately though, the sudden rush of similar investigations has led to confusion and misunderstanding rather than clarification and explanation, and once again, an 'intuitive hunch' has been frequently misapplied and incorrectly evaluated, and the 'results' deemed to invalidate the concept rather than its manner of application. One thing only is clear: that 'better notions' have not yet appeared to displace mental maps from the forefront of Behavioural Geography.

Turning to the definition offered by Gould and White in 1974:

> 'We can think of any shared viewpoint, and the mental map we construct to represent it, as a model, for a model is simply an abstraction, simplification and compression of reality ..... In the same way that a mathematician can formally map many items of one set into one item in another, so the geographer takes many individual viewpoints and transforms tham into a single, overall mental map.'
>
> (Gould and White, 1974 pp.52,53)

it is clear that Gould and White envisaged a mental map as a model, constructed by the researcher, and representing as simply but accurately as possible, the total shared viewpoints of space preferences of a group of individuals.

> 'We would like to partition the total variation in space preferences for a given sample of people into those portions that indicate general or common viewpoints and those that represent unique portions that may be assigned to individuals. It is for this reason that the problem has been approached through principal components analysis.'
>
> (Gould, 1966; p.186 in Downs and Stea, 1973)

The 'total variation in space preferences for a given sample of people' was obtained by asking the sample to rank other areas of their country, in the first case the United States, using the forty-eight contiguous states, in terms of residential desirability. (States of Ghana and Nigeria, and the countries of Western Europe were also covered in the same paper; the counties of Britain were dealt with by Gould and White, 1968) Correlation matrices were obtained from all the rankings, and were used as input to a principal components analysis. The factor loadings resulting from this were used to derive regional scores which served as control points for drawing contour lines, or isopleths, of residential preferences, thus producing 'a contoured mental map or perception surface' (Gould and White, 1974 p. 68).

The outcome of these studies is almost too well known to require description; 'ridges of desirability' occupied the south coast of Britain and the west coast of the United States; 'domes of preference' were evident over the English Lake District and Colorado, and 'perceptual sinkholes' over Dakota, the American 'deep south' or the London metropolitan area.

One feature which sometimes escapes notice from these related studies is of importance to the present thesis.

In their study of the mental maps of British school leavers, Gould and White remarked on the existence of a local 'dome of preference' centred on the respondent's home area. The degree to which this dome appears in the overall perception surface depends almost entirely on the location of the perception point. If it is situated in an area of universally high preference, the local dome is likely to be subsumed below the general surface, but if it occurs in an area of low preference, it will stand out above the general surface. They summarise the effect of a local dome of preference thus:

$$S = G + L$$

where S = the specific surface as perceived at a particular location

G = the General National surface

and L = the Local Dome

(Gould and White, 1968 p. 169)

It is not possible, though, to model any particular surface simply by adding a local dome to the national overall surface without taking into account the location of the perception point and its distance from the most desirable area. For this reason, the existence of a local dome is most clearly seen, in the British example, in Scotland, at the greatest distance from the major ridge of desirability over the south coast.

The existence of domes of preference had been apparent in Gould's evidence from Ghana and Nigeria (Gould, 1966), and he

had suggested that a fairly simple perception surface would describe the national pattern accurately and enable the local anomalies to be separated from the general trends. He achieved this by the use of the technique of Trend Surface Analysis, and interpreted the anomalies from the overall trends as

> '..... the power of the urban centres to cast especially bright images in the minds of men.....'
>
> (Gould, 1966; p. 209 in Downs and Stea, 1973)

The use of Trend Surface Analysis appears ideally suited, both in terminology and methodology, to the problems of eliciting a general perception surface, and the possibilities of isolating specific locational anomalies, such as 'domes' or 'sinkholes' from that surface. In a similar context, Doherty, working on residential preferences in the United States observed that it would be interesting to know at which scale these locational differences were replaced by other differentiating factors, such as age, social class or education in the perception process, (Doherty, 1968).

As a result of the challenge posed by these unanswered questions, one part of the empirical section of the present study involves an experimental application of Trend Surface Analysis at the urban scale of investigation, in an attempt to examine both locational and socio-economic influences in the Perception - Behaviour process, (see Chapters 5 and 8).

Doherty's study and a similar one by Goodey (1968) investigated the space preferences of samples of American students, and both added valuable detail to the general

perception surface identified by Gould. Until this point, the samples, research methods and results were broadly comparable, if somewhat restricted to a student viewpoint. Students presented an accessible, captive audience to research workers in the field, but in terms of age, experience and geographical knowledge, a very biassed one.

Although Gould had thought it probable that information was stored by the individual in some type of mental image or preserved in a manner reminiscent of Lee's schemata (Lee, 1968), he made it quite clear that the 'mental map' was his formulation alone, and that he did not necessarily attribute such a map to the mind of each and every respondent. It was a post-hoc rationalisation of ranked lists of preferences, made by the researcher rather than an accurate 'picture of men's minds'.

The mental maps of Merseysiders' of their conurbation were subsequently investigated by Falconer (1968) and the views of Britain by schoolchildren and students respectively by Brandwood and Simmons and Young (Brandwood, 1968; Simmons and Young, 1968). Of these, only Simmons and Young used methods similar to those of Gould, and only Falconer used city residents rather than University Geography students.

Very frequently, the researcher's definition of a mental map is either unclear, or evidently at variance with that of Gould, which leads one to question whether these results are directly comparable, either with each other, or with Gould's work. Those studies concerned with the actual shapes of 'mental maps' appear to be most at variance with the original concept, in that they imply that an individual possesses a map

in three-dimensional form of the type produced by principal components analysis, somewhere in his mind, the nature and distortions of which it is the sole duty of the researcher to establish and explain (Adams, 1969; Donaldson and Johnston, 1973; Horton and Reynolds, 1971; Johnston, 1972).

In a review of mental map studies, Johnston concludes that the overall assessment, both of their past and future, is pessimistic (Johnston, 1973), and Hart and Moore appear to regret that the area of research which they prefer to term 'environmental dispositions and preferences' was ever called mental mapping in the first place (Hart and Moore, 1973 p. 249). Confusion in the literature would appear to stem from a failure to distinguish between perception as a process, and perception as a product of that process, and from the consequent failure to recognise the act of perceiving the environment, the actual image so perceived and eventual behaviour as different but related parts of the same process.

If we clarify 'perception studies' as 'studies of process' and 'mental maps' as post-hoc rationalisations by researchers of one stage of the resultant spatial patterns of that process, then it is clear that each has an independent though complementary role to play in our attempts to understand, and ultimately explain, the operation of the Perception - Behaviour process.

Nowhere in the literature is there convincing proof that an individual possesses a recognisable, two or three dimensional map of the type suggested by Gould or Adams. Admittedly, by the very nature of their training, Geographers are able to map almost any kind of data, but we must beware of attributing to

a sample population a concept or phenomenon which may have little or no meaning for them.

The assumption made by Downs and Stea that

> '..... we believe that a cognitive map exists if an individual behaves as if a cognitive map exists .....'
>
> (Downs and Stea, 1973 p. 8)

is untenable in the light of our argument, despite the fact that they view 'cognitive maps' as a more embracing term than mental maps, including a degree of evaluation and meaning. The assumption of omnipotence on the part of the researcher who is supposedly able to decide whether his observed sample is behaving 'as if' a mental map exists reminds us yet again of Lynch's observer who, 'in the light of his own purposes selects, organises and endows with meaning what he sees ..... ' (Lynch, 1960 p. 6). (For a more detailed discussion of 'as if' thinking in the context of the present work, see Chapter 4.)

6) International scale

The major contribution for Geography to an understanding of the process of perception at an International scale has come from Yi Fu Tuan, whose aim has been to illustrate the wide gulf separating the attitudes and behaviour towards the environment of different cultures (Yi Fu Tuan, 1968, 1974).

Western christian civilisations for example, regard nature as subordinate to and capable of being exploited by man,

whereas the Chinese traditionally view themselves as an integral part of nature which must therefore not be dominated by them. Basic philosophies and religious beliefs of this type can, on a small scale, determine the locational arrangement of the smallest village or forest clearing; on the large scale they will undoubtedly influence how man perceives his role of interaction with the environment and how he develops and organises his society.

Lowenthal (1961), Lynch (1960) and Hall (1966) all support the thesis adopted by Yi Fu Tuan, and the detailed language systems of certain ethnic and cultural groups, which reflect objects and phenomena of perceived importance, receive attention from all three. Much of their inspiration derives from Benjamin Whorf, in whose study of the language of the Hopi Indians we find the claim that no individual is entirely free to describe his environment with absolute impartiality since he is constrained to certain models of reality and modes of interpretation by his language (Whorf, 1953).

Indeed, the very existence of a multitude of different languages throughout the world may play a prominent part in moulding different perceptions of it, and will almost certainly predispose some groups towards a greater ability at expressing environmental, spatial or locational information. Clearly those tribes such as the Nuer or the Aleuts, who possess dozens of different words for minutely differentiated physical features, climatological occurrences or aspects of animal husbandry, will provide very different data and results for the researcher interested in cross-cultural differences in perception from the tribe whose vocabulary does not differentiate between

the sun and the moon (see, for other examples, Lynch, 1960 pp. 123 - 137).

Hall contrasts the different uses of space made by Western Europeans, the Japanese and Arabs, and suggests that many of the supposed conflicts in behaviour between such groups may in reality be the result of cultural differences in the perception of a situation, rather than inherent differences in behaviour itself, (Hall, 1966 p. 139-153). Similarly in this vein, it has been suggested, both by Hall (p. 172) and, more recently by Davies and Huff (1972) that the inability of negroes to secure employment in areas of numerous job vacancies may in part be due to white, middle class American interviewers not recognising or misinterpreting the behaviour by which the negro applicant demonstrates his enthusiasm for the post, and partly to the unconscious bias of that same white American in structuring urban space by means of cartograms, street plans or verbal directions in a form which is incomprehensible to a negro.

Such image differences between cultures and between states have inevitably been a focus of interest for politicians and others working in the fields of conflict resolution, political science, international relations and political geography. Since conflicts between national groups are most likely to occur at the boundaries between them, it is not surprising that a few political geographers, in their more traditional role as students of frontiers and boundaries should have devoted themselves to considering how international boundaries are perceived and reacted to by those living in close physical proximity to them or by the decision makers in

the countries which they separate.

Ironically, the major contributions to this part of our knowledge of the Perception - Behaviour process have involved two of the most 'open' political boundaries in the world. Reynolds and McNulty formulated a perceptual approach to the Canadian/United States border, and Thomas Lunden investigated the locational knowledge, attitudes and behaviour towards the Norwegian/Swedish boundary (Reynolds and McNulty, 1968; Lunden, 1973, 1974).

Lunden demonstrated that school text books greatly biassed the locational information available to children living only a few kilometres apart but on different sides of the boundary, and Gould compared the effect of this same boundary on the information surface of children in the area to a geological fault line (Gould, 1975).

Perhaps by definition, the irony is inevitable since objective comparable research on both sides of the Sino-Soviet boundary or the Berlin Wall is clearly not feasible at the present time. However, even so-called 'open' boundaries act as barriers to the flow of people and information, and in this respect their effects may not be so dissimilar.

With this consideration of the perception of International frontiers, the wheel has come full circle, and we are effectively dealing once more with local 'neighbourhoods' or 'activity spaces'. At the opposite extreme, some of the most recent works dealing with differing personal and cultural responses to space and the environment have become almost aspatial and scale-less in their approach. Titles such as'The Experience of Landscape'(Appleton, 1975), 'Place and Placelessness'(Relph,

1976) or 'Space and Place' (Yi Fu Tuan, 1977) illustrate the beginnings of this trend.

During the course of this chapter, we have examined a large number of studies already conducted in the fields of Behavioural Geography and Environmental Perception. Many of these are germane to a better understanding of the operation of the Perception - Behaviour process investigated here. A major stumbling block to further development in the subject, however, is the problem of measurement and interpretation of subjective, mental processes and intangible concepts such as images, or desirability, or perceived distances. Chapter 3 therefore examines the problem of measurement in Behavioural Geography in greater detail, in an attempt to suggest how the measurement of the various elements of our proposed Perception - Behaviour process might best be approached.

3

Measurement

> 'Whether we can measure something depends not on that thing, but on how we have conceptualised it, on our knowledge of it, above all on the skill and ingenuity which we can bring to bear on the process of measurement.....'
>
> (Kaplan, 1964; p. 176)

Acceptance of Kaplan's observation suggests that the almost complete failure by geographers to devise valid, indigenous measurment procedures for the study of environmental perception in the early stages of the subject reflects their lack of adequate conceptualisation of the problem rather than any inherent contradictions or shortcomings in space perception itself.

The process of measurement in science depends on the existence of a certain degree of theoretical understanding of the problem, not only because this illustrates precisely what is being measured and why, but also because the answers to these questions suggest the appropriate set of rules for dealing with the situation. As Harvey points out:

> '..... complex theoretical concepts such as utility, welfare, stress, and the like, prove extraordinarily difficult to measure, simply because we do not know enough about the actual meaning of the concepts themselves.'
>
> (Harvey, 1969; p. 316)

The early stages of environmental space perception is another excellent example of an inadequately conceptualised subject. As a result, it occasioned numerous conflicting

definitions and a bewildering array of frequently non-comparable measurement procedures and research results, some of which have already been highlighted in the previous chapter.

A cursory glance through the literature discussed in Chapter 2 may well leave the impression that a number of basically very similar studies are differentiated only by the measurement techniques which they employed, and that during the first few years, almost any new dimension which could be brought to bear on the topic was 'worth a try'. In such a haphazard situation:

> 'Either the research starts from the right point and is executed badly, or it starts from the wrong point and so it does not really matter how it is executed.'
>
> (Cullen, 1976; p. 400)

The dangers and difficulties stemming from the lack of a conceptual framework were cogently argued by Downs in a series of papers towards the end of the 1960s (Downs, 1967; 1968; 1970). Whilst certain aspects of the schema and classifications he proposed gained limited currency in a few works, none attained widespread acceptance, and twelve years later the subject is still without the characteristically indisputable subject matter apparent in Social or Economic Geography.

This may in part be due to the interpretation of the essentially interdisciplinary nature of environmental space perception within Social Science, and its consequent lack of definitive boundaries, as a drawback rather than an

advantage. This opinion stems not only from the old exceptionalist traditions in Geography but also, one suspects, from a lack of understanding of the nature of the contribution which the other Social Sciences can make to Geography, and Geography's complementary role in the wider spectrum of Social Science. The absence of a framework is also, perhaps more importantly, due to the failure of geographers to fully comprehend the finer complexities and implications of man's perception of and subsequent behaviour in space.

The difficulties are undeniably immense, but it is unlikely that the successive application of different, albeit precise and imaginative measurement techniques will suddenly cause a raison d'etre for the subject to emerge magically from a mental map or principal components analysis. If, however, the raison d'etre is identified first, then the measurement procedures consequently suggested will successively refine it and contribute additional and valuable credence to it.

In order to better illustrate the general points and criticisms made here, it is necessary to consider the measurement techniques which have been applied in space perception studies, and in analyses of behaviour, and to examine the problems which they have solved or created. This in turn will lead to a consideration of those procedures which have been developed in Psychology and whose relevance to problems in Geography has now been established. In this way we shall be able to set those measurement techniques adopted for the present research in their proper context.

Hopefully it will be clear from such an analysis that the fact that we are still a very long way from a total measurement of man's perceptual experience of his environment does not invalidate studies of space perception or relegate them to the shadowy realm of the non-scientific. Rather it is a condemnation of the practitioners in the field, partially mitigated by the unprecedented difficulties connected with their work.

This view is shared by Harvey:

> 'Given the growing interest in the behavioural aspects of location ..... it is important that the bases on which we measure be clearly understood. It cannot be denied that our methods of measurement in these areas of research leave a great deal to be desired. This is in part due to the inherent difficulty involved in measuring 'images', 'values', 'satisfaction', 'utility' and the like, but it also results from a failure to grapple with basic methodological problems.'
>
> (Harvey, 1969; p. 322)

The rest of this chapter is therefore devoted to an examination of the role of measurement in Behavioural Geography, encompassing

a) what is meant by measurement ?

b) the nature of the measurement procedures used in Behavioural Geography and related subjects to identify the 'Image' stage of the proposed Perception-Behaviour process

c) the nature of the measurement procedures used in Behavioural Geography and related subjects, most

particularly Psychology, to measure the 'Attitude' and 'Preference' elements of the proposed Perception-Behaviour process.

The Role of Measurement in Behavioural Geography

a) What is meant by measurement, and which types of measurement models are appropriate ?

Before considering the many independent applications of differing measurement techniques evident in the literature, in an attempt to identify some order in the apparent chaos, it is pertinent to discuss what, exactly, these measurement procedures were trying to achieve. What is meant by 'the process of measurement' and why has it created so many problems for this particular branch of Geography ?

Complex works examining the philosophy and methodology of measurement are numerous, although those relating to problems of a specifically geographical nature are few (see Harvey, 1969). It is necessary though, to recognise that geographers are not working in a methodological vacuum. Most writers in the field agree that measurement is the process of assigning numbers to events, attributes, objects or situations, according to a set of rules, and it is important to appreciate that the sets of rules which geographers follow, although frequently modified for their own purposes, have, in the main, been defined for them already by others in the Social Sciences. So the geographer's task is largely one of examining the available sets of rules and deciding which are the most appropriate for the cases he

wishes to consider. Precisely because some of these cases have not been investigated before, however, Geography has begun to find itself in the position of requiring new techniques.

Following so hard on the heels of the 'Quantitative Revolution', (Burton, 1963) the behavioural approach to the subject, emphasising the more human and frequently intangible aspects of the spatial organisation of society was seen as an opposing view, the subjective study of human thought processes and decisions rather than the cold objectivity of precisely measured scientific facts.

Bitter and vociferous arguments raged during the 1960s concerning the inherent superiority of the one form of investigation over the other, in the belief that they were mutually exclusive. One gained the impression that some proponents of the 'quantitative' side rationalised Behavioural Geography as being so much concerned with the human, psychological dimensions of behaviour as to be unmeasurable, and indeed it probably was so according to the methods of analysing point patterns and areal distributions then in vogue with the 'quantifiers'. Others, arguing the Behavioural Geography cause, prided themselves to such an extent on their unassailability as to dismiss quantitative studies as irrelevant and inapplicable to the study of human populations (the works of Yi Fu Tuan and Anne Buttimer discussed in Chapter 2 illustrate this particular attitude well).

Fortunately, though, many would agree with the view which places 'quantitative' and 'qualitative' studies on a continuum, such that:

> 'In science, quantity is not the polar opposite of quality ..... in principle, it ought to be possible in all spheres of our understanding to improve the quality of our understanding by some form of quantification.'
>
> (Harvey, 1969; p. 308)

Any adequate measurement procedure aiming at such quantification should be both valid and reliable; that is, it must measure accurately what it is supposed to measure, and in so doing, should produce consistent results over time and with different observers. The potential sources of error, of which Kaplan identifies four, should of course be recognised (Kaplan, 1964);

a) observer error - occurs where the observer is not completely objective, and varying degrees of subjectivity or bias enter the procedure

b) instrumental error - results from inadequate or inaccurate measuring instruments

c) environmental error - results from changes in the environment which affect either the observer, the measuring instrument or the object being studied

d) error of the observed - can result from the object being measured varying through time, or from interaction occurring between the observer and the observed. This particular problem is even more relevant in studies of environmental perception than the other three sources of error, since a classic example occurs in questionnaire work, where it is virtually impossible for the researcher to avoid influencing the interviewee in some way.

Perhaps we can take assurance from Kaplan that

> 'Freedom from bias means having an open mind, not an empty one .... fortunately, science does not demand that bias be eliminated, but only that our judgement take it into account.'
>
> (Kaplan, 1964; p. 375, 376)

Broadly speaking, measurement procedures in the Social Sciences can be divided into two categories, both of which have been extensively used in Behavioural Geography; they are the simpler scalar systems and the more recent and complex multi-dimensional scaling models, which are approaching a high degree of sophistication.

Simple scalar measurement techniques

This group consists of four types of simple scaling procedure.

a) Nominal scales are the simplest, whereby objects are labelled, classified or designated by the assignation of a number. The numbers so affixed possess no mathematical properties, and since this system amounts more to a classification device than a measurement of attributes of objects, its status as a true measurement device has been questioned, and even dismissed by some research workers (Torgerson, 1958).

b) Ordinal scales enable sets of objects to be ranked in order of magnitude, but contain no information regarding the size of the gap separating adjacent scale positions. It is not possible to say, for instance, whether the gap between second and third choice in a ranked list is equal to, less than or greater than

the gap between eighth and ninth positions, or whether the subjective distance between second and fourth choices is similar to that between seventh and ninth choices. As such, it is a rather primitive measuring device, but one which possesses many popular and frequently used variants. Preference rankings in the studies of residential desirability reviewed in Chapter 2 are obtained in this form; the naming of hurricanes in alphabetic sequence is another example.

c) Interval scales remedy a deficiency of ordinal scales since it is possible to measure the distance separating two positions on the scale. Any neutral origin is arbitrary, and statistical manipulations cannot be made on the actual numbered positions, although they are possible on the differences between positions, and linear transformations of data (from Fahrenheit to Centrigade for example) on an interval scale preserves its original form and sequence.

d) Ratio scales also possess equal numbered intervals, although the neutral point is not arbitrary, and absolute values can be obtained. Since the zero point and the intervals are constant, a wide range of statistical and mathematical functions are possible, and many of the classical methods of statistical analysis require data at least of the interval scale of complexity before they can be applied. In the case of ratio scales such as length or distance, attributes of reality are being measured objectively, hence the large number of calculations possible.

In a geographical context, it was previously thought that Interval scales were superior to Ordinal scales in terms of accuracy, and the quality of data which they produced.

Gould, however, has shown that Ordinal scales possess potent metric properties, and that in samples of perhaps twenty or more individuals, the results achieved from both types of scale are virtually indistinguishable (Gould, 1969). Ordinal scales of ranked preferences have obvious appeal to the behavioural geographer interested in a respondent's preferences for different locations, attributes or intended behaviours. Interval and ratio scales are more likely to gain importance as increasing attention is paid to the detailed structure of those preferences and the attitudes underlying them.

Ordinal scales of preferences for residential areas and for attributes of residential areas in general are used in the empirical section of the present work. Their major advantages are their ease of administration and comprehension in an interview situation, the belief that they are as useful and accurate as interval measures, and the attraction of keeping the techniques employed consistent across a wide range of studies.

The Multi-dimensional scaling models

The majority of work using multi-dimensional scaling has originated in Psychology, where the interest of the phenomenologists centred on measuring complex mental attributes which could not be mapped onto a linear scale or single dimension. Guilford specifies the following criteria as requiring the use of multi-dimensional scaling models:

i) where the stimuli are complicated

ii) where the stimuli possess physical dimensions which are not familiar or

iii) with judgements of psychological qualities for which there are no recognised corresponding physical dimensions or referents, (Guilford, 1954).

It is clear that their use in studies of environmental perception can be justified under any or all of Guilford's criteria, and a brief consideration of their contribution to Geography will therefore be made at this point, before the more detailed examination of their use in attitude measurement is made towards the end of this chapter.

Multidimensional scaling has resulted from the conceptualisation of measurement as a procedure for mapping attributes of objects into an abstract space possessing an infinite number of dimensions. 'Space' in this sense has been a psychological rather than a geographical concept, and the principal concern has been to measure the distance between objects located in this abstract space in order to assess their degree of similarity. Short distances thus imply a high degree of similarity, and the major problem concerns how this distance can best be measured.

But 'space' as interpreted by geographers is also clearly amenable to such measurement, and the development of geometry as 'the language of spatial form' (Harvey, 1969) has a great deal to contribute to the Social Sciences in this field of investigation. The properties and assumptions of Euclidean space are familiar to the geographer, and the special cases of non-Euclidean geometries, spatial projections

and topological transformations and other sophisticated techniques for measuring and transforming geographic distance, are equally suited to and valuable for measuring complex psychological phenomena.

Such a cross-fertilisation can only be of benefit to both subjects; psychologists gain some of the most complex space measurement procedures so far devised, and geographers gain an insight into how its investigations into the perception of space and consequent behaviour may be fitted into the overall paradigm of human behaviour currently employed in Psychology, and can obtain suggestions concerning the directions which future research might take.

Milgram offers a slightly different interpretation of the potential value of the two subjects for each other:

> 'Perhaps geographers can derive from Psychology enhanced sophistication in testing human subjects (psychologists are expert in knowing how to externalise and measure mental processes). From the geographer, we psychologists can gain a sense of scope to move us outside the two room laboratory into the larger world.'
>
> (Milgram, 1973; p. 27)

b) The Nature of Measurement Procedures used in Behavioural Geography to study Images

Studies aimed at eliciting perceptual images have, in the main, tended to use much simpler measurment procedures than the multi-dimensional models discussed earlier, and since many of them are unique to one investigation, an assessment of

their general utility, applicability and comparability is seriously limited.

One of the first, and perhaps the most important, question to be answered in any scientific investigation is, 'How is the basic data to be collected ?' Clearly, the subsequent sophisticated measurement and analytical procedures can only be as good as the data source, and complicated statistical manipulations will not improve, and may indeed further weaken, suspect or inadequate data. This problem is particularly acute in Behavioural Geography where, as we have seen, there are few conventions to guide such choices.

Rieser (1972) summarises four main categories of symbolic language by which data concerning the structure of an environmental image may be collected.

i) The first of these is quite simply a guided tour or accompanied walk through an area, allowing the individual to make free and unstructured responses concerning his experience of the environment. This was one method used by Lynch, who tape recorded the reactions of his sample to various stimuli along the route, and used them in addition to the evidence he obtained from a more formal interview schedule (Lynch, 1960).

In using data gathered on real or imagined walks in and around the three cities (see Chapter 2 for further detail), he may well have biassed the responses in favour of the 'paths' and 'roads' inevitably used, which may partly account for the dominance of that particular element in the image maps. Such data could, however, provide useful evidence concerning the effects of differing social characteristics of the sample population on their perceptual images, if it could be

demonstrated that a group of people consistently differed in their reactions to certain stimuli from another group.

Similar methods of data collection were used in an intriguing study, also in Boston, which attempted to identify the 'sonic environment'. Trios of subjects, one blindfolded, one wearing earplugs and earmuffs and one with normal sight and hearing were taken on accompanied walks through Boston and asked to record their impressions on tape recorders, (Southworth, 1969). Several areas of the city evoked very clear images by their sounds alone, and the 'soundscape' map which Southworth constructed (graphically similar to those of Lynch) illustrates that images of the urban environment are not solely visual in their content. Subjective impressions, the real 'meaning' of a place, are frequently dependent on the non-visual senses.

For this reason, the 'meaning' of the Images of the residential areas of Leicester examined in the empirical section of the present work did not echo the methodology used by Lynch, which would have been wholly visual, but included measures of evaluation (see Chapter 4).

The other three approaches to data analysis outlined by Rieser outlined are termed 'indirect', since they involve a mental representation of, rather than first hand experience with, the environment.

ii) The Iconic method involves:

> '..... representation of the environment in which the visual form and relation of objects is maintained at a reduced scale.'
>
> (Rieser, 1972; p. 11)

In essence, this means the use of photographs or drawings of the area being studied. Photographs can be used in a measurement situation in various ways. A respondent can be asked to describe the area in the locality of a given photograph, or to describe the route between two photographs of recognised localities. He can sort a random group into a continuous set, recognise familiar places from a set of photographs, or decide whether each member of a set represents an area which he considers to be part of his neighbourhood or city centre. Lynch (1960) and Heinemeyer (1967) both used photographs of the environment as stimuli, whereas Peterson used them in the initial stages of his attempt to formulate a model of visual space preference.

He asked respondents to rank photographs of different types of neighbourhood on an ordinal scale of preference, and then subjected the results to the more refined technique of principal components analysis. The third of the four components thus extracted was a measure of photographic quality. Clamp used linear regression techniques to transform ranked lists of preferences for photographs of natural landscapes into an overall landscape preference model and then tried to assess the impact of various road building schemes by superimposing road designs on photographs of different landscapes, (Clamp, 1976). Shafer et al. also used photographs of natural landscapes in their attempt to quantify the variables in landscape which the public preferred (Shafer, Hamilton and Schmidt, 1969).

It is difficult to estimate the effect of photographic clarity and quality on an individual's assessment of the

environment so represented, and to control the differential stimuli presented by black and white or colour photographs, although there is evidence to suggest that no significant differences in results will be obtained from using either monochrome or colour photographs (Blaut, McCleary and Blaut, 1970). Similarly it is difficult to judge the effect, if any, of visible weather conditions, or to establish how many stimuli exist in a particular photograph.

There is no convincing definition of what constitutes an environmental stimulus anyway, especially at the first degree of abstraction from that environment, and it is therefore difficult to decide whether people do vary in their perceptions of them. Great care is also needed when analysing the effect of the angle at which the photograph was taken, or even of the lens used (Shafer et al., 1969); an unfamiliar viewpoint on a familiar object may well produce a misleading response.

In fact, it is difficult to establish that respondents are reacting to the environment presented in the photograph rather than to the photograph itself; it would be interesting to compare the results from individuals assessing photographs of areas or landscapes, and then experiencing the actual place itself, and maybe even giving verbal descriptions of it. Until controlled experiments of this type are undertaken, our knowledge concerning the use of photographs to elicit environmental images will remain incomplete.

The major advantage of the Iconic method is that it appears to be unbiassed and may be non-selective between different socio-economic or ethnic groups, and between the literate and the non-literate. But it is not entirely objective since the

initial selection of photographs is made by the researcher and the respondents are therefore unable to select potentially more meaningful views which may have been absent from the set presented to them.

iii) The graphic techniques involve

> '..... representation of the environment portraying by means of drawn or printed symbols, on paper, the form and relation of objects.'
>
> (Rieser, 1972; p. 11)

In other words, this category includes all those measurement situations in which maps are drawn by or presented to the respondent. He can be requested to delimit his neighbourhood or another area by an enclosing line (Eyles, 1968; Lee, 1964, 1968), to locate familiar streets or landmarks on a base map, or to draw a sketch map himself on a blank sheet of paper (Lynch, 1960; de Jonge, 1962; Gulick, 1963; Sieverts, 1967; Orleans, 1973; Ladd, 1970; Saarinen , 1973).

Saarinen (1973) classifies the presentation of a base map with specific instructions concerning its completion, and the presentation of a blank sheet of paper as two different examples of the five 'Projective Techniques' used in Psychology. These are discussed in greater detail later on in the present chapter.

The use of base maps requires respondents to choose a specified solution from a set of alternatives, and therefore falls into the category of 'Choice and Ordering Techniques' defined by Lindzey and Thorpe (1968). The presentation of a blank sheet of paper is likewise assigned by Saarinen to Lindzey

and Thorpe's category of 'Expressive Techniques' since

> '..... as much emphasis is placed on the manner and style in which the product is created as upon the product itself.'
>
> (Saarinen, 1973; p. 31)

Base maps enable a greater degree of control and precision to be maintained by the researcher over the results, whereas freely drawn maps, whilst avoiding this particular source of error, may each be so unique as to defy analysis, and any grouping procedure imposed by the researcher then becomes victim of another and similar source of bias.

More importantly, differences in maps drawn by different respondents cannot be used as proof of differences in the structure and content of their images. They may simply reflect the inability of certain social or ethnic groups to conceptualise space graphically, a basic lack of spatial orientation and awareness, or complete inability to read maps and comprehend spatially delimited symbols (Ladd, 1970; Rieser, 1972). The particular symbolic language used in each study must possess real meaning for the individuals being studied, otherwise the crucial criterion of validity may not be met.

iv) Verbal techniques appear at first to be the most attractive and methodologically useful of the four, since they record the actual response made by each individual, but they too are open to serious criticism. There are many variations on this type of technique. Lynch asked respondents to describe the route which they would use in travelling from one location to another, and selected as many different termini as were needed to construct a composite image of the area under study (Lynch, 1960).

Boal (1969) and Heinemeyer (1967) requested respondents to describe a small urban area by naming the streets and locations found within it. Klein (1967) varied the approach slightly by selecting a number of street names and writing these on cards which he presented to his respondents, asking them to extract those which they considered to be located in the central area of Karlsrühe. Also included in this category, of course, are all those studies which have derived all or some of their data from questionnaire - interview schedules.

It has been suggested that persons of lower socio-economic status possess restricted language systems and are consequently unable to express themselves as fluently as other members of the population, (Bernstein, 1960). The Community Attitudes Survey for England found that the lower socio-economic groups define smaller local areas, and Orleans' results from Los Angeles would tend to confirm this (H.M.S.O., 1969; Orleans, 1973).

It would be misleading to assume, though, that this is simply a result of the existence of a restricted activity space of traditional working-class dimensions (Young and Willmott, 1962) since it should be remembered that the ability of the lower socio-economic groups to respond verbally is similarly restricted and that they may therefore be unable to express their actual knowledge accurately and adequately, (Rieser, 1972).

Street names need not be remembered for a place to be immediately recognised; Klein's respondents may well have been familiar with streets which they did not select, but never having been required to attach a name to them before, their

responses would not have been accurate representations of their knowledge. In the same way, recognition of a familiar place name will not necessarily mean parallel recall of a clearly structured mental image of that place.

Moreover, preselection of the cards meant that respondents could not select a street unless Klein had already recognised its existence and had used the local designation which was familiar to the respondents. This is a particularly important condition in areas and among populations where locations are recognised and identified by features no longer evident.

Thus, in Rieser's study area in East London, the location of Trinity Church, East Ham, is still a focal point for older inhabitants although it was destroyed during an air raid in 1940. The same people board 'buses announcing their destination to be 'Becontree Heath', which has not existed since the London County Council built the largest local authority housing estate in the country over it during the 1920s. In the same way, part of Downs' study area in north Bristol was more frequently known by its pre-war plan and road names, and the study area which he eventually adopted, the Broadmead shopping centre, is similarly known by the local inhabitants, (Downs, 1970c).

This phenomenon was recognised by Porteous (1971) and he accorded it the term 'after-images', mentioning that the older residents in one of the towns he considered, Ellesmere Port, possessed a different image of the town from the younger respondents. In some cases their images contained features no longer in existence. Lynch (1960) mentions the case of

residents in Florence continuing to use streets which no longer existed in their walks through a demolished, flat area of the city, something which has been apparent until very recently in bombed areas of London (Lynch, 1960 p. 126). There is a certain amount of evidence to suggest that one of the samples interviewed during the present study illustrated the notion of 'after-images' in their descriptions of and attitudes towards one of the other residential areas in Leicester.

Rieser summarises the dilemma of selective bias against certain groups of people thus:

> '..... if both graphic and verbal conceptualisation is poorly developed for cultural reasons, these methods may bias the actual image or they may reflect it.'
>
> (Rieser, 1972; p. 14)

It would appear vital for future study and measurement of the Perception - Behaviour process, to discover which is the case.

When considering verbal stimuli as a means of eliciting data concerning mental images, it should be remembered that verbal communication probably forms only 30 - 35% of the total of social communication, and that it is therefore in the minority as a form of human interaction (Saarinen, 1976; p. 13). Nevertheless, there is much of interest to be learned from the work which has been concerned with different language systems and their effect on perceptions of the environment, or perhaps more correctly, on the ability of different groups to express such perceptions (Lowenthal and Riel, 1972a, 1972b).

Some of this work has previously been discussed in Chapter 2, and whilst perhaps best known through the works of Benjamin

Whorf (1956), it also features in the writings of such diverse social scientists as Hall (1966), Lynch (1960), Lowenthal (1961) and Harvey (1969). Observations in this field have demonstrated that not only may a language system reflect the differential abilities of its speaking population to use it adequately (Davies and Huff, 1972; H.M.S.O.. 1969) but that a technique developed within one language system is likely to be inappropriate if transferred directly to a new location subject to a different system. The cross-cultural applicability of verbal data-gathering techniques is therefore probably quite low, and once different techniques are invoked to measure images of common objects held by members of differing cultures, problems of comparability again loom large.

In response to these shortcomings, psychologists attempted to develop measurement techniques which could be applied equally to widely divergent social, ethnic or cultural groups. Although it was acknowledged that results obtained from one group would, in all probability, be at variance with those of another group, if the method of application of the technique was kept constant, then the results would at least be comparable and any differences significant.

It was in this way that 'Projective Techniques' were evolved. (Brief mention has already been made of these earlier in this chapter in connection with those studies using graphic methods of data-collection to identify the basic structure of an environmental image.) Not only was this group of techniques well adapted to describing and measuring subjective features of the perceived world, but their essential diagnostic component,

which enabled the respondent to identify the basic features and overall structure of his personal image of the environment, and allowed the researcher a certain degree of objectivity in measuring and analysing it, overcame many of the previous problems of cross-cultural application.

In contrast with other methods of psychometric measurement, Projective Techniques provided a wide range of information which could vary between respondents. Their contribution to Geography has been significant and will therefore be examined here.

Five main categories of Projective Techniques have been identified by Lindzey and Thorpe (1968) according to the type of response required from the subject. Three of the five have been used extensively in geographical work, and the potential contribution of a fourth has been examined.

i) Choice or Ordering Techniques in which a respondent must choose from or rank a number of alternative choices according to specified criteria, such as sorting cards (Klein, 1967) or ranking states (Gould, 1966, 1969b), are probably the most frequently used of the Projective devices in Geography. There has been a certain amount of discussion concerning the capacity of an individual to rank order a large number of items accurately. Gould attempted to overcome this problem by asking his respondents to indicate on their scales where positive liking for areas merged into indifference, and where indifference became actual dislike. Opinion now favours a much simpler task for respondents, with the desirable maximum number of choices usually set below twenty and frequently below ten.

ii) Expressive Techniques such as Saarinen's 'student views of the world' and Ladd's neighbourhood maps, in which the nature and style of the construction is as important as the content, are also used frequently, although not always with the caution they require (Saarinen, 1973; Ladd, 1970). They include all the 'freely drawn' map exercises in the graphical mode of data collection discussed earlier, but may not be so culturally unbiassed as the psychologists originally intended.

iii) Completion Techniques require the continuation or completion of a story or sentence, and are virtually absent from the geographical literature, partly because of the obvious problems of experimenter bias and observer error, together with the problems of coding, analysis and interpretation.

iv) Association Techniques are similar in some respects to Completion Techniques, and require immediate response to a verbal stimulas. They have not gained widespread currency in Geography although their relevance for the subject has been explored in several quarters. Gould, for instance, asked groups of Swedish schoolchildren to write down all the towns in Sweden they could think of during a five minute period in order to obtain a measure of their spatial information surface (Gould, 1975), a procedure which had also been tried by Brandwood in the British Isles (1968).

v) Construction Techniques have been used in two highly specialised branches of Behavioural Geography, and have evoked a degree of controversy in each case. The first of these was the Thematic Apperception Test, originally devised by a team of psychologists at the Harvard Psychological Clinic

for use in psycho-therapy and psycho-analysis. It was adapted for use in an investigation into the perception of the drought hazard in the Central Great Plains area by Saarinen (1966), and criticism has subsequently been levelled at the manner in which an experimental technique for isolating and understanding the behaviour of a disturbed mind, was applied with little modification to an understanding of behaviour in disturbed environments. Saarinen showed farmers in the affected area sets of photographs and asked them to tell a story around each of the cards, suggesting how the situation shown had arisen, how it would develop and what the eventual outcome would be; from their reactions and the frequency and range of themes mentioned, he was able to elicit a set of personality traits and attitudinal measures relevant to the perception of the drought hazard.

The second type of Construction Technique used in Geography has been Personal Construct Theory, and its associated Repertory Grid Tests, also developed in Psychology as a theory and test of personality (Kelly, 1955). One group of workers with whom this technique is particularly associated were, like Downs, conducting their research in the Bristol area in the late 1960s and early 1970s; Hudson and Harrison were also interested in the perception of retail facilities, and Sarre was concerned with city images.

The aim of the Repertory Grid Test as used in this type of work is to elicit 'Personal Constructs', the way in which an individual perceives and structures his environment:

> '..... the individual's mental representation or image of the environment which is built up

> on the basis of experience, and which serves as his data source when deciding upon actions .....'
>
> (Harrison and Sarre, 1971; pp. 351, 352)

In order to identify these 'Personal Constructs', the respondent is presented, in either visual or verbal form, with a set of three stimuli, which may be photographs, objects, attributes or names, and is asked how any one of these differs from the other two. The criterion by which he differentiates the set of three is then suggested as a Personal Construct, and its applicability over the whole set of objects or attributes is tested.

If the respondent reveals that this particular criterion is also important in differentiating between other sets of objects, then it is accepted as a Personal Construct, personal to and relevant for that individual only at that point of time. A necessary part of the compilation of a set of Personal Constructs is, therefore, the sacrifice of the particular to the general, and in order to isolate a set of constructs applicable and relevant for a large population group, the common denominator is probably so low and generalised as to be almost meaningless.

After an initial enthusiasm, therefore, the rosy future predicted for Projective Techniques seems less secure:

> '..... projective techniques are coming more and more to be regarded as clinical tools..... Their value as clinical tools is proportional to the skill of the clinician and hence cannot be evaluated independently of the clinician using them. Attempts to evaluate them in terms of the usual psychometric procedures would thus be inappropriate.'
>
> (Anastasi, 1968; p. 518)

However, applications of the Repertory Grid Tests to problems of a geographical nature may be found in Sarre (1973), Harrison and Sarre (1971, 1976) and Hudson (1974).

We have thus summarised the techniques which have been applied to the question of identifying and measuring environmental images; the accompanied walks, iconic, graphic and verbal methods of data collection; and the nominal, ordinal, interval and ratio scales available for measuring them. We have also considered the various categories of Projective Techniques devised by psychologists in a not wholly successful attempt to overcome problems of cultural differences between subjects and respondents. Several of these approaches have also been used to measure preference structures (particularly ordinal ranked lists in the 'Choice and Ordering' category of Projective Techniques) and information space (where Association Techniques may be of use).

All these techniques however, have addressed the identity and structural components of an Image, a definition which is not consonant with that adopted for the present work (see Chapter 4) which includes within the concept of an Image, a measure of meaning. For this reason, the procedures adopted in the present work have more in common with those which have been devised to uncover the 'evaluative' aspects of an individual's Behavioural Environment - the meaning of his Image of reality, its interpretation and consequent attitudes and evaluation.

We have therefore arrived at the point where we wish to know how the 'Attitude' stage of stage of the proposed

Perception - Behaviour process operates in translating these images into overt behaviour. How have psychologists measured attitudes, and which of their techniques are most appropriate for the geographer ?

c) The Nature of Measurement Procedures used in Behavioural Geography and Psychology to study Attitudes

The study of attitudes, defined in its broadest sense, has been a much debated subject in Psychology for more than forty years. There are those of the Behaviourist school of thought who do not consider attitudes either relevant or legitimate as a field of study. The Phenomenologists, who do regard personality, attitudes, values and other kinds of sensory and perceptual data as a central focus of their work are, however, much divided over the question of how best to set about their task.

Fishbein and Ajzen's recent plea has a ring of the familiar about it:

> 'An explicit definition of attitude appears to be a minimal prerequisite for the development of valid measurement procedures.'
>
> (Fishbein and Ajzen, 1975; p. 5)

An early worker on the theme commented:

> 'Like most terms in the English language, attitude has more than one meaning ..... (it) has come to signify many things to many writers, with the inevitable result that its meaning is somewhat indefinite and its scientific status called into question.'

but that through its derivation from the Latin 'aptus' it

> '..... connotes a subjective or mental state of preparation for action.'
>
> (Allport, 1935; p. 3,4)

' This theme of a 'state of preparation' recurred throughout the literature of the following decades and was particularly evident in the works of Martin Fishbein, whose definition of 'attitude' is:

> '..... a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object.'
>
> (Fishbein and Ajzen, 1975; p. 6)

There are three basic features to this definition - the fact that attitudes are learned, that they are predispositions and that these predispositions can only be inferred from consistent behaviour towards an object. This consistency can take three forms:

a) Stimulus-response consistency - where a single stimulus invariably evokes the same single response, as, maybe, with some forms of Association Techniques.

b) Response-response consistency - where the responses evoked are consistent with each other although not necessarily traceable to a single stimulus. Two seemingly inconsistent responses could thus derive from one attitude; a desire to live in both the Northumbrian National Park and Central Teesside could result from a strong regional bias towards the North-east. This is the reason why differences may occur

between attitudes towards an object and toward a class or group of those same objects.

c) Evaluative consistency - which can also produce seemingly inconsistent responses, but which, when spread over a period of time or in different circumstances, reflect a consistent attitude. An example of this encountered in Electoral Geography is the phenomenon known as 'tactical voting'; a member of party A, faced with the prospect of a victory in his constituency by party B might well vote for party C in an attempt to reduce B's chance of winning, or his overall majority should he do so. Nevertheless, that voter would still retain his overall commitment to party A, and his action would be entirely consistent with his attitude.

There are distinct parallels between the stages of Fishbein and Ajzen's 'Attitude - Behaviour' continuum, and the four elements of our proposed Perception - Behaviour process.

i) Cognition of an object results in two different kinds of belief; belief about the existence of the object, and belief about the nature of that object. Beliefs are, in this analysis,

> '.....the fundamental building blocks in our conceptual structure ..... the totality of a person's beliefs serves as the informational base that ultimately determines his attitudes, intentions and behaviours.'
>
> (Fishbein and Ajzen, 1975; p. 14)

Thus we have the equivalent of our 'Image' stage, containing beliefs in the existence of the Image, and beliefs about the nature of that Image.

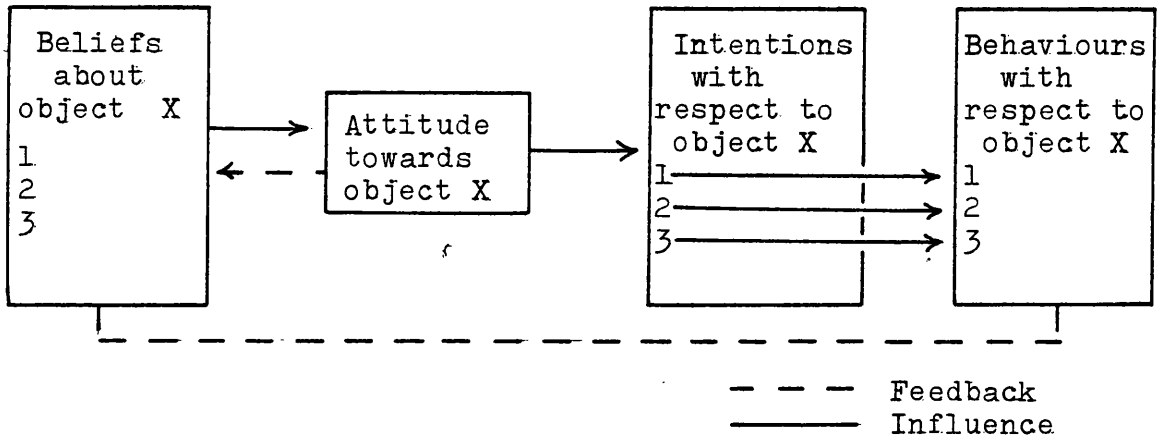
ii) Affect is measured along a bipolar evaluative scale and assesses the feelings towards the object, based on the two different kinds of belief. This is the distinctive measure of an attitude, and is the direct equivalent of Attitude in the Perception - Behaviour process outlined earlier. It does not necessarily predispose a person to perform any specific behaviour, but leads to

iii) Conation - an assessment by the individual of his beliefs about an object, his attitudes towards it, and his potential relationship with alternative behaviours. This category includes the Preference and Behavioural Intention stages of our process.

iv) Behaviour with respect to the object is the outcome of the sequence, and Fishbein uses it to include verbal responses to questionnaire schedules, which are more usually thought of as a means of inferring beliefs and attitudes rather than as measures of behaviour in themselves.

A diagrammatic representation of the relationship between these categories is shown in Fig. 3.1 (after Fishbein and Ajzen, 1975; p. 15), paralleling the Perception-Behaviour process.

Fig. 3.1 Conceptual framework for relating Beliefs, Attitudes, Intentions and Behaviours with respect to a given object.



Fishbein and Ajzen differ from other workers in the field by their addition of the 'Conation' or 'Behavioural Intention' category. In this way they overcome the difficulty of explaining why it is not possible to predict behaviour accurately from knowledge of a person's attitudes towards an object. It could be argued that they overcome the problem simply by removing it, and instead of relating a person's behaviour to his attitudes, relate it instead to the individual's intentions to perform that behaviour. Behavioural Intentions thus become a critical part of their analysis:

> '..... a person's intentions, in the final analysis, are a function of certain beliefs. Rather than being beliefs about the object of the behaviour, however, the relevant beliefs are concerned with the behaviour itself. Specifically, his attitude toward performing a given behaviour is related to his beliefs that performing the behaviour will lead to certain consequences and his evaluation of those consequences..... attitude is viewed as one major determinant of the person's intention to perform the behaviour in question.'
>
> (Fishbein and Ajzen, 1975; p. 16)

Although this particular conceptualisation of attitudes is the one adopted for use in the present thesis in the belief that it possesses the greatest relevance for Behavioural Geography, it should be pointed out that it does not enjoy complete acceptance in Psychology. Many research workers of that discipline prefer the simpler approach originating with Leon Festinger's Theory of Cognitive Dissonance (1957). This theory assumes man to be a rational being, striving to keep his beliefs, attitudes and behaviour

consistent; should imbalance occur, the theory postulates that the individual will change his belief system or his attitudes to bring them into line with his overt behaviour - a form of post-hoc rationalisation. This approach has found considerable favour with the theorists of attitudinal change, since it implies that one need only change overt behaviour, whether by persuasion or coercion, to produce a concomitant change in attitude. Geographers are unlikely to find much attraction in such a theory, since the many studies concerning rehousing and redevelopment and the adaptation of displaced populations would be bound to question some of the theory's main tenets.

Although a Geography thesis is not the best place to discuss the relative merits of two psychological theories at length, it is pertinent to summarise the major themes of both. This is because attitude measurement and scaling are fast gaining ground in geographical literature, and it is necessary to appreciate the definitions upon which the measurement procedures were originally based. Attitude scaling represents an attempt by psychologists to give a concept of considerable complexity, scientific accuracy and precision; this achievement is invalidated if the measurement procedures are subsequently applied to an ill-defined notion by well meaning geographers.

Both theories argue that the major diagnostic feature of an attitude is its affective or evaluative dimension, and the associated measurement techniques therefore attempt to define a given attitude by placing it along a bi-polar evaluative scale. There are several different types of attitude scale, of varying degrees of complexity.

Attitude Scales

The simplest attitude scale is of an ordinal type, and is known after its originator as a Guttman scale. It was offered as 'an adequate basis for quantifying qualitative data' and is best illustrated by an example taken from the original paper (Guttman, 1944). If a mathematical test were given to a random population, containing three questions of increasing difficulty, in a perfect scale situation, four of the eight possible response patterns would occur; the type getting all three questions correct, the type getting the first two and not the third correct, the type having success only with the first problem, and the type with no correct answers at all.

In these circumstances numerical values of 0 - 3 could be assigned to every respondent in the sample; a score of two would therefore not only indicate that the respondent scored two successes but that they were the first two rather than any other combination. A person's score would therefore indicate the nature of his behaviour towards the questions.

The assumption that an individual who achieves a given level of attainment or who selects an item of given magnitude, will also achieve or choose all the items of lesser magnitude is fundamental to the construction of this type of scale. In a similar way, a person's attitude could be reproduced from his score, although it is obvious that perfect scales of this type are highly unlikely to occur in reality.

Being an ordinal scale, the range of mathematical manipulations possible is restricted, and the distances between concepts remains unknown (see discussion of ordinal scales

earlier in the present chapter). The choice of items to be included is also a potential source of error for both psychologists and geographers, since it is the investigator who makes the initial selection, sometimes validated by a group of judges. Furthermore, and perhaps most importantly, it is most improbable that an attitude is composed of, or can be measured by, one single evaluative attribute, elicited from a single response, or group of responses of the same type.

Thurstone scales, on the other hand, abandon the ordinal, cumulative approach, and seek to locate items on an equal appearing interval scale. A large number of belief or intentional statements are collected by the researcher and sorted by a group of impartial judges into categories (usually eleven) of equally separated intervals along an evaluative dimension (e.g. from very favourable through to most unfavourable). Items of disagreement between the judges are discarded according to a 'criterion of ambiguity' and the final set of statements given to respondents who are asked to mark those with which they agree. The median or mean score for each item placement becomes that item's scale score, and an individual's attitude score is obtained from the mean or median of all the item scores which are endorsed and which refer to a specific attitude (Thurstone, 1928, reprinted 1959).

Since the items on a Thurstone scale are not cumulative, an individual's attitude cannot be predicted from his score, and a 'criterion of irrelevance' is required to exclude those items which could produce responses influenced by factors unconnected with the attitudes under investigation.

From a geographical viewpoint, a Thurstone scale offers

several improvements over Guttman scaling. Firstly, neutral items can be distinguished, and are regarded as valid indicators of attitude, thus allowing respondents to express indifference towards an object or location. However, negative statements cannot be included, and measures of disbelief are not possible, despite the fact that their importance as attitude components could be far greater than certain positive beliefs. Secondly, the relationship between attitude and scale score is only probabilistic rather than deterministic, and although more accurate in conception than a Guttman scale, it does not permit straightforward prediction, and the problem of judgemental error persists.

Rensis Likert's Method of Summated Ratings avoids some of the more obvious drawbacks of the Thurstone method by stressing the total number rather than the location of the items with which the respondent agrees (Likert, 1932).

> 'What is significant about summative scaling is that it assumes that attitude can be assessed by counting the number of pro- or anti- opinion statements a person is willing to endorse, rather than trying to identify the statement which is ideal for the person as a statement of his opinion.'
>
> (Lemon, 1973; p. 178)

It therefore avoids the strictly deterministic one to one correspondence of Guttman, and Edwards and Kenney believe that:

> '..... there is no longer any reason to doubt that scales constructed by the method of summated ratings and containing fewer items will yield reliability coefficients as high or higher than those obtained with scales constructed by the Thurstone method.'
>
> (Edwards and Kenney, 1946 ; p. 252)

They also point out that the Likert method is considerably quicker than Thurstone scaling.

Likert scales are constructed from a relevant set of belief or opinion statements, sorted into those which are favourably and unfavourably disposed towards the issue in question. Likert stressed that the statements must be expressions of desired behaviour and not statements of fact since individuals could easily possess different attitudes yet agree on the basic facts. Respondents indicate their agreement with each statement on a scale running perhaps, from 0 - 4, where 4 indicates strong agreement with a positive item or strong disagreement with a negative item. Scores are summed for all items and the individual assigned a total score for the particular attitude being assessed.

The procedure of item analysis eliminates those items which do not differentiate clearly between respondents by correlating the scores for each item with the final scores. Negative or low correlations result in the exclusion of those items. However, there is a danger that although satisfactory correlations may be achieved between the scale and final scores, even higher correlations may exist between items on the scale itself. This can be avoided if a matrix of correlation coefficients is constructed for the scale items, and any self-contained scales which become evident are either discarded or measured separately. Otherwise, there is a considerable risk of unwittingly producing a multi-dimensional scale.

It is clear from the preceding discussion that although each of these three methods of attitude measurement possesses certain advantages, and each can make a useful contribution to

measurement in conjunction with other approaches, none is sufficient on its own to explain or measure the nature of an individual's attitude towards a given object. As the importance of attitudes gains significance in geographical research, it will be important to assess the relative merits of the various techniques so that we may avoid duplicating errors of misconception and misapplication.

Guttman scaling is unlikely to prove widely acceptable to Behavioural Geography because of its associated problem of transitivity. An essential assumption of this type of scale is, as we have seen, that agreement with item 3 in a list implies agreement with items 1 and 2. Considering Gould's preference research however, it would be quite feasible for an individual to choose Wiltshire in preference to Lancashire and Lancashire in preference to Surrey yet rate Surrey above Wiltshire in terms of residential desirability simply by altering or reorganising the criteria by which he evaluates 'desirability'. Thurstone scales encounter the problem of experimenter bias and judgemental error, whereas Likert scales reduce this problem but specifically exclude neutral items and deny a respondent the right to record indifference, like Guttman scales. Whether it be from choice, or force of circumstance from the technique:

> 'Not being able to express a preference between two alternatives, for instance, is very different from being able to judge that they are equally preferable.'
>
> (Kaplan, 1964; p. 182)

The area which is most likely to prove fruitful for Behavioural Geography, and that which has been adopted in part in the empirical investigation of the present thesis, is that which has deliberately been excluded from the types of attitude measurement so far discussed, that of multi-dimensional scaling.

Multi-dimensional Attitude Scales.

Guttman, Thurstone and Likert scales are all uni-dimensional, a restriction imposed by the choice of items and analytical procedure rather than the nature of the data or the attitudes being studied. Earlier in this chapter, Guilford's criteria for the use of multi-dimensional scaling models were outlined, and a description given of the approach which views measurement as a process whereby attributes can be located in a space of infinite dimensions. In this way, the multivariate nature of psychological phenomena, such as attitudes, can become a major focus of study.

In a very interesting early paper on the subject, Abelson regrets the dearth of satisfactory methods in the study of attitudes which permit a multidimensional analysis (Abelson, 1955). In psychophysics though, such scaling methods have come into prominence. These methods scale physical stimuli in a multi-dimensional psychological space, with the fundamental concept being one of psychological distance. Abelson maintained that there was no reason why the multi-dimensional method should not be transferred from the psychophysical to the attitude domain. Reversing the usual

trend of geographers seeking inspiration from any discipline except their own, Abelson wrote:

> 'If psychological distances can be analysed as though they were physical distances, it will be possible to obtain a 'map' of the way in which an individual structures the similarities and differences among attitudes in a given domain. On such a map, short (psychological) distances would represent (psychological) similarity, or agreement, and long distances would represent dissimilarity, or disagreement'
>
> (Abelson, 1954-55; p. 148)

He continued:

> 'In reading these contour maps, a 'hill' (or concentration of contours of high valence) is to be interpreted as a region in the attitude domain within which all statements or potential statements are highly regarded by the group. The valleys (concentrations of contours of low valence) are regions wherein all statements are disfavoured highly by the group..... The steepness of the hills and valleys (the degree of bunching together of the contours) is an indicator of the tension in the region ..... '
>
> (Abelson, 1954-55; p. 153)

A major contribution to the field of multi-dimensional attitude measurement, and the only one which has so far gained significant currency within Geography, was put forward in 1957 by Osgood, Suci and Tannenbaum. Their aim was not to measure attitudes as such, but a more broadly based attempt to 'subject meaning to quantitative measurement' (Osgood, Suci and Tannenbaum, 1957). They regarded the concept of 'meaning' as basic to all processes of communication and 'one of the most important determinants of human behaviour' and devised a technique which they called 'the semantic differential' to measure it.

> 'Although we often refer to the semantic differential as if it were some kind of 'test' having some definite set of items and a specific score, this is not the case. To the contrary, it is a very general way of getting at a certain type of information, a highly generalisable technique of measurement which must be adapted to the requirement of each research problem to which it is applied. There are no standard concepts and no standard scales; rather the concepts and scales used in a particular study depend upon the purposes of the research.'
>
> (Osgood, Suci and Tannenbaum, 1957; p. 76)

The purpose of their research was to examine the hypothesis that the 'meaning' of a concept could be measured by locating it on a series of bipolar adjective scales which define the total 'semantic space' of a respondent and that the similarity between two concepts could be assessed from their profiles and the distance separating their positions in multi-dimensional space.

For each concept to be evaluated, the respondent is given a list of bipolar adjective pairs, each conventionally separated by a seven point scale. The number of divisions on each scale is not critical , but the use of an odd number permits selection of a central indifference or neutral position. Nine and eleven point scales have been used with samples of very intelligent respondents (Warr and Knapper, 1968), whereas Sonnenfeld, in his study of landscape preferences of Eskimo groups, used five since the Eskimo numerical system regards anything above that number as 'many' (Sonnenfeld, 1967).

The respondent marks the position on each rating scale which he considers best describes the concept at the top of the page, and by this action indicates both the intensity and the direction

of his judgement on each scale for each concept. These two attributes, direction and intensity, are an essential part of the approach to the measurement of meaning involving the location of a concept in multi-dimensional space:

> '..... the point in space which serves us as an operational definition of meaning has two essential properties - direction from the origin and distance from the origin. We may identify these properties with the quality and intensity of meaning respectively. The direction from the origin depends on the alternative polar terms selected, and the distance depends on the extremeness of the scale positions checked.'
>
> (Osgood, Suci and Tannenbaum, 1957; p. 26)

A simple visual description of an individual's responses to a given concept can be obtained by joining the scale divisions so marked to produce a profile. Such a profile may be compared with that of another respondent or, sets of ratings given by different respondents can be averaged and the profiles for one concept so obtained compared with those from another group. Attitude profiles of this type, although constructed in a slightly different manner have been adopted in Chapter 7 of the present work, to compare the attitudes of the sample groups towards residential areas in Leicester and towards attributes of residential areas in the city.

In a properly constructed scale, several criteria should be met. The adjective pairs must be definite bipolar opposites and ambiguous words with more than one possible antonym should be excluded. The location of the positive end of the scales should be varied to avoid error caused by respondents paying insufficient attention to the details and habitually marking the same position on each scale. These criteria were all met

in the questionnaire schedule administered to the three samples of respondents interviewed during the course of the research discussed in Chapters 6 - 9 of the present work.

Each rating scale, after completion, is scored from -3 through zero to +3, and it is possible to construct what Osgood et al. termed 'D scores' from the data, to demonstrate how similar or different each of the concepts are. This is another procedure utilised in Chapter 7 of this thesis, with the attitude scores for different areas of Leicester.

The most exhaustive piece of geographical research involving the use of the Semantic Differential Technique is that undertaken by Downs, who used 36 adjective pairs to

> '..... demonstrate that a modified version of the Semantic Differential scaling device can serve as a valid and reliable measuring instrument for obtaining data on a respondent's image of an urban downtown shopping centre.'
>
> (Downs, 1970c; p. 134)

He divided the 36 adjective pairs into nine hypothesised structural and evaluative dimensions, according to which he suggested that women formed their images of the main shopping centre in Bristol, and asked each of his 202 respondents to rate the shopping centre on each of the 36 scales. He was thus using an attitude scaling device to measure what he termed 'images'.

Subsequent factor analysis of their replies revealed 11 factors, accounting for 64.4% of the variance; of these 11, four were exactly the same as four of the original nine hypothesised dimensions, 2 were defined by 3 of their 4

hypothesised scales and the other three were divided between the remaining factors.

Bearing in mind the cautions regarding Factor Analysis made in Chapter 1, several points should be made about this study in Bristol. The most important of these concerns the method by which Downs selected the 36 adjective pairs and the way in which they were used in his analysis. The nine 'structural or evaluative dimensions' are, according to Downs' own definition of the words, more properly structural and evaluative dimensions. As a consequence, he may have been measuring both Osgood's original conception of 'the structure and meaning' and 'attitude' as measured along an evaluative scale simultaneously.

According to Osgood's original definitions the structure of the image, the meaning of that image and the attitude towards it are three different concepts, and some at least of the difficulties which Downs encountered with his measuring technique may have been attributable to this confusion. The 36 scales, selected after informal and unstructured discussions with groups of women, were chosen by Downs to represent the nine dimensions which he had already chosen to represent the image of a shopping area. There is therefore, a real possibility of experimenter bias in the selection of scales and the factors which subsequently emerge.

Downs also found that, contrary to expectations, the Semantic Differential was not equally applicable to all subgroups of the population and did indeed discriminate against those women of lower socio-economic status and those of lower intelligence (a subjective evaluation). Downs had no means of

judging whether this disadvantage was peculiar to the technique or to the respondents involved, but it is possible that the method of delivery or the manner of completion were somehow inappropriate to certain groups of the sample population.

In future geographical work it may be possible to incorporate some of the methods developed in the field of Projective Techniques to eliminate some of the potential sources of bias. Repertory Grid Tests may well prove a fertile source of adjective pairs which could serve as input to Semantic Differential paired scales. In this way, respondents could select their own criteria for structuring their image of reality or suggesting relevant attitudes, and the researcher could be certain that the concepts used were able to differentiate between individuals. This would not solve the problem of comparability between the constructs of different individuals discussed earlier, though.

Although attitudinal data was collected in the present work by the use of a format similar to that of the semantic differential technique, principal components analysis of the data was avoided in favour of the simpler attitude profiles, generalised distance D scores, and weighted attitude scores. The problems of observer bias remained though were less able to influence the results; Downs had selected nine dimensions, adjective pairs to represent each, and had emerged with a similar number of component factors at the end, thus either confirming or merely reproducing his original design.

During this discussion of measurement problems in Behavioural Geography, we have almost inevitably concentrated

more on the Behavioural than on the Geographical aspects, and probably still more on the Attitudinal or Psychological dimension than on the Behavioural. The different components of the Attitude - Behaviour continuum as studied by the psychologists are part of a very similar Perception - Behaviour process hypothesised to exist in the field of Behavioural Geography. Although members of each field will continue to follow their own interests and will remain skilled in problems and the philosophy of their own subject, the boundaries, if indeed there are any, between Psychology and Geography in this field, are largely irrelevant.

In 1966, Gould asked 'Can Geography be mixed up with Psychology ?' He later decided that the two were inextricably linked, an opinion with which this author concurs (Gould, 1966 with postcript, 1973). Common measurement techniques are one of the strongest links between the two approaches to the study of Human Behaviour, and the development of more sophisticated and original methods should certainly be encouraged. But

> '..... the criterion being put forward is decidedly not the question whether everybody's doing it, but the very different question whether anything gets done by it ?'
>
> (Kaplan, 1964; p. 25)

Our ultimate aim as Social Scientists must be no less than an advancement of the understanding of the nature and process of Human Behaviour. Set against this rather imperious claim is Geography's particular interest in the spatial dimensions of that behaviour. Whilst measurement techniques are a powerful aid in this work, adequate conceptualisation of the

problem is equally, if not more important. Without such a theoretical base, even the most sophisticated techniques of analysis are likely to be spurious, and the blame is likely to be laid once again at the feet of the technique itself rather than the practitioner who misapplied it.

> 'Measurement is not in itself desirable or undesirable; it is only useful or not useful..... Measurement can be judged only by asking how well it performs the particular function required of it.'
>
> (Harvey, 1969; p. 306)

It is therefore crucial that we ensure that any techniques we apply in our research interests are, in fact, useful, and that we avoid requiring a measurement technique to achieve a function of which it is not capable. The basic measurement and scaling procedures used in the empirical part of this thesis should therefore be assessed in this light; they could, perhaps, have been statistically more sophisticated but there is no ground for believing that this would have made them more useful for the task at hand. They should therefore be judged according to how well they perform the function required of them.

4

Theory

The empirical part of this thesis, contained in Chapters 6 - 9, attempts to uncover the nature and operation of the residential Perception - Behaviour process which has been discussed in the Introduction. The design of the study was therefore based on the four elements of that process - Image, Attitude, Preference and Behavioural Intention, and on the links between them - perception, interpretation, evaluation and decision.

The present chapter examines the concept of each of these four elements respectively, to analyse how each is defined for the purposes of this study, and how each is related to established theory in Behavioural Geography and Social Psychology.

i) The concept of an Image

> 'We do well to remind ourselves, however, that the image is bigger than any particular technique which attempts to capture it'
>
> (Pocock, 1976; p. 165)

This warning conjures up a vision of researchers struggling vainly to control a chameleon-type monster which changes its form with every successive assault and cleverly avoids capture. Such an impression is probably not too far removed from the experience of many workers in the field when they are faced

with the complex task of firstly defining environmental images and then trying to measure and analyse them.

Since the starting point for this investigation of the operation of the Perception-Behaviour process in a residential context lies with the concept which will be referred to as 'The Image', it seems appropriate, if not essential, to begin by defining our terms. At least we shall then know what type of animal we are dealing with, even if our means of capturing it require sophistication.

Image as defined here differs from Lynch's formulation since it places greatest emphasis on the appraisive aspect or 'meaning', the component which was omitted from Lynch's work. The present definition is therefore probably more sympathetic with Boulding's multi-component image, but at the same time, it needs to be rather more restricted in scope in order to be capable of being operationalised in the process being investigated here.

The content and structure of such images of urban areas is already accepted as a legitimate field of study, as evidenced by the large amount of relevant literature on the topic reviewed in Chapter 2. Differences in the personal and locational characteristics of individuals have also been related to the images which they hold of reality, although this has usually been confined to consideration of image structure or identity.

The aspect of the definition adopted here which might at first appear problematical is the inclusion of, and focus on, meaning. It can be argued that this is more a problem of precedent than of logic; although the 'meaning' of an image to an individual has not so far been extensively examined, its

importance has been noted:

> '..... attention is directed towards individuals' environmental knowledge, preferences and evaluations, in the belief that these underpin behaviour; in this context studies of the appraisive aspects of images, emphasising meaning, are more likely to prove useful in explaining behaviour than those of the designative aspects of images .....'
>
> (Pocock and Hudson, 1978; p. 13)

The process of image formation with respect to a potential alternative residential location is extremely complex. It is quite impossible for the individual to encode and store every stimulus which he receives from the external environment concerning other residential areas. His initial apprehension of the environment, and his translation of the Phenomenal into a Behavioural Environment, will be selective, influenced by extraneous variables such as group norms, cultural ideologies and value systems, and by more personal considerations such as age, sex, socio-economic status, familiarity with the area in question and intended space use. It is therefore extremely unlikely, and perhaps impossible, that an individual can be totally objective in the choice of contents for his image of reality, especially since so many of the so-called choices are made subconsciously.

Moreover, his image will be of little use to him if it simply contains assumptions or beliefs that something exists at a given location. Before an image can be of importance to the individual who formed it, it must contain some measure of meaning, a degree of evaluation that the shops or schools in an area are somehow 'good' or 'bad' for example. Even though

certain elements of the image may not have been consciously stored, the composite image is recalled for a specific, well defined purpose which will undoubtedly influence the way in which those elements are interpreted. This evaluation then, often only the sketchiest of notions, is therefore an integral part of the images of their environment with which people operate; subtracting the meaning (i.e. the evaluative factor) from the image, leaves an abstract entity of little relevance and still less use to the individual.

Our definition of an image of an urban residential area therefore encompasses notions such as 'old, poor quality housing', 'very good 'bus services' and 'moderately good community facilities' and so on. This is the individual's meaningful conceptualisation of reality, his Behavioural Environment, and therefore the image with which Behavioural Geographers should be concerned. It is this, rather than an abstract 'paths, nodes, edges, districts and landmarks' representation which forms the basis of an individual's attitudes, preferences and future spatial behavioural intentions.

It is argued therefore, that a measure of meaning is a necessary condition in the formation of an image of an urban residential area, or indeed of any other type of spatial area. Non-occurrence of the evaluative factor is enough to predict the lack of any kind of communicable or operational image in the mind of an individual; if the knowledge which he possesses about an area communicates no sense of meaning to him, and he is unable to interpret that knowledge in the context of that area, there is a strong case for arguing that there exists nothing which can be termed 'an image'. Probably the most which an

individual can indicate under these circumstances are basic human emotions and instincts, very probably incapable of articulation, possibly sufficient for him to maintain a continuing awareness of the area's existence, but certainly inadequate for use in any rational behavioural or locational decisions.

Despite this argument, however, the evaluative factor is not sufficient as a condition of image formation insofaras the structural elements isolated by Lynch (1960) and Downs (1970c) are similarly important. For the very reason that we are coming to possess a wealth of detail on the structural aspects of images, it is thought pertinent here to address the problem of meaning, as possibly the more important and certainly the more overlooked element in an individual's image of reality.

Having made the claim that 'the image' as defined for the purpose of this study (and for Behavioural Geography in general) should include consideration of the 'meaning' attached to the elements contained within it, it becomes clear that 'image' is virtually synonymous with the term 'Cognitive Map' preferred by Downs and Stea in their recent approach to the theme:

> 'Cognitive mapping is an abstraction covering those cognitive or mental abilities that enable us to collect, organise, store, recall and manipulate information about the spatial environment ..... (it) refers to a process of doing; it is an activity that we engage in ..... it is the way in which we come to grips with and comprehend the world around us..... A cognitive map is a product - a person's organised representation of some part of the spatial environment ..... a cross section representing the world as some person believes it to be; it need not be correct. In fact, distortions are highly likely.'
>
> (Downs and Stea, 1977; p. 6)

Returning to the problem of selectivity of the image/ cognitive map, Downs and Stea posit two major criteria:

i) Functional importance - an individual will select those things which are 'generally useful' to him in his everyday existence

ii) Distinctiveness or imageability - reflecting 'the contents in and arrangements of the spatial environment itself' (pp. 78, 79).

Functional importance thus partially equates with our concept of meaning, and distinctiveness or imageability with identity and structure. If certain elements are selected for inclusion into an individual's image or cognitive map because they are perceived to possess certain useful functions for him, or because they are visually or otherwise distinctive, it is reasonable to assume that such elements will continue to fulfil these functions in the composite image until such time as they prove inadequate and are replaced by elements more suited to the task required of them.

For this reason, Downs and Stea place great emphasis on the question of utility:

> '..... to ask what we mean by mapping or representing is to ask how spatial information about whatness, whereness and whenness gets acquired, organised and stored in such a way that it will be functional when required ..... neither precision nor necessarily completeness of representation is important, but utility is ...'
>
> (Downs and Stea, 1977; pp. 62, 101)

There is no desire at this point to indulge in a battle of semantics over image as opposed to cognitive map. Image is preferred in the title to this section and Chapter 6 and as the first element of the Perception - Behaviour process solely because it is a term more readily understood by the non-specialist and does not suggest a geographic preoccupation with cartography.

A word of caution should, however, be repeated at this stage; neither image nor cognitive map are synonymous with the term 'mental map' introduced by Peter Gould (1966). Mental maps are semi-conventional maps, drawn by the researcher from preference rankings provided by individual respondents. There is no claim that the individual possess such a map in his mind (although Gould and White, 1968, suggest that this might be the case). Since mental maps are constructed from ranked lists of preferences, it can also be argued that they are several stages removed from a representation of an image or cognitive map, although we can accept that a cognitive map of unspecified form may probably have been used to formulate the preferences.

However, as is frequently and unfortunately the case with novel and subsequently popular phrases, the term is now applied in very loosely defined ways. Indeed, an exact opposite of the original conception is found in Beck and Wood's description:

> 'Mental maps are sketch products created by experimental subjects. They are personal views of the geographic structure of the world expressed in map form ... It is critical that the map is drawn by an individual. Ruled out, thus, is any kind of Gouldian map .....'
>
> (Beck and Wood, 1976; p. 200)

Even Downs and Stea are themselves guilty of perpetuating the confusion:

> '..... this process of creating a mental map is essential to our survival in terms of everyday behaviour and to our identity as thinking and communicating human beings.'
>
> (Downs and Stea, 1977; p. 27)

and the different interpretations of the term made by Johnston and his co-workers have already been mentioned in Chapter 2. Yi Fu Tuan has attempted to shed some light on the confusion (Yi Fu Tuan, 1975) although strictu sensu even he is dealing with cognitive rather than mental maps. Since Gould's work has probably gained wider currency both within and outside the subject than any other worker in the field, it is proposed here to reserve the use of the term 'mental map' for use only in the context of two dimensional representations drawn from ranked preferences, thus preserving the original meaning of the term.

The parallels should also be drawn between images and cognitive maps and the concept of belief, central to attitude theory. Beliefs about the existence of an object and about the nature of that object enable an individual to form attitudes towards it, and to use these attitudes in deciding upon preferences and intended behaviour. Beliefs about the nature and existence of an area therefore, are accepted as being crucial to an individual's assessment of that area and his eventual spatial decisions and behaviour with respect to it.

However, we have also argued earlier in the present chapter that beliefs about the existence of an area, or the existence of certain elements within that area are not sufficient for the

formation of a functional cognitive map; a degree of evaluation is also required. In some approaches to attitude theory, it is contended that it is the possession of the evaluative factor which distinguishes an 'attitude' from a 'belief', and that beliefs are statements of fact with no associated measure of meaning.

Does this mean, then, that we are not dealing with beliefs at all, but are already at the attitude stage, that our image should, after all, be purely structural ? Fishbein does not think so:

> 'Belief about an object may be defined as the probability or improbability that a particular relationship exists between the object of belief and some other object, concept, value or goal. ..... Every belief about an object contains a positive, negative or neutral evaluative aspect. Every belief statement relates the object of belief to some other concept that is positively, negatively or neutrally evaluated by the individual.'
>
> (Fishbein, 1967; pp. 259, 260)

Neither also does Rokeach, who suggests that each belief contains three components, of which the first is

> '..... a cognitive component - because it represents a person's knowledge, held with varying degrees of certitude about what is true or false, good or bad, desirable or undesirable.'
>
> (Rokeach, 1968; p. 113)

The meaning of the term cognitive map now becomes more apparent and its use in the context of environmental images justified. It is a selective admixture of 'reality' containing beliefs about the existence of elements (some of which may be

functionally useful and others visually distinctive or, frequently, both) and beliefs about the nature and meaning of those elements to the individual; an organisation which is essential to the individual's successful spatial behaviour and fundamental to his survival in the environment.

The twelve aspects of an image of a residential area examined in this study are discussed in Chapter 5. In practice, an individual's preference for a certain age or type of housing for example, is likely to influence his interpretation of even the structural elements of his image. In this way, an individual may understand an area to possess large, detached houses, and from this single piece of information deduce that the area is therefore of high residential quality, of an attractive appearance yet contains people who are rather unfriendly. Indeed, the belief that the houses in the area are large and detached may be the only element in his image for a while, but by reference to other beliefs, attitudes or values the image is extended to include evaluations of housing quality, appearance and the type of the residents of equal or even greater importance than the original structural element.

It is therefore possible to separate descriptive beliefs (e.g. that an area possesses large, detached houses) from inferential beliefs (Fishbein and Ajzen, 1975; p. 132) which 'go beyond directly observable events' and which draw upon the individual's previous experiences and, by implication therefore, belief-attitude relationships (e.g. that an area of large, detached houses is therefore of high residential quality, attractive but unfriendly). While no attempt is made to separate different types of belief in the image section of this study, their

existence should be borne in mind as an aid to understanding how respondents are able to articulate a fairly detailed image of an area which they have never visited or about which they may only know one or two incontrovertible 'facts'.

Given that images of residential areas can be elicited from respondents (for a review of associated measurement problems, see Chapter 3), it would be interesting to discover whether there are any similarities or differences in the images of areas held by people living in different locations or socio-economic circumstances.

There are two possibilities:

i) That the images might vary systematically between people of different age, sex, income groups. If this is so, then the variables could be traced to see whether, and if so, how they are reflected in the attitudes and preferences of the individuals within these groups. It might then be possible to suggest why one area, occupying a precise location, should evoke very different interpretations and evaluations in the minds of those perceiving it.

ii) That the images themselves are virtually constant across different locational/socio-economic groups. If this is the case, then we can conclude that either

a) both the act and the product of initial apprehension of the Phenomenal Environment is common to all individuals - that we do not 'see the same thing differently' so much as 'see everything in the same way but subsequently cognitively evaluate it differently'.

or b) that the initial acts of apprehension and perception of the environment are unique for each individual, but that the group values and norms, cultural traditions, social experiences, needs,

desires and expectations which constitute the filter in Fig. 1.1 impose similar constraints on the perceptual input of the individual, effectively reducing all the potentially different images to a common denominator. If this is the case, then the discovery by Gould and White of 'Mental Maps' (1968) is more readily explained by the existence of shared societal norms and goals which influence preferences, rather than by the existence of identical mental processes within separate individuals.

The remaining problems with the image element of the process involve the proposed comparison of images derived from different groups of people. A fundamental dilemma centres on the question: 'With what are the images to be compared ?' Certain of the structural elements, such as age or type of housing could, perhaps, be compared with reality; objective data exists which would allow us to establish the dominant housing type or age of the housing stock in an area. One then encounters, though, the difficulty of equating an internal cognitive representation of reality with the external or physical image which the respondent expresses in verbal, cartographic or pictorial form. Downs and Stea suggest that

> '..... people vary in their ability to make this translation.....'
>
> (Downs and Stea, 1977; p. 101)

to which it could be added that researchers also vary in their ability to interpret such representations correctly. These were certainly difficulties experienced by Rieser and discussed in Chapter 3.

If, as we have argued earlier, a cognitive map or image is designed for a particular purpose, to enable the individual to negotiate his spatial environment, then its 'accuracy' can be assessed only in terms of how successful it is in achieving that aim. What is 'accurate' for one person could be of no use whatsoever to his neighbour, and a so-called 'objective' definition is therefore not possible.

The question concerning whether cognitive maps and images are similar for different groups of people is, however, slightly different. It is a reasonable assumption that individuals of similar social status, living in close proximity to one another and with broadly consonant aims and behavioural patterns in their daily lives might possess images of reality which bear some degree of resemblance to one another. A one to one congruence is again neither likely nor desirable, but evidence of the type provided by Adams (1969) and others has been used to support this type of suggestion.

There is no straightforward answer:

> 'Parts of our cognitive maps are common to all or most members of a large group of people, parts are common to a subgroup of people, while still other parts are unique to each person. These variations in similarity result from three interlocking variables:
> i) The scale of the spatial environment
> ii) The source of the information about that environment
> iii) The location of the person doing the representing.'
>
> (Downs and Stea, 1977; p. 103)

Their distinctions of scale mirror the divisions introduced in Chapter 2 for reviewing the relevant literature. The placing of this study of the Perception-Behaviour process at the city scale restricts its scope to a study of subgroups of people;

firstly to those people resident within that city, and secondly to those resident within specific areas of that city, thereby introducing the location variable iii) above.

The question of whether individual observations may be amalgamated and treated, as they are in this study, as a valid 'group' structure is, as we have seen, a much debated issue. It has recently been suggested, however, that geographers may well have been inclined to dwell too much on the problems of data aggregation, and to have devoted too little attention to the advantages of aggregation and methods suitable for achieving it:

> 'A possible solution to the geographical problem of incorporating behavioural variables into explanations of urban spatial behaviour may be found in moving up the scale of investigation from the highly detailed micro-scale analysis of individual behavioural phenomena to some form of aggregated behavioural variable. Such a variable does exist in the form of attitude.....'
>
> (Murphy and Golledge, 1972; pp. 3,4)

ii) The concept of an Attitude

The article quoted above cogently argues the case for the study of attitude in urban (and behavioural) geography, and offers several explanations for its comparative neglect. One of their criticisms of the small amount of geographical work concerning attitudes is that it has relied on only one form of measurement, that of overt behaviour. The design of the present research demanded a different type of measurement procedure for each element of the process, an approach which clearly finds favour

with Murphy and Golledge:

> '..... if geographic research could develop several measures concurrently to analyse a spatial behaviour, it would obtain a greater degree of validity for its hypotheses compared to testing within the most constricted framework of a single measurement method.'
>
> (Murphy and Golledge, 1972; p. 12)

They go on to suggest that three techniques, the semantic differential, Thurstone's equal appearing interval scale and multi-dimensional scaling may prove to be of greatest use and value to geographers working in the field of attitudes and their measurement. A modification of the semantic differential technique was adopted for use in measuring the attitude element of the Perception-Behaviour process examined here; the relative merits of all three suggested techniques have been discussed in Chapter 3.

One difference between the use made of the semantic differential technique in this study and that found elsewhere (e.g. Downs, 1970c) lies in the number of scales which were actually employed. In order to exhaust the semantic space of a concept such as 'schools' or 'accessibility', a series of bipolar adjectival scales is preferable. In the present study, twelve such concepts were explored for each of ten areas, and far from being the only or major part of the research design, this section comprised only one of four equally important parts - the four elements of the process. A series of scales was clearly impractical given the time constraints of a personal interview schedule, and only one composite scale was used to indicate general attitudes of favourability or dislike.

A note of caution needs to be sounded at this point with respect to such 'general' attitudes. There is a profound difference between an attitude towards a single object and an attitude towards a class of those same objects, and this has been suggested as one reason for the comparative failure of those studies which have attempted to predict behaviour from attitude (Fishbein, 1967; Fishbein and Ajzen, 1975; Murphy and Golledge, 1972). The implication is that no distinction, or an inadequate one, was made between which attitude (i.e. towards an object or a class of those same objects) was being measured. Furthermore, an individual's specific attitude towards a particular object or attribute may vary both with the context within which the attribute is viewed and also with the strength with which the individual holds his belief or attitude i.e. the probability that the object or attribute possesses certain qualities (belief) and the relative importance of these to the individual (attitude).

For example, an individual may hold a general attitude that widespread provision of public transport is highly desirable. The complete absence of public transport in his local neighbourhood however, may not necessarily indicate that his attitude towards his area is unfavourable; he may well regard it as 'secluded' or 'peaceful'. It is therefore not possible to predict either preferences or overt behaviour from the basis of one generally held attitude. In the above example several attitudes are involved - those towards public transport, the quality of the residential environment, the significance of noise, the importance of accessibility and so on. In these circumstances, exact congruence between attitude and behaviour is clearly not possible.

It seems clear, then, that establishing the nature of a 'perceived residential desirability surface' of a city, reflecting some areas which are evaluated favourably and others less so, though necessary, is not sufficient for a complete understanding of the Perception - Behaviour process. Other more narrowly defined and specific attitudes are contained within the general notions of 'good' and 'bad' areas, and these would need to be isolated before a full understanding became possible.

It has been suggested earlier that an individual's image of a potential alternative residential area is composed of an amalgam of 'knowledge' concerning environmental quality, social provision, accessibility, the characteristics of the residents and other attributes, together with his attitudes towards those attributes in general and towards their existence in that particular area.

Attitude toward an attribute is deliberately separated here from attitude towards that attribute in a particular location. For example, a 'general' attitude may reflect the belief that 'good' schools are desirable, whereas the existence of even a 'good' school may degrade the potential attraction of an area for a childless couple seeking seclusion and privacy.

In addition to the overall desirability surface of favourably evaluated areas therefore, measures of attitude toward specific attributes which may be important elements in the image of a residential areas are necessary. In the first instance, such information should, perhaps, relate to the general concept of a residential area rather than being place specific. In other words, an individual's evaluation of attributes such as housing

quality or shopping facilities might ideally be measured separately from his evaluations of those attributes in particular areas. It is not easy to decide what meaning 'general' attitudes might have in the residential decision process independently of actual areas, or how such attitudes could be identified and separated from preferences without a study design far broader than that which could have been undertaken in the present thesis. It was therefore decided to concentrate on the evaluation of attributes in the context of specific areas to elicit general attitudes of favourability or unfavourability, and to assess the relative importance of the attributes themselves by means of preference measures.

If we were able to combine the preferences for attributes with the evaluation of these attributes in particular areas, and to compare these with the images and preferences for actual areas, we should be in a strong position to hypothesise the nature of the links between the elements of the Perception-Behaviour process. Furthermore, it would be possible to

i) Explore the extent to which people's stated behavioural intentions with respect to areas of Leicester can be traced from their images of those areas through their attitudes towards them and their distinctive evaluative or preferential treatment of them (bearing in mind the restrictions of job location, financial considerations and housing policy which may all serve to interrupt or indefinitely postpone operation of the process).

ii) Examine the notion of correspondence between the Phenomenal and Behavioural Environments in an attempt to isolate those areas which are the victims of frequent 'misperception' or, maybe,

'incorrect' information and which might, therefore, be expected to produce misleading images and attitudes.

iii) Discover whether Gould's 'Tennis Ball Effect' leads to overestimation of the desirability of the local area, given the images and attitudes towards more distant areas which might, when viewed in isolation, appear more favourable. This would establish whether a respondent or group of respondents could evaluate another area more favourably than their own in their attitude measures, yet place their own area at or near the top of a straightforward preference ranking, or whether the attitude scores would give a fairly good indication of the preference structures.

At this point, one inevitably returns to the question of 'group views' - the existence of common images, attitudes, preferences and intentions within a population. Several such 'group views' are possible, and indeed necessary to an investigation of the type undertaken here. Physical location of the individual may well be important; it would be pertinent to know whether images, attitudes and preferences towards areas of a city are affected by the wedge shaped information fields which have been suggested to exist (see Chapter 2). Are people more keenly aware of areas in close proximity to their own ? Location in social space maybe similarly or more important; do people of similar age or class groupings possess similar attitudes towards attributes of residential areas or similar preference structures for alternative areas irrespective of the location in which they currently live ?

Important though they undoubtedly are, attitudes should,

however, be viewed in the framework of the Perception - Behaviour process rather than as isolated, abstract entities. Attitudes towards particular areas, as in our present example, are mediated by the total social setting in which they are held; in other words they are affected both by the subjective norms and group pressures experienced by the individuals forming them and, in our example, by the whole city of which each area is a part. The difference between attitudes towards particular objects (areas) and towards the total social setting (the city of Leicester) is equated by Rokeach (1968) with that between the 'figure' and 'ground' of Gestalt Psychology discussed earlier in this study.

Thus evaluation of Belgrave as an area of Leicester in which to live can only be made in the context of all the other areas of the city; it is a relative decision. Similarly, evaluation of the schools in Belgrave relies on an estimation of their perceived quality compared with other schools throughout the city. Belgrave is therefore the 'figure' and the city of Leicester the 'ground' in the first instance; schools in Belgrave are the 'figure' and Leicester schools generally the 'ground' in the second.

Although it is attitude towards 'figure' which features prominently in the Perception - Behaviour process examined in the attitude section (Chapter 7) of the present study, attitudes towards the 'ground' are more apparent in the following chapter, where the preferences based on these attitudes expressed by the respondents for such general features as shops, community facilities and housing quality are examined in greater detail, and a preferential desirability surface of the whole city (ground) is constructed.

iii) The concept of Preference

> 'When we ask people to rank their preferences for places, we are really asking them to measure the strength of their likes and dislikes on an ordinal scale - literally a scale that requires people to put things in order from the most- to the least-liked.'
>
> (Gould and White, 1974; p. 56)

The relative merits of ordinal and interval data have been discussed in Chapter 3, and it has been noted that

> 'As it turns out in practice, it does not make very much difference what scaling procedures are used, for they all lead to very consistent and similar results ..... In fact, for any group of reasonable size, say over twenty, the mental maps constructed from interval and ordinal measurements are virtually indistinguishable.'
>
> (Gould and White, 1974; pp. 56, 57)

The use of ordinal scales (ranked lists) to elicit preferences in one of the best known techniques currently in use in Behavioural Geography. It is easy to administer, and easy for respondents to complete (unless the number of ranked items is too large or the criteria by which they are to be ranked is too complex). The exact meaning of such preferences, however, is still unclear.

It has been suggested that a ranked list of preferences of this type will influence an individual's behaviour with respect to a stimulus object:

> '..... we must think of the image of the individual as including a value ordering of potential acts and their consequences. The act which stands highest on the ordering will be the one performed, and as soon as it is performed, a new ordering comes into view and a new act is selected.'

(Boulding, 1956; p. 50)

The theme of considering the consequences of any action is subsequently taken up by Fishbein and Ajzen (1975):

> '.... his attitude toward performing a given behaviour is related to his beliefs that performing a certain behaviour will lead to certain consequences and his evaluation of those consequences.'

(Fishbein and Ajzen, 1975; p. 16)

Geographers, such as Rushton, while acknowledging that such choices are made for a particular purpose, illustrate the inversion of logic commented upon in Chapter 2, by attempting to

> '..... derive the subjective ranking of locational types from empirical data of actual spatial choices made for a particular purpose..... the purpose of studying spatial behaviour should be to derive a description of preferences.'

(Rushton, 1967; pp. 202, 223)

Despite their undoubted involvement with space preference, such studies are incompatible with the present work and its essentially process oriented approach.

Preference structures for many phenomena have been investigated in detail (see Chapter 2). Lieber used 'joint-space analysis' to uncover some of the reasons underlying why certain states in the United States were preferred above others,

and established that:

> '..... preferred states exhibit wider variability in the reasons for being chosen than do states receiving indifferent or disliked responses..... preferred states are evaluated in terms of more than one clear characteristic in the respondent's mind ..... as the participant becomes more familiar with the states he or she dislikes, there is a tendency towards a single criterion as the basis of evaluation for the states.'
>
> (Lieber, 1971; p. 26)

This finding may in part account for the well known fact of social research, that individuals are far better able to articulate something which they dislike, together with their reasons for so doing, than something of which they have a favourable impression. If the reasons for liking something are indeed more complex, and different from those for not liking it, then such an effect is not surprising.

The implication in a ranked list of preferences is that each item has been subjectively compared with every other item and that the final ordering reflects the choices made between all possible pairings. Gould and White, the pioneers of preference research in Behavioural Geography used Principal Components Analysis to reveal the similarities and differences between the ranked lists of all their respondents, correlating each list with every other list (Gould and White, 1968).

However, it would seem more appropriate to use a scaling system actually devised to deal with the psychometric procedure of paired comparisons.

> 'Rank order information can be used to indicate comparative judgements for all pairs of stimuli. If four stimuli B, D, A and C are ranked in the order given,

> which is of decreasing quantity, we may readily infer six comparative judgements: B > D, B > A, B > C, D > A, D > C, and A > C. From repeated judgements of the same series of stimuli, we can determine the proportion of the times each stimulus is judged greater than every other stimulus.'
>
> (Guilford, 1954; p. 183)

Guilford considered rank ordering, which of course, implies paired comparisons, as more attractive than the method of paired comparisons as strictly defined.

> 'From the standpoint of ease and economy of time on the part of the judges, the ranking method is far superior to pair comparisons. It is obviously much easier to rank 20 stimuli than to judge 190 pairs. The dynamic interrelations apparently existing throughout any series of stimuli although probably present to some extent in pair comparisons, are of great significance in rank judgements ..... As for the scale positions obtained from the two methods, the one type is as valid as the other.'
>
> (Guilford, 1954; p. 194)

Johnston draws attention to the relevance of this method in his analysis of preference patterns for residential suburbs in Christchurch, New Zealand (Johnston, 1971). It enables a 'consensus view' or 'average' ranking of all stimuli to be obtained for the entire sample. The position of each stimulus on the interval scale which results from application of the procedure is determined by the number of times that stimulus is preferred over others by members of the sample.

The formula by which the measurement is achieved takes the form:

$$Mp = \frac{C + 0.5\,N}{nN}$$

where Mp is the scale value of the particular stimulus

C represents the total number of preferences for that stimulus

N is the number of judges

and n is the total number of stimuli being ranked

This method has the advantage of comparing individuals only over those stimuli which they manage to rank and so N may vary. Missing data, such as large numbers of respondents who are unable to rank every stimulus in the set, thus do not bias the mean 'average' view of those who do rank the entire set.

The respondents in the present study were thus required to rank a set of twelve attributes of a hypothetical residential area in order of their importance to the individual in choosing a new place to live, and then to rank ten areas of Leicester in order of residential desirability. The measurement procedure based on the psychometric method of paried comparisons as outlined in this section, was applied to both sets of data, and the resultant preference structures for various subgroups of the three samples form the data analysed in Chapter 8.

In order to establish an overall preferential desirability surface of the whole city, the procedure of paired comparisons was applied to the data obtained from the supplementary questionnaire schedule which became necessary during the fieldwork for the project (which is discussed in Chapter 5) and the data from this was used ina Trend Surface Analysis, which is examined in Chapter 8.

iv) The concept of Behavioural Intention

It is from the final element and stage of the Perception - Behaviour process that the name Behavioural Geography has derived. In one sense, all Human Geography is behavioural in so far as it is concerned with examining how people actually use their spatial environment, either as individuals or groups, an idea which is shared by Bourne (1973). Adopting a literal interpretation of the term, there can be no substitute for observation of what individuals actually do, since we are well aware that how they say they behave may be different from what they think they do, or what they would in fact do if confronted by the situation in question.

In order to avoid numerous isolated descriptions of behaviour however, such observations need to be collected systematically, bearing in mind that answering a questionnaire or participating in a controlled experiment is, in itself, a form of overt behaviour. This requires a structured framework into which observed behaviour may be set, and by which it becomes explicable.

The Perception - Behaviour process adopted here provides such a framework, and allows behaviour to be viewed as the outcome of a sequence of subconscious and conscious events, starting with the formation of an image of his environment by an individual - in other words, the translation of his Phenomenal Environment into a Behavioural one on which he will base his future decisions. As we have already recognised, however, the final link in the chain is the weakest since that is the major point at which extraneous variables intervene to distort, disrupt or sever the process. The amalgam of image,

attitude and preference, however, does serve as a very powerful filter through which incoming information (concerning housing availability for example) is evaluated and interpreted.

One of the few attempts to examine what were termed 'structural linkages' between cognition, preference and spatial behaviour, involved the use of canonical correlation analysis to compare the cognitive space (representing the underlying structure of attributes associated with the states of America) with the preference space (representing the preference structure for those states derived from ranked lists) and the behaviour space (representing actual migration behaviour derived from the U.S. Census) of a sample (Lloyd, 1976).

Student samples were again used, but different groups provided the cognitive and preference data and the census information obviously represented a third, non-student sample. Although the underlying idea echoes a process oriented approach, the methodology is very different from that employed in the present study. It would certainly appear essential, at least in the early stages of exploratory work of this nature, to keep the sample groups consistent throughout each stage of the process under examination. Failure to do this results in an inability to link the various elements with any degree of clarity or certainty.

Given that we must, on balance, accept that the people whom we interview and observe are providing us with material which they believe to be honest and accurate, we should not be too concerned at the prospect of halting with what Fishbein and Ajzen call 'Behavioural Intention' (Fishbein and Ajzen, 1975).

There is clearly a great deal of work remaining to be done concerning the means by which intentions are translated into overt behaviour, although it is not proposed to undertake such a major task here.

The recognition that Behavioural Intention is a more realistic product of Image, Attitude, and Preference also partly circumvents the largely unproductive debate which has occupied psychologists for several decades concerning whether attitudes determine behaviour, and whether one may be predicted from the other. It is not the wish of the present study to predict behaviour from any or all of the three earlier elements of the process, but rather to understand how these three contribute to the total milieu in which human behaviour takes place. A process can only be as effective as its weakest link, and it is therefore of little help at present to hypothesise a direct relationship between intention and behaviour before we have examined the situation in greater detail.

For present purposes therefore, attention to the behaviour link was confined to identifying those areas of the city which are visited by members of the three samples for work or occupational reasons, and the frequency of those visits. Behavioural Intentions received greater consideration. The image, attitude and evaluation of the respondent's local area were isolated in order to establish whether unfavourable images and evaluations are linked with a desire to move. Secondly, the images, attitudes and preferences for other residential areas in the city were examined, in an attempt to match stated intentions to move into or away from certain areas with such data.

By identifying those respondents who are enthusiastic at the prospect of moving home, it is possible to determine whether they evaluate their home area more unfavourably than those who wish to remain along dimensions which are of particular importance to them, and whether the areas to which they state a desire to move are evaluated more positively than their own area along the same dimensions. If these objectives could be achieved, then we should be in a much stronger position to hypothesise a definite link between image, attitude, preference and behavioural intention in a residential context.

Chapter 9 examines this complex issue in some detail; the results are encouraging, so any claim for a direct relationship between the four elements of the process and overt behaviour should, at this early stage, remain modest.

Conclusion

The purpose of this chapter has been to

i) Examine the concepts underlying each of the four elements of the proposed Perception - Behaviour process and to define the terms as used in the present study

ii) Relate these elements to established work in Behavioural Geography and Social Psychology, and to point out in which respects the empirical part of this thesis differs from previous studies

iii) Outline the means by which each element might best be measured given the purposes of our study

iv) Set out the methods by which the data necessary for the proposed task could best be obtained.

To summarise, the meaning of a residential area is held to be an essential component in the formation of a communicable, purposeful image of that area in the mind of an individual. His image, defined in this way, is thus virtually synonymous with the term 'cognitive map' preferred by some workers in the field, and contains notions such as 'old, poor housing' and 'good shopping facilities'.

General attitudes towards attributes of areas can be separated from more specific attitudes towards the existence of attributes of varying degrees of evaluation in particular areas, which are more likely to influence preferences and behavioural intentions with respect to those areas. Such attitudes can be measured by the application of a semantic differential type procedure.

Preference structures, both for individual areas and attributes of areas can be elicited from ordinal ranked lists provided by respondents by using a method derived from the psychometric procedure of paired comparisons which takes into account the differential ability of respondents to rank order every stimulus.

For each element, differences between samples living in different areas of the city and between persons of differing social and family characteristics irrespective of physical location may be examined. The strength of the approach adopted in the present study however, lies not so much with a consideration of these separate elements so much as with an examination of their total contribution to the operation of the whole process.

Image differences or similarities may be traced through to the attitudes towards areas as revealed by the evaluation of attributes as perceived to exist in those areas. These in turn

may be set against stated preferences for areas and attributes to examine whether behavioural intentions to move into or away from certain areas can be matched with the images, attitudes and preferences displayed towards them.

Similarly, the image and the evaluation of attributes in an individual's own area may be linked with the desire to move, and for those people wishing to move, it might be possible to assess the extent to which preferred areas possess more favourable evaluations of important attributes than the local area.

Chapter 5 therefore deals with the practice of putting this theory into action, with the design of the study and structure of the questionnaire schedules used. Chapters 6 to 9 focus on the data concerning each of the four elements of the process respectively.

5

Practice

> 'As yet, no published work reflects the use of both social area analysis and Lynch-type methods to first define the spatial distribution of social groups within an urban area, and then to analyse the perceptions which such varied groups hold of the city..... the relationship between socio-economic position and urban image perception would appear to be a major topic for future study.'
>
> (Goodey, 1971; pp.23,28)

Although 'Lynch-type methods' were, as we have seen, abandoned in favour of methods isolating and measuring the appraisive aspects of images, the above extract expresses quite concisely one of the initial aims of the present study. Not surprisingly, perhaps, the actual practice and experience of achieving that end was rather different from the theory, and the task was by no means a simple one. Moreover, given our interest in the entire Perception-Behaviour process, images were only one part of the information required; attitudes, preferences and behavioural intentions all needed to be examined.

This chapter outlines the approach adopted and the manner in which the task was designed and undertaken. This background to the collection of the data will be considered in three separate sections:

i) The choice of the sample areas

ii) The choice of the sample itself, and the structure of the main questionnaire

iii) The supplementary questionnaire

i) The Choice of the Sample Areas

In order to compare the effects of social class on image content and meaning with those of physical location, an initial requirement was an objective method of selecting clearly differentiated subgroups of the city population. As discussed in Chapter 1, an obvious choice was the procedure of Factor Analysis, well established in the geographical literature and respected as a method well equipped to produce an accurate map of ecologically defined social areas.

The resulting pattern, though frequently produced 'for its own sake' (see review in Chapter 1) is better thought of as providing a simple yet excellent sampling frame. Each area is, by definition, sufficiently internally homogeneous to produce valid group data, but clearly differentiated from surrounding areas. Duplication, both of social characteristics of the population, and of physical locations within the city, can thus easily be avoided.

The fieldwork was planned between October 1972 and July 1973, and the data collection was completed by the middle of 1975. In the early stages of project design, it was hoped to use the most recent material available from the 1971 Census as input for a Factorial Ecology of Leicester. In the event, it proved impractical to await the delayed publication of the census data, which, when it did eventually appear, was not at the expected grid-square level.

This necessitated using information already collected from the 1966 10% sample census and previously computed as a Factorial Ecology by Davies and Lewis (1973). Although

this solution removed the basic groundwork of performing a Factor Analysis and avoided repetition of the procedure after an interval in the data of only five years, there were several disadvantages.

It would have been preferable to base the Factorial Ecology, and hence the sampling frame for the present study, on a 100% coverage of the population rather than a 10% sample. This was not a serious drawback though, and only the timing of the present research made the former course of action impractical. A more serious difficulty involved the length of time which had elapsed between the collection of the census data and the implementation of the research project.

A marked characteristic of Leicester's population revealed by the 1966 census and subsequent Factorial Ecology (Davies and Lewis, 1973; Lewis and Davies, 1974), was its high level of mobility. This reflected the fact that the analysis included the suburban 'villages' around the city containing large numbers of highly mobile young adults, and also the fact that the initial list of 56 variables used in the Factorial Ecology included ten variables explicitly concerned with measures of mobility, and a further eight with aspects of car ownership and commuting behaviour. It also highlighted the in-migration of new Commonwealth citizens who had recently come to live, in the main, in two residential areas to the north and east of the city centre.

During the early 1970s many more Asians were expelled from East Africa, and a proportion of those coming to England settled in Leicester, thus increasing the rate of change in an already rapidly altering situation.

It is therefore reasonable to assume that some of the areas identified by the 1966 census and Factor Analysis had considerably changed in character in a short period of time, and the inadvertant choice of one of these residential areas for investigation could have produced very misleading results, since the actual sample obtained might not have possessed the characteristics expected of it.

The Factor Analysis, which produced the Factorial Ecology of Leicester which was adopted as a sampling frame for the selection of sample areas for the present study, was performed on 56 variables derived from the Enumeration District data of the 1966 census. Enumeration Districts with a sample population mean of less than one hundred people were grouped with adjacent districts. To the 124 Enumeration Districts identified within the city boundaries, ten 'suburban' villages, all part of the continuous built-up area of Greater Leicester were added, making a total of 143 E.Ds.

Briefly summarised, an R mode Principal Components Analysis with diagonals of unity in the similarity matrix produced a nine component model, which accounted for 72.2% of the original variance (for a more detailed description, see Davies and Lewis, 1973). In descending order of eigenvalue size, the first four of the nine components emerged as

a) Socio-economic status which accounted for 17.6% of the variance
b) Life Cycle ,, ,, ,, 9.9% ,, ,, ,,
c) Mobility ,, ,, ,, 8.2% ,, ,, ,,
d) Substandard Housing ,, ,, ,, 8.1% ,, ,, ,,

These were termed Factors 1, 2, 3, and 4 respectively. Ethnicity, a component found so frequently in the Factorial

Ecologies of cities in the United States (see Chapter 1), assumed the position of Factor 6 with a variance explanation of 6.4%.

Presentation of the data from such a study can take many forms, and those which map to resultant factor scores obviously possess a degree of attraction for the geographer. No such maps are provided in the 1973 paper, but three possible approaches are examined in two other papers in the series. Lewis (1972) demonstrates how factor loadings can be elicited for each Enumeration District on each factor, and the data mapped on Enumeration District basis, to differentiate between areas of positive and negative scores on each factor, and secondly between the different strengths of these scores. In the later paper (Lewis and Davies, 1974), this approach is developed further and supplemented by isopleth 'contour' maps illustrating the nature and distribution of factor scores over the city area.

Whilst this latter method provides a useful summary of the social patterning of Leicester, it is not particularly useful as the basis of a sampling frame, since individual differences are necessarily smoothed to illustrate the general situation, and single Enumeration Districts and their scores on different factors cannot be identified.

Simple visual inspection of these distribution maps can clearly provide a large amount of information concerning each Enumeration District, and districts possessing high scores on the Socio-economic status of Life Cycle dimensions can, for instance, be separated from areas exhibiting low scores on these same factors. By the nature of the maps, however, only one

factor can be so mapped at any one time. Combining two sets of factor scores necessarily diminishes the accuracy of the end product, although a crude form of representation is possible on the basis of a straightforward verbal classification into areas displaying differing combinations of High, Medium and Low Socio-economic status scores with High, Medium and Low Life Cycle scores. In this case, though, the researcher must determine the cut-off value which constitutes a 'high' rather then a 'medium' or 'low' score on any factor, and the method is not particularly rigorous.

One possible means of averting this problem is to devise what Lewis and Davies term a 'Community Space Diagram'. This is, in effect, a graph, consisting of one set of factor scores plotted against another, the position of both axes being determined by the neutral point, or score of zero, between the positive and negative factor scores. Each Enumeration District can therefore be assigned to a position on this graph according to its scores (factor loadings) on each of the two factors.

In the 1974 paper, the Community Space Diagram assumes the form of a 5 x 5, 25 cell matrix, with the scores along each axis divided into very low, low, medium, high and very high classifications, on a subjective basis. This method is useful as a form of 'social space shorthand', but is not strictly relevant to our purposes here. What is clear however, is that irrespective of the existence or actual positioning of the 25 cells, areas possessing different social characteristics will come to occupy opposite positions on the graph. Successive combinations of pairs of factor scores in Community Space Diagrams will demonstrate whether areas which differ markedly

from each other on some dimensions also differ on others. If the same areas recur in positions of isolation from the majority, or in consistently opposing positions from each other, then these areas are clearly differentiated in terms of various social characteristics which have been defined by the Factorial Ecology as being meaningful in accounting for the observed variance within the city.

It should by now be clear that Community Space Diagrams based on a Factorial Ecology of Census data can provide the

> 'sampling frame for exploring systematically the behavioural and attitudinal correlates of gross differences in the social characteristics of residential areas.....'
>
> (Jones, 1968; p. 439)

suggested by Jones (1968). The aim of this study was therefore to select from such a framework, a number of areas displaying markedly different social characteristics of age, mobility, family structure and socio-economic status, and to investigate the Perception-Behaviour process of Images, Attitudes, Preferences and Behavioural Intentions in a residential context of persons living within these areas. In this way the first part of the suggestion which opened this chapter, that of using 'social area analysis to first define the spatial distribution of social groups within the city ....' (Goodey, 1971) would be achieved, and examination of 'the perceptions which such varied groups hold of the city' could be approached.

Two groups of city residents, however, posed difficulties. The first of these, the Asian population, presented two different yet equally challenging problems. The first is purely practical;

the most recently arrived members of the Asian community in particular are frequently non-English speaking, and some are non-literate in any language. Verbal or written questionnaires of an academic nature are therefore virtually impossible with this group. This problem was confounded by the decision (see later this chapter, in section ii) to interview female respondents; cultural taboos acted against free access to large numbers of the Asian women for questionnaire work.

The second problem is twofold. It has already been shown in Chapter 2 how persons of different nationality and tradition display distinctive and widely divergent cultural traits in their perceptions of objects and events. It would thus be extremely difficult to justify obtaining a 'group' image from an ethnically mixed sample of the population when it could be expected that their perceptions would be much at variance with each other. It would be even more suspect to compare such an image with one obtained from an ethnically homogeneous group of any nationality. As a further extension of this point, most of our current knowledge concerning perception and environmental images and behaviour has come from studies of members of western cultures, and there is no firm evidence that the concepts investigated will possess common meaning for members of different cultures; indeed there is every suggestion that this would not be the case (see Chapter 2, 'International' scale).

Cross cultural perception is deservedly a research field in its own right (see, for example, Segall, Campbell and Herskovits, 1966) but in an exploratory study of the type conducted here, it seems wise to exclude variables which cannot be controlled for

given the present state of our knowledge. When the basic operation of the process is known, other constraints may be built in at a later stage, and their effects assessed more adequately. This combination of practical and conceptual difficulties therefore resulted in the exclusion of the two major areas of New Commonwealth residents, Highfields (predominantly Asian) and Belgrave (with more West Indians) from the list of areas from which the selection of in-depth study locations was made.

The other group of residents posing problems of sampling was those people living in accommodation rented from the Local Authority. For them, the concept of 'residential desirability' is likely to be restricted in scope, since the attitudes and preferences which they undoubtedly possess for other residential areas are much less capable of translation into actual behaviour. Since their status as Council tenants precludes them from experiencing the final stage of the residential perception-behaviour process, their inclusion in the present study would have made comparison with other less spatially restricted groups inadvisable. The range of locational choices available to a council tenant is clearly much smaller than that available to a private owner.

Neither the immigrant nor the council tenant group was difficult to isolate; both formed easily identifiable social areas in the results of the Factorial Ecology. Single immigrant families could be identified from the Electoral Registers; single council-owned properties were more difficult, but in the event only one respondent selected, in one area, was a council tenant, and a replacement interview was used.

Of the 143 Enumeration Districts, 43 were excluded from the sampling frame as possessing a large proportion of New Commonwealth citizens, or being composed mainly of property owned by the Local Authority. Figs. 5.1 to 5.4 represent relevant Community Space Diagrams including all the 143 Enumeration Districts used in the Factorial Ecology, to demonstrate the different types of social area which emerged.

There were four broadly defined categories:

Type 1 High socio-economic status
Young population
Good Quality Housing
A highly mobile population

Type 2 High socio-economic status
An ageing population
Good Quality Housing
An immobile population

Type 3 Low socio-economic status
Young population
Poor/medium quality Housing
Mobile/Immobile population

Type 4 Low socio-economic status
An older population
Poor/medium quality Housing
Very immobile population

The two different patterns of mobility evident in the Type 3 areas defined the two population groups which were eventually excluded from the study; high mobility areas were those of

Fig. 5.1 Community Space Diagram:

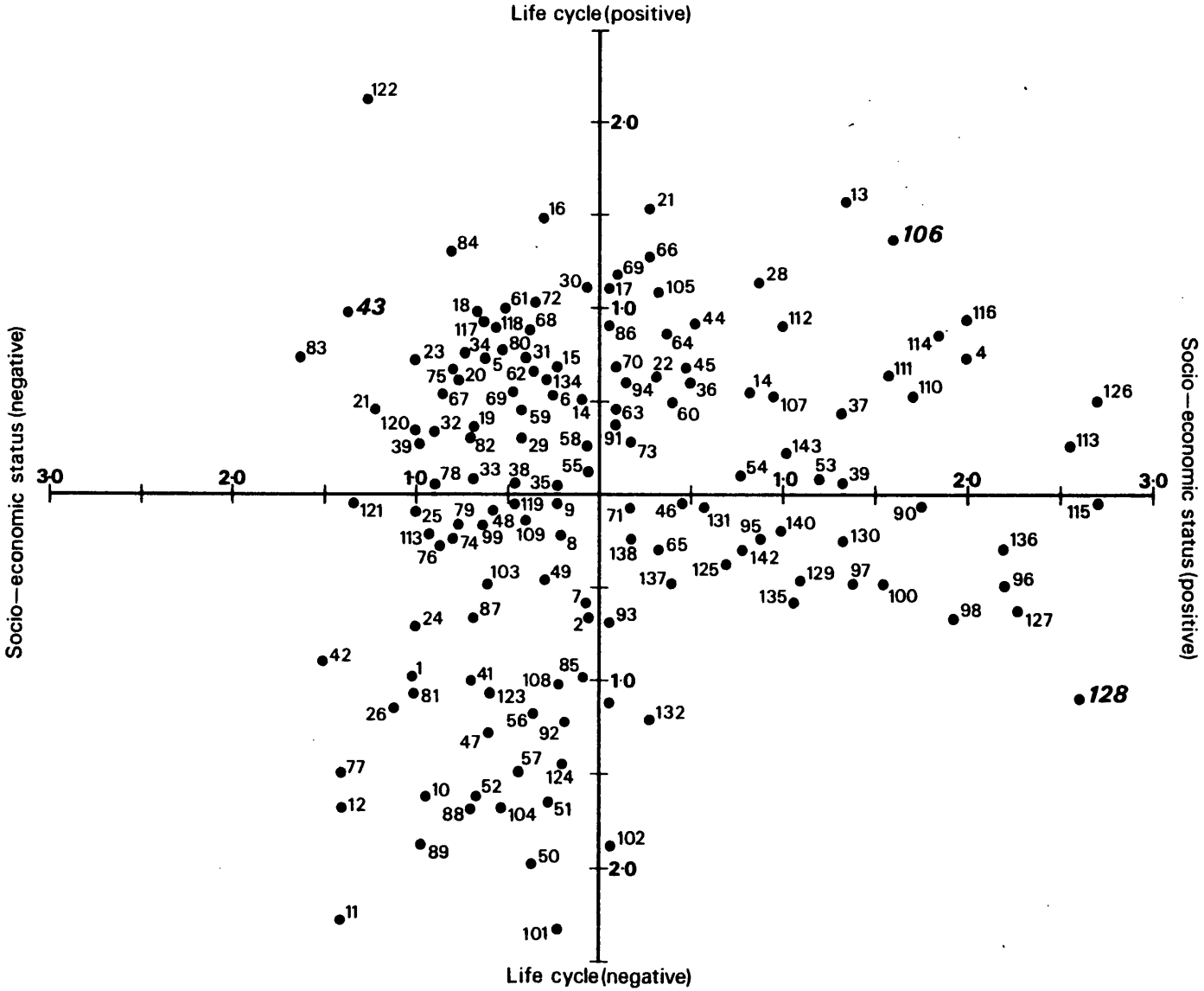


Fig. 5.2 Community Space Diagram:

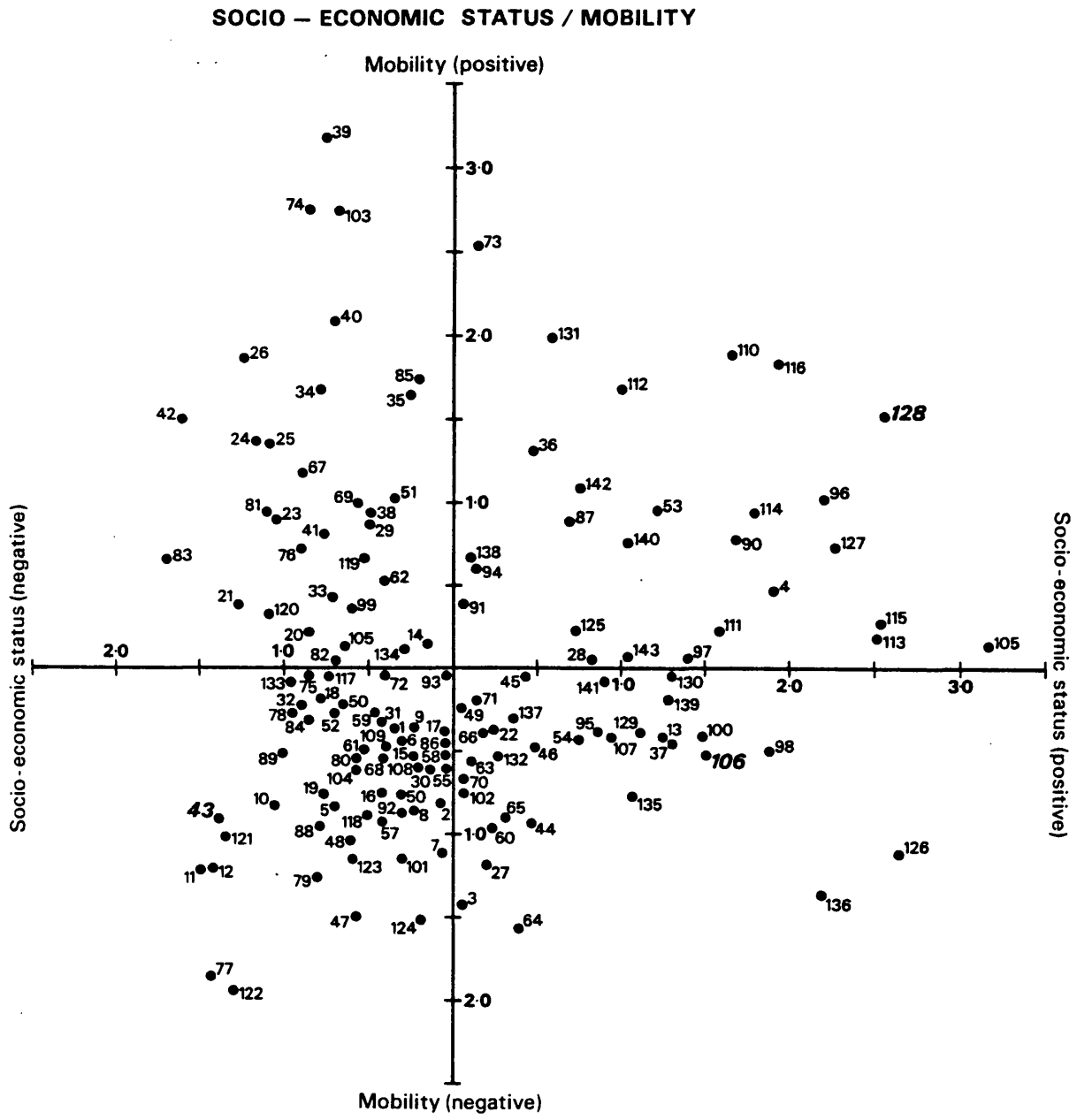


Fig. 5.3 Community Space Diagram:

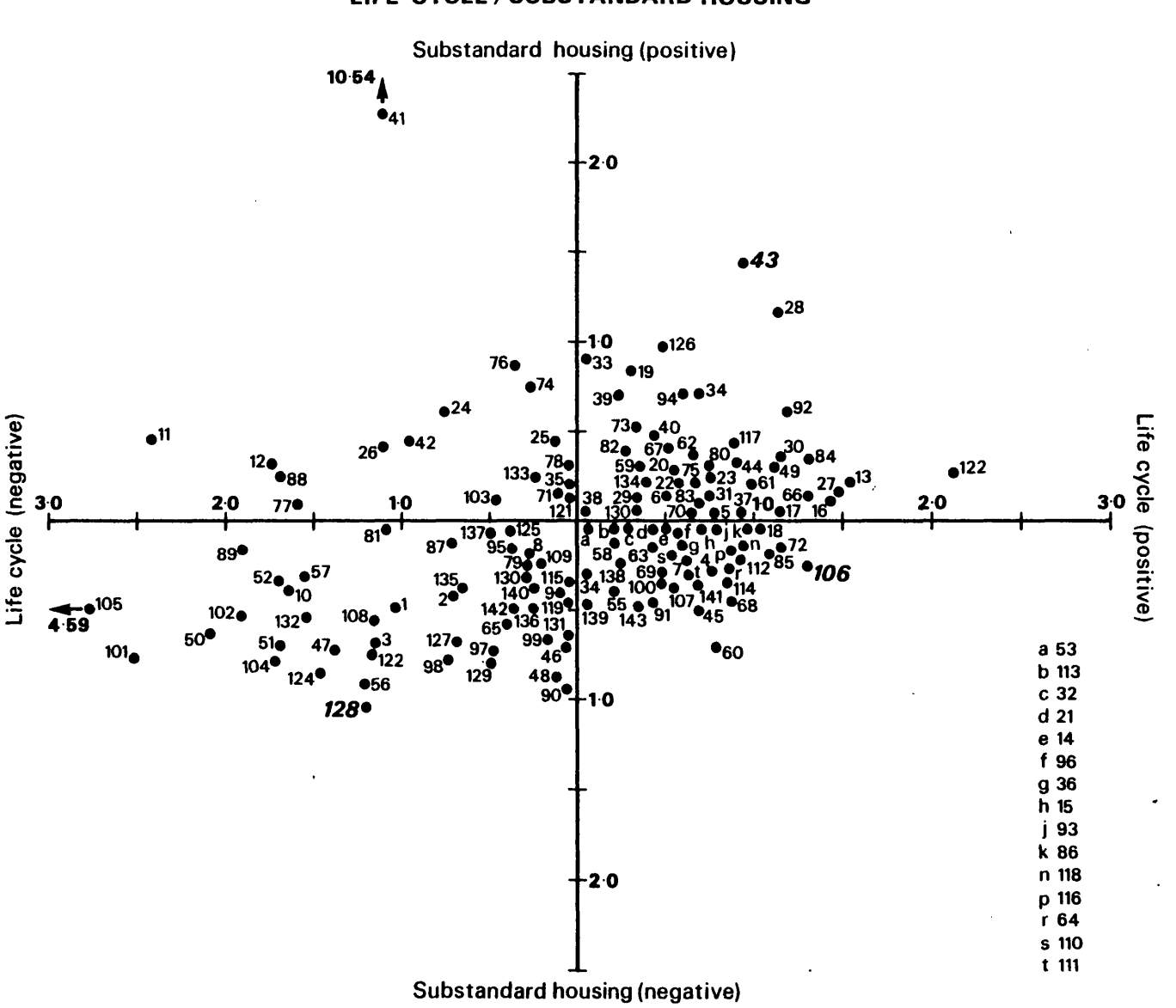
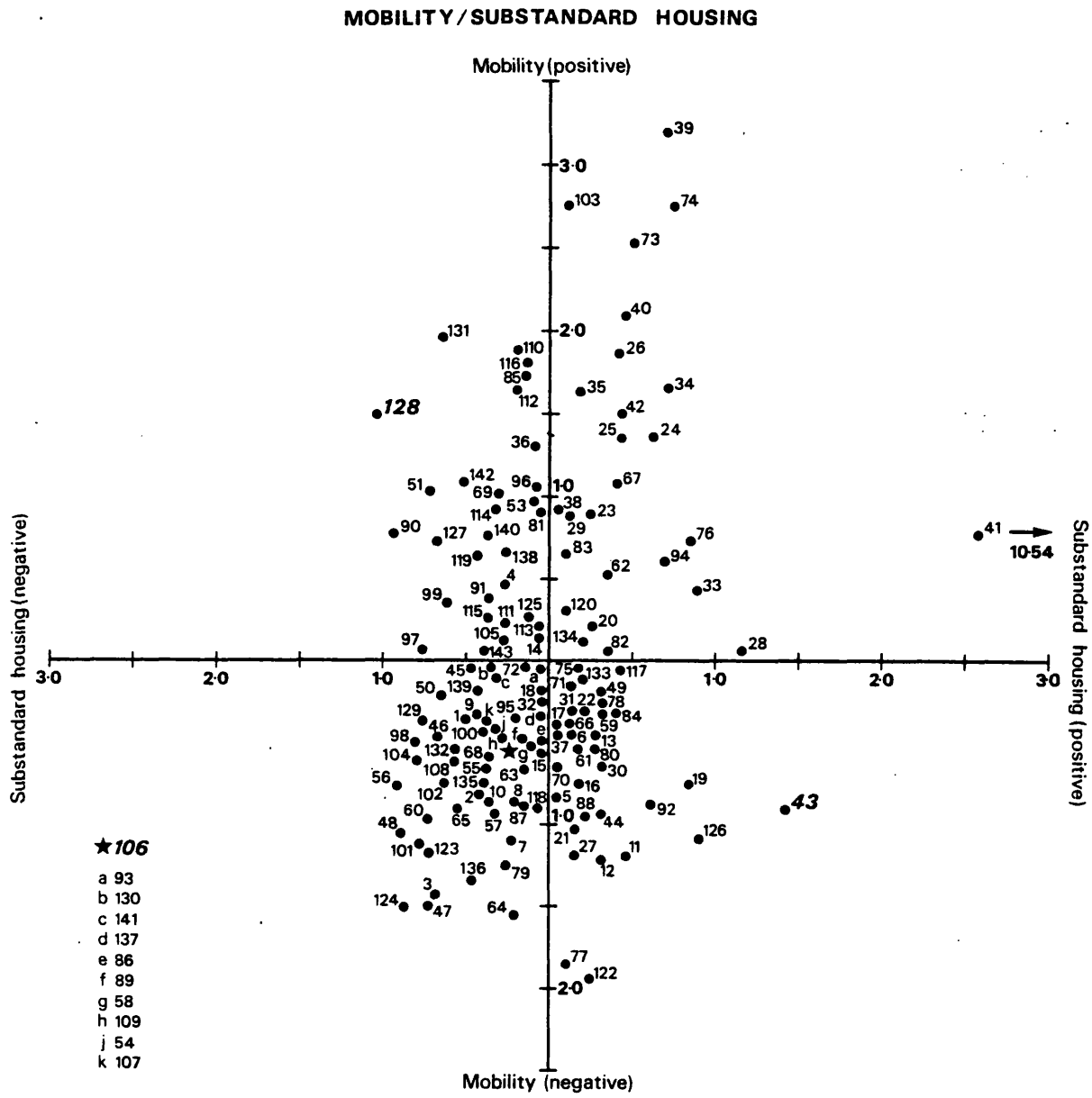


Fig. 5.4 Community Space Diagram:



recent immigrant in-migration, whereas the Local Authority housing estates were characterised by widespread immobility. It was therefore decided that three areas should be selected for in-depth study, one from each of the Types 1, 2 and 4 identified by the Community Space Diagrams. A further requirement for that part of the analysis which examined the effects of physical location on the images of residential areas was that the areas selected in the sample should be distinctive districts of the city, should possess no common boundaries (which would have introduced unnecessary confusion) and should, if possible, be located in different sectors of the city.

Lewis and Davies remarked that:

> '..... outstanding among the set of areas with older, lower status characteristics is the inner city area of Woodgate (E.D. 122)....'
>
> (Lewis and Davies, 1974; p. 201)

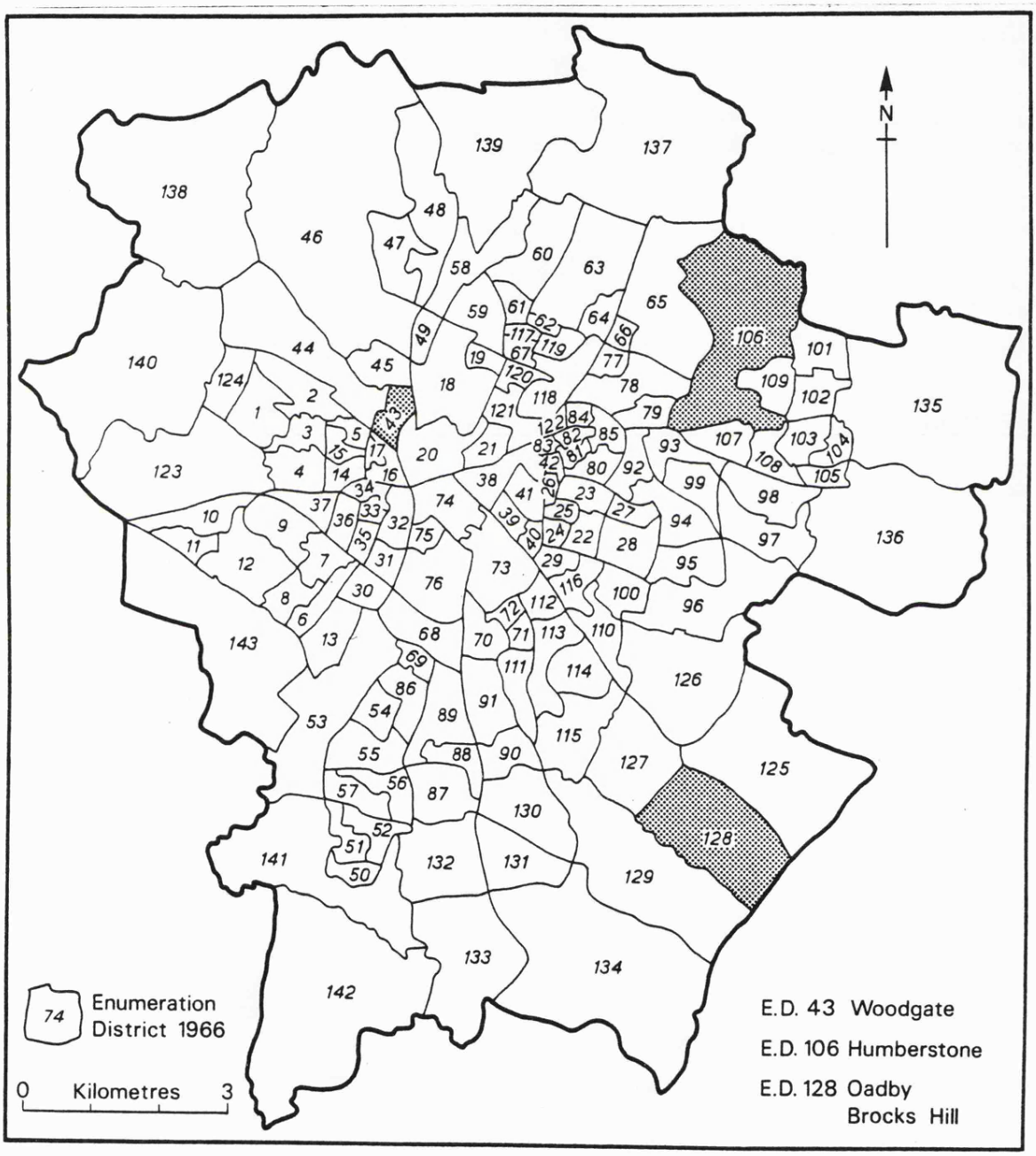
E.D. 122 does indeed exhibit such characteristics, as can be seen by its isolated position in Fig. 5.1, and although it would have been an obvious choice as a representative of the Type 4 areas, E.D. 122 was in the process of large-scale redevelopment in 1973 when the fieldwork for this project began. But 'the inner city of Woodgate' is, in fact, E.D. 43 and not E.D. 122, and displays similar, though not quite such extreme characteristics, and so Woodgate was therefore selected as the sample area from the Type 4 group. As is evident from Figs. 5.1 to 5.4, Woodgate is an Enumeration District of low socio-economic status, containing an older population, which is immobile, in poor to medium quality housing stock.

Woodgate lies about one mile north west of the city centre (see Fig. 5.5) and is a small enclave of late Victorian terraced houses, sandwiched between two main roads, the river Soar, the Grand Union Canal and a disused railway line.

A similarly exposed position in the opposite quadrant from E.D. 43 in Figs. 5.1 to 5.4 is occupied by E.D. 128. This is the Brocks Hill estate in Oadby, a recently developed suburb beyond the south eastern limits of the city. The old village centre of Oadby has been expanded to accommodate three large privately owned housing estates (all built since 1960), an older council estate and associated light industrial estate, and an area of very high status housing, some of which is now occupied by University Halls of Residence (E.D. 126). Brocks Hill itself (see Fig. 5.5) is an area of young, mobile, high status families, and the only one of the three sample areas lying beyond the city boundaries.

A word of caution should be offered here, since the 1966 Census was likely to have overestimated the importance of the mobility dimension in Brocks Hill. Since the estate was still incomplete at the time of the Census, virtually all its inhabitants would have been classified as migrants, having been involved in a change of residence within the previous year or five years. In the seven years which elapsed between 1966 and the fieldwork in 1973, it was possible that there had been a stabilisation of the population to a greater or lesser extent. In fact, any such stabilisation proved to be negligible; Oadby (Brocks Hill) emerged from the analysis as the more mobile area which it was hoped it would represent.

Fig. 5.5 Enumeration District Map for 1966 Census and Locations of Humberstone, Woodgate and Oadby sample areas



The third sample area selected was E.D. 106, the old village of Humberstone and surrounding district of mixed, high status inter-war housing in the north east of the city (see Fig. 5.5). From Figs. 5.1 to 5.4, it can be seen that E.D. 106 is an area of similar socio-economic status and housing quality as Oadby (Brocks Hill), but contains older, more immobile persons, a large proportion of whom have lived in Leicester for a considerable length of time. Humberstone therefore formed a good example of the Type 2 group of social areas in Leicester.

Fig. 5.5 demonstrates that the only parts of the city under-represented in this selection of sample areas lie to the west and south west of the city centre. In their 1974 paper, Lewis and Davies indicate that these areas of Leicester are occupied by a considerable tract of waste land along the river in the south west, and by several large concentrations of council housing in the west, and, to a lesser extent, south west (Lewis and Davies, 1974; especially Figs. 1 and 2, pp. 195, 197).

To summarise, these areas of Woodgate, Oadby and Humberstone can be seen as three very different examples of urban residential environments, and by the manner of their selection, it can be safely assumed that they also contain groups of people who vary considerably in their socio-economic status, life cycle, mobility and housing characteristics. Having decided where the study should be based, the next consideration involved the choice of the sample itself and the construction of the questionnaire necessary to obtain the data to fulfil the aims of the study as stated in the Introduction.

ii) The Choice of the Sample and the Structure of the Main Questionnaire

The majority of the data used in the empirical section of this study was collected by the author during intensive questionnaire-interview schedules conducted in the three selected areas of Humberstone, Woodgate and Oadby. From the researcher's point of view, the questionnaire fell into five main sections, which will be discussed here in turn.

It was decided that, in order to keep the sample as homogeneous as possible, it should consist of married women resident in each of the three areas. Several precedents existed for such a choice; Lee (1964) and Downs (1970c) worked with samples of housewives in Cambridge and Bristol respectively and twenty married women provided the Personal Constructs and Repertory Grid data for Sarre's research in Bath (Harrison and Sarre 1976). In each case, women were chosen for either or both of the following reasons:

a) that they were believed to possess greater knowledge of the city and of their local areas than their male colleagues

b) that they were more able to devote a considerable length of time to a frequently complicated questionnaire schedule

Although the second reason lacks substantiation, women were certainly more likely to be accessible during the day, and they represented a welcome departure from the 'captive' student audiences and samples of Goodey (1968), Gould and White (1968) or Saarinen (1973a).

There are a few dissenting voices against the use of female

respondents in this way, however, (Tivers, 1978), and in a slightly different research context, Pocock found that

> '..... the group who declined the mapping exercise is of local origin..... with a tendency to be working class and female ..... overall, however, the result is indecisive.'
>
> (Pocock, 1976; p. 165)

From the current Electoral Registers for the wards of Humberstone, St. Peter's (Oadby) and Abbey (Woodgate), the names and addresses of all married women living with their husbands were collected. The roads remained in alphabetical order, but the names and addresses within each were rearranged in ascending sequence of house number. Each name was then assigned a three or four (in the case of Oadby) digit number, the position in the sequence being determined by road name in the first instance, and then by house number within that road.

The three samples each contained widely differing numbers of potential respondents; 985 in Humberstone, 346 in Woodgate and 1614 in Oadby, and a straightforward percentage sample of each would have unbalanced the total in favour of the Oadby respondents. Since each area as defined by the Factorial Ecology was internally homogeneous in terms of population characteristics, there was no logical reason why a similar number of respondents should not be selected from each. The relationship between the number of people in the sample and the total population of the area was largely immaterial, and not likely to be detrimental to the results of the study, and in the event, the sample size was set by the practical limitations of mounting a single-handed survey of this nature.

Random numbers were generated and these were matched with potential respondents identified from the numerical sequence previously assigned to them. Each woman was contacted by means of a handwritten letter, explaining the nature and purposes of the study and requesting her co-operation. The intention was to visit each person individually and to complete the questionnaire schedule with her; on the whole this worked well despite being very time consuming. In a few instances, however, it was necessary to explain the questionnaire to the respondent and then leave it with her to complete for collection a day or so later; there was no evidence that any of the women who responded in this way did in fact check their answers to the map exercise with published data sources.

Table 5.1 illustrates the number of initial contact letters which were sent to each area, and the number of completed questionnaires obtained from each.

Table 5.1 Contact letters sent and Completed Questionnaire Schedules obtained from Humberstone, Woodgate and Oadby

Area	Number of letters sent	Number of Questionnaires obtained	Self-completed Questionnaires
Humberstone	120	53	-
Woodgate	120	49	3
Oadby	110	55	2

The five sections of the questionnaire concerned the four elements of the proposed Perception-Behaviour process together with a general section concerning the personal characteristics of the respondent, and will be dealt with here in the order of the elements of that process rather than the order in which they appeared in the Questionnaire schedule. The schedule was designed to disguise the fact that several questions cross-referenced each other and to sustain the respondent's interest during an interview which frequently lasted more than an hour; this required an interruption of the Image - Attitude - Preference - Behavioural Intention sequence.

Section 1 The Personal Characteristics and Information Sources of the Respondent

Despite possessing a fairly accurate picture of the population characteristics of each Enumeration District from the Factorial Ecology, further details were needed from each respondent to ensure that the samples were indeed representative of each E.D. and to provide the basis for comparison of respondents of similar social characteristics between different areas.

None of the questions was of a controversial nature, and very few respondents delined to answer all the questions once they had begun. Each respondent was naturally assured of absolute anonymity and neither her name nor address appeared on the schedule. The questions concerning socio-economic status were restricted to the occupation of the head of the household and of the respondent and were placed at the end of the interview,

and appear as Questions 21 and 22 on the Schedule presented in Appendix A. 'Head of the household' was usually interpreted as synonymous with 'husband' but the significant minority of women who regarded themselves as the heads of their households thoughtfully provided their husbands' occupations as well, and these were subsequently used in the analysis !

The number and ages of any children in the family (Questions 25 and 26) and the age at which the respondent had completed her full time education (Question 27) were included in this section, and the final question (Question 28) asked each respondent to indicate her age in one of five age groups given.

In order to assess the nature and extent of each individual's knowledge and experience of other areas of the city, some indication was required of her familiarity with the city - how long she had lived in Leicester, and in her present home, and where her friends and family lived and how often she visited them (Questions 1 to 6). Car ownership and readership of the evening newspaper, the 'Leicester Mercury' (Questions 7 and 8) were items which might also affect the size and structure of an individual's information surface, and the ownership of a car was likely to have some influence on the attitudes and preferences towards areas and attributes of residential areas such as accessibility and the quality of the public transport. The final question in this section (Question 9) bore a direct relationship to the Behavioural Intention element of the process; it aimed to discover how each respondent and her family had acquired information about their present house during their most recent residential relocation decision

process. Clearly this theme is too complex to be adequately tapped in a single question in a schedule of this nature; its inclusion was merely to provide an indication, in the context of questions asking respondents where they would like to move, of how they had behaved in the past, and whether they had actually searched the city for desirable locations before making their final selection. The expectation was that a higher proportion of respondents in Woodgate and Humberstone would have inherited homes from parents, or acquired them on marriage to a local man, or found them as a result of a personal recommendation whereas the Oadby respondents would be more likely to contact builders or estate agents directly. It was felt to be more reliable to ask how each respondent had acted in the past rather than how she might behave if faced with a hypothetical future situation.

Section 2 Images of Residential Areas in Leicester

We have seen in Chapter 4 that the appraisive, meaningful content of an individual's image was the main focus of concern at this initial stage of the process. The questions included on the schedule to elicit this data are therefore closely connected with those used to measure attitudes; indeed, much of the data used for the image and attitude sections of the analysis derive from the same questions dealt with in differing ways.

Since we wish to study the attitudes hypothesised to result from images of the environment as part of our proposed Perception-Behaviour process, we must ensure that we are measuring images and attitudes towards exactly the same items.

The argument could easily become circular since by using the same question combinations to elicit images and attitudes, a connection between the two is almost inevitable unless care is taken to weight the attitude responses to take into account stated preferences for attributes of areas. Using different questions for eliciting images and attitudes, however, poses the very real risk of introducing extraneous variables; one cannot be certain that the same object, or area, is involved each time. There is no ideal solution to the problem; Lloyd (1976) preferred to use different data, and even different respondents for each stage of his analysis; the present study opts for the former course of action, that of using the same questions and data from the same respondents but weighting the attitudinal measures to separate the evaluation of areas and attributes from the appraisive parts of the images of the areas.

Ten residential areas of the city were selected from the Factorial Ecology of the 1966 Census to represent a wide range of environments for which the images held by Humberstone, Woodgate and Oadby respondents could be established. The first three to be included were Humberstone, Woodgate and Oadby themselves. In order to test the effects, if any, of 'emotional distance' on image content (see Ekman and Bratfisch, 1965; Lundberg, 1973) the next three areas selected were those which emerged from the Factorial Ecology as possessing similar characteristics to the three already chosen; they were Stoneygate, Belgrave and Wigston respectively, and their location in the city is evident from Fig. 5. 6.

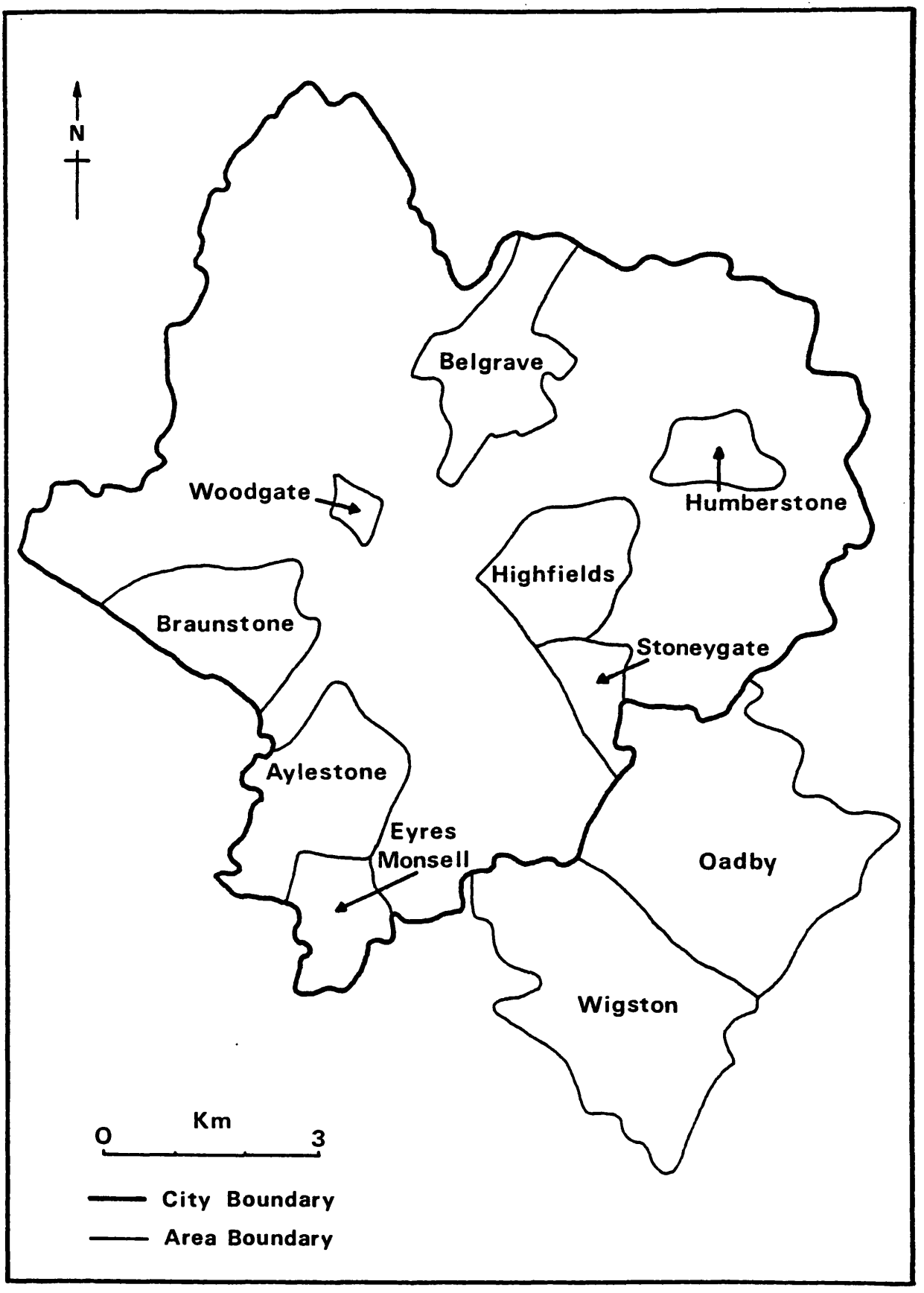
To these were added Braunstone, a large council estate containing an ageing, immobile population, and Eyres Monsell,

Fig. 5.6

Enumeration Districts contained within each of the ten selected residential areas in Fig. 5.6 are as given below. The E.D. numbers are consistent with the Community Space Diagrams in Figs. 5.1 to 5.4, and with the map in Fig. 5.5

Aylestone	53, 54, 55, 69, 86
Belgrave	60, 61, 62, 67, 117, 119(part), 120(part)
Braunstone	10, 11, 12, 7, 8, 9, 37
Eyres Monsell	50, 51, 52, 56, 57
Highfields	23, 24, 25, 26, 38(part), 39, 40, 41, 42, 80, 81, 82, 83, 85(part)
Humberstone	106
Oadby	125, 126, 127, 128
Stoneygate	100, 110, 116
Wigston	129, 130, 131, 134
Woodgate	43

Fig. 5.6 Locations of ten selected residential areas used in the main questionnaire



a newer council estate with a much younger population. Highfields, the major area of immigrant population in the city was selected as the ninth area, and the final choice was Aylestone, a middle class residential district in the south west of the city, which emerged from the Factorial Ecology as consistently 'average' in all dimensions, and thus provided a useful measure of control.

Question 16 of the schedule asked each respondent to indicate on an outline map of the city provided the location of as many of these ten areas as she could manage. No instructions were given concerning how this information should be presented, and the map contained no written clues suggesting the approximate position of areas. Aylestone Road was therefore subsumed into Lutterworth Road, the A 426, and Belgrave Gate into Melton Road, the A46 and so on, as shown in Fig. 6.4. The railway line and station were included, together with the city and suburb boundaries; the locations of the market place and of the clock tower, the symbolic heart of the city, completed the map. With the knowledge gained from experience, it may have been preferable to have excluded the railway station from the map, since Highfields was almost universally known to be 'just behind the station', a feature which had not become apparent during the pilot stage of the questionnaire.

Question 17, from which most of the image and attitude data was derived was necessarily quite complex. Each respondent's image of each of the ten selected areas was measured along twelve different attributes of a residential environment. Some of these attributes were based on previous studies of neighbourhood perception (such as Peterson, 1967), and some were

suggested during the early stages of questionnaire design and the piloting of the draft schedule.

The twelve eventually selected were not meant to represent the totality of a given environment, but they were considered to be relevant to persons involved in the residential decision process and to be sufficiently wide ranging to include most of the important aspects of a residential area. They were a combination of environmental and structural considerations, the quality of social and community provisions, and the personal characteristics of the local population. Many were multidimensional; the suitability of the area for bringing up children, for example, could be perceived as embracing health, safety, convenience, appearance, available open space and local schools.

The full list of twelve was as follows:

The quality of the local shops
The quality of the local schools
The quality of the local community facilities
The quality of the housing
The general appearance of the area
Accessibility to the city centre and the quality of the public transport facilities
Privacy and peace and quiet
The suitability of the area for bringing up children
Predominant type of housing
The age of the housing
The age of the residents
The friendliness of the residents

Question 17 took the form of a small booklet, attached to the right hand side of the questionnaire schedule. Down the left hand side of the base sheet appeared the names of the ten selected areas, in random order. Each page of the booklet was given the title of one of the twelve attributes, also in random order which varied for each respondent. Taking each attribute in turn, the respondent was asked to tick or mark the description which, in her opinion, best fitted each of the ten areas. For this purpose, a five point semantic differential type format was employed, with bi-polar terms of the type very good - very poor, or very attractive - very unattractive as appropriate to the attribute being considered. The intermediate point on the scale was named, as were the others, and the whole was presented as five adjacent boxes, rather than the horizontal line more usually associated with semantic differential questionnaires.

Administration of the questionnaire in this form was a simple matter, and no respondent experienced any difficulties with the idea of a booklet; areas which were completely unknown, or attributes which were considered irrelevant could be consistently omitted from the exercise. Her image of Oadby, for instance, could then be itemised in terms of good quality housing, poor public transport and moderately good shops, maybe differing from the poor housing, good community facilities and friendly residents perceived to constitute Braunstone.

Having established each respondent's image of each of the ten selected areas, her image of the location and nature of her own local area was sought, and once again this was achieved

through the use of a map based question followed by a semantic differential type exercise involving the same twelve attributes used previously, in the context of the local area or perceived neighbourhood.

Question 18 therefore asked whether the respondent was aware of a locally used name for her area, and Question 19 asked her to mark on the base map provided that area which she considered as 'local'. Again, no instruction concerning completion was given; the aim was to assess which areas were being referred to when respondents came to answer the second part of this section, and to establish whether respondents living in close physical proximity delimited similar areas as 'local'. In order to maximise each respondent's ability to cope with a map of this type, the three base maps used were deliberately designed and drawn to resemble sketch street plans rather than large scale Ordnance Survey maps, as Lee had used (1968), and included an area far larger than could reasonably have been considered 'local' by the majority of respondents. The maps were annotated to indicate the location of shopping areas, schools, libraries, parks and other public areas or buildings appropriate to each area; copies of each appear as Appendices C, D and E, although during the actual interview they were not assigned the names of Woodgate, Humberstone or Oadby - Brocks Hill lest these had produced a misleading response to Question 18.

Question 20 echoed Question 17 in the context of this local area, and required the best description of the area along each of the same twelve attributes, presented in a different random order. Very few respondents appeared to recognise the similarity

of the two tasks, regarding their 'local' area as a small part of the more broadly defined 'Oadby' or 'Humberstone' and taking rather more time to complete the exercise than they had previously.

Section 3 Attitudes Towards Residential Areas in Leicester

The overall attitude of favourability at an individual and then a group level towards each of the ten areas was measured by applying a scoring procedure to the data obtained from Question 17, which is explained more fully in Chapter 7. The semantic differential format represented an evaluation of each area along each attribute dimension and hence could be viewed as a measure of attitude.

Three of the twelve attributes however, were concerned with belief rather than attitude, and were therefore discarded in the attitude section of the analysis. The first of these, the predominant type of housing in an area, offered the respondent a choice of flats; terraces; council; semi-detached and detached which, of course, are not mutually exclusive categories anyway. The selection eventually made reflected the individual's belief and image that a particular type constituted the majority of residential units in that area, and not her attitude towards that area or that type of housing.

The second belief statement involved the age of the housing predominant in each area, for which the available choices were Victorian; 1900-1914; 1918-1939; 1945-1960 and Post 1960. These could have been replaced by adjectives such as old, and young/new, but without detailed knowledge of whether people had a more favourable attitude towards older or newer housing, such

designations could not have been particularly helpful. The third belief statement involved the average age of the residents in each area. Although such a judgement may be an important component in the overall image of an area, this statement did not include an evaluation of the concepts of 'old', 'middle aged' or 'young', it cannot be said to be an attitude measure.

The use of a semantic differential type of scoring procedure on the data from the nine attributes in Question 17 (earlier used in its basic form in the Image section of the analysis) can thus provide a crude measure of attitude - the overall favourability displayed towards each of the ten areas by the three samples of respondents. We have previously suggested in this chapter that this raw data needs to be weighted in order to accommodate stated preferences for attributes of residential areas (the actual weighting system employed is discussed in Chapter 7). In this way, it can be argued that a positive evaluation of an attribute considered important counts more towards an area's overall favourability than a similar evaluation of a less important attribute.

The fourth section of the questionnaire schedule therefore dealt with preferences, both for the areas themselves, and for the twelve selected attributes of residential environments.

Section 4 Preferences for Residential Areas in Leicester and for Attributes of Residential Areas

This section of the questionnaire proved both the most interesting for the respondents, but also one of the most

time consuming. The form of the two questions dealing with preferences was simple. Question 14 presented the twelve attributes in random order and asked each respondent to rank them 'in order of their importance to you in choosing a new place to live'. Equal rankings were permitted, and the respondent was able to omit those items which she considered to be of no importance at all. This seemed a more sensible way of approaching the probability that a certain proportion of respondents would be unable to rank order all items; middle or low order rankings were thus not forced on respondents if they were inapplicable, or perceived as being inappropriate.

Question 15 asked for a similar ranking of the ten residential areas in order 'of where you would most like to live if you could do so.' Again, equal rankings and omissions were permitted. The preference section was linked to the section dealing with behavioural intentions by questions near the beginning of the schedule (before the Question 15 rankings) which also concerned desirable areas, and, being open-ended permitted the appearance of areas which were not subsequently included in the list of ten selected areas used throughout the rest of the questionnaire schedule.

Section 5 Behavioural Intentions with respect to Residential Decision Behaviour

Again, the questions in this section were very simple, and were concerned more with the desirability and the idea of moving to another area than with the actual intention to move in the near future. The aim of Questions 10 - 13b was to

establish broadly defined areas of 'positive intention' - areas to which respondents would like to move if not constrained by family, financial or occupational considerations, and areas of 'negative intention' to which they would not be prepared to move. The suggestion underlying this was that the most 'preferred' areas identified in Section 4 would emerge as the areas of 'positive intention' and that the areas of 'negative intention' would be those appearing at the bottom of the preference rankings.

Question 10 therefore aimed to separate those respondents who expressed a desire to move were they able to do so, from those preferring to remain at their present location, so that the images, attitudes, preferences and intentions of the potential movers and non-movers could be examined and any differences between them made apparent and analysed further.

These five sections of the Questionnaire schedule were therefore capable of providing all the data necessary to investigate the operation of the residential Perception - Behaviour process and the nature of its different elements at the intra-urban scale. When the project had been originally conceived, it had been intended that this intensive schedule should indeed provide all the information required in the empirical section of this study. During preliminary analysis of the preference rankings, however, a problem emerged which necessitated further fieldwork.

iii) The Supplementary Questionnaire Schedule

The nature of this problem is discussed more fully in Chapter 8, where it is more adequately set in the context of the whole research design, but briefly it concerned the difficulty of distinguishing between the effects of social and physical location on the preference structures derived from Questions 14 and 15 of the main questionnaire schedule.

Since Humberstone, Woodgate and Oadby had been selected from different sectors of the city to display different social characteristics, it was not easy to decide whether each area's 'group view' of the residential desirability of other areas within the city reflected class or locational differences; neither variable could be held constant. There was also the indication that Woodgate demonstrated a consistently low evaluation of itself; there was no evidence of a 'tennis ball' effect, and some evidence of a 'sinkhole'.

To shed some light on the problem therefore, it was decided to attempt to establish the nature of the 'desirability surface' of the whole city, into which context data from the three sample areas could be set. It would then be possible to see whether, for example, Oadby's high levels of preference for itself were solely the results of local familiarity and loyalty, or whether they were also part of a broader city-wide general trend. If the former, then the preblem concerning the lack of a local preference dome over Woodgate remained; if the latter, then the effects of differences in physical location on the general trend could be examined more closely.

The 143 Enumeration Districts used in the Factorial Ecology of Leicester (see earlier this chapter) were reduced to 66 by the

amalgamation of adjacent areas with similar factor scores. on the two main dimensions of socio-economic status and life cycle. These 66 areas were evenly spread over the built up area of the city and surrounding suburbs as the original 143 had been.

Ten people living in each of the 66 areas were selected at random and answered a very short Questionnaire (Appendix B) in which they selected, in order, the five areas from a list of twenty, in which they would most like to live, and the five in which they would least like to live. Ideally, ranking all twenty would have provided a great deal more data, although it was felt that twenty was too large a number to be handled accurately. 658 usable replies were obtained, an eloquent confirmation of the ease of the task requested of those who responded.

The twenty areas selected for this schedule included the ten previously used on the main Questionnaire schedule. The other ten areas included some mentioned frequently by the Oadby, Humberstone and Woodgate respondents (such as Evington and Glenfield) together with most of the other major residential districts in the city, determined from the Electoral Registers and published maps. The full list included 4 local authority housing estates (LA), 4 high status city areas (HC), 4 medium to high status suburban areas (HS), 4 medium status areas (MS) and 4 inner city areas (IC) and was as follows:

Aylestone	MS	Leicester Forest East	HS
Belgrave	IC	Mowmacre Hill	LA
Birstall	MS	New Parks	LA
Braunstone	LA	Oadby	HS

Clarendon Park *	IC	Stoneygate	HC
Evington	HC	Thurmaston	MS
Eyres Monsell	LA	Thurnby	HS
Glenfield	HS	Western Park	HC
Highfields	IC	Wigston	MS
Humberstone	HC	Woodgate	IC

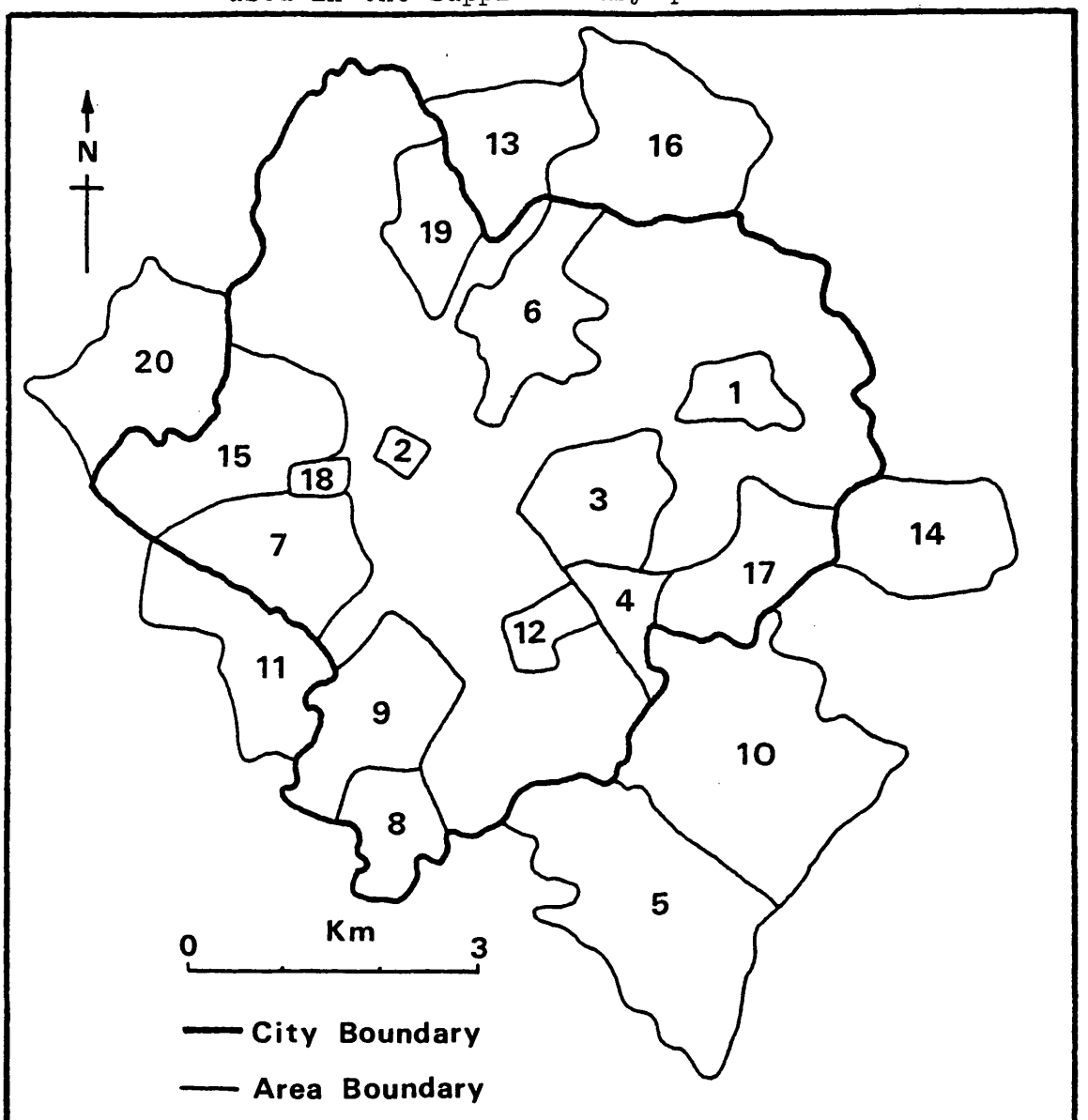
* Clarendon Park is anomalous in a simplistic grouping of this kind, being partly an inner urban area and partly a high status residential area

The locations of these twenty areas in the city are shown in Fig. 5.7.

Inevitably, the choice of some respondents was again restricted by the inclusion of only twenty areas, although the twenty were representative of virtually every type and combination of residential environment in Leicester, and their names were familiar to the vast majority of respondents. The interviews were conducted by members of the second year Social Geography class from the University during May 1974, so that the timing corresponded as nearly as possible to the main questionnaire interviewing. An equal number of male and female respondents of differing ages were interviewed in each area after it had been established that each lived in the area in question.

Statistically, the arbitrary nature of the sampling and interview techniques was not altogether satisfactory, yet the results were of far greater significance than expected. Whilst it is not intended to use this data as a major part of the

Fig. 5.7 Locations of twenty selected residential areas used in the supplementary questionnaire schedule



1	Humberstone	11	Leicester Forest East
2	Woodgate	12	Clarendon Park
3	Highfields	13	Birstall
4	Stoneygate	14	Thurnby
5	Wigston	15	New Parks
6	Belgrave	16	Thurmaston
7	Braunstone	17	Evington
8	Eyres Monsell	18	Western Park
9	Aylestone	19	Mowmacre Hill
10	Oadby	20	Glenfield

argument presented in this study, it does offer a valuable insight both in terms of the potential of the methodology of its analysis and in terms of its relevance to the study of space perception. The latter part of Chapter 8 is devoted to a discussion and analysis of this subsidiary questionnaire and of the intriguing and illuminating data it yielded.

These last two chapters have thus examined both the Theory and the Practice of the present study; the concept of the four elements and the operation of the residential Perception - Behaviour process proposed earlier, and the objects and design of the two questionnaires required to obtain the data necessary for its proper investigation. A Factorial Ecology based on the 1966 Sample Census enabled three socially and spatially defined areas of Leicester to be selected from which samples of women were drawn, and who were interviewed in their own homes by the author.

A supplementary questionnaire gathered material relating to the overall preference/residential desirability surface of the city into which context information derived from the three sample areas could be set.

The remaining Chapters 6 - 9 of this thesis are concerned with empirical investigations based on this data into the Image, Attitude, Preference and Behavioural Intention elements of the proposed Perception - Behaviour process.

6

Image

> 'The city as we imagine it, the soft city of illusion, myth, aspiration, nightmare, is as real, maybe more real, than the hard city one can locate on maps, in statistics, in monographs on urban sociology, and in demography and architecture.'
>
> (Raban, 1974; p. 1)

The purpose of this chapter is to examine the nature of this 'soft city of illusion' and how it is imagined by three socially and spatially differentiated samples of resident housewives in Leicester. Are the images of other residential areas which are held by individuals illusions, or myths ? Do individuals aspire to some areas while regarding others as 'nightmares' ? How do individuals imagine other areas of their city ?

An understanding of the 'Image' stage of the Perception - Behaviour process discussed in the Introduction is approached in this chapter in three separate but related ways, which will be analysed in three consecutive sections:

i) an examination of the perceived locations of each of ten areas selected for the study (see Chapter 5) given by the three samples of respondents, thus enabling us to establish whether any area (or areas) is (are) consistently 'mislocated' and, conversely, whether any area(s) is (are) consistently located more accurately than the others. Variations in the locational 'accuracy' between the three samples of respondents may then be considered in greater detail if it appears to be

appropriate.

ii) an examination of the images of each of the ten areas held by the three samples. The main source of data for this section derives from Question 17 of the Questionnaire schedule (see Appendix A) in which each respondent described each of the ten areas using the twelve attributes selected for analysis in Question 14.

iii) an examination of the images of the respondents' own local areas involving

a) the respondents' stated familiarity with a local area name, and the designations suggested

b) a comparison of the spatial extent of the area considered 'local' by each respondent with the areas indicated by other women and with the local area names identified previously and

c) a repetition of the procedure used for Question 17 (above) but applied specifically to that area indicated to be 'local'.

The three methods required the use of different measurement techniques to deal adequately with the various types of information obtained and the differing scales of analysis employed. This is in accord with the suggestion made earlier which argued that the various elements and stages of the Perception - Behaviour process necessitated the use of different analysis procedures.

i) The Image of the City of Leicester and the perceived locations of ten selected residential areas.

Question 16 on the schedule introduced a graphical component into the location exercise by asking each person to indicate the position of Aylestone, Belgrave, Braunstone, Eyres Monsell, Highfields, Humberstone, Oadby, Stoneygate, Wigston and Woodgate on a base map of the city of Leicester and its surrounding suburbs. Visual clues were deliberately kept to a minimum - only the Railway Station, Market Place, and the Clock Tower (generally regarded as the symbolic centre of the city) were marked, together with the main radial roads. The roads were named and numbered, although local names such as 'Humberstone Road' or 'Woodgate' which would undoubtedly have influenced the results were avoided.

No instructions were given concerning the method of completion, so that the method eventually selected would be a free choice by the individual concerned, and would not be imposed upon her. In this way it was hoped to minimise the possibility of discriminating against any respondent by obliging her to use an unfamiliar mode of representation.

The majority of respondents either wrote the full name of each area in what they considered to be the correct location, or used the initials a to j which had identified the ten areas in Question 15. A few respondents wrote the numbers 1 to 10 to reflect their ranked answers to Question 15, and a few shaded and named the chosen areas. In contrast to the other map request in Question 19, only 51 of the 1098 separate attempts to locate an area involved circling or

enclosing it with a continuous line. Those few attempts which merely designated areas with an 'X' or shading and made no attempt to distinguish between the 'X's were discounted.

Figs. 6.1 to 6.3 summarise the data from the location exercise. For clarity of presentation, the results from each of the three sample areas have been divided between a pair of maps; the perceived locations of Humberstone, Highfields, Stoneygate, Wigston and Woodgate form the first map of each pair, and the perceived locations of Belgrave, Braunstone, Eyres Monsell, Aylestone and Oadby form the second.

Each perceived location, designated by the appropriate symbol, was derived from inspection of each individual's map. The spatial extent of each of the ten areas was determined from published street plans, '6 inch' and '25 inch' Ordnance Survey maps. In every case, the largest of the districts given as 'Belgrave', 'Aylestone' and so on was accepted in order to allow respondents the maximum degree of flexibility. The ten 'objective' areas thus delimited were transferred to a transparent overlay placed on each map. For each area which a respondent had attempted to locate, the minimum distance in tenths of an inch necessary to bring the nearest part of her word, letter or number designation within the stipulated area was calculated.

For each of the three samples, the separate 'displacement measures for each of the ten areas on each map were summed, and

Fig. 6.1 Humberstone sample: Perceived locations of ten selected residential areas

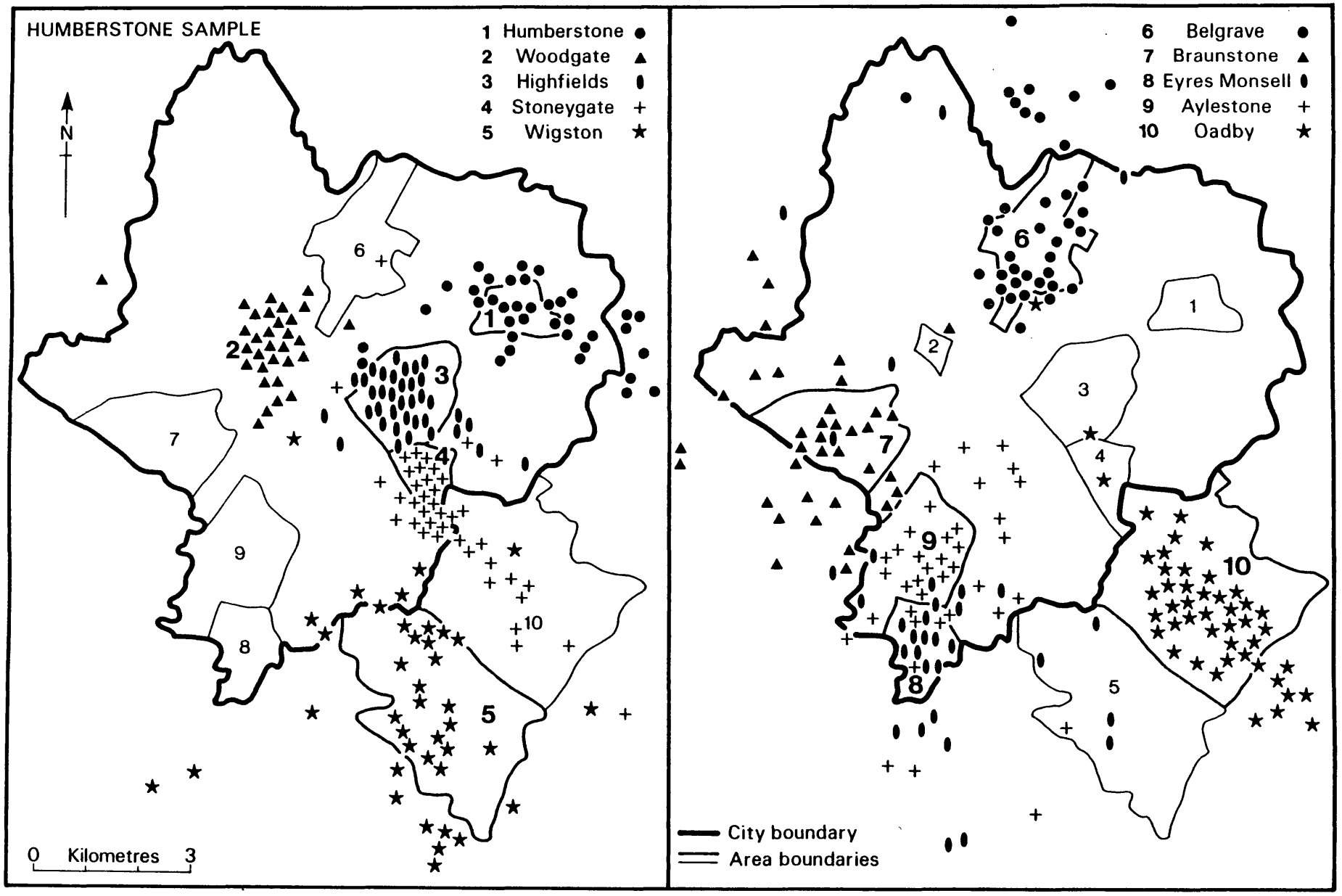


Fig. 6.2 Woodgate sample: Perceived locations of ten selected residential areas

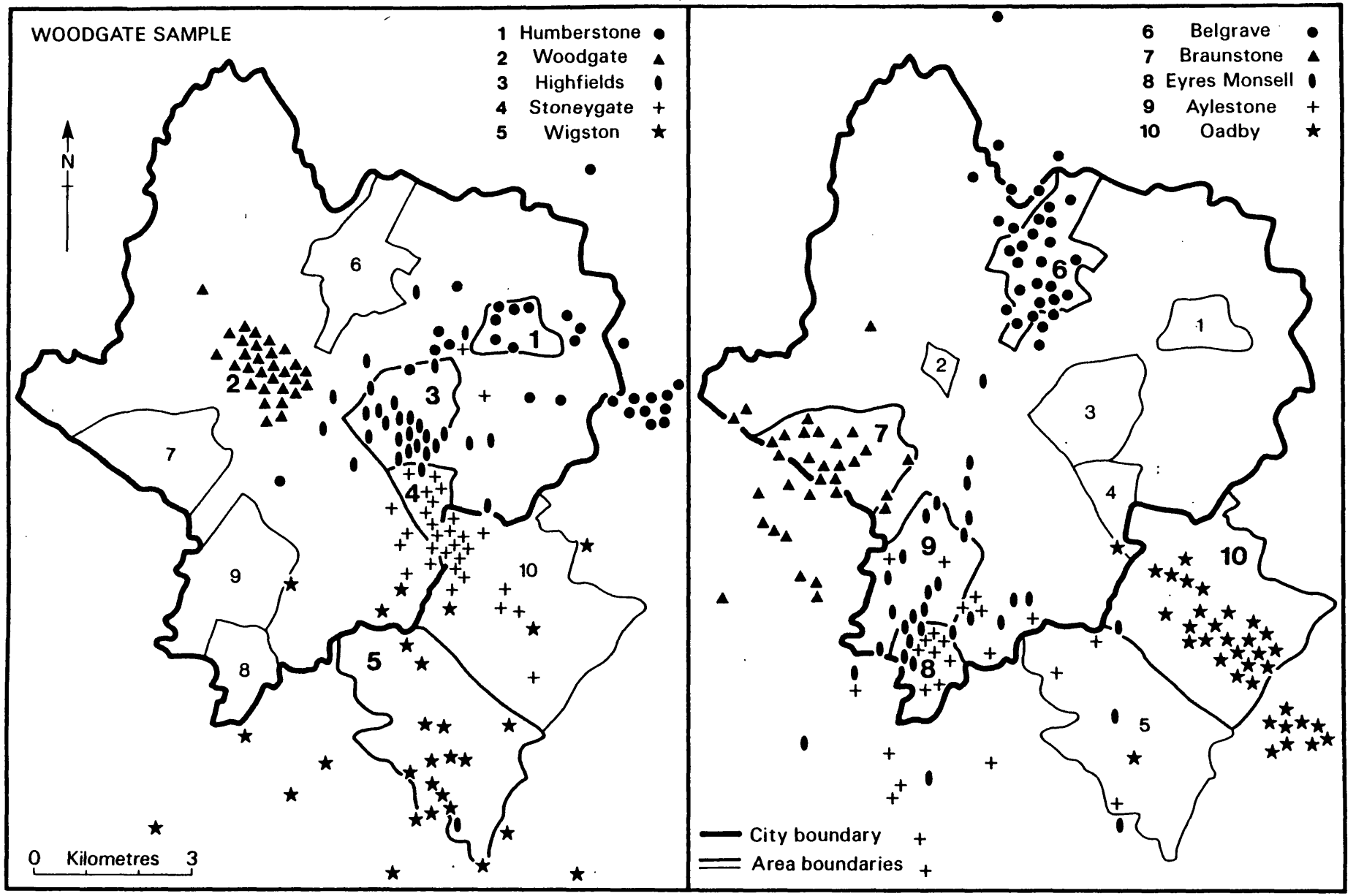
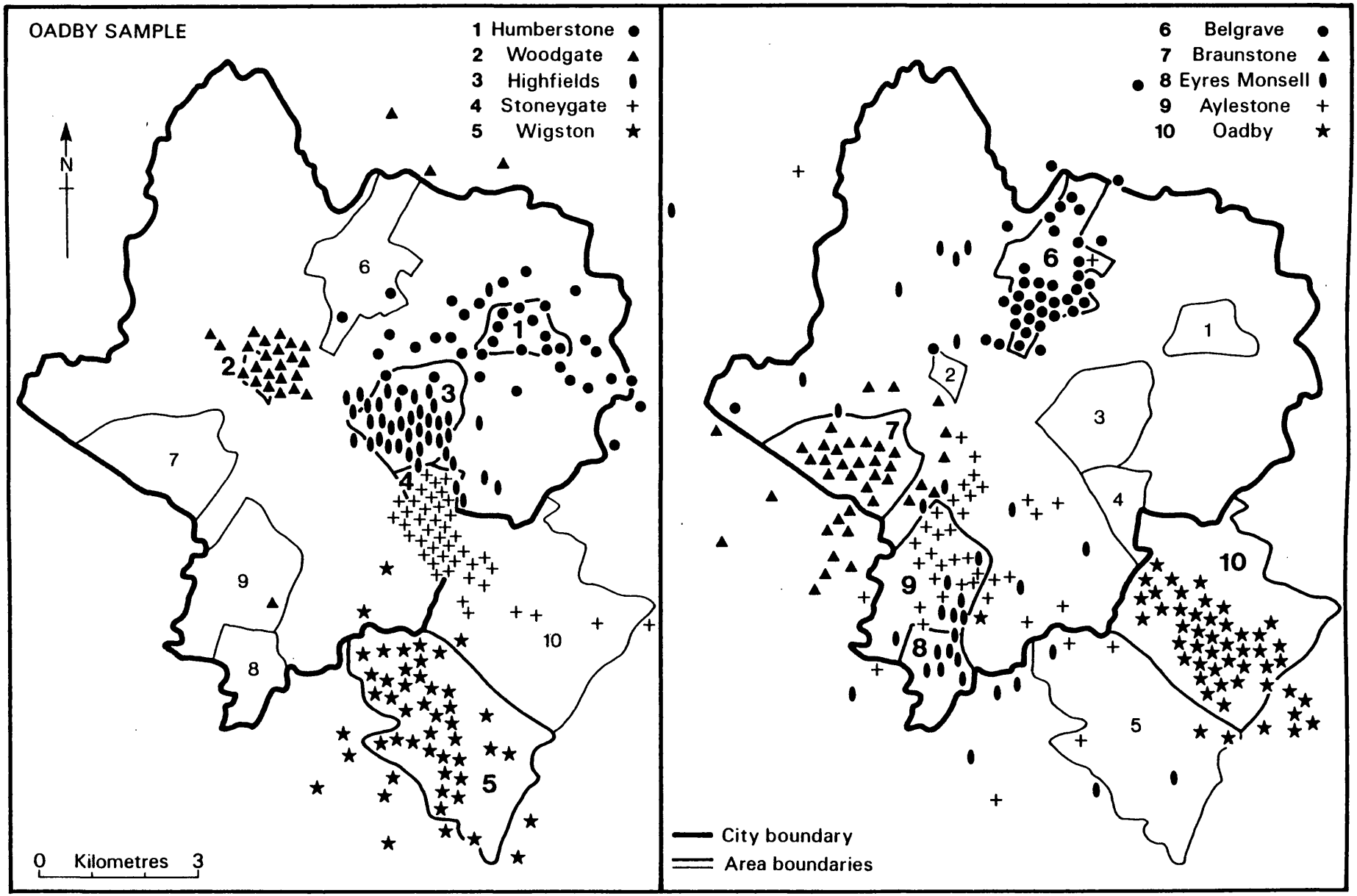


Fig. 6.3 Oadby sample: Perceived locations of ten selected residential areas



divided by the number of respondents attempting to locate that particular area. The ten averages so produced were ranked to form a 'displacement index' for each sample area (Table 6.1) demonstrating which areas were located most accurately by members of the sample, and which areas were the least accurately located.

Precision again erred towards allowing maximum flexibility to the respondent, since those who wrote the area names in full or with larger than average handwriting could have been expected to stand a greater chance of being deemed 'accurate' than those women who used a small neat 'X' and/or an initial letter to indicate the location of each area. Similarly, it could be argued that the exact mid-point of a written word should have been used as the calculation point, although there is no evidence to suppose that respondents would have placed their replies so precisely, especially since they were not asked to locate the centre of the area in question, but 'Could you please show me on this map where Oadby, Braunstone..... is ?'

The chosen method possessed the advantage of being capable of standardisation, although in all probability it permitted the perceived locations to appear more 'accurate' than they really were. The word 'accurate' is used with caution since it would be quite possible for a published map to attribute a given spatial extent to an area and for the majority of respondents to disagree. In such an instance, deciding which is the more 'accurate' - the limits shown on the printed map or the inhabitants who define its spatial

extent differently - is not an easy task.

It is therefore probably more correct to say that Figs. 6.1 to 6.3 demonstrate no more, nor less, than a consensus, a summary of where respondents considered each of the ten areas to be. As discussed in Chapter 4, it is probably not legitimate to consider the concept of accuracy when dealing with cognitive data anyway (Downs and Stea, 1977) and so we shall restrict our attention here to comparisons of the data from the three samples rather than attempting to establish any criteria of accuracy.

Table 6.1 Displacement Indices for Humberstone, Woodgate and Oadby

Humberstone		Woodgate		Oadby	
Area	Index	Area	Index	Area	Index
Highfields	0.081	Woodgate	0.126	Oadby	0.066
Oadby	0.15	Oadby	0.138	Wigston	0.085
Belgrave	0.225	Belgrave	0.165	Belgrave	0.090
Woodgate	0.229	Highfields	0.216	Highfields	0.097
Wigston	0.288	Braunstone	0.248	Stoneygate	0.174
Stoneygate	0.308	Stoneygate	0.303	Braunstone	0.249
Aylestone	0.346	Aylestone	0.403	Woodgate	0.431
Humberstone	0.435	Wigston	0.444	Humberstone	0.438
Braunstone	0.489	Humberstone	0.631	Aylestone	0.445
Eyres Monsell	0.856	Eyres Monsell	0.728	Eyres Monsell	1.114

In view of Gould and White's (1968, 1974) suppositions of greater knowledge of and increased affinity for the home area (discussed in Chapter 2), and a straightforward common-sense expectation that most people would know where they lived, the fact that Humberstone residents managed to achieve eighth place in the displacement index for their own area was surprising. In other words, they displayed greater agreement with the objective delimitation of seven other areas than they did with that of their own.

The possibility exists that the objectively defined area of Humberstone with which the responses were compared was somehow 'incorrect' and inappropriate to the residents whose 'Humberstone' was located elsewhere. Although this could be partly responsible, it is unlikely to constitute a full explanation. Both the city and the suburb boundaries were clearly marked on the base map and were drawn to the respondent's attention; unless it can be assumed that a substantial minority of women ignored or misunderstood these instructions, one is still left with the problem of seven Humberstone respondents who attempted to locate their area perceiving, or locating it outside the city boundary.

The pre-1974 city/county boundary is one of which most Leicester residents remain acutely aware, not only as a result of traditional rivalry and pride of 'belonging' to one side or the other, but more obviously as a consequence of the different transport and educational systems which existed before Local Government reorganisation, and which, to some extent, continue into the present time.

One explanation may, however, be offered, which relies to some degree on evidence discussed in the following section of this chapter. In section ii) it is demonstrated that a significant aspect of the images of the city held by all three samples is the strongly negative view of Highfields, the area for which the displacement index of the Humberstone group is smallest. It is well known that people are better able to articulate their dislikes than their likes, but since Highfields has the smallest index only in the case of the Humberstone women, it seems possible that, in locating their area further east beyond the city boundary, some of them are subconsciously seeking to maximise the distance between themselves and their 'perceptual sinkhole' of the city. Their desire for physical separation, and the extensive mental separation in their images of the two areas is thereby translated into greater cognitive distance on their perceived location maps.

The displacement indices for Oadby and Woodgate record Humberstone in eighth and ninth places respectively; we are obviously unable to tell whether these respondents too would like to separate Humberstone from Highfields, or whether it genuinely is a little known, inaccurately located place. (For further discussion of this point, refer to the Images of Humberstone held by the Oadby and Woodgate respondents analysed in section ii) of this chapter.) The suggestion that distant areas of similar social status are perceived more accurately than intervening areas of differing status (Ekman and Bratfisch, 1965) does not seem to be borne out here, since Oadby residents are of a similar status to those

in Humberstone, yet do not possess a particularly well defined image of the area either in terms of its location (see Table 6.1) or its component attributes (section ii of this chapter).

Woodgate is the most accurately located area by its own respondents, as is Oadby, tending to support notions of familiarity, which are not, as we have seen, shared by the Humberstone sample. Second place in the displacement indices for both Humberstone and Woodgate respondents is Oadby, an area they both regard very positively. In the Oadby index, this position is occupied by Wigston, not particularly well liked, but adjacent to Oadby, and forming the other part of the Borough of Oadby and Wigston. Belgrave, another unpopular area, is third in all three indices. Consistently in tenth and bottom place is Eyres Monsell; attempts to locate this large council estate were far less frequent and very different from the objectively defined limits.

Several other interesting features are apparent from Figs. 6.1 to 6.3. Amazing by its sheer consistency is the sharp imaginary line which divides the perceived location of Highfields from the high status area of Stoneygate. Several other pairs of areas adjacent to each other were included - Oadby and Wigston, Oadby and Stoneygate, Aylestone and Eyres Monsell - but none produced such a clearly demarcated mental boundary. Not one perceived location point for either Highfields or Stoneygate crossed this invisible frontier into territory occupied by the other; the division between the inner city immigrant area and the highly desirable residential district is absolute.

In complete contrast is the pattern of perceived locations made for Aylestone and Eyres Monsell, two areas which appear to be almost completely spatially undifferentiated in the minds of the respondents. The pattern shown in Fig. 6.1 is common to all three samples, and may best be explained in combination with section ii) of this chapter. It becomes clear here that neither Aylestone nor Eyres Monsell evokes a sharply defined image; indeed, Aylestone appears to possess very few distinctive features at all, and tends to produce two separate images - a middle class suburban district and an old industrial village of artisan terraced housing.

In order to avoid too much anticipation of the rest of this chapter however, it would seem appropriate at this point to examine the images of each of the ten residential areas in greater detail.

ii) The Images of ten selected residential areas in Leicester

The aim of this part of the analysis is to identify those images which are held of ten selected residential areas of the city by different subgroups of the population, stratified by measures of physical and social location. With ten areas, three samples and data concerning age, length of residence, occupation, family structure, education and residential location, the number of possible subgroups is clearly very large.

This poses the serious risk of repetition, confusion or both. Selecting the lesser of the two evils, the risk

of repetition is run here by considering the image of each of the ten areas in turn, and the risk of confusion is reduced by concentrating in the main on only two of the available measures, residential location and the age of the respondent. At times, however, this self-imposed restraint has been lifted to include one or more of the other measures where appropriate.

The twelve attributes of a residential area included in this analysis are not claimed to represent the total meaningful content of each person's image of an alternative (or her present) residential area; they were selected partly from previously published work on neighbourhood perception (such as that by Peterson, 1967, discussed in Chapter 2) and partly from pilot interviews conducted during the early stages of fieldwork for the present research. To a certain extent therefore, the respondents were being asked to respond to variables chosen by the researcher. In practice, the only additional attribute suggested by a few women as being of equal or greater importance than those selected was 'closeness to open countryside'. All the attributes were easily understood by, if not always relevant to, the respondents, and even where they did not have children themselves, they were well able to describe the quality of the local schools and assess the suitability of the area for bringing up children.

Belgrave

The 'group view' of all 157 respondents is overwhelmingly one of a very unattractive (37%) or unattractive (46%) and

noisy (56%) area, of poor quality (60%) terraced (82%) housing, of either Victorian (35%) or 1900-1914 age (42%).[1] It is regarded as a poor (59%) to moderate (24%) area in which to bring up children, containing poor (51%) to average (38%) schools. The residents are largely middle aged (48%) and elderly (43%), of average (49%) or friendly (27%) disposition. The community facilities are deemed to be no more than poor (27%) to average (45%), but the area's most positive aspects are its shops, which are average (31%) to good (40%), and its public transport connections with the city, which are rated as good (54%) to very good (30%).

This view is obviously a reflection of the images of Belgrave held in turn by the Humberstone, Woodgate and Oadby respondents, but when analysed separately, certain differences are apparent between them. Humberstone residents differ slightly in their image of the visual appearance of Belgrave - only 26% of the responses classify it as 'very unattractive' whereas 68% consider it merely 'unattractive'; the Woodgate and Oadby responses are 46%, 33% and 42%, 34% respectively.

Woodgate respondents, from an area of similar age and type of housing, form the most accurate assessment of the age of the housing in Belgrave; 55% of them know that it was built largely between 1900 and 1914, whereas a small majority of the

1 All percentage figures used in the Image analyses refer to the number of persons who responded to that question, and not to the total number of respondents in that particular sample, unless stated otherwise.

Humberstone and Oadby samples believe it to date from the Victorian era (43% and 36% respectively). Woodgate's greater accuracy on this point is surely due to the similarities between the two areas.

Perhaps surprisingly, Oadby respondents are the most complimentary about the schools in Belgrave. The majority of Humberstone and Woodgate women considered the schools to be poor (53% and 56%) to average (32% and 28%), but the positions are reversed in the Oadby image - 56% of the assessments opted for schools of average quality. Had this type of answer been more apparent from the piloting stage, it would have been interesting to probe more deeply in order to see whether Oadby's consistently more favourable image of city schools is merely a reflection of lack of knowledge and consequent unwillingness to judge too harshly, or whether it indicates a deeper dissatisfaction with the system of non-selective schools which existed in the county educational area before Local Government reorganisation in 1974.

Similarly, responses from the Oadby sample indicate images of better community facilities and public transport in other areas than those held by the Humberstone and Woodgate respondents. In only two areas did the Oadby women have a comparatively poor image of the local schools; both were council estates.

61% of Oadby responses regarded the accessibility of Belgrave to the city centre as good, and 32% as very good, in contrast to the estimations from Humberstone and Woodgate which were 39%, 39% and 65%, 17% respectively.

When the data is stratified according to the age of the

respondent, the 20-34 age group were generally possessed of the bleakest image of Belgrave, followed by the 50-64 group. (The Over 65 group were numerically too small to be included in significant comparisons). In one aspect however, that of accessibility to the city centre, the 20-34 age group were favourably impressed; 61% of the responses rated Belgrave as 'good' in this respect, and 35% as very good. This compared with percentages of only 33% and 39% from the 50-64 age group. [2]

Stoneygate

This area evokes a completely different image from that of Belgrave. It is an attractive (41%) or very attractive (41%) area of upper-class, mixed (detached and flats) housing, varying in age from Victorian up until 1939, with some recent infilling of modern flat developments. The quality of the housing is assessed as good (38%) to very good (55%) and it is a good (44%) area in which to bring up children, containing good (55%) (and almost exclusively private)schools. The residents are seen as middle aged, and not particularly friendly. Accessibility to the city is good, and it is a quiet or very quiet area, but the community facilities are only average in quality (45%) and the shops average (33%) to good (32%). In discussion with the respondents it emerged that this was due to the relative scarcity of shopping facilities rather than the quality of those shops which did exist.

2 Age group 20-34, N = 36; age group 35-49, N = 55; age group 50-64, N = 44; Age over 65, N = 16.

Unlike Belgrave, which possessed only two positive attributes, Stoneygate achieved seven, although the perceived unfriendliness of its residents (whether due to stereotyped impressions of high class residential areas or the undoubted anonymity of a large and transient population of flat dwellers) was a strong negative factor.

Stoneygate produced one of the more cohesive of the ten images - there was very little difference between the images derived from the three samples or from the various age groups, except that the Oadby sample were again more complimentary about the schools (87% of the responses were given as good or very good) and its accessibility to the city centre (41% good, 44% very good).

Eyres Monsell

Eyres Monsell presents a clearly defined image of a council estate (90%) built between 1945 and 1960 (70%). Apart from a tendency towards noisiness (39%) and a predominance of younger residents (43%), however, the remaining components of the general image are hazy. The area is deemed to be 'average' from the point of view of bringing up children (51%), with average quality schools (51%). The residents are moderately friendly and the quality of their shops and housing (70%, 57%) and the appearance of the estate (48%) are similarly average, with a tendency towards poor (31%) in the case of general appearance. Indeed, the only positive attributes are its community facilities and its accessibility to the city centre, both of which are considered to be good (44% in each case). The Oadby sample again inflates the

accessibility component (72% consider it to be good), which is rather surprising in the light of the location maps, Figs. 6.1 to 6.3 in which Eyres Monsell was consistently the least 'accurately' located of the ten areas by all three samples. It seems only reasonable to suggest that assessments which accord good accessibility to a place must be viewed with a certain amount of caution when it is clear from other evidence that a large proportion of the people making those judgements appear to have little idea about where that area actually is. The fact that the council estate image was so strong, and the belief of many of the respondents who said that 'council estates always have good 'bus services.....' must go some way to explaining this apparent contradiction.

Although the image of Eyres Monsell held by the Humberstone and Woodgate samples is very similar, Oadby once again differs. Eyres Monsell is one of only two areas (the other is Braunstone) for which Oadby residents are no more favourably disposed towards the schools and community facilities than the other two groups; in fact, they tend to rate these two attributes significantly lower than do the rest of the total sample, regarding the schools as poor to average (25%, 44%) and the community facilities as average to good (31%, 31%). Humberstone and Woodgate rate the schools as average to good (50%, 28% and 59%, 35% respectively) and the community facilities as good (45% and 58% respectively). Oadby also sees the area as being unattractive (47%) whereas Humberstone and Woodgate residents both regard it as 'average' in appearance.

When stratified by age, it is the quality of the community facilities which occasions the greatest divergence of opinion. The 20-34 age group consider these to be good or very good (50%, 22%), whereas the 35-49 and 50-64 groups are more critical. Only 3% of the former and none of the latter consider the facilities to be very good, although the majority of the older group regards them as good. The 35-49 group adopt a harder line; 25% rate them as poor, 39% as average, and only 32% as good. The same group are also more critical of the public transport facilities and access to the city centre; a significant 23% rate them as poor, 17% as average and 53% as good. Conversely, the 50-64 group rate them as average (35%) or above, 35% claiming them to be very good. This more favourable image is also reflected by the younger respondents, 45% of whose responses were in the 'good' category, and 40% as 'average'.

Wigston

Wigston, like Stoneygate, produced an overall favourable image which varied little between the three sample areas; no attribute received a majority assessment lower than 'average' and 'good' was the most frequent evaluation. The image is one of predominantly semi-detached and mixed housing (58%, 32%) of varying age. The population is mainly young to middle-aged (42%, 39%) and all the other attributes are rated average or good, with the exception of what is perceived as Wigston's most positive asset, its shops, which are seen as good or very good by 79% of respondents.

Again, the community facilities, accessibility and quality

of the schools receive more favourable assessment from the Oadby sample (although Wigston also lies outside the city boundary and possesses a similar educational system to that in Oadby). 50% of the Oadby sample regard accessibility and community facilities in Wigston as good; for Humberstone the figures are 38% and 36%, and for Woodgate 25% and 22%. On the other hand, Woodgate has a far more favourable impression of the visual appearance of Wigston; 65% of the responses regarded it as attractive, whereas in Humberstone and Oadby it was only 28% and 29%.

The younger respondents are again the most complimentary about the community facilities in Wigston (23% of the responses were given as 'very good' as opposed to 8% and none in the two older groups), whereas the 35-49 age group are again the most critical about accessibility; 26% of the responses are given as poor, compared with 12% and 6% from the 20-34 and 50-64 groups respectively.

Braunstone

Braunstone presents an image of a noisy (44%), unattractive (42%) interwar (57%) council estate (79%), with housing of average quality (64%). The 'council' image is weaker than that of Eyres Monsell, mainly because some respondents included the area of the older Braunstone village in their replies, around which the council estate was built in the 1920s. It is seen as a moderately good (45%, 22%) area for children, containing schools of average standard (53%), and a largely young to middle-aged (32%,57%) friendly (55%) population. Community facilities and accessibility are moderately good (34%,41% and 30%,45%), but

the local shops are only poor to average (23%, 54%).

Woodgate respondents have, in several respects, a much rosier image of Braunstone than either of the other two samples. Only 32% of the Woodgate responses regarded Braunstone as unattractive, compared with 41% and 50% of those from Oadby and Humberstone. Similarly, only 27% of the Woodgate group thought Braunstone noisy, whereas 56% of the Oadby and 46% of the Humberstone groups did. Both Woodgate and Oadby samples considered Braunstone to be a moderately good area in which to bring up children (48%, 28% and 40%, 27%), whereas 26% of the Humberstone group felt it to be poor in this respect and only 13% thought it good.

Aylestone

Aylestone, like Braunstone, also tended to evoke two different visual images; one of the rows of small terraced houses which were erected at the end of the nineteenth century to house the rapidly expanding population of industrial workers in the city and outlying villages such as Aylestone itself, and the other of wide crescents and avenues of comfortable middle-class semi-detached housing built alongside the terraces during the inter-war period, after Aylestone had become part of the built up area of the city.

Apart from this split in the visual image of the predominant housing type (Terraces 37%, semi-detached 34%, and mixed 25%), Aylestone produced the image demonstrating the greatest degree of consensus in all the ten areas.

Every attribute in the image constructed from the complete sample of 157 respondents was assessed as 'average', and when this group image is stratified by age or residential location, the picture remains virtually unchanged. Some of the highest measures of agreement of all the images are found here - frequently over 60% and several over 70%.

Several attributes - shops, community facilities and the friendliness of the residents - from the 'group' view tended towards the positive side of average, but only when stratified by residential location did one attribute, accessibility, escape the majority 'average' label completely. 48% of the Oadby responses considered it to be good, and 33% very good. Humberstone figures were 38% and 31% respectively.

At first sight, such evidence would appear to offer complete vindication for the initially subjective choice of Aylestone for inclusion with the ten areas examined. It will be remembered that it was hoped that Aylestone would evoke neither strongly positive nor strongly negative images, and might thus provide an intermediate yardstick against which the other areas could be evaluated. In other words, and without undue offence to its inhabitants, Aylestone was a test of indifference; could people actually be indifferent towards an area, and if so, would these patterns of indifference vary significantly between people living in different parts of the city or between people of different social circumstances ?

The extent to which all sections of the sample population adopted Aylestone as their supremely 'average' area however,

was considerably greater than expected. It may not be justifiable to equate an average assessment of an area's attributes with indifference, and there is no reason to suppose that the consistent 'average' ratings represent anything other than honest assessments of the area by the sample population; but it should be borne in mind that Aylestone was one of the two least clearly differentiated areas in the location maps discussed in section i) of this chapter, and the possibility that 'average' was an escape clause substitute for indifference or lack of knowledge remains strong.

Apart from the distinction between the Aylestone of terraced houses and the middle-class Aylestone of semi-detached suburbia, little else seems to attract the attention of the samples. They can identify no particularly positive or negative aspects in their image, and although vaguely aware of its general location, are unable to differentiate the area clearly from surrounding districts.

It has been argued in Chapter 4 that, without a basic evaluative factor, an image can possess little meaning for an individual and is, therefore, of very limited use to him, since it cannot readily form the basis of future attitudes, preferences or behaviour. Rather than claiming that Aylestone justifies its initial selection by evoking a rather nondescript image, it may be more correct to suggest that Aylestone barely conjures up an image at all. The one distinguishing feature is purely structural - the type of housing - and unless the respondents are able to extend this visual image to include other attributes, or can evaluate

such things as accessibility from a vague knowledge of where the area is located, no more meaningful image will emerge until further information is gathered. This does not mean, however, that respondents, aware that their image of Aylestone is less clearly defined than those for other areas, will avoid evaluating Aylestone against the others. Precisely because it is hazy, and they have identified its attributes as 'average' such respondents will be well aware of which areas they infinitely prefer and those which they particularly dislike relative to the Aylestone yardstick.

The suggestion here, therefore, is that despite the lack of a clearly defined and meaningful image, Aylestone is likely to occupy a consistent position, probably at or near the mid-point of the preference rankings to be examined in Chapter 8. The difficulty lies in appreciating which areas in a preference ranking of this type are there by virtue of honest evaluation of perceived attributes and which by virtue of relative association with other more definitely known entities.

Highfields

Highfields is by far the most abhorred area of the ten. The image is one of poor or very poor (32%, 52%), Victorian (44%) terraced (55%) housing. The schools are of poor or average quality (55%, 20%) and it is considered to be a poor or very poor area in which to bring up children (42%,49%). It is perceived as very unattractive (71%), and noisy (51%) and the residents as young (53%) and not very friendly (average 38% and unfriendly 33%). The shops are only of

average quality, but the two most positive assets are again moderately good community facilities and good accessibility to the city centre (good 54% and very good 35%).

The image of Highfields is therefore far more uncompromising than that of Belgrave, the other inner city area, of similar age, housing type and socio-economic status. The difference between them would seem to hinge on the perceived qualities of the inhabitants. Belgrave, while containing a proportion of New Commonwealth citizens, is regarded as an area of largely middle-aged to elderly, moderately friendly people, 'real Leicester people' as many of the respondents described them. Highfields on the other hand, is the main area of Asian settlement in the city, and is now inhabited by predominantly young, unfriendly residents according to the three samples. 'Friendliness' in this context was interpreted as potential friendliness towards the respondent; a commonly held view was 'I expect they are friendly with each other, but they can't be friendly with us because we don't even speak the same language', which was expressed by one of the Woodgate women.

Despite large scale rebuilding and redevelopment in Highfields during the last decade , the new blocks of flats and maisonettes are still subsumed in the image of decaying inner city properties of very poor quality. The situation does not alter when the data is stratified by age; the image is remarkably static, and it is difficult to avoid Gould's colourful terms of 'perceptual sinkhole' or 'slough of despond'.

The remaining three areas pose greater problems of interpretation of the 'group image' derived from the entire sample of 157 people. The 'total' view of Humberstone, Woodgate and Oadby includes a substantial number of women for whom the stimulus to which they were responding was their own residential area. It is therefore virtually impossible to assess the extent of the distortion caused by including these respondents in the 'group' view, and consequently the images of each area by each sample are considered separately and are stratified by a wider variety of measures than has been adopted previously.

The data concerning each respondent's image of her own area were collected in two similar ways. In Question 17, with which we are concerned here, the area name was included in the list of ten areas for evaluation by each of the twelve attributes given. In Question 20 the same twelve criteria were applied specifically to 'your own local area'. Section iii c) of this chapter explores the data derived from Question 20, from which it was apparent that the area considered 'local' by the Humberstone and Oadby samples was smaller than that referred to as Humberstone and Oadby in the present Question; in the case of Woodgate the two were virtually identical.

One note of caution is connected with the fact that the respondents were not obliged to describe areas with which they considered themselves completely unfamiliar. The rate of response varied between each sample area, and whereas between 70 and 75% of respondents described their own area, only 45 to 50% consistently attempted the others, and so the

absolute number of non-resident responses for any area is lower than those of the residents.

Humberstone

Humberstone residents identify their housing stock as predominantly inter-war and semi-detached (62% and 65%), although a minority see detached houses as the main type, and a further 15% were unable to choose between the two and selected both. The housing was perceived as being of good quality (73%) and the area was considered attractive (61%). While the majority (57%) considered it to be quiet, a significant minority (32%) thought it only average, and opinions of the local shops were fairly evenly divided along the spectrum of average to very good. It was considered to be a good area for children (65%) although a distinction was made between the local schools. 53% of the responses thought they were good, although many respondents took care to point out that they were excluding the local senior schools from this description; 24% believed the schools to be average, although the view that the local primary schools were 'above average' was frequently expressed. (See Table 6.2 for Image data from Question 17.)

A significant minority of nine of the Woodgate and eighteen of the Oadby sample thought that the predominant housing type in Humberstone was terraces; not one of the Humberstone residents mentioned this as a possibility. A further 20 Woodgate respondents and fourteen Oadby women were unable to decide on one dominant housing type and opted almost equally for terraces and semi-detached houses.

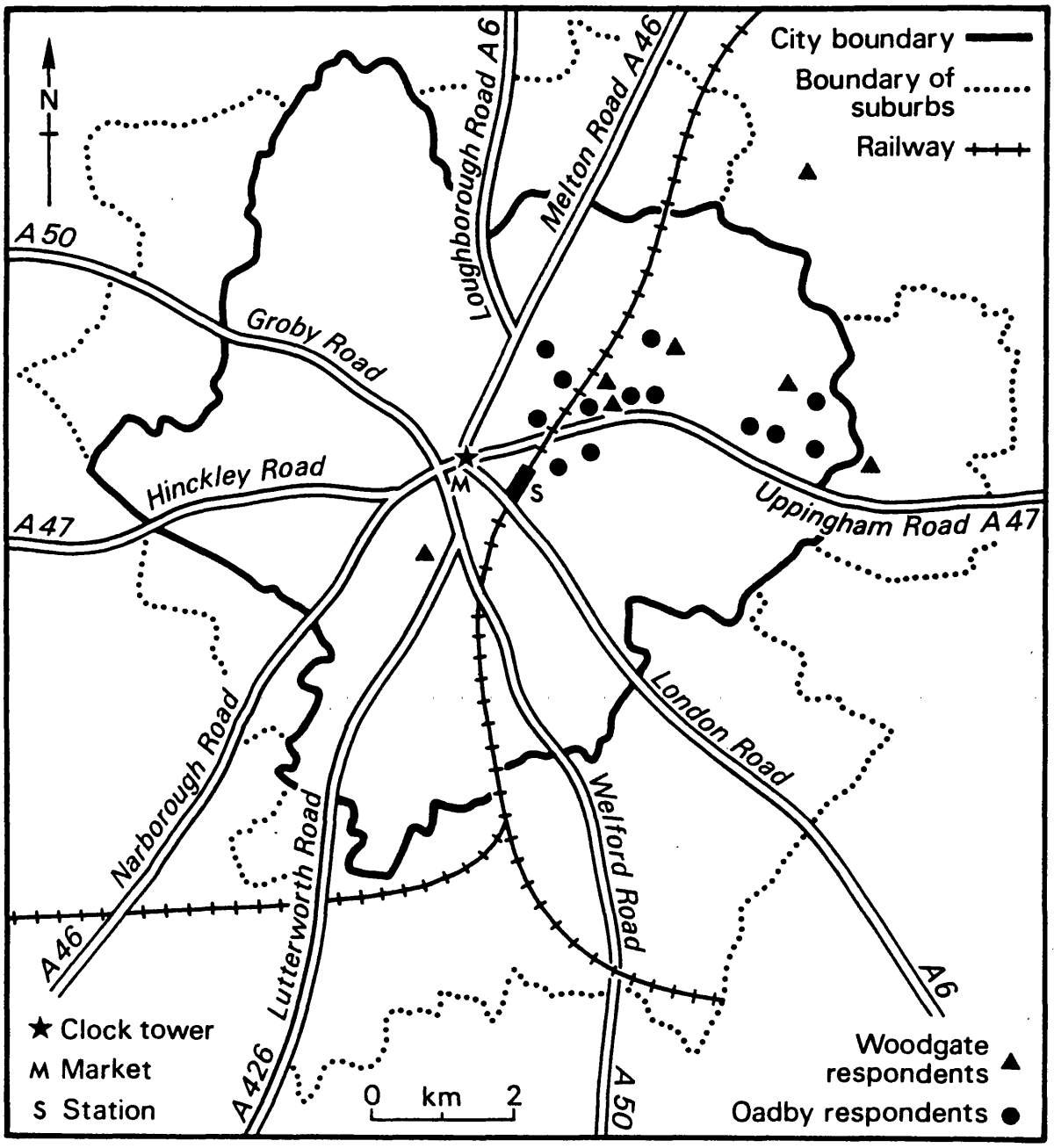
Quite why such a visual image should exist outside

Humberstone is not immediately apparent; the most plausible explanation was suggested by an observation of the method by which Humberstone was located on the base maps of these respondents analysed in section i) of this chapter. The A 47, which connects Humberstone to the city centre becomes known as the Humberstone Road and eventually Humberstone Gate along its eastern approach to the city. By this name it skirts the northern edge of Highfields, and from it are clearly visible the older terraces of that area and the largely redeveloped areas around its edge.

Virtually all the Oadby and Woodgate respondents who attempted to locate Humberstone did so by starting at the city centre, commenting that it was '...somewhere out along the Humberstone Road' and eventually selecting an appropriate location. The mental association between a fairly accurate knowledge of the area around Humberstone Gate near the city centre, and the consequently familiar name of a little known district is therefore most likely to account for the divergent images of Humberstone as an area of terraced housing.

This explanation can be partly substantiated by an examination of the perceived location maps of those women who considered Humberstone to be such an area. Fig. 6.4 illustrates the locations in which these Oadby and Woodgate women placed Humberstone. Calculated separately from the other respondents, their displacement indices are found to be higher, with a distinct tendency for the selected locations to trend westwards along the A 47 towards that part actually known as Humberstone Road.

Fig. 6.4 Perceived locations of Humberstone as given by Oadby and Woodgate respondents perceiving predominant housing type to be terraces



This minority view of Humberstone may be partially responsible for the harsher image of its environmental quality made by the Oadby and Woodgate respondents. While 73% of Humberstone residents consider their housing to be of 'good' quality, the figure reduces to 15% in Oadby, where 79% of the responses regard the housing as poor to average (24%,55%). Similarly, 61% of Humberstone respondents consider their area to be attractive, an assessment shared by only 28% of Woodgate and 18% of Oadby respondents. Indeed, 38% of the Oadby sample place Humberstone in the very unattractive/unattractive categories. This pattern is repeated in the assessment of privacy and peace and quiet evident in Humberstone. Only 3% of Humberstone residents feel their area to be noisy or very noisy; this figure rises to 24% in Woodgate and 44% in Oadby. Conversely, 57% of the Humberstone women believe their area to be quiet; only 29% of the Woodgate and 13% of the Oadby samples agree with them.

Unfortunately, it is not possible to distinguish traces of cause or effect from the data presented here. It would be intriguing to know whether belief in the existence of terraced rows results, by a subconscious process of logic or association, in belief in the existence of poor quality housing and a noisy environment, or whether each is a separate element in a complex interrelated image of a residential area which exists either in its totality or not at all. It may be that an individual can only deal with a limited number of images of residential areas and that these are composed of a

variety of combinations of a few basic elements, such as type of housing, appearance and so on. If this is the case, then 'poor quality' and 'noisiness' need not be invariably linked with terraced housing (for associated experiments concerning the influence of language and semantic structures on judgements concerning images, see Lowenthal and Riel, 1972).

When stratified by age group of the respondent, the image of Humberstone generally becomes more positive the older the sample members are. Thus 23% of the 50-64 age group consider Humberstone to be very friendly, compared with only 3% of the 35-49 group; 39% and 28% of this same age group consider accessibility and the community facilities to be very good compared with only 29% and 10% and 19% and 3% for the two younger groups. 71% of the 50-64 group consider Humberstone to be attractive, whereas only 25% and 23% of the two younger groups do. This difference is almost wholly attributable to the distorting effect of the older residents in the Humberstone sample itself; of the 43 women aged between 50 and 64 in the total sample, 53% were from Humberstone, as opposed to only 16% of the 20-34 year old group, and 25% of those aged between 35 and 49.

If the Humberstone women are subtracted from the age groups, however, there is still an improvement in some aspects of the image of Humberstone with increasing age of respondent. Only 18% of this 20-34 year old group. for example, consider Humberstone to be attractive (the majority considering it to be no more than average) whereas 60% of the 50-64 year old group place it in this category, and 50% of this older group think of the housing as being of good quality whereas only 32% of each of

the two younger samples agree.

Similarly, increased length of residence in Leicester tends to produce more positive images of Humberstone. Excluding the Humberstone respondents, 36% of the Oadby women had lived in Leicester for less than ten years (there were insufficient in this category in Woodgate) and of these, 6% thought Humberstone attractive and 32% thought it average, compared with 44% and 27% respectively of those Woodgate and Oadby respondents who had lived in Leicester for more than ten years.

With regard to housing quality, 42% of the Oadby group who had lived in Leicester under ten years considered Humberstone to be poor, and a similar number as average, whereas 40% of those respondents who had lived in Leicester for more than ten years thought it good, and only 12% poor.

The evidence thus tends to suggest either that some form of learning process is involved or that, as with the Woodgate residents' image of Belgrave, we have identified another example of an 'after image' (see Chapter 3). There are several possibilities:

a) that comparative newcomers (usually younger people) to the city have not yet learned sufficient detail to possess an image of Humberstone consonant with that of the older residents, and that increased time will produce an 'accurate' image of the area

b) that the newcomers are the more objective, and the elderly respondents and those who have lived in Leicester for a greater length of time, have images of Humberstone as it was rather than as it is

c) that the relative importance of the dimensions by which Humberstone is evaluated by the younger and older respondents

varies and that the priorities of one group are not shared by the other. These images will also vary through time, but it will be increased age of the respondent rather than increased length of residence in Leicester which will be important. This possibility is discussed in greater detail in Chapter 8.

Woodgate

94% and 93% of Humberstone and Oadby respondents respectively believe Woodgate to consist of terraced housing. Whilst 72% of the Woodgate residents agree, the remaining 28% point out the existence of a visually distinctive group of semi-detached council houses in their midst, and to the fact of council ownership of some of the terraced houses.

They consider their shopping facilities to be good or very good (39%, 42%), their schools to be average to good (56%, 30%), themselves to be moderately friendly or friendly (41% and 45%) and the accessibility of the area to the city centre to be very good (74%). They do admit, on the other hand, to a tendency towards noisiness (47% average and 37% noisy) and an unattractive appearance (47%) and to a poor to average area (45% and 31%) for bringing up children. Humberstone and Oadby regard the schools as poor to average (44%, 39% and 46%, 38%) and the area as poor for children (52% and 50%). Both envisage poor community facilities (33%, 44% average and 69%, 31%) and a very unattractive or simply unattractive visual appearance (52%, 35% and 37%, 44%). Both regard the shops as poor or average (36%, 44% and 44%, 33%) and the area as noisy (56%, 45%).

The greatest disagreement though, centres on the quality of the housing; 75% of Humberstone and 76% of Oadby respondents consider it to be poor or very poor, whereas only 29% of the Woodgate sample share this view. Again it would be interesting to know whether this is a necessary concomitant to the choice of terraced housing as the dominant type (cf inferential beliefs in Chapter 4), or whether it is an entirely independent assessment. Quite subjectively, the fabric and structure of the Woodgate houses are perfectly sound, and although small and lacking garden space, they are in excellent condition and would not appear to merit the terms of poor or very poor (although Figs. 5.3 and 5.4 suggest so).

The residents of Woodgate appear largely philosophical about the acknowledged local problems, and particularly about the way in which the area is abused by noise generated by outsiders visiting the public houses and nightclub on Woodgate road.[3]

When the data for Woodgate is stratified by the age of the respondent, a pattern almost exactly the reverse of that for Humberstone emerges. In the case of Woodgate, and excluding the

3 One anecdote may serve to illustrate this point from an interview conducted around mid-day one weekday morning. During the discussion about privacy and noise levels in the local area, it emerged that an aggrieved neighbour, who had been unsuccessful in buying the house, incited by some 'city' (i.e. 'outsider') friends, had thrown several bricks through an upstairs bedroom window the previous night while the respondent and her husband had been asleep. Although the police had been informed, and told of the culprit's identity, no-one had yet arrived to investigate the incident. This was dismissed by the respondent since 'the police have much better things to do' and her husband had already bought and replaced the glass. In contrast, her major concern over noise and vandalism was that a damaged street light near the house into which she was hoping to move within a month or so, had remained unrepaired for six weeks.

Woodgate respondents from the totals, it is the younger members of the sample and those who have not lived in Leicester for so long who have the most positive, or more correctly, least negative, images of the area. 61% of the responses from women aged over 50 considered Woodgate to be very unattractive, and 40% of them thought it very noisy as well. Figures from the 20-34 and 35-49 age groups for these two dimensions were 33% and 0% and 40% and 9% respectively. 63% of the older group considered the schools to be poor or very poor, and 75% thought the housing to be poor or very poor as well. For the youngest group, the relevant figures were 43% and 50% respectively.

Although some of the absolute figures are again quite low for those outside Woodgate having lived in the city for less than ten years (24 individuals), this group does appear to have rather more positive views of housing quality (57% poor, 29% average) and appearance (66% unattractive or very unattractive and 23% attractive) than those living in the city over ten years (54%, 17% and 90%, 0%), where the absolute figures are higher (84 individuals).

Oadby

Oadby residents, not surprisingly perhaps, possess a very favourable image of their own environment. The quality of the housing is seen as good or very good (54%, 37%) and the area is attractive (57%) with shops, schools and community facilities all varying between good and very good. The residents are young to middle aged (49%, 31%) and friendly (55%). On several counts, however, the image of Oadby held by the Humberstone sample is more complimentary; 93% of Humberstone respondents

consider Oadby to be either a good or very good area in which to bring up children, whereas only 68% of the Oadby women agree. Similarly, 52% of the Humberstone respondents consider Oadby to be quiet, but in Oadby itself, this figure falls to 30%.

The Woodgate sample is less euphoric with the majority opting for an average view of the schools, community facilities and privacy/peace and quiet dimensions in Oadby, and six attributes receive a poor designation by 10% or more of women responding to them. These are the quality of the area for bringing up children, the friendliness of the residents, accessibility (a very negative aspect in the view of the Woodgate respondents), community facilities, the quality of the housing and the attractiveness of the area.

The Woodgate image diverges considerably from the other two, particularly on elements such as the quality of Oadby's schools and its community facilities. Only 41% of Woodgate respondents considered the Oadby schools to be good or very good, whereas 81% of the Humberstone and 88% of the Oadby women did so. Similarly, 60% of the Humberstone and 80% of the Oadby respondents thought the community facilities were good or very good - this image was shared by only 31% of the Woodgate women.

The image of housing age and type also set the Woodgate sample apart. 19% of them believed that the predominant housing type in Oadby was terraces, and 23% (though not, surprisingly, the same individuals) considered that the majority of the housing stock was immediately pre-war, or earlier. This was not simply a case of 'after images' with the older respondents since the ages of those women holding images of terraced housing in Oadby were evenly spread across all four age groups.

The Oadby women (all of whom live on a modern housing estate) believed the majority of houses in Oadby to have been built since 1960 (69%). 49% of the Humberstone and 35% of the Woodgate samples assigned it to the earlier 1945-60 category, but reasons given verbally for these choices highlighted a possible ambiguity in the question wording. The question, 'How old do you think the majority of housing is in Oadby ?' refers, as intended, to numerical superiority. In fact, however, it was clear that some respondents translated this into a concept of area, and in reality answered the question, 'How old is the housing which covers the largest area in Oadby ?' In this case, the difference narrowed considerably, bearing in mind the large area of very low density, higher status housing in the north and east sections of the suburb.

Originally it was hoped, by using the answers to this question in conjunction with those concerning the predominant housing type, to see whether there were two different images of Oadby held by those respondents living outside the area, one of the modern housing estates, and another of the older, lower density higher status homes. Although this is still a valid exercise, it should be remembered that the confusion between numerical and areal dominance will, to a certain extent, affect the outcome.

Of the 40% of Humberstone respondents who chose 'detached' as the predominant housing type in Oadby (either singly or in conjunction with another type) 81% offered an age for the housing stock. Thirteen of those seventeen women selected a pre 1960 category. Of the 36% of Woodgate respondents who regarded the majority of the housing to be 'detached', 66% attempted to judge its age. Ten of these twelve people placed

it older than 1960. Although the existence of an image of an area of older, detached housing thus tends to be confirmed, even with these small numbers, the converse is less clearly defined. There is no strong agreement between those respondents visualising Oadby as an area of semi-detached housing and those considering that housing to be of recent construction. This is particularly the case with the Woodgate sample, where 57% of the respondents (28 women) believed that semi-detached housing was the dominant or co-dominant housing type in Oadby, yet only a quarter of these judged it to date since 1960 and a further 21% believed it to date from before 1939.

It is true that the absolute figures are very low for valid inferences to be drawn, but for the suggestion of two distinct images to have sustained credibility, it is a pity that even at this level, the correlation of the image of a more modern semi-detached Oadby was not stronger.

When the images of Oadby are examined according to the age of the respondent and her length of residence in Leicester, (omitting the distorting influence of the Oadby respondents) much less variation occurs than in the images of Humberstone or Woodgate. The younger respondents possess a rather more favourable image of Oadby's schools (71% good or very good) than the 35-49 or Over 50 age groups (59% and 57%) and a slightly less favourable image of the area's suitability for bringing up children, (69% good or very good, as opposed to 80% and 80% respectively). Although the majority emphasis on good or very good images alters slightly between the groups, the overall situation is remarkably stable. In the case of housing quality, 79%, 85% and 79% of the 20-34, 35-49 and Over 50 groups consider

it good or very good; these figures become 75%, 84% and 88% in the case of appearance of the area, and 43%, 50% and 47% in respect of the privacy/peace and quiet dimension.

As might be expected, there is very little difference in the images of Oadby between those respondents who have lived in Leicester for more than ten years and those who were born in the city (there were only seven respondents from Humberstone and Woodgate who had lived in Leicester for less than ten years); 59% and 63% of each group viewed the schools as good or very good, 81% and 79% considered the area very suitable for children, 88% and 81% was the housing quality as good or very good and 87% and 76% considered it attractive or very attractive.

It would thus appear that Oadby's image as a very desirable residential area is largely independent of the age of the respondent, or her length of residence in Leicester, a point which is considered in greater detail in Chapter 8.

We have thus identified a set of very different images for ten residential areas of the city of Leicester held by three samples of respondents. The strongly positive images of Oadby, Stoneygate, Humberstone and, to a lesser extent, Wigston, are counterbalanced by the strongly negative images of Highfields, Belgrave, Braunstone, and, in certain instances, Woodgate. Aylestone has been identified as an image which lacks clarity on almost every dimension for every group of respondents; indeed, it might almost be said that Aylestone fails to evoke an image of any kind, and it would appear that many respondents are unable to differentiate it spatially from Eyres Monsell, which tends to produce negative images. The image of each sample's own local area is our next consideration.

iii) The Image of the Respondents' own 'local' area

Although indirect mention had been made of the respondents' local areas in the context of Question 17, three questions, 18 - 20, were explicitly concerned with her smaller, more immediate neighbourhood. These three questions reflected the three-fold purpose of this part of the analysis:

a) to establish the extent to which each respondent identified with her local neighbourhood area by being aware of and using its locally known name

b) to discover the size and spatial extent of the area perceived by each respondent as 'local' and its relationship to the name identified in a) above

c) to uncover the nature of the image of this clearly defined 'local area' along the twelve attributes selected for analysis, for comparison with the attitude, preference and behavioural intention data discussed in Chapters 7 - 9.

a) The awareness and use of a local area name by each of the three samples

The information used to establish awareness was derived from Question 18, which asked 'Does this area around here have a local name, and if so, what is it ?'

Humberstone

Thirty four of the respondents in the Humberstone sample (64%) were able to provide a local name for the area in which they lived. For twenty three of these women (67%) the name was simply Humberstone, and another five referred

to it as 'Old Humberstone' or Humberstone village. Four of those five had lived in the area for more than ten years, since before recent residential building in the north-east and south-east of the area ceased enabling it to be called a village. Three respondents, all living in the south-eastern sector of the district, referred to it as Scraptoft or Scraptoft Lane (the adjacent village beyond the city boundary in the east). The remaining names given were 'Humbo', 'Humberstone Park' and 'Terminus'; only four of the thirty four names given therefore excluded reference to Humberstone itself.

Woodgate

Agreement with the local area name was similarly high in Woodgate, where twenty nine women (59%) referred to an area name, of whom twenty three (79%) selected Woodgate. Two mentioned 'The Fosse', two 'The North' and one each 'West End' and 'Frog Island', all names associated with the Woodgate area of the city. The 'West End' is usually used by Leicester inhabitants to refer to the whole of the inner city area lying to the west of the city centre and river Soar, and 'Fosse' is more usually the north-western segment of the 'West End'. Perceiving Woodgate as either of these two suggests an extremely large, undifferentiated image of the western parts of the city

Oadby

Less than half (47%) of the Oadby respondents were aware of a local name for their area, but of these 73% referred to it as Brocks Hill. Three spoke of it as Oadby or Oadby

village, and one as Glen Gorse (the name of the nearby golf course). Three other names were discarded as facetious.

The Oadby sample (see Chapter 5) had been selected from a single housing estate, privately owned, built by several local developers during the decade 1960-1970, which now forms one ward of Oadby and Wigston Borough Council, known as Brocks Hill, a name generally held to refer to the estate itself. Another older, mixed residential area, a small council estate and an industrial estate also adjoin the old Oadby village centre to the south-west of the A 6 trunk road, and two newer estates (one still unfinished in January 1979) lie on the other side of the A 6 next to an area which contains some of the most expensive and luxurious homes in the entire built up area of Leicester. Oadby is thus an area of several diverse residential environments, and it would appear that residents cope with this diversity by identifying with one particular, well differentiated part of Oadby such as the Brocks Hill estate, rather than with the whole of the municipal area.

b) <u>The size and spatial extent of the areas perceived as 'local'</u>

The use of another map-related exercise was undertaken with caution in view of the criticisms made, among others, by Rieser (1972) and which have been discussed in Chapter 2. The methodology adopted here of asking women to indicate the extent of what they considered to be their local area on a pre-drawn base map was very similar to that employed by Terence Lee in his study of perceived neighbourhoods among Cambridge housewives (Lee, 1968). To that extent therefore,

it was expected that the results concerning methods of representation would be similar, and that most of the perceived neighbourhoods would therefore be enclosed within a single line drawn on the map. However, it was unclear how respondents would react to such a task, and how far their unfamiliarity with cartographic techniques would affect their performance. In order to minimise any possible map-reading problems, the base map was designed to resemble a street plan rather than a large scale Ordnance Survey map as Lee used, in the belief that such a format would be more acceptable to a largely non-geographical public.

The three base maps used (Appendices C,D and E) contained all the streets, shopping areas, churches, schools and other significant public buildings within approximately half a mile's radius of the respondents' homes. Each person was asked to mark on this map, in any way she chose, the area which she considered to be her 'Home' area or local neighbourhood.

The main purposes of this request were

a) to enable the spatial extent of the perceived neighbourhood of people living in close physical proximity to be compared

b) to enable the spatial extent of these perceived areas to be compared with the local area names previously established

c) to identify the spatial extent of the district referred to in the subsequent questions dealing with the nature of the image of the respondents' local areas.

Aspects a) and b) are considered together in the rest of the present section; aspect c) will be considered in the context of the image of the respondents' local neighbourhoods which form the fourth and final section of this chapter.

a) and b) The spatial extent of perceived local areas and their relationship to suggested local names

Far more people were able to indicate the extent of their local area on the base map than were able to provide a name for the area so depicted. Forty eight of the Humberstone sample (90%), forty four of the Woodgate (94%) and forty nine of the Oadby group (90%) responded to the map request.

Given the similarity to the method used by Lee, it was not surprising that of the 141 individuals who defined their 'home area' in this way, only thirteen marked or shaded roads, and only 31 shaded areas of the map or marked their home location. The remaining 97 all drew a continuous line to enclose the area except for one woman who drew a fragmented map containing three nodes centred on her own home, that of a friend and the local shops.

Since the women had been constrained to produce areally continuous maps by the nature of the task requested of them, emphasis will not be laid so much on the mode of representation selected as on a comparison of the areas drawn, since all respondents were subject to similar constraints in the construction of their maps.

Humberstone

A substantial degree of correlation exists between the areas indicated as 'local' by this sample. The selection of maps superimposed on Fig. 6.5 take the general form of a right angled triangle; the base lies almost due East-west along the axis of Scraptoft Lane, the hypotenuse curves northeastwards along Humberstone Drive, taking in the old village centre, and the third side is provided by one of several roads running southwards to rejoin Scraptoft Lane.

The area lying to the south of Scraptoft Lane is something of a no-man's land to this group, and is included on only ten of the maps. Only four of these people, however, referred to their local area as Humberstone, perhaps suggesting that Scraptoft Lane is the southern limit of the area most residents would consider to be Humberstone.

The central core of Humberstone extends from Humberstone Drive in the west to Stanley Drive six hundred yards further east along Scraptoft Lane tapering to a point in the old village centre where Humberstone Drive and Stanley Drive are separated by a distance of less than three hundred yards. An area of only slightly less intense agreement lies further east from Stanley Drive extending to Wigley Road.

Respondents living in the southeastern part of the area shown on the base map in Fig. 6.5, were the only group to indicate a significantly different 'local' area in response to the map request in Question 19. Three of these maps, together with the location of the respondents' homes, are illustrated in Fig. 6.6. These are the three respondents who referred to their local area as Scraptoft or Scraptoft Lane in Question 18.

Fig. 6.5 Humberstone sample: Perceived spatial extent of 'home' area

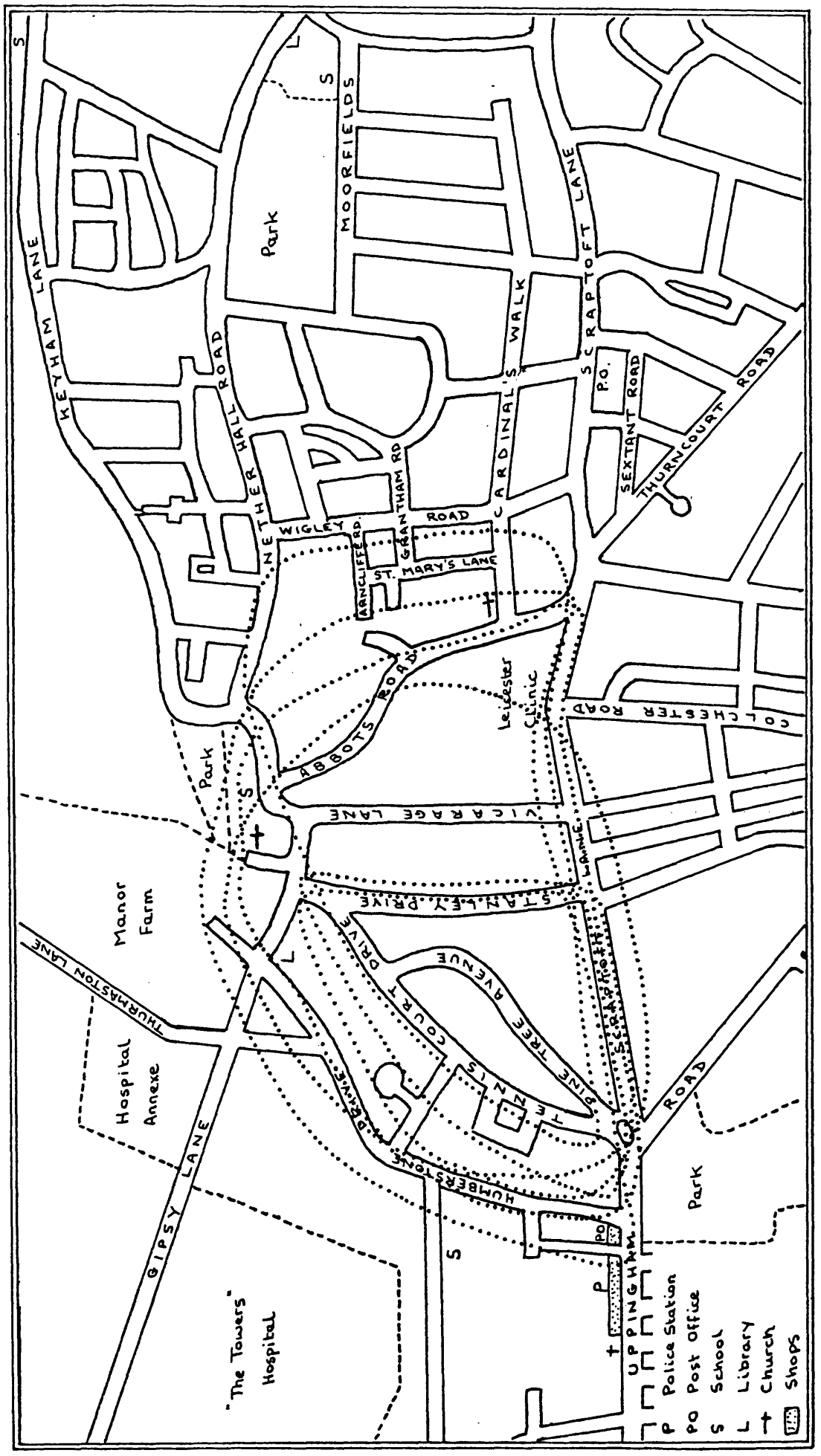
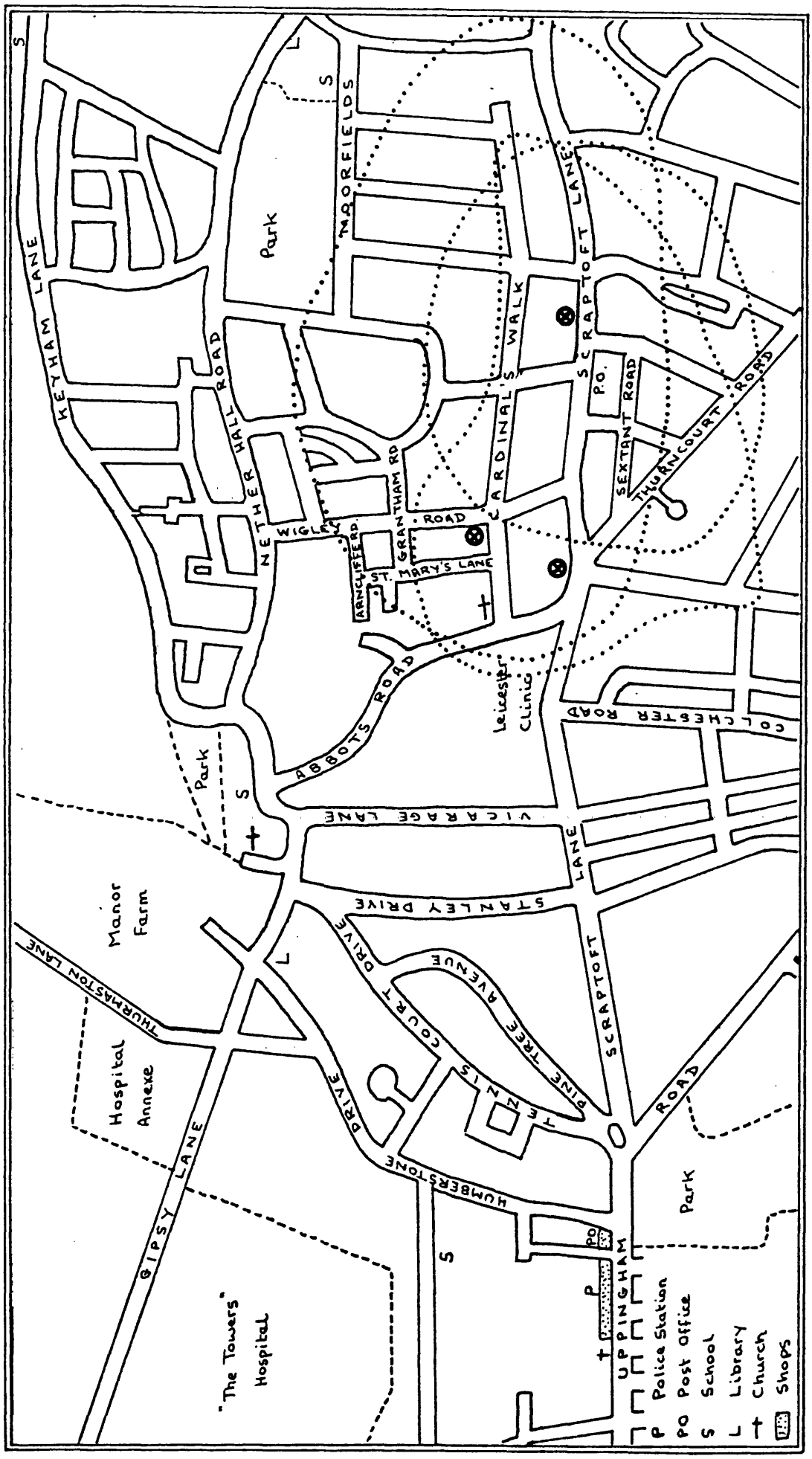


Fig. 6.6 Humberstone sample: Perceived spatial extent of local areas referred to as 'Scraptoft'



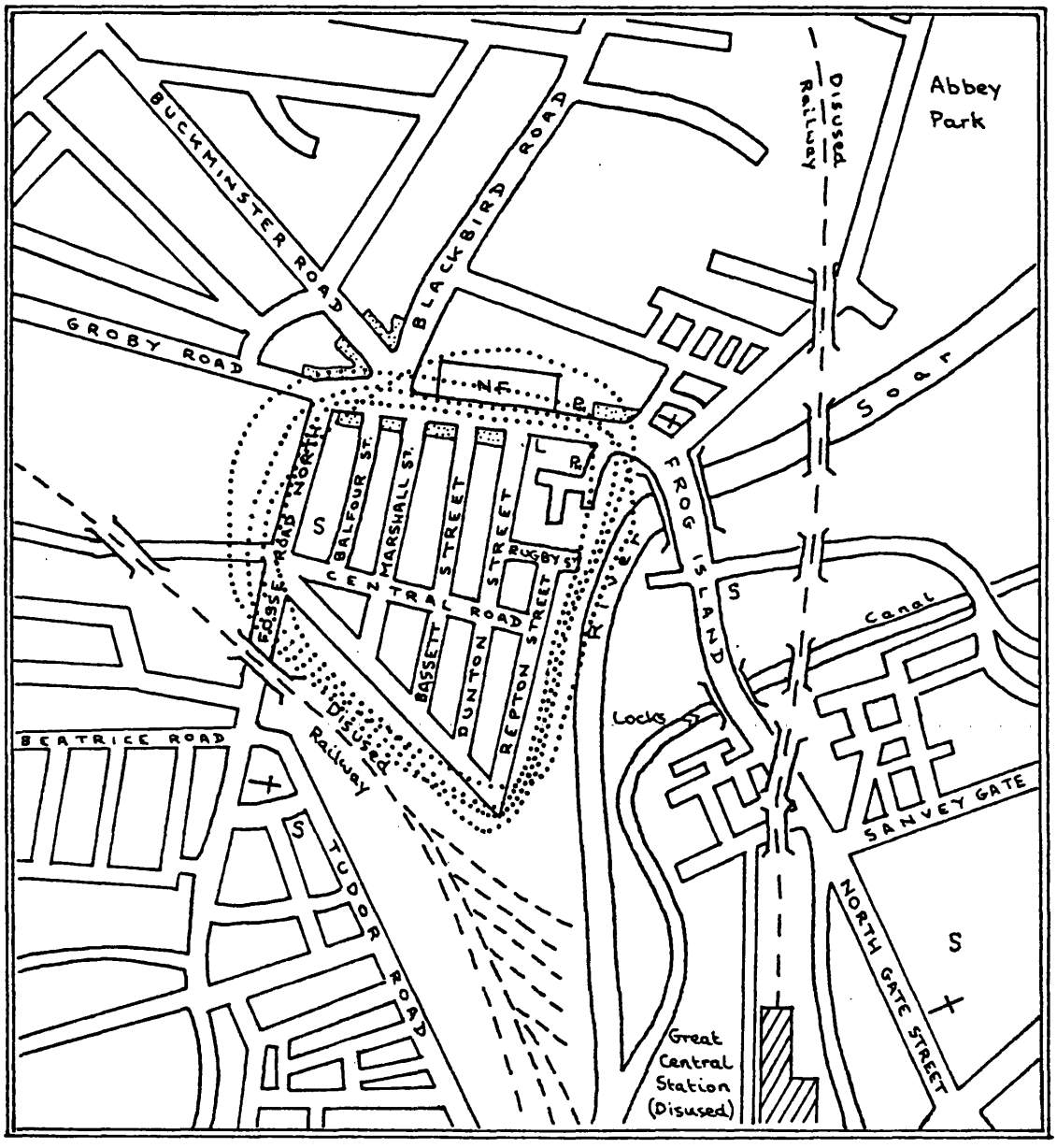
Woodgate

The amount of agreement displayed in the spatial extent of the images of Woodgate is far greater than that existing among the Humberstone respondents. Of the forty four representations made on the base map, no fewer than twenty six were absolutely identical. Three more included the area depicted by these twenty six individuals in a slightly larger map; eight drew single roads or groups of roads wholly contained within the area claimed as local by the core group of twenty six, and the remaining seven circled or marked their own houses within the same area. Not one respondent depicted an area wholly outside any one of those claimed by the other forty three and every representation included or was placed within the core area referred to as Woodgate by 79% of the respondents, which is illustrated in Fig. 6.7 .

The three largest maps differed in their degree of affinity with the local area name of Woodgate. The smallest of the three, which included the core area together with a small enclave of streets on the northern edge of Woodgate (Road) still retained the name of Woodgate. The second map, and the only one to extend the area east along Woodgate (Road) to the bridge over the River Soar used the name of this riverside area, Frog Island, to refer to her neighbourhood. The third, and by far the largest map drawn included the core area with a much larger area of housing lying to the north west, and did not consider the area to possess a local name at all.

It may be that the larger the size of local area drawn, the less likely the respondent is to refer to this area by its

Fig. 6.7 Woodgate sample: Perceived spatial extent of 'home' area



local designation. This possibility is investigated in greater detail in the analysis of the maps drawn by the Oadby sample.

In the meantime, to what are we to attribute the very strong agreement in the delimitation of the spatial extent of Woodgate ? It is tempting to cite the conclusion that

> '..... formation of a map image is easiest where there is a street plan with a regular pattern ..... '
>
> (de Jonge, 1962; p. 274)

However, this is inappropriate here since, like Lynch had done, de Jonge presented his respondents with a blank sheet of paper on which to draw their city neighbourhoods, an exercise in which a regular street plan would clearly be an advantage, but which, for reasons discussed in Chapter 2 and Chapter 3, was not adopted here.

Any possible extension southwards of the Woodgate image is largely constrained by the physical edge presented by the embankment of a now disused railway through which there is no path or access. The river and the canal perform a similar function in the east. To an outside observer, there is little difference between the two sides of Woodgate (road) or Fosse Road North, as the two sides vary neither in visual appearance, housing type, social status or ethnic composition.

Far from being 'paths' though, these two main roads act as 'edges' in the perceived environment, and Woodgate (road) rather than being a central thoroughfare and shopping street, or being considered as a node for a larger residential

area forms a strongly demarcated northern boundary to the Woodgate respondents.

Oadby

Forty nine women represented their local area on the base map provided, which covered the whole of the Brocks Hill estate, the Oadby shopping centre and much of the residential area to the north of the main A 6 road. In contrast with the Woodgate respondents however, no two drawn maps were identical, although several exhibited close agreement. The most obvious point revealed by these maps is that the entire estate was perceived as a single, undifferentiated unit by only six respondents, which stands in stark contrast to the sharply defined area of Woodgate. Equally clear, moreover, is the fact that the subdivisions which respondents impose upon the estate bear a close degree of similarity with one another.

The selection of maps illustrated in Fig. 6.8 demonstrates that there are three mentally differentiated areas within the estate:

Area A - which occupies most or all of the central and northern sections

Area B - which occupies the southwestern part of the estate

Area C - which occupies the southeastern area of the estate

38 of the remaining 43 maps drawn (i.e. those which did not include the whole estate as the 'local' area)may be classified into one of these three types, and a further four maps encompass areas A and B but deliberately exclude area C.

The most common map features Area A, drawn with minor variations on nineteen occasions; Area B was drawn on eight occasions; Areas A and B together on four occasions, and Area C was drawn on eleven maps. The remaining map encompassed areas B and C but omitted Area A.

To a large extent these three types of map reflect the residential location of the respondent, although it is interesting that the mental barriers of Rosemead Drive, Ash Tree Road and Briar Meads (see Fig. 6.8) remain constant, irrespective of the precise location of the respondent's home within that area. The 'local area' is not invariably centred on the respondent's home since even those women living on the roads which act as 'edges' for everyone else tend to define them in the same way.

Irrespective of the area (A, B or C) which respondents consider to be their 'local' area, the same roads act as 'edges' - the western part of Rosemead Drive and the entire length of Ash Tree Road form a strong east-west barrier separating the northern section of the estate from areas B and C, and Briar Meads separates these two in a strong north-south 'edge'.

There are several possible explanations for the existence of three distinct sub-areas in the minds of Brocks Hill residents. The northern and central part of the estate (Area A) was the first to be developed and the respondents here have lived in their houses slightly longer than those elsewhere. Moreover, the house types in the northern area are different from those in the rest of the estate; they are predominantly of red brick and rather more conservative in

design. It also possesses the estate's main convenience shops in six small units.

The southwestern part of the estate (Area B) is newer, and built to a higher density, containing many more small culs de sac and a greater variety of house type. Open plan semi-detached houses and a number of bungalows, which are almost completely absent from Area A are to be found here. There is another small group of convenience shops in Briar Meads at the edge of the area.

The southeastern part of the estate (Area C) is more heterogeneous than the other two. It is built around a main feeder road, Coombe Rise, and its associated culs de sac are visually distinctive since many of the houses are built of light grey brick and to a design not found elsewhere on the estate, and there are grassed open spaces not found in Area B.

Of the eleven women who delimited this Area C as their 'home area' not one of them referred to it as Brocks Hill; indeed only two respondents in this group offered names at all. One of these suggested Oadby village, and the other Glen Gorse, the name of the golf course which adjoins the estate in this southeastern corner. Of the eight women who considered the southwestern area to be their local area however, six of them referred to it as Brocks Hill.

Twelve of the maps drawn in answer to Question 19 were substantially smaller (i.e. under half the size) although enclosed within the maximum extent of areas A, B and C. Again, not one of these twelve respondents referred to her home area as Brocks Hill (for spatial extent of these maps see Fig. 6.9).

Fig. 6.8 Oadby sample: Perceived spatial extent of 'home' area

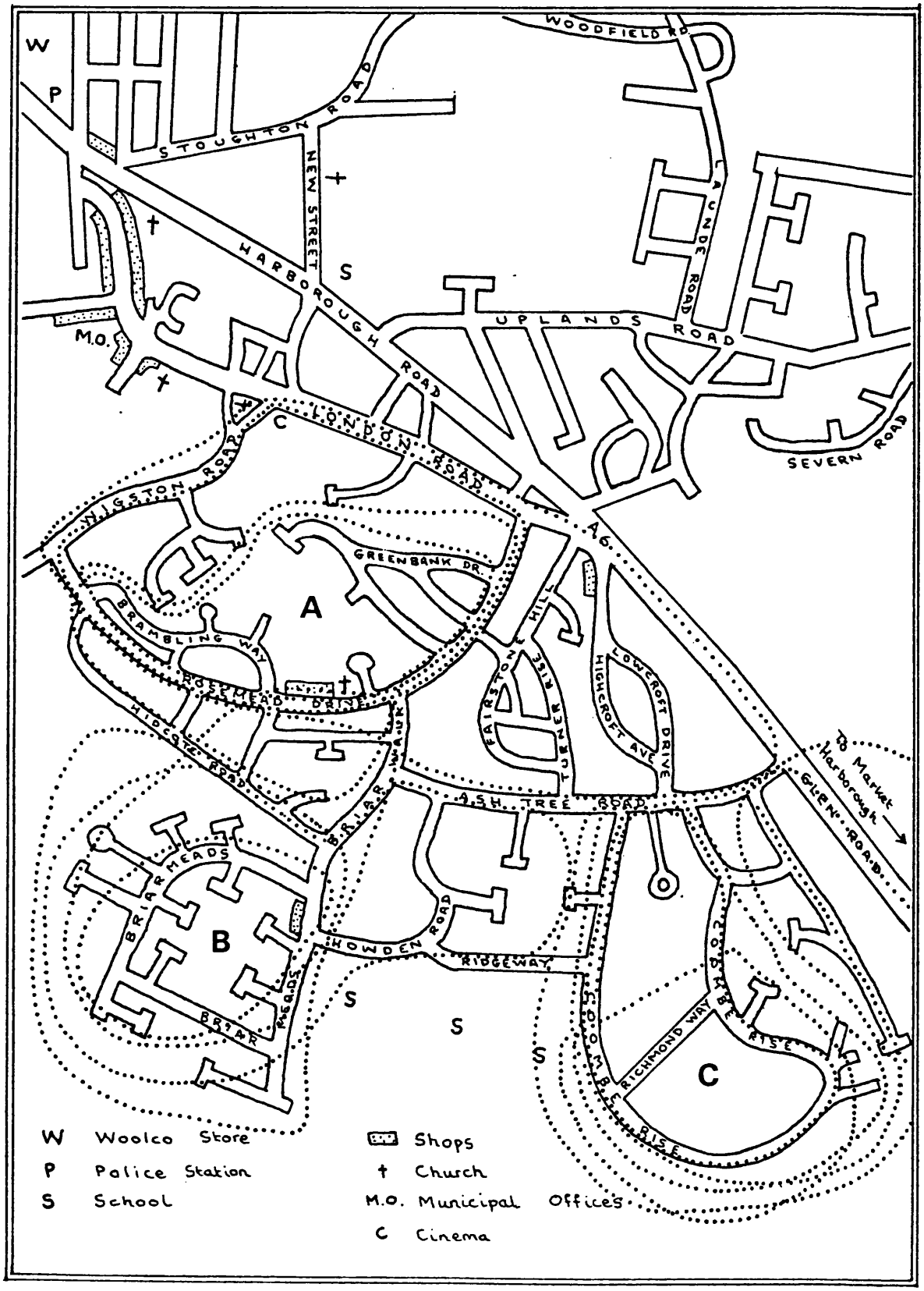
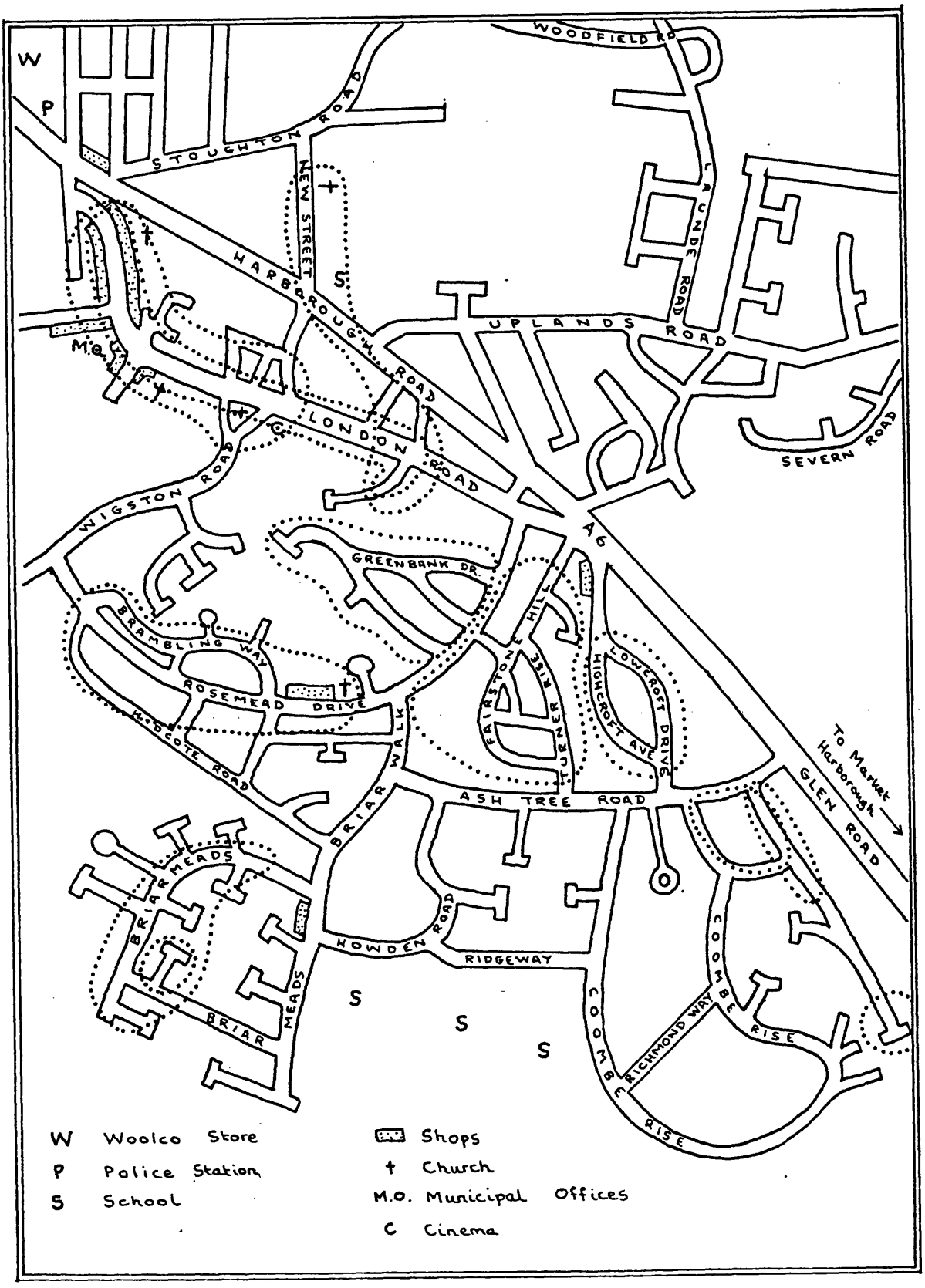


Fig. 6.9 Oadby sample: Perceived spatial extent of restricted 'home' areas



It therefore seems probable that, as was tentatively suggested in the section concerning the maps drawn by the Woodgate respondents, the size of the 'local area' is an important factor in the formation of a mental image of that place. There is considerable variation in house type in Woodgate too, especially obvious to a resident, with an enclave of local authority semi-detached houses and the socially superior and more expensive properties in Central Road and Bonchurch Street with bay windows and small front gardens, in sharp contrast to the majority of the houses which open directly onto the street. However, no attempt was made to separate these visually distinctive housing types - Woodgate was indisputably an area seen as a single unit. It would appear that only when an area is somehow considered too large to be perceived as a whole, do other considerations come into play in order to subdivide the area into smaller, more manageable units.

In the case of Brocks Hill, visual distinction seems likely to be one of these other considerations, but there may well be others, and visual distinctiveness may not be a universal criterion. It therefore seems an appropriate place to turn our attention to the components of the image which respondents hold of their immediate 'local' environment in an attempt to uncover the nature of the relationship which exists between the area so defined and its constituent elements.

c) The Image of the Respondents' own Local Areas as derived from Question 20

The final section of this chapter concentrates on the images of their local areas expressed by individuals in response to Question 20 on the questionnaire schedule. This asked for exactly the same information as Question 17 had done, that the respondent select the description of each of the twelve attributes used which best fitted her 'home area'. The important distinction between the two questions lay in the fact that in the first question, the respondent's 'home area' was one of ten which had to be considered in turn, whereas in Question 20 it was considered in isolation. Whereas Question 17 referred to the entire area of Humberstone, Woodgate or Oadby, Question 20 enabled the respondent to refer to the smaller 'home area identified by her in Question 19.

It was expected that concentration on the purely local area in Question 20 might produce slightly more positive images than those elicited from Question 17; reference to Table 6.2, which summarises the data obtained from similar sections of the two questions demonstrates that this was not invariably the case, although the two images are obviously similar in many respects. In several instances, the image of the local area is more critical than that suggested by Question 17, and in several others, the emphasis changes from an image of a 'very good' to a 'good' attribute.

Both Humberstone and Woodgate respondents evaluate the friendliness of the residents slightly lower in Question 20 than they do in Question 17, and both of them also downgrade their

Table 6.2 Images of the Local Area derived from Questions 17 and 20

Attribute		HUMBERSTONE		WOODGATE		OADBY	
		Q 17	Q 20	Q 17	Q 20	Q 17	Q 20
AGE OF THE RESIDENTS	Very old	-	-	-	-	-	-
	Old	5	4	31	24	-	-
	Middle aged	74	71	48	59	31	33
	Young	5	4	-	2	49	47
	Very young	-	-	-	-	-	2
	Undecided	15	21	21	15	20	18
FRIENDLINESS OF THE RESIDENTS	V.Unfriendly	-	-	-	-	-	-
	Unfriendly	2	4	-	2	8	13
	Average	33	39	41	54	29	29
	Friendly	47	39	45	35	55	54
	V. Friendly	18	14	14	8	8	4
	Undecided	-	4	-	-	-	-
TYPE OF HOUSING	Flats	-	-	-	-	-	-
	Terraces	-	-	72	89	-	-
	Council	2	-	3	-	-	-
	Semi-Det.	65	62	-	-	27	38
	Detached	18	16	-	-	23	15
	Mixed	15	22	25	11	50	47
QUALITY OF HOUSING	Very poor	-	-	3	-	-	-
	Poor	2	-	26	18	-	-
	Average	10	12	48	49	4	9
	Good	73	66	16	29	54	58
	Very good	12	16	3	2	37	28
	Mixed	2	6	3	2	6	4
AGE OF HOUSING	Victorian	4	-	28	26	-	-
	1900-1914	9	2	52	49	-	-
	1918-1939	62	73	14	21	2	-
	1945-1960	7	10	-	-	18	19
	Post 1960	2	-	-	-	69	69
	Mixed	16	14	5	5	10	12
APPEARANCE	V. Unattract.	2	-	22	11	-	-
	Unattractive	-	-	47	32	-	-
	Average	22	27	28	49	21	19
	Attractive	61	63	-	6	57	75
	V. Attract.	12	8	3	2	21	4
	Mixed	2	2	-	-	-	2

Table 6.2 ctd.

Attribute		HUMBERSTONE		WOODGATE		OADBY	
		Q 17	Q 20	Q 17	Q 20	Q 17	Q 20
PRIVACY/ PEACE AND QUIET	Very poor	-	2	6	10	-	-
	Poor	3	4	37	25	-	-
	Average	32	35	47	56	56	44
	Good	57	47	3	8	30	46
	Very good	5	8	3	-	8	8
	Undecided	3	4	3	-	6	2
QUALITY OF AREA FOR CHILDREN	Very poor	2	-	10	13	2	-
	Poor	2	2	45	46	-	4
	Average	13	19	31	30	27	29
	Good	65	63	10	11	33	53
	Very good	18	17	3	-	35	14
	Undecided	-	-	-	-	2	-
COMMUNITY FACILITIES	Very poor	3	2	3	2	-	2
	Poor	-	-	16	17	2	4
	Average	25	33	56	43	18	15
	Good	50	51	19	30	48	50
	Very good	22	14	6	8	32	29
	Undecided	-	-	-	-	-	-
QUALITY OF SCHOOLS	Very poor	3	-	-	4	-	-
	Poor	3	8	15	17	2	2
	Average	24	17	56	39	8	6
	Good	53	50	30	39	55	63
	Very good	18	23	-	-	33	25
	Mixed	-	2	-	-	2	4
QUALITY OF SHOPS	Very poor	-	-	3	-	-	-
	Poor	7	8	3	4	-	-
	Average	25	33	13	21	8	15
	Good	40	31	39	58	33	32
	Very good	28	27	42	17	59	53
	Mixed	-	-	-	-	-	-
ACCESS-IBILITY	Very poor	-	-	-	2	-	-
	Poor	-	4	3	2	11	13
	Average	12	10	3	6	31	40
	Good	46	47	19	25	46	40
	Very good	41	39	74	65	8	7
	Undecided	-	-	-	-	4	-

local shopping facilities a little. Oadby respondents shift the emphasis from very good schools, quality of the area for children, appearance and housing quality to 'good' images of these same attributes. The privacy/peace and quiet dimension improves in Question 20 for both the Woodgate and the Oadby samples, and the appearance of Woodgate is also regarded more positively in Question 20, as is housing quality.

Otherwise the images are very similar to those examined in section ii) of the present chapter. The differences apparent from Table 6.2 are fairly small, although it is interesting that a more inflated, positive image of the home area did not emerge more strongly given the precise focussing of the question.

The spatial extent of the areas considered to be local has already been established; in the case of the Oadby and Humberstone respondents, the areas so delimited vary considerably between individuals, although the Woodgate sample indicated virtually identical local areas. The areas considered 'local' by the Humberstone and Oadby respondents also differ from the larger districts used to answer Question 17. It is therefore rather more difficult to understand those few differences which do occur in the two Woodgate images. Some light is shed on this problem in the course of Chapter 9, where differences in the images of Woodgate held by those respondents who wish to move from the area and those who wish to remain are considered.

During the course of this chapter, we have therefore gained a clear idea of the images of ten residential areas in Leicester held by respondents from Humberstone, Woodgate and

Oadby. Certain of the ten, notably Highfields, Oadby and Belgrave, are very accurately located by all three samples, while others, particularly Aylestone, Eyres Monsell and Humberstone are consistently inaccurately located, even by the Humberstone respondents themselves.

Belgrave, Stoneygate and Highfields produce sharply defined, cohesive images in the minds of all three samples, but Eyres Monsell and, particularly, Aylestone, appear hazy and undifferentiated, a feature which is probably associated with their consistently inaccurately perceived locations.

Woodgate respondents indicate a very high level of general agreement concerning the name and spatial extent of their local area. Humberstone and Oadby are mentally divided by their inhabitants into smaller local areas, related to, but not always centred on, the respondent's own home. These smaller areas do not produce noticeably more positive images, which might have been expected in view of the indications from other studies discussed in Chapter 2.

The next stage of our investigation is to examine the attitudes towards these same ten residential areas held by the three samples, and to relate these to the images identified in this present chapter, in order to consider the possibility of the first link in the Perception - Behaviour process.

7

Attitude

> 'An attitude, like a theory, is a frame of reference, saves time because it provides us a basis for induction and deduction, organises knowledge, has implications for the real world, and changes in the face of new evidence.'
>
> (Rokeach, 1968; p. 131)

Whilst not intended as a definition of attitude, the above observation of the similarities between an attitude and a theory supplies a framework to this part of the analysis which is rather more flexible and illuminating than the more rigid 'predisposition to respond' approach largely associated with Martin Fishbein (see Chapter 3). It places the concept of attitude within rather than at the culmination of the process of explanation of the process of human behaviour, and reminds us that, although attitudes are more lasting than opinions, they are neither static nor immutable. The attitudes discussed throughout this chapter can only properly apply to those individuals who were interviewed in Humberstone, Woodgate and Oadby during the fieldwork stage of this study, and they cannot be regarded as sacrosanct possessions of these areas or these respondents at any other point in time.

It has been suggested elsewhere in this work that the application of a simplified semantic differential scoring format to Question 17 would provide a very crude measure of

the degree of favourability with which each respondent viewed each of the residential areas included on the Questionnaire schedule. To begin with, we must leave aside the possibility that a respondent might consider accessibility or the friendliness of the inhabitants relatively unimportant features of a residential area; this subject will be dealt with at a later stage of this chapter.

Our basic assumption therefore, is that respondents display a broad similarity in their evaluations of good and bad, and are able to separate these from concepts of like and dislike (one could, for example, accept that smoking was 'bad' yet still enjoy doing it). Irrespective of whether quality of the schools is an important attribute in an individual's assessment of residential areas in general, it is assumed here that an area for which she declares the schools to be 'good' is evaluated more favourably on this dimension than one for which she considers the schools to be 'poor'.

Cognitive evaluations of the ten selected residential areas

The purpose of this chapter, then, is to explore the cognitive evaluations of the ten areas made by each of our three samples, and to relate the data to the Images of these areas identified in the previous chapter and, eventually, to the patterns of preference examined in Chapter 8.

Nine of the twelve attributes from Question 17 were used for this part of the analysis, the three purely structural (belief) dimensions being omitted (see Chapter 4). The positive end of each scale was allocated a score of 5, and the negative end a score of 1. The initial, unweighted scoring system thus became that as illustrated in Table 7.1 overleaf:

Table 7.1 The initial, unweighted scoring system

SCALES	5	4	3	2	1
The Quality of the local schools	Very Good	Good	Average	Poor	Very Poor
The Quality of the area for bringing up children	Very Good	Good	Average	Poor	Very Poor
The friendliness of the residents	Very Friendly	Friendly	Average	Not very Friendly	Very un-Friendly
Accessibility into the city centre	Very Good	Good	Average	Poor	Very Poor
Community facilities	Very Good	Good	Average	Poor	Very Poor
Quality of the housing	Very Good	Good	Average	Poor	Very Poor
Attractiveness of the area	Very at-tractive	At-tractive	Average	Not very at-tractive	Very unat-tractive
Quality of the local shops	Very Good	Good	Average	Poor	Very Poor
Privacy/peace and quiet	Very Quiet	Quiet	Average	Noisy	Very Noisy

There remained the slight possibility that the evaluation of the Privacy/Peace and Quiet dimension could have evoked differing responses, with presence of noise being equated by some people with 'life' and 'vitality' in an area, and therefore regarded positively. In the event, however, only one Woodgate housewife mentioned such an evaluation in the context of Woodgate itself.

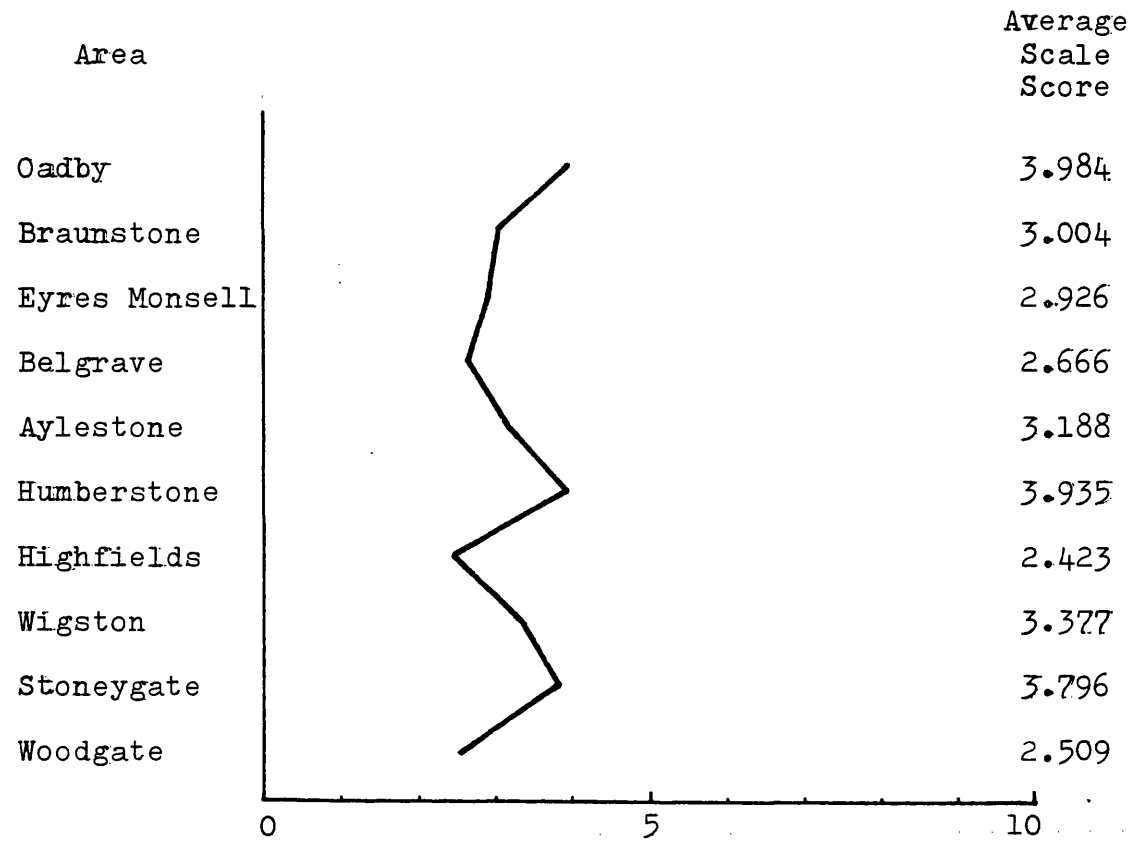
For each individual therefore, it was a simple procedure to calculate an average scale score for each of the ten areas, by summing the scores on each dimension and dividing the total by the number of dimensions to which she responded. This method closely resembled that used by Osgood, Suci and Tannenbaum (1957) in their attempt to measure the meaning of constructs in semantic space.

It was also possible to calculate an aggregate scale score for each of the ten areas as evaluated by the total of 157 respondents, and for each of the three sample areas by using the same procedure. A convenient method for presenting such data, used by Osgood et al. and adopted here is the Attitude Profile (Osgood, Suci and Tannenbaum, 1957 p. 90). Mean scale scores were calculated for each set of bipolar adjectives which Osgood et al. used and tabulated beneath the stimulus word, with the points joined in such a way as to produce a vertically oriented graph. A similar format has recently been suggested by Burton, Kates and White (1978) for use in the study of perception of natural hazards.

Taking as our stimulus object the city of Leicester, the overall attitude of favourability towards each of the ten areas as viewed by the Humberstone respondents is as shown

in Fig. 7.1 below:

Fig. 7.1 Attitude Profile for the ten selected residential areas from the Humberstone sample N = 53



Figs. 7.2 and 7.3 illustrate the Attitude Profiles from the Woodgate and Oadby samples respectively.

Visual inspection of the three profiles reveals broad patterns of similarity: a favourable attitude towards Oadby and, to a lesser extent, Stoneygate and Humberstone (shown by the peaks towards the right hand, positive, sides of the profiles), and an unfavourable evaluation of Belgrave, Highfields and Woodgate (indicated by the peaks on the left

Fig. 7.2 Attitude Profile for the ten selected residential areas from the Woodgate sample N = 49

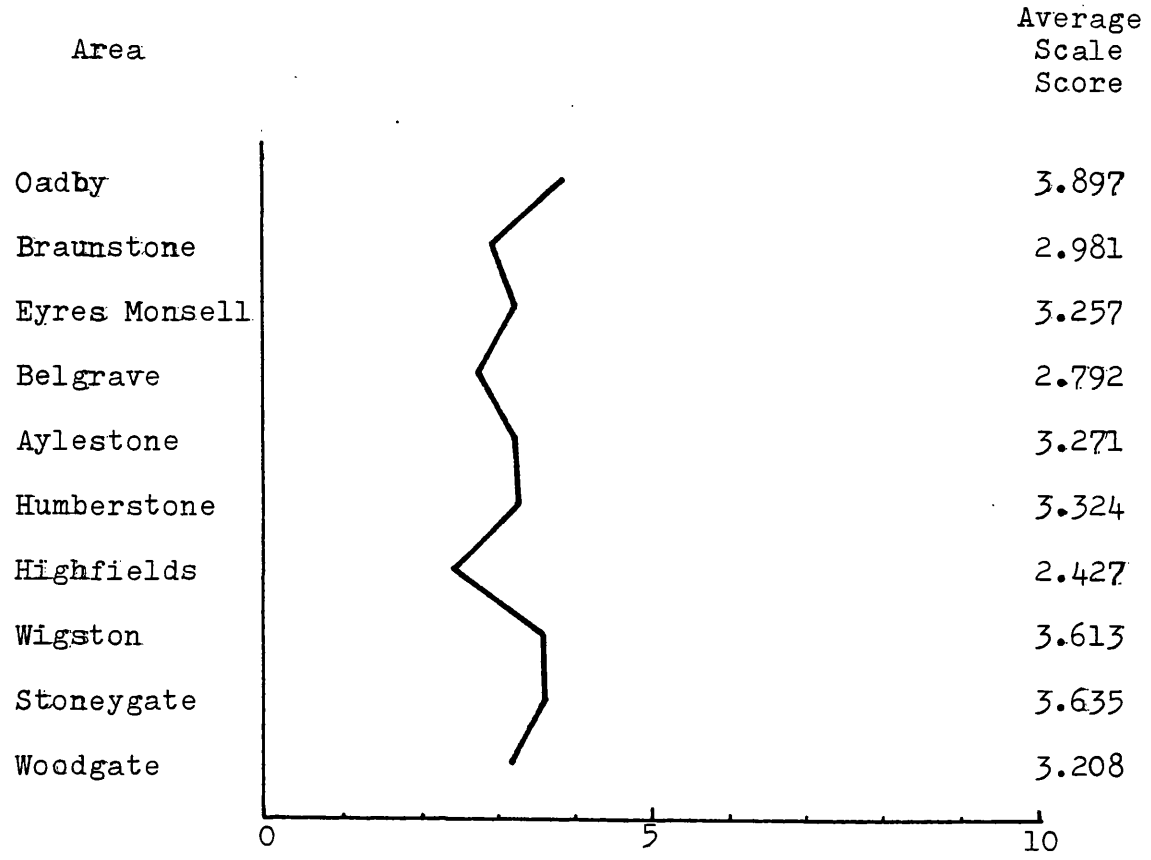
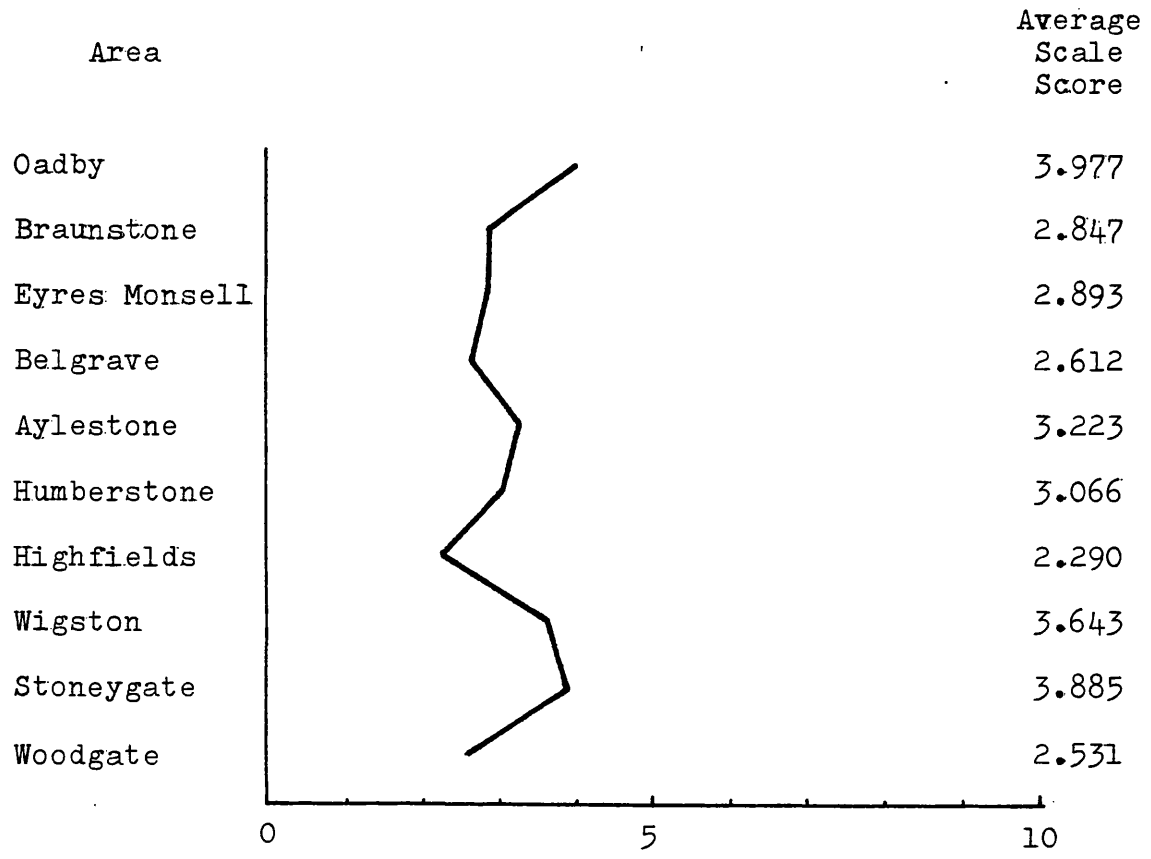


Fig. 7.3 Attitude Profile for the ten selected residential areas from the Oadby sample N = 55



hand, negative side of the profiles). There are, however, interesting variations between the three sample areas. The effect of Humberstone residents evaluating their own area is an inflated peak of favourability over Humberstone (Fig. 7.1) which is not echoed by the other two areas. Woodgate respondents evaluate Humberstone only marginally more favourably then they do Aylestone, whereas Oadby regard it with less favour than Aylestone, and there is no trace of a peak.

When the Oadby profile is considered (Fig. 7.3), the evaluation of Oadby itself is no more inflated than that appearing from the Humberstone and Woodgate profiles, suggesting the existence of an upper limit to a favourable impression of an area which is not exceeded by those actually residing within it.

In the case of Woodgate (Fig. 7.2), there is no such peak from its own residents, though the trend towards the negative, unfavourable side of the attitude profile is less marked than the impressions of Woodgate from the Humberstone and Oadby samples. There is also a small peak over Eyres Monsell which is not evident in either of the other two profiles. Greater attention is paid to this deviation from the overall pattern later in this chapter, in an attempt to see which attributes of Eyres Monsell are consistently evaluated more favourably by the Woodgate respondents.

The Woodgate sample differentiate little between Wigston and Stoneygate in their favourability index; on the other hand, both the Humberstone and Oadby samples evaluate Stoneygate the more positively of the two, Humberstone noticeably so. It is

possible that whereas the Humberstone and Oadby residents, and particularly the latter, have direct knowledge and experience of Stoneygate and Wigston and, regarding them as similar to their own areas are both more motivated and better able to distinguish between them, Woodgate residents, whilst possessing distinct images of each (see previous chapter) regard them both as more favourable than their own area, and have no real need to distinguish between them. Such a possibility is investigated more fully in the two subsequent chapters, but should be borne in mind at this point.

A final observation which can be made on this raw, unweighted data will also feature in comparison with data reviewed in the following chapter. Within each of the three samples, it is possible to select that area which is viewed with maximum favourability and to rank all the others in descending order. It could be argued that such a ranking should be reflected in the Preference rankings obtained from Question 15 if every respondent structured her choice in an entirely 'rational' way and based her choices on her evaluations of and attitude toward each area. That area which commands the most favourable attitudinal response could put forward a convincing case for being placed at the top of a ranked list of the most desirable areas in which respondents wished to live.

If indeed this were the case, one of the links in the Perception-Behaviour process, that between attitude and preference would, if not proven beyond reasonable doubt, certainly receive convincing support. That we cannot expect such a perfect match is obvious when one considers the problems

inherent in using a concept such as attitude (see Chapters 3 and 4) and in particular, the near impossibility of establishing that one is both measuring the relevant attitude and precluding the existence of and possible interference from any other.

The extent to which the attitudinal indices and preference rankings are similar however, may well shed valuable light on the nature of the Perception-Behaviour process and the links between the four elements. It will suffice here to summarise the relative positions of each of the ten areas in terms of overall favourability for each of the three samples (i.e. a tabulated form of the data presented in Figs. 7.1. to 7.3).

Table 7.2 Implied rank positions in the overall favourability index for each of the three samples

	Humberstone		Woodgate		Oadby	
Rank Posn.	Area	Raw Scale Score	Area	Raw Scale Score	Area	Raw Scale Score
1	Oadby	3.984	Oadby	3.897	Oadby	3.977
2	Humberstone	3.935	Stoneygate	3.635	Stoneygate	3.885
3	Stoneygate	3.796	Wigston	3.613	Wigston	3.643
4	Wigston	3.377	Humberstone	3.324	Aylestone	3.223
5	Aylestone	3.188	Aylestone	3.271	Humberstone	3.066
6	Braunstone	3.004	E. Monsell	3.257	E. Monsell	2.893
7	E. Monsell	2.926	Woodgate	3.208	Braunstone	2.847
8	Belgrave	2.667	Braunstone	2.981	Belgrave	2.612
9	Woodgate	2.509	Belgrave	2.792	Woodgate	2.531
10	Highfields	2.423	Highfields	2.427	Highfields	2.290

Thus we have the first, albeit tentative, suggestion of the lack of a 'tennis ball effect' of increased desirability over a respondent's home area. Two important reservations should be made, however. Firstly, we are not dealing here with preference but with overall attitudes of favourability; the picture may yet change with the introduction of preference rankings, although if it did alter significantly, we should be forced to hypothesise a rather different relationship between attitude and preference from that previously put forward in this work. Secondly, any differences which do become apparent may be attributable more correctly to a difference in the scale of analysis (intra-urban as opposed to regional or national) rather than to the non-existence of any inflated evaluation of an individual's home area.

The five most favoured areas are the same for each sample, and whilst Oadby and Humberstone respondents reflect the fact that their own areas are contained within the five, they do not excessively favour their own area at the expense of the others, although Humberstone residents do push their own area into second place. Conversely, the least favoured five areas obviously remain the same, and the only effect of Woodgate being one of this group is an elevation of itself by its own respondents from 9th (its position in the other two samples) to 7th.

Thus far we have considered simple raw scale scores, reflecting the respondents' straightforward evaluation of ten areas according to nine criteria. In order to examine the underlying structure of the favourability/unfavourability

dimension in greater detail, however, a more sophisticated approach is required.

The responses to Question 17 on which the earlier part of this chapter has been based were not obtained in isolation, but in the wider context of each respondent's evaluation of general attributes of residential areas. What is needed therefore, is a method by which the responses to Question 14 (concerning the attributes of residential areas) may be incorporated with those to Question 17, and a composite attitudinal index obtained. It would seem to be important for our purposes to know whether, when an individual evaluates the schools in Belgrave as good or the shops in Braunstone as good, the quality of schools or of shops is an important attribute to her when considering the nature of a residential area and forming her image of it.

For instance, consider the example above in which an individual might evaluate the schools in Belgrave as good and those in Braunstone as poor and, perhaps, the shops in Braunstone as good and those in Belgrave very good. One could argue that Belgrave emerges as the more favourable in both instances, but this says nothing of the relative importance which that individual attaches to the two attributes of shops and schools. Supposing the quality of the schools were of primary importance to her, placed first in her ranked list of preferred attributes, and supposing the quality of the shops were ranked near the bottom of her list. Belgrave and Braunstone would diverge even further on the schools dimension than the raw scores would suggest - Belgrave moving ahead as an area which possessed a good example of an

attribute considered to be very important, with Braunstone receding as an area containing a poor example of something considered to be important. Consideration of the 'shops' dimension might redress the balance a little - Belgrave's are still considered superior, but the quality of the shops is not a particularly important attribute and so what might be termed the cognitive distance between the two areas is not so great on this attribute as it is in the case of the perceived quality of the schools. [1]

To emphasise this point further, it is argued that a 'poor' evaluation of an attribute ranked high on an individual's list counts more strongly against an area's overall favourability than a poor evaluation of an attribute lower down the list, a distinction which raw semantic differential type scores would again be unable to reveal.

The raw scores therefore need to be weighted in such a way as to reflect the relative importance of each attribute of a residential area to each individual, together with the evaluation of each of these for each of her ten selected areas.

The system eventually selected was a modification of that used by Johnston (1971) in his analysis of suburban preference patterns in Christchurch, New Zealand. In its original form, this system is used to examine the preference data in the following chapter of the present work, and it is based on the psychometric method of paired comparisons derived from Guilford (1954, pp. 169,170). Its major

1 Cognitive distance as used here should not be confused with the studies of cognitive (physical) distance discussed in Chapter 2.

attraction for use in the present context is twofold. The method produces a scale of measurement in which the scale score for each attribute is a function of the frequency with which that attribute is ranked higher than (i.e. in our context, deemed more important than) others. Moreover, the complicating issue of missing data, where an individual did not rank every attribute, or more commonly, evaluate all areas along all criteria, is solved by using only those attributes which were ranked, or those evaluations which were made of particular areas rather than the total number of individuals in the sample or the total number of responses theoretically possible (14,130 to Question 17 alone.)

The construction of the weighted attitude scores was therefore made as follows; taking each set of individual responses in turn, the ranked position of each of the nine attributes used to establish the overall attitude of favourability/unfavourability was determined from Question 14. If a particular attribute was ranked in first position (i.e. preferred over eleven others) it received a weighting of eleven. Similarly, if it was ranked eighth, a weighting of four was given. If it was ranked twelfth, or not ranked at all, no additional weighting was given.

These weightings were then applied to the raw semantic differential type scores on the appropriate attribute for each area evaluated. For example, if an individual ranked accessibility fourth in her list, and gave Oadby a score of four, Highfields a score of five and Wigston a score of three on this dimension, the weighted scores became twelve, thirteen and eleven respectively (i.e. 4 + 8, 5 + 8 and 3 + 8).

In the event of a score of 1 (very poor) or 2 (poor) being accorded to an attribute appearing in the first six ranked positions in Question 14, the weighting was subtracted from rather than added to the score. This enabled greater distinction to be drawn between areas evaluated unfavourably in the light of very important attributes, and those regarded unfavourably along criteria of lesser importance. Had this step not been taken, an area receiving a raw score of 1 (very poor) on each of two attributes ranked first and twelfth, would have appeared more positively along the unfavourable evaluation of the attribute of maximum importance, the weighted scores being 12 and 1 respectively.

When every evaluation for each area had thus been weighted, a mean scale score for each of the ten areas was calculated by summing the total number of evaluations of every attribute and dividing by the number of such evaluations. Although this was not the prime focus of this part of the analysis, it is interesting to see how the new weighted scores for each area compare with the raw scores which were used to construct the Attitude Profiles in Figs. 7.1 to 7.3.

Figs. 7.4 to 7.6 present the attitude profiles for each of the three samples constructed from the weighted attitude scale scores. One obvious effect of the weighting system employed is to distort and accentuate the peaks and troughs over areas initially suggested by the raw scores as being particularly favoured or negatively evaluated.

But as can be seen in the case of each of the three

Fig. 7.4 Attitude Profile using weighted scale scores for ten selected residential areas from the Humberstone sample

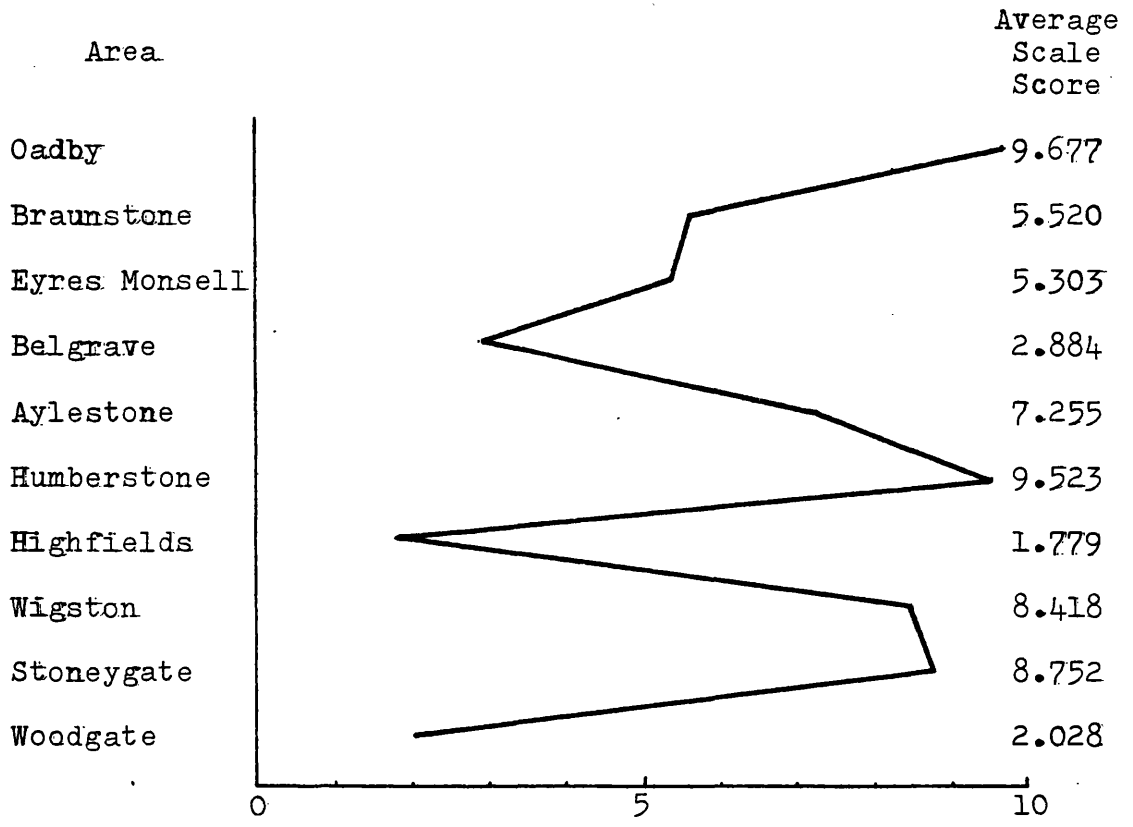


Fig. 7.5 Attitude Profile using weighted scale scores for ten selected residential areas from the Woodgate sample

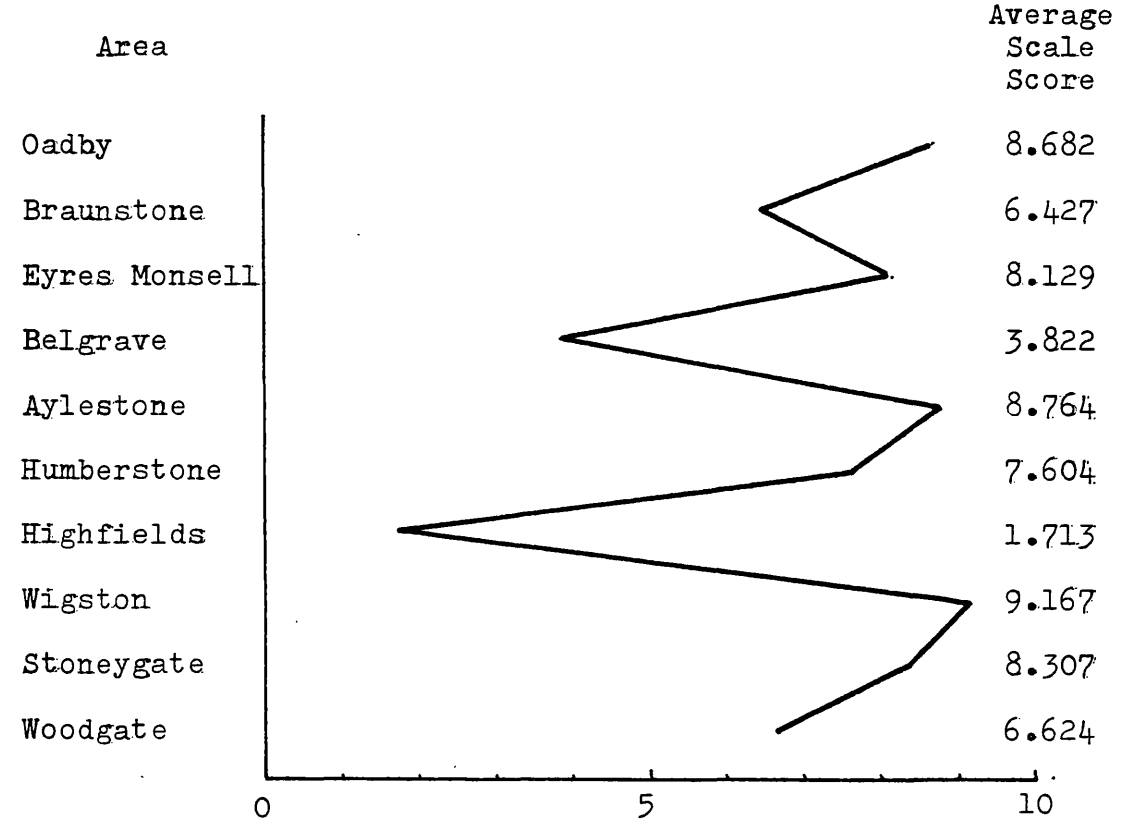
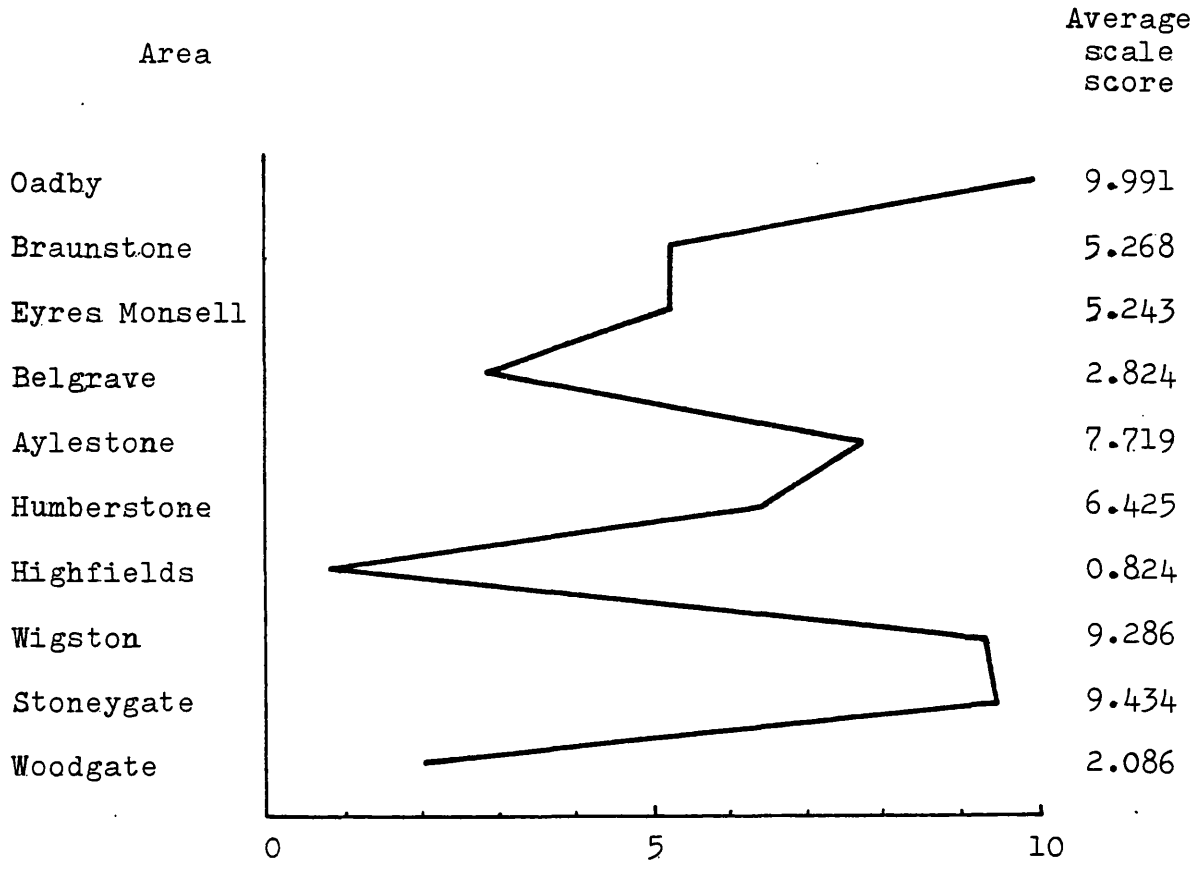


Fig. 7.6 Attitude Profile using weighted scale scores for ten selected residential areas from the Oadby sample



samples, the weighted scores for Highfields are lower than the raw scores, and in the Humberstone and Oadby profiles this occurs with the scores for Woodgate as well. This tends to suggest that not only is Highfields evaluated unfavourably, but also that it is so regarded on attributes which are of considerable importance to the three samples of respondents. Similarly with Woodgate, except that the effect of its own inhabitants' positive evaluation of important attributes serves to reverse the pattern displayed by the other two samples.

A second effect of using weighted scores is the alteration of the relative positions in the overall favourability index

of certain areas. The Humberstone group is entirely consistent with the raw data scores, preserving the previous implied rankings, as can be seen from Table 7.3 below:

Table 7.3 Implied rank positions in the overall favourability index for each of the three samples, using weighted scores

	Humberstone		Woodgate		Oadby	
Rank Posn.	Area	Wtd. Scale Score	Area	Wtd. Scale Score	Area	Wtd. Scale Score
1	Oadby	9.677	Wigston	9.167	Oadby	9.991
2	Humberstone	9.523	Aylestone	8.764	Stoneygate	9.434
3	Stoneygate	8.752	Oadby	8.682	Wigston	9.286
4	Wigston	8.418	Stoneygate	8.307	Aylestone	7.719
5	Aylestone	7.255	E. Monsell	8.129	Humberstone	6.425
6	Braunstone	5.520	Humberstone	7.604	Braunstone	5.268
7	E. Monsell	5.303	Woodgate	6.624	E. Monsell	5.243
8	Belgrave	2.884	Braunstone	6.427	Belgrave	2.824
9	Woodgate	2.028	Belgrave	3.822	Woodgate	2.086
10	Highfields	1.779	Highfields	1.713	Highfields	0.824

The positions of Braunstone and Eyres Monsell are reversed in the Oadby sample from Table 7.2, rendering it very similar to the Humberstone view. But it is the Woodgate sample which is most affected by weighting the scores to accentuate the difference between attributes of greater and lesser importance to the individual. Oadby and Stoneygate fall to third and fourth positions respectively, to be replaced by Wigston and

Aylestone. Eyres Monsell and Humberstone both appear less favourable, while Woodgate itself and the three least favourably evaluated areas maintain their positions.

It is now appropriate to examine how these overall favourability scores for each area are, in fact, composed, and to consider the relative contributions to the overall view of each of the nine separate dimensions. For this purpose it is necessary to again use the weighted scores, and any subsequent reference to 'scores' throughout the rest of this chapter should be taken to mean the weighted scores listed in Table 7.3.

Figs. 7.7 to 7.9 illustrate the attitude profiles, dissected along the nine dimensions, for each of the ten areas according to each of the three sample groups. They were constructed as before, by summing the scores accorded to each attribute for each area and dividing by the number of evaluations made of that attribute in that particular area. These mean scale scores were then mapped onto the attitude profile diagrams as before.

Attitudes towards the ten selected residential areas: the view from the Humberstone sample (Figs. 7.7(i) to 7.7(x))

It is clear from the attitudinal data from the Humberstone respondents that there is considerable variation in the form of the profiles. The traces for Oadby (Fig. 7.7(i)) and Highfields (Fig. 7.7(vii)) or for Belgrave (Fig. 7.7(iv)) and Wigston (Fig. 7.7(viii)) for example, do not display a great deal of similarity, and in several respects are mirror images of each other. Seen from Humberstone, the most favourable

Attitude Profiles Figs. 7.7 to 7.9

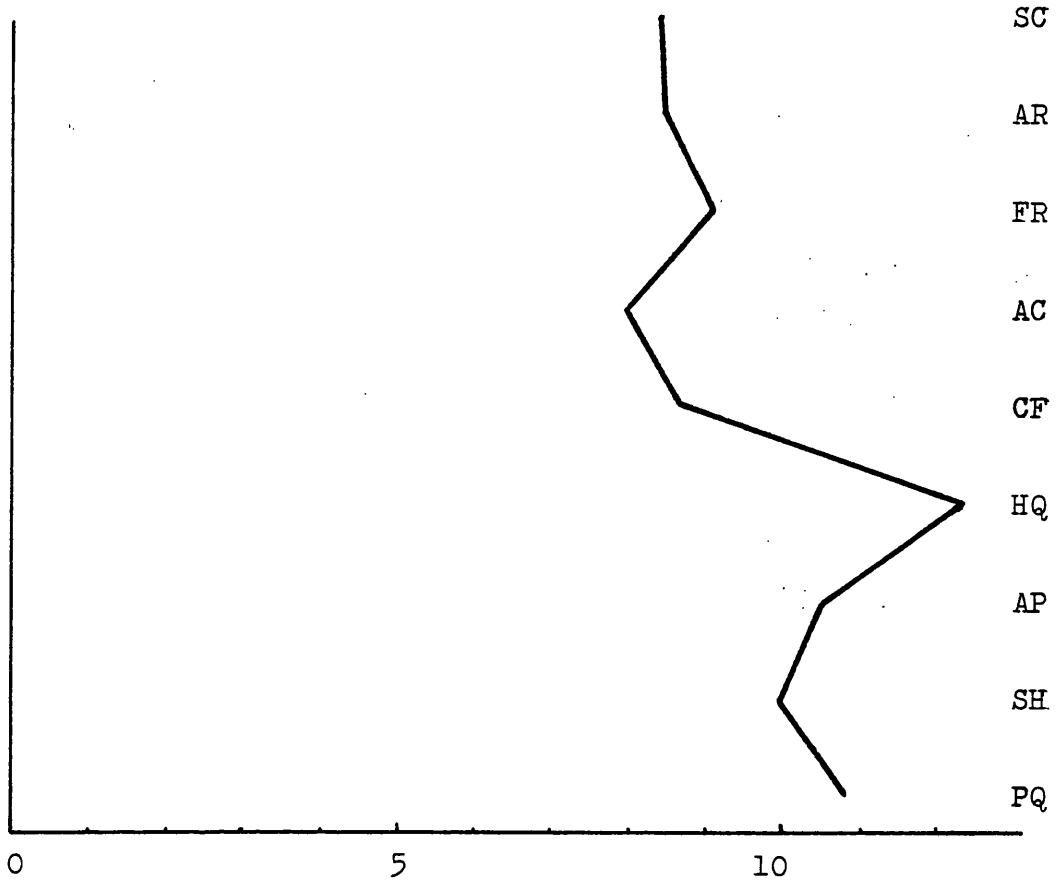
The weighted scale scores used to construct the profiles appears along the horizontal axis, with positive scores to the right of the vertical axis, and negative scores to the left.

Abbreviations used for the vertical axis are as follows:

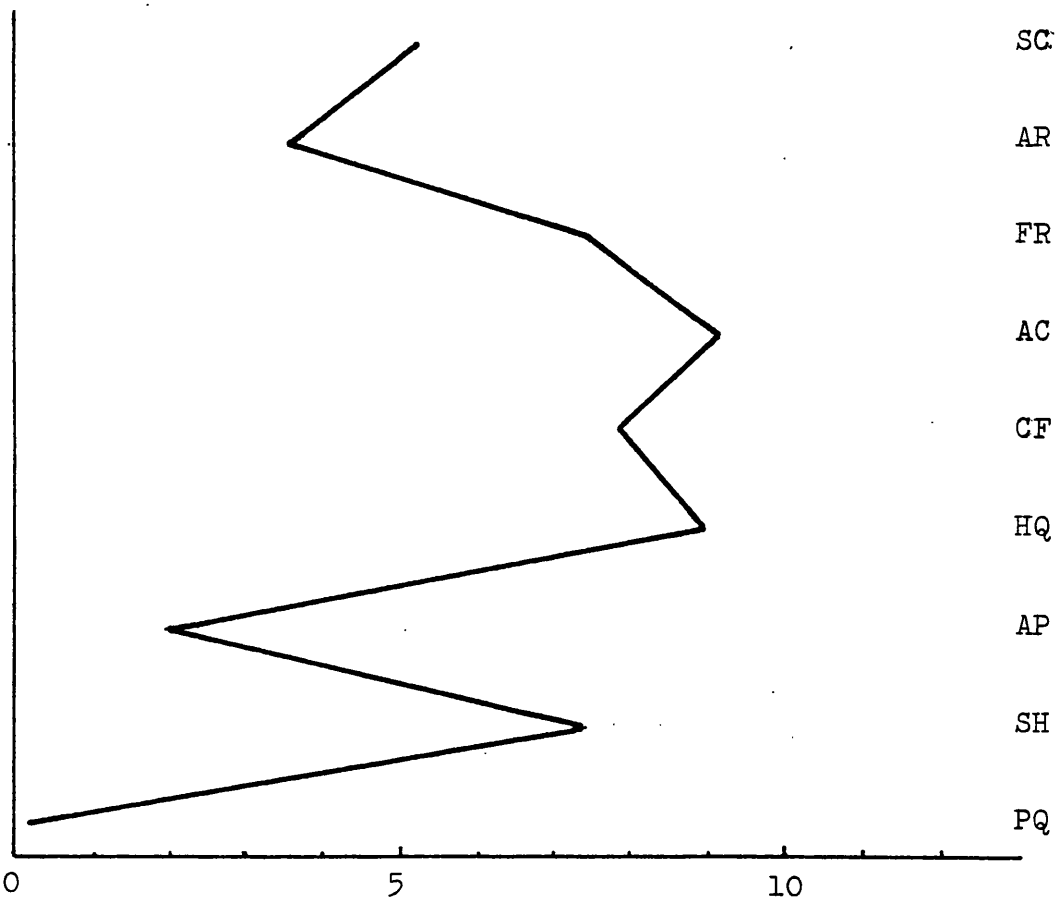
SC	The quality of the schools
AR	The quality of the area for bringing up children
FR	The friendliness of the residents
AC	Accessibility and the quality of public transport facilities
CF	The quality of the community facilities
HQ	The quality of the housing
AP	The appearance of the area
SH	The quality of the local shops
PQ	Privacy/peace and quiet

Fig. 7.7 Attitude Profiles: Humberstone Sample

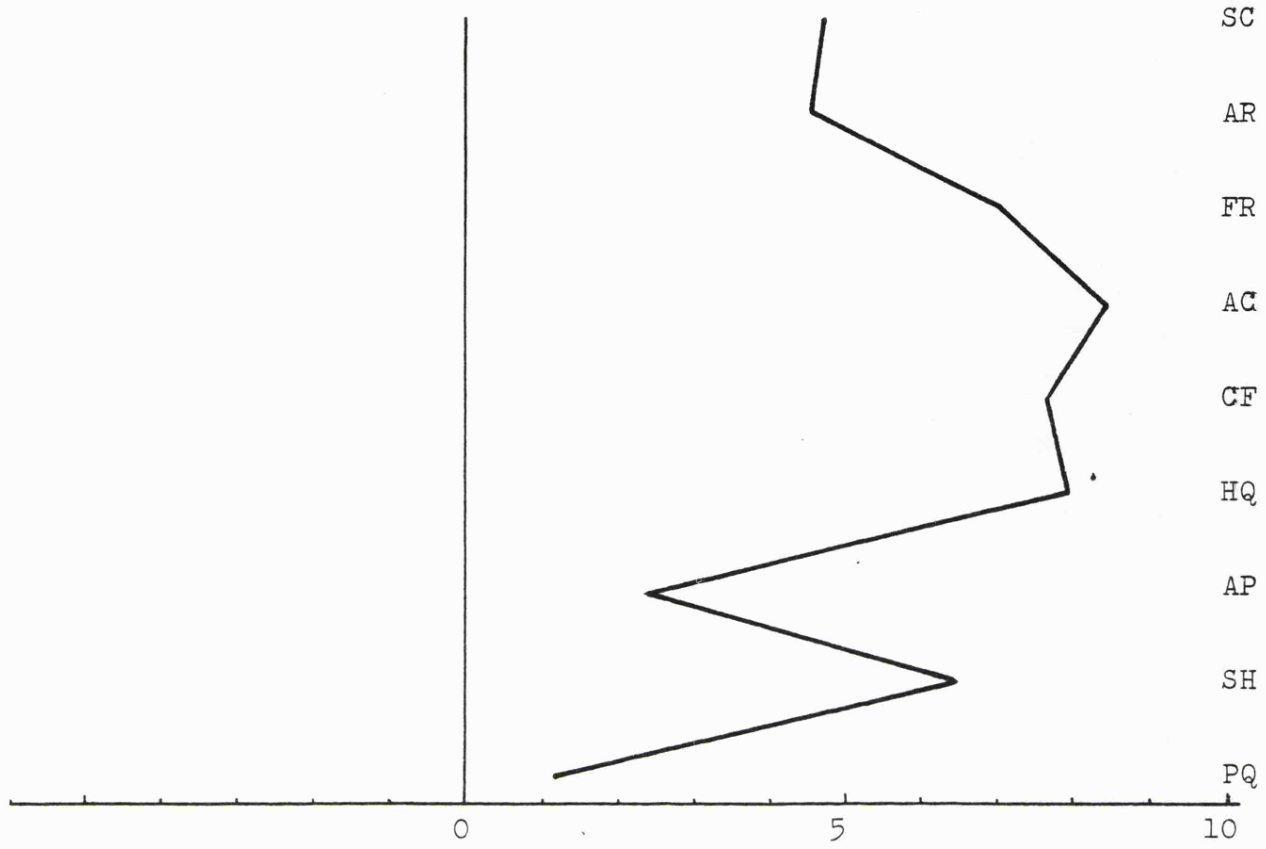
(i) OADBY



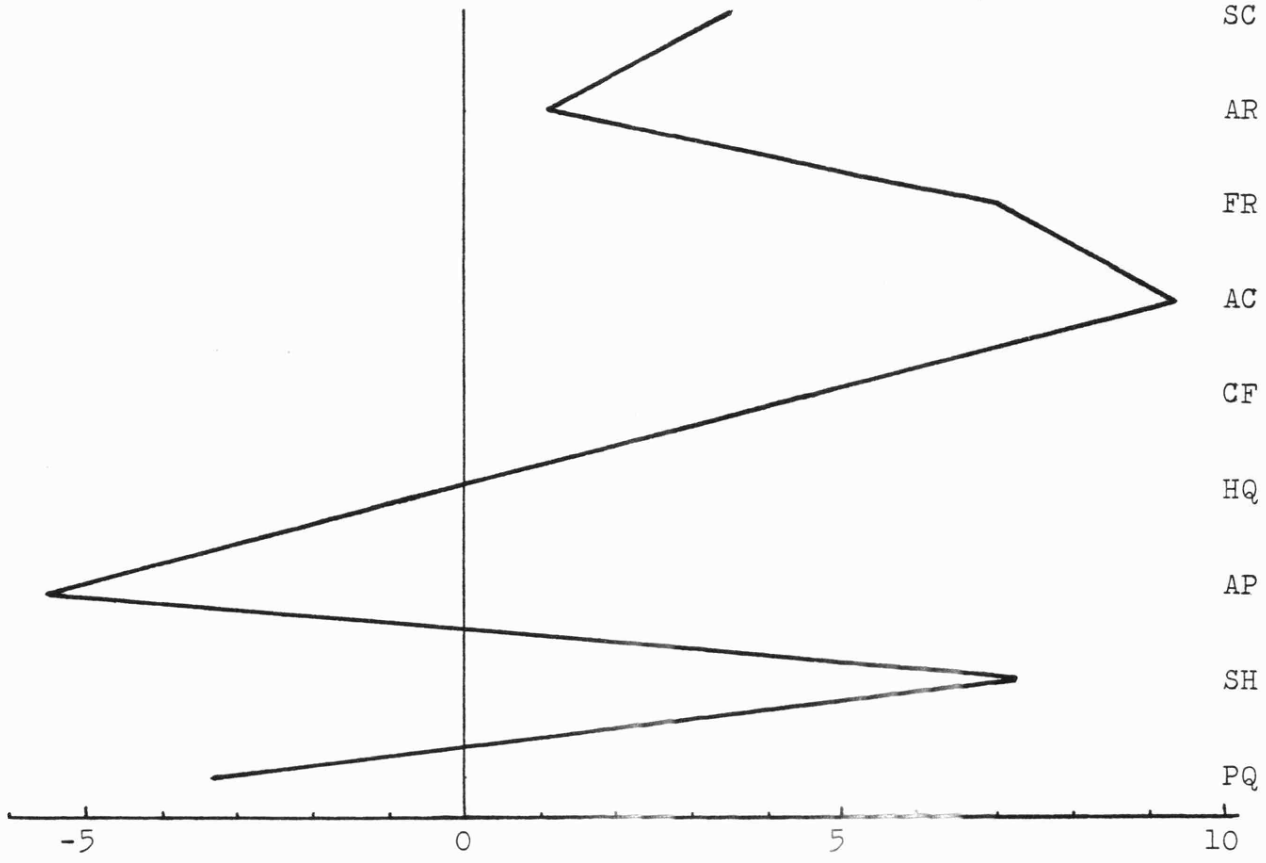
(ii) BRAUNSTONE



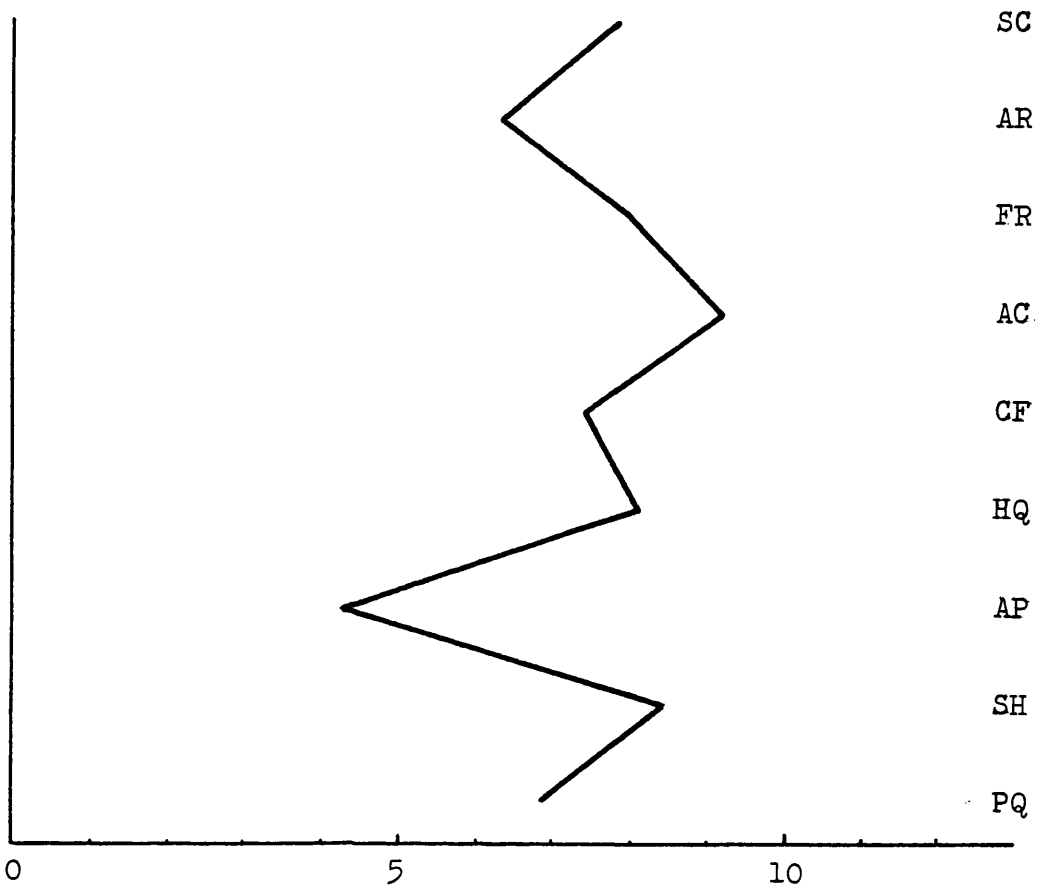
(iii) EYRES MONSELL



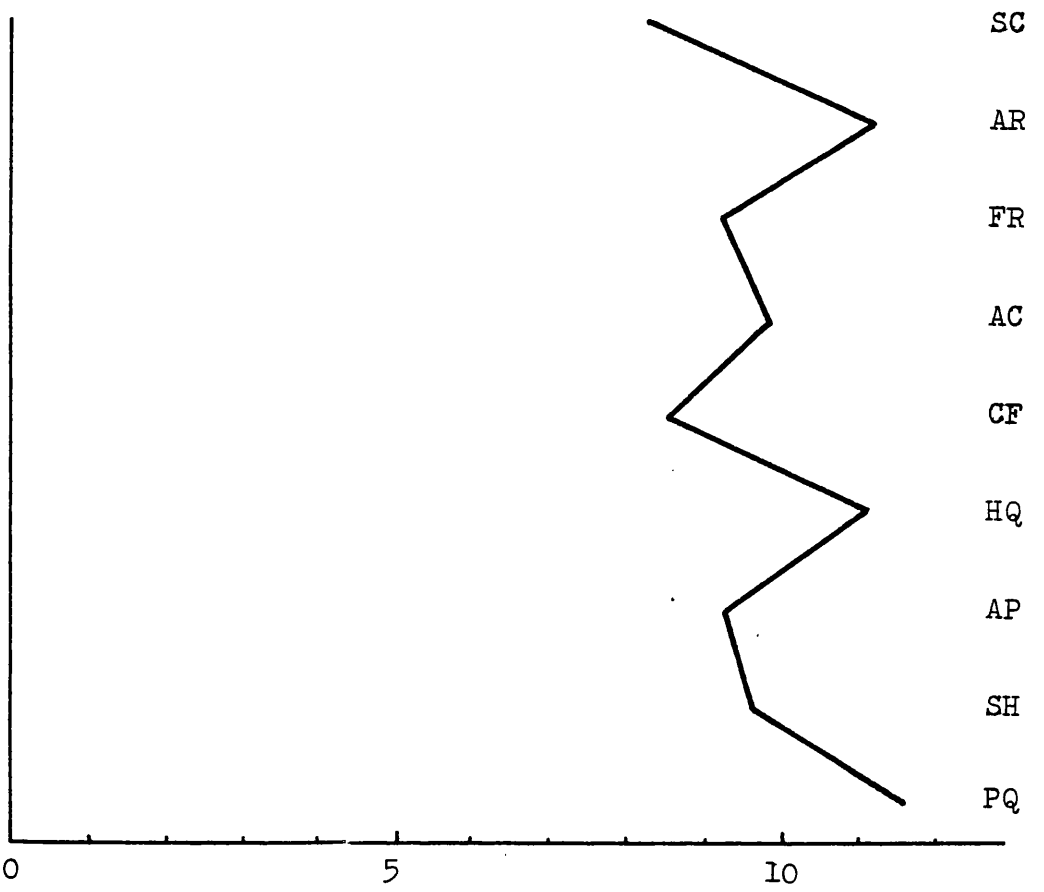
(iv) BELGRAVE



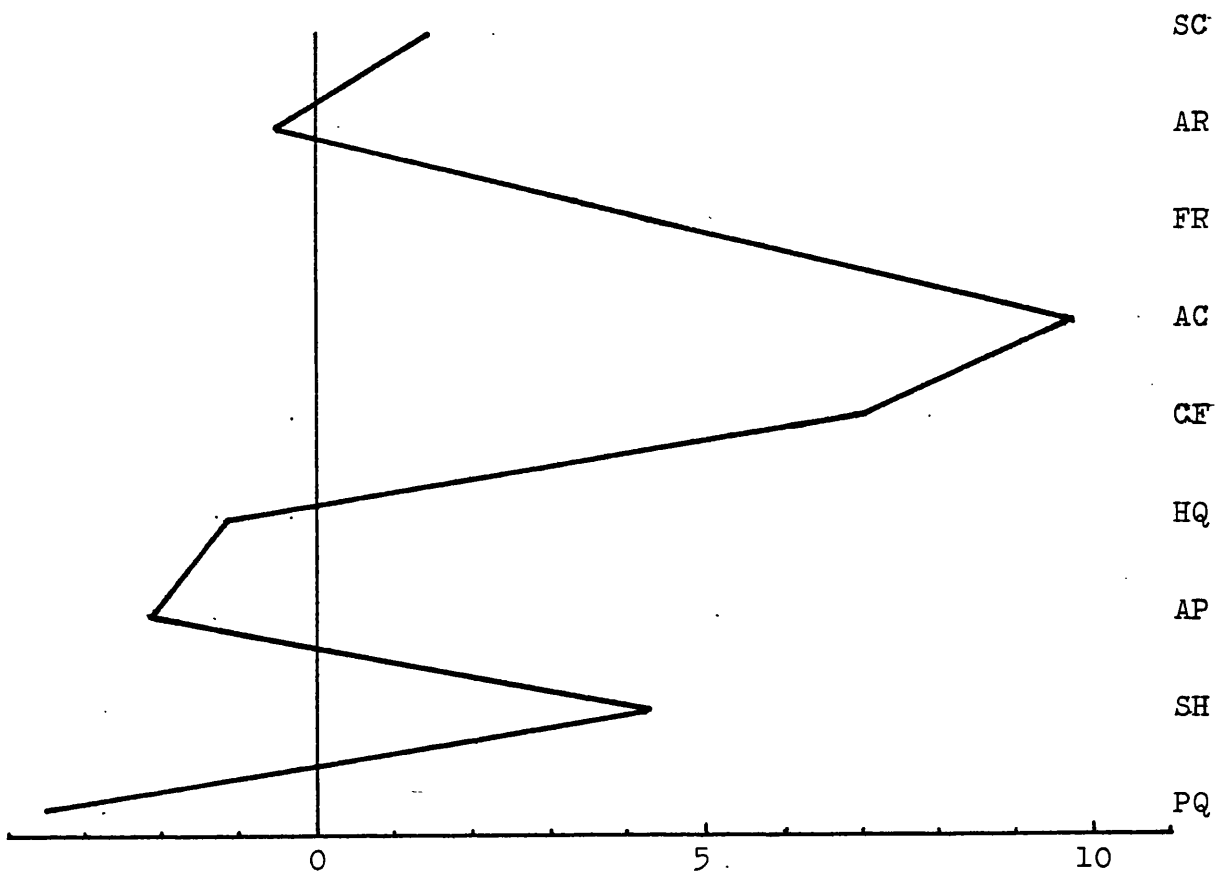
(v) AYLESTONE



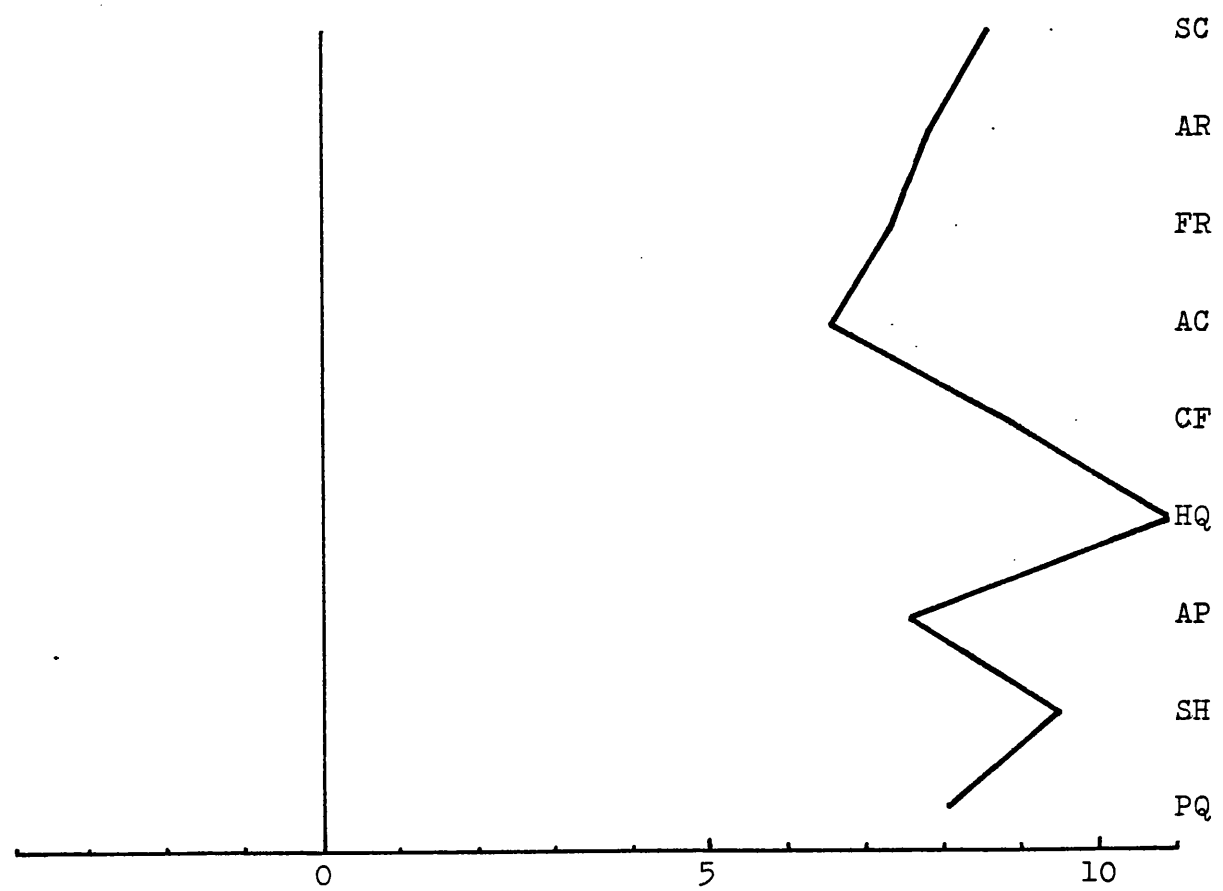
(vi) HUMBERSTONE



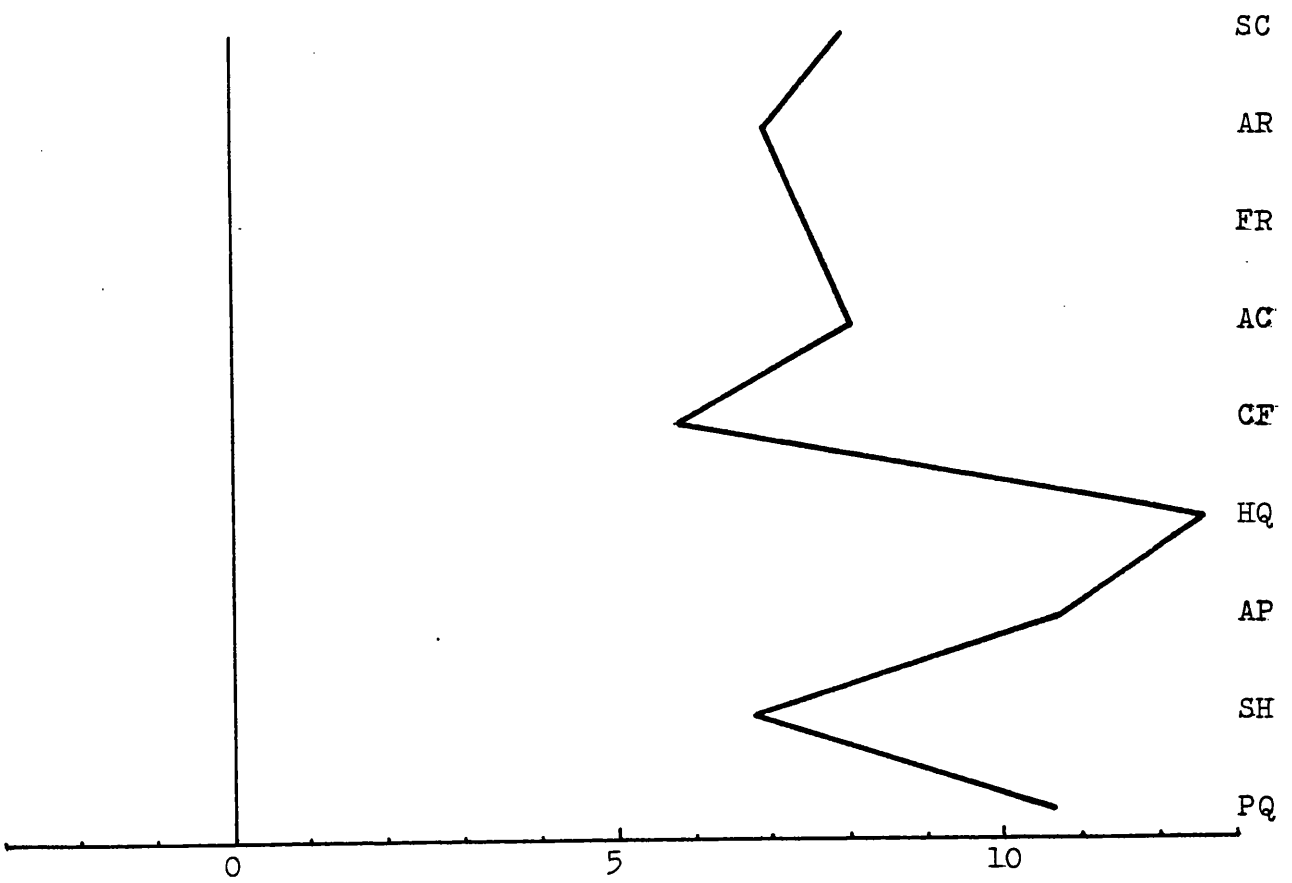
(vii) HIGHFIELDS



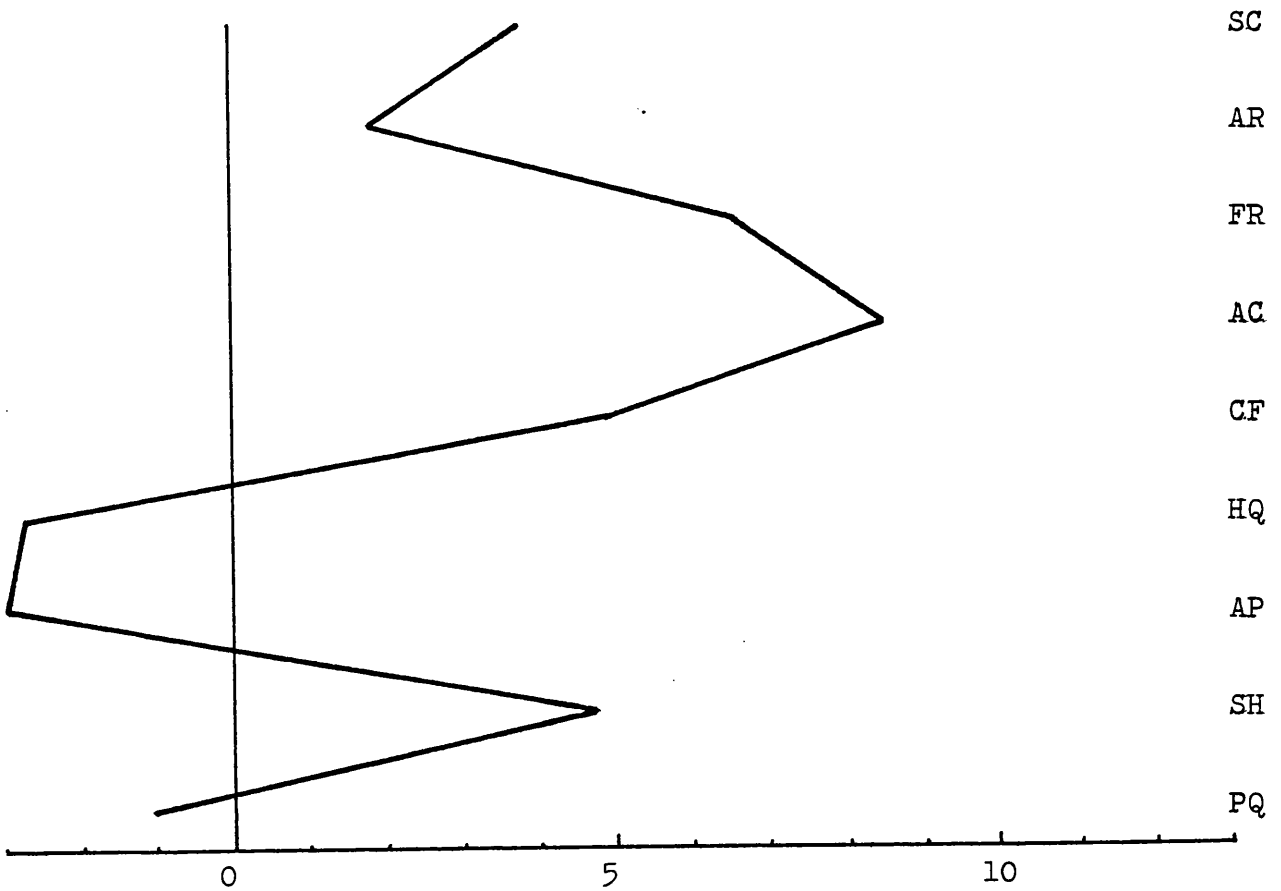
(viii) WIGSTON



(ix) STONEYGATE



(x) WOODGATE



aspects of Oadby are its housing quality, appearance and the privacy and peace and quiet dimension. Its relatively unfavourable aspects are its community facilities and accessibility to the city centre. Conversely, the last two dimensions are by far the most favourably evaluated in the case of Highfields, whose appearance, housing quality and perceived privacy all lie well within the zone of negative scores, implying, it will be remembered, unfavourable evaluations of attributes considered to be of above average importance to the respondents. Highfields possesses a secondary 'peak' over the quality of its shops, as does Belgrave, whose quality of housing, appearance and privacy dimensions all fall within the zone of negative scores. A 'peak' over the shops in Wigston is largely responsible for differentiating its profile from that of Oadby whose shops, though evaluated positively, are less favoured than its appearance or perceived privacy/peace and quiet.

The profile for Woodgate has much in common with those for Belgrave and Highfields, with 'peaks' over its accesibility, community facilities and the friendliness of its residents and shopping facilities and negative evaluations of its housing quality, general appearance and privacy.

Eyres Monsell, Braunstone and Aylestone are similar with respect to the unfavourable impression of their appearance, privacy/peace and quiet and their suitability for bringing up children. The similarity persists with favourable evaluation of dimensions such as their shops, friendliness

and community facilities, and also on the twin dimensions of housing quality and accessibility which does not occur in any of the other profiles. Wigston, Stoneygate and Oadby all exhibit favourably evaluated housing quality and poor accessibility, whereas in Belgrave, Highfields and Woodgate the two are reversed. The distinction is thus drawn between the newer outer city suburbs with poor public transport connections, and the inner city areas, well-served by buses and within easy walking distance of the city centre anyway.

The Humberstone profile is, in some respects, an exception being consistently nearer the positive end of the profile than any other save Oadby, and regarding its own housing quality, privacy and the area's suitability for children with greatest esteem. Three broadly differing types of attitude profile are thus distinguishable from the Humberstone data:

Type A - exemplified by Oadby, Wigston and Stoneygate displays a generally favourable evaluation of every dimension, but with emphasis on housing quality and the privacy/peace and quiet attribute. Accessibility is not so favoured (except in Stoneygate) and neither are the community facilities (except in Wigston). The general appearance of the areas is also evaluated favourably. Humberstone also resembles this type of profile, although it is an exception in being a reflection of itself by its own respondents. Generally speaking, therefore, this profile type includes the outer suburbs of the ten selected areas.

Type B - exemplified by Aylestone, Braunstone and Eyres Monsell, demonstrates a favourable attitude towards shopping and community facilities, and particularly towards housing

quality and accessibility, a combination not found in the other profile types. Unfavourable impressions of the areas' appearance, privacy, and suitability for children are apparent. These three areas exhibiting Type B profiles are the two council estates (Eyres Monsell and Braunstone) and the older industrial suburbs just beyond the inner city zone (Aylestone).

Type C - exemplified by Belgrave, Woodgate and Highfields, illustrates a much greater range between the most positively and negatively evaluated attributes, with housing quality and general appearance falling into the zone of negative scores. The privacy/peace and quiet dimension is also regarded very unfavourably, but accessibility, friendliness, community and shopping facilities are the most positive attributes. These three areas constitute the three inner city districts included in the analysis.

If one examines Table 7.3, it is interesting to notice how these different profile types, identified purely on the basis of visual comparison of Figs. 7.7(i) to 7.7(x) and the weighted attitude scale scores of each dimension for each area, are represented in the implied rank positions of the overall favourability index for the Humberstone sample. The four areas of Type A occupy positions 1 - 4, the three Type B profile areas occupy positions 5 - 7, and, inevitably, the three Type C profile areas positions 8 - 10. This clearly suggests a preference on the part of the Humberstone women first and foremost, for the outlying suburbs of the city, followed by the council estates and industrial suburbs with the inner city areas a long way behind.

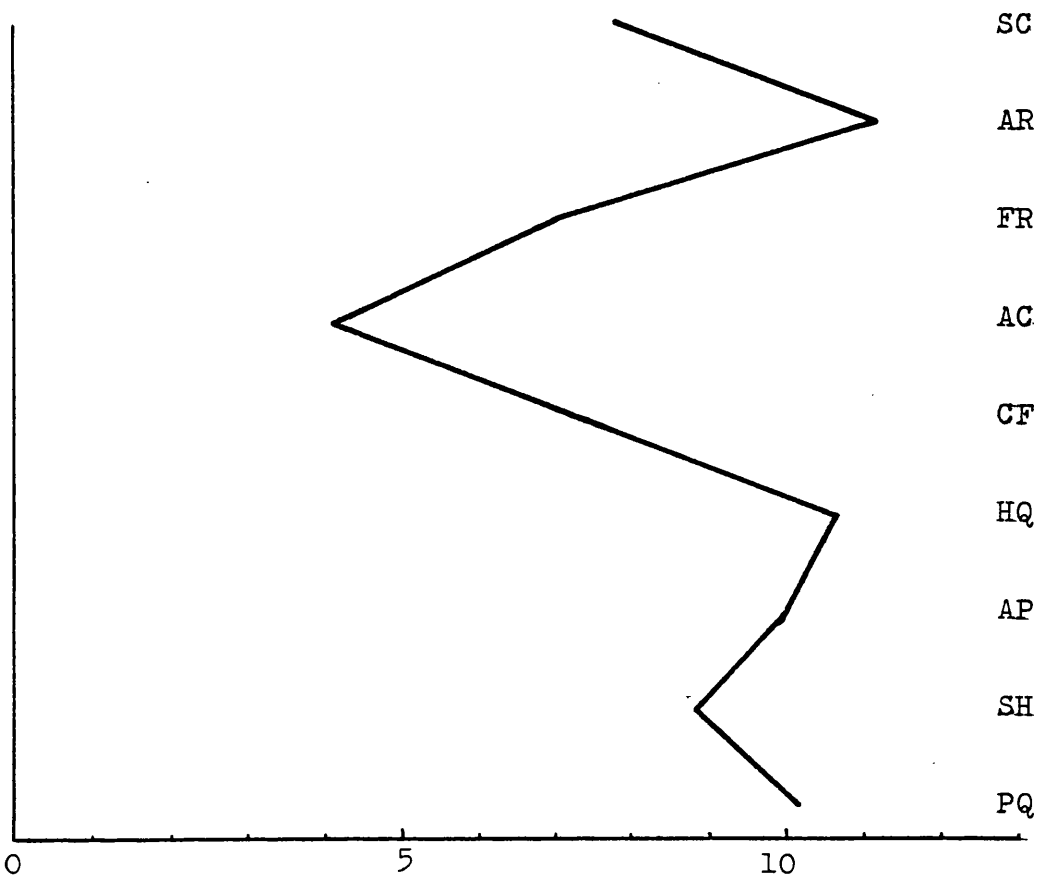
Attitudes towards the ten selected residential areas: the view from the Woodgate sample (Figs. 7.8(i) to 7.8(x))

The situation presented by the profiles constructed for the Woodgate respondents is not so clear as that for Humberstone. What we may term the Type A profiles, though with significant internal variations, are this time represented only by Oadby and Stoneygate. Again the housing quality, appearance and the privacy/peace and quiet dimensions are most favourably evaluated, together with the suitability of the area for children and, in the case of Stoneygate, accessibility. Stoneygate though, is less favourably evaluated with respect to is shops, community facilities and the friendliness of its residents. Nadir of Oadby's attitude profile (Fig. 7.8(i)) is its accessibility or, more correctly, lack of it, to the city centre.

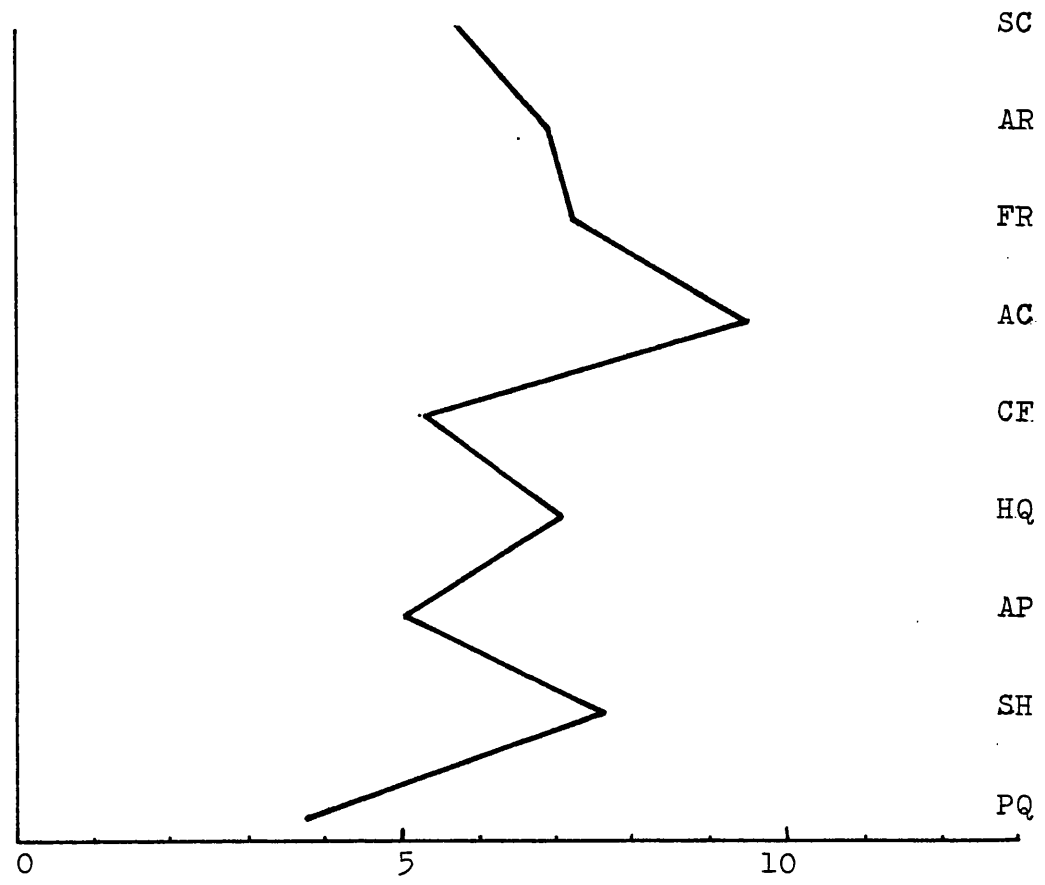
The Type B profiles are evidenced by Eyres Monsell, Aylestone, Humberstone and Wigston. Braunstone is slightly different from all the others, but probably bears the greatest similarity to this group. These areas are all deemed suitable for bringing up children, with positively evaluated shopping facilities, accessibility, housing quality and friendly residents. Generally speaking, their community facilities are not rated very highly, and their privacy/peace and quiet dimension receives only moderate assessments. Indeed, in Braunstone and Eyres Monsell, this is the least positive of the nine dimensions. Braunstone and Humberstone rate highly in the consideration of accessibility, Eyres Monsell and, especially, Wigston, far less so. Braunstone and Eyres Monsell, the two

Fig. 7.8 Attitude Profiles: Woodgate Sample

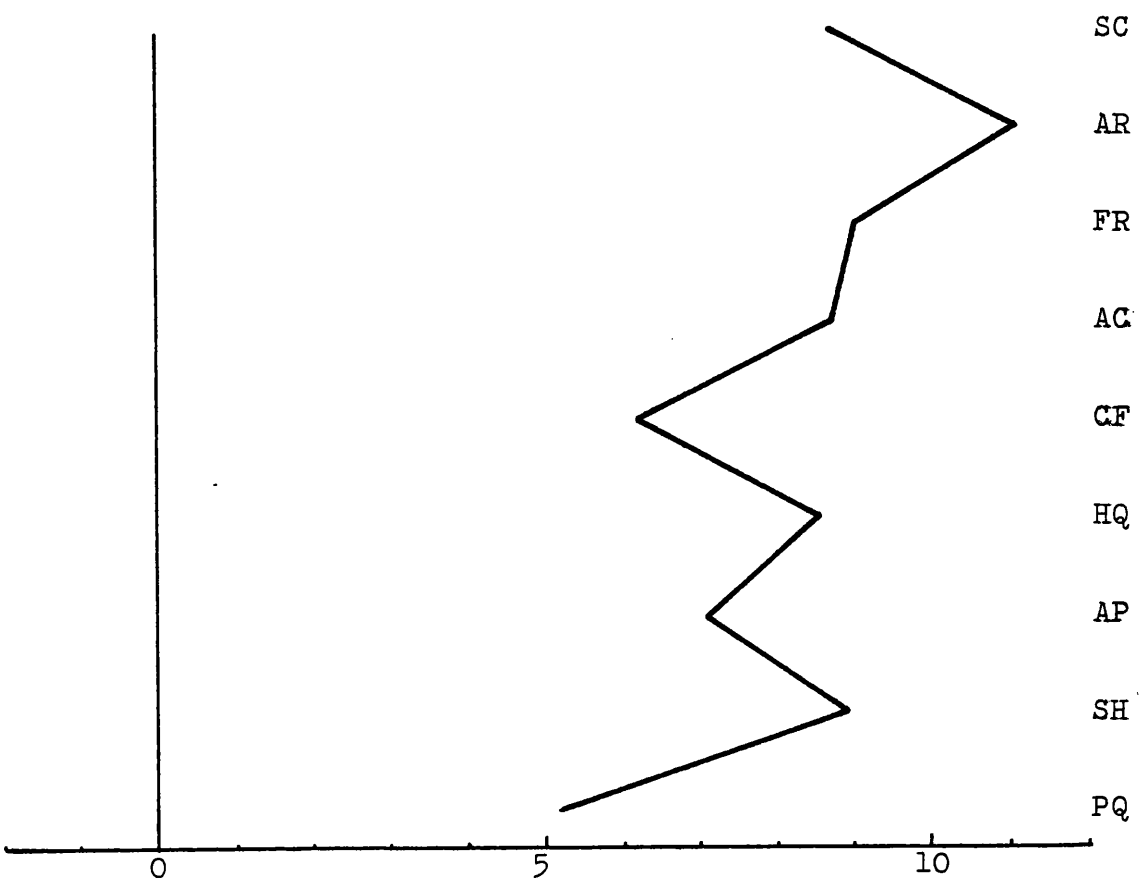
(i) OADBY



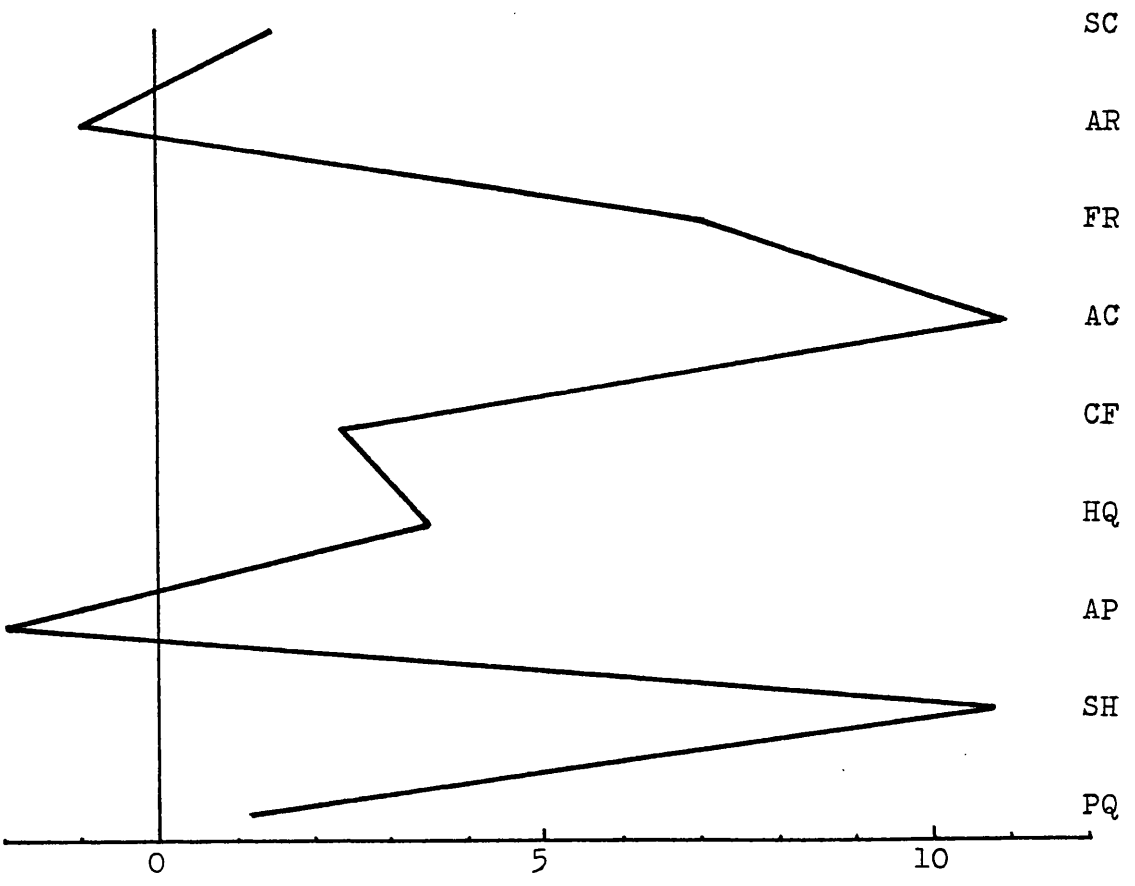
(ii) BRAUNSTONE



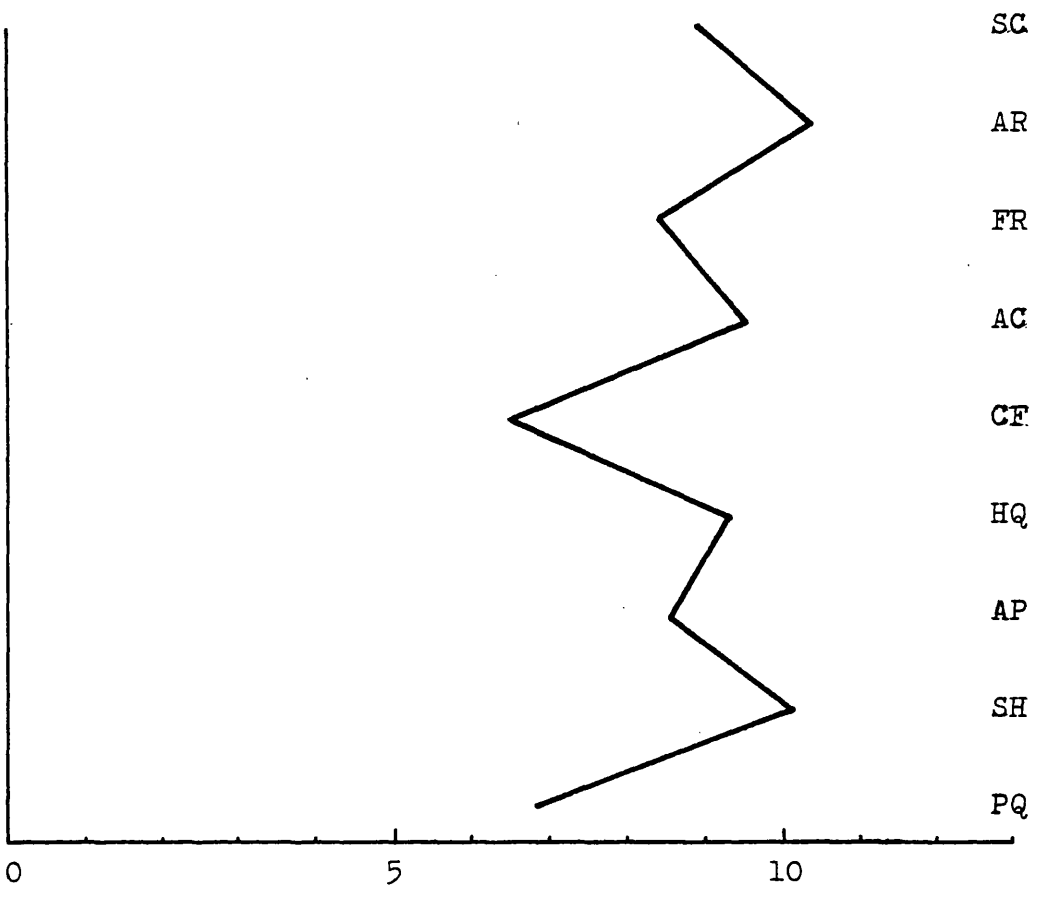
(iii) EYRES MONSELL



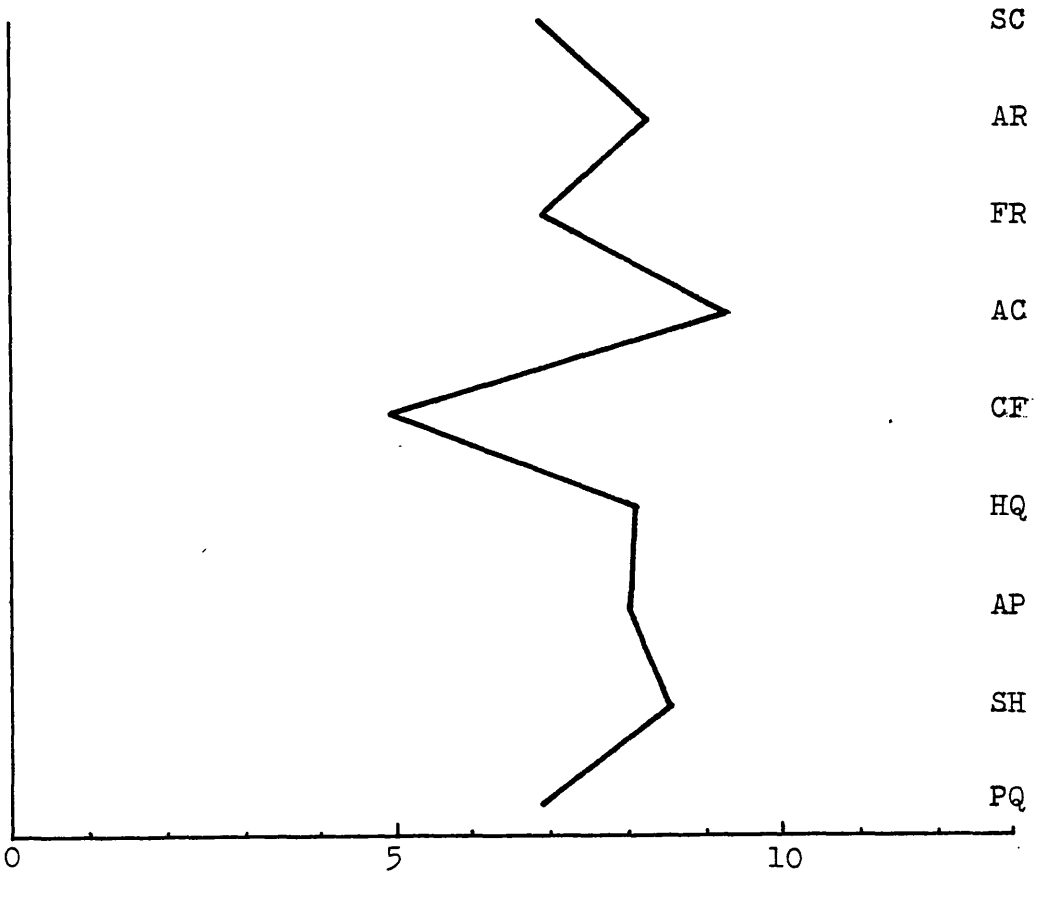
(iv) BELGRAVE



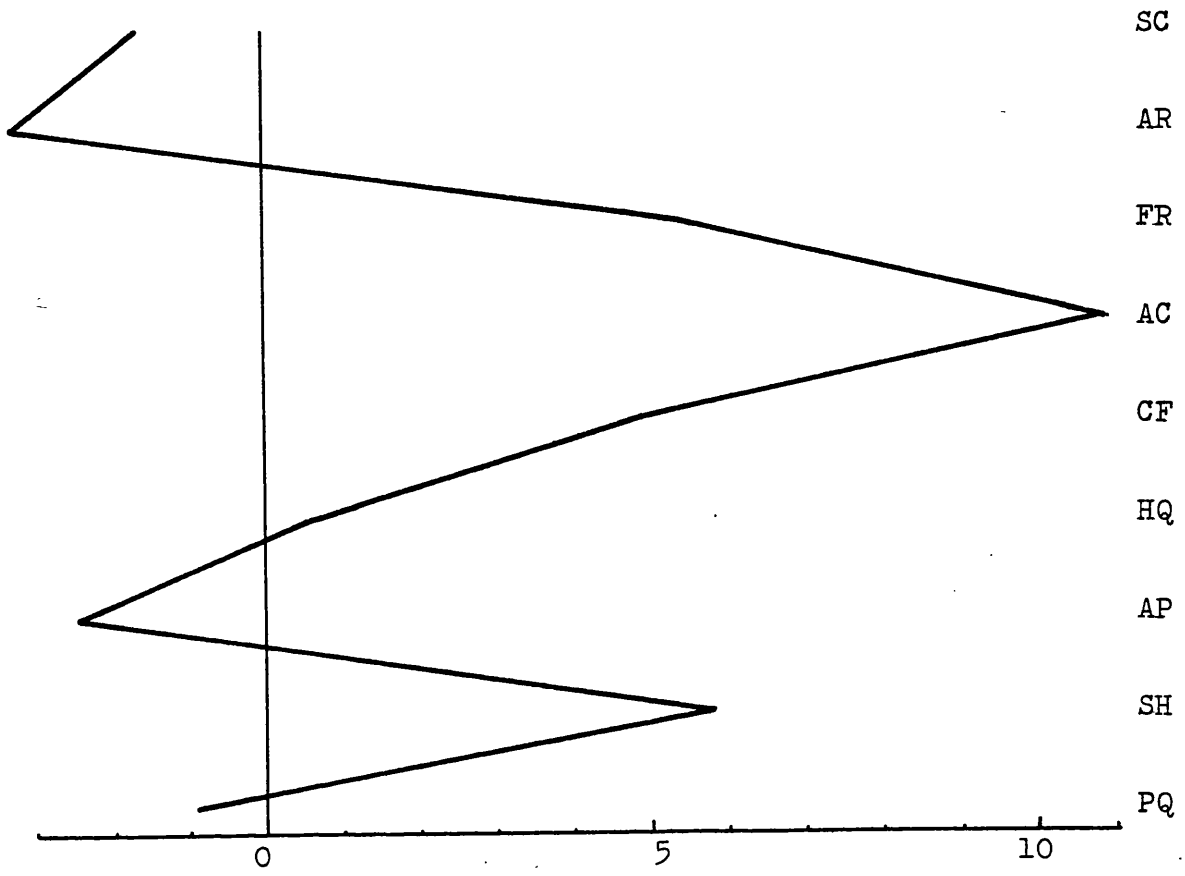
(v) AYLESTONE



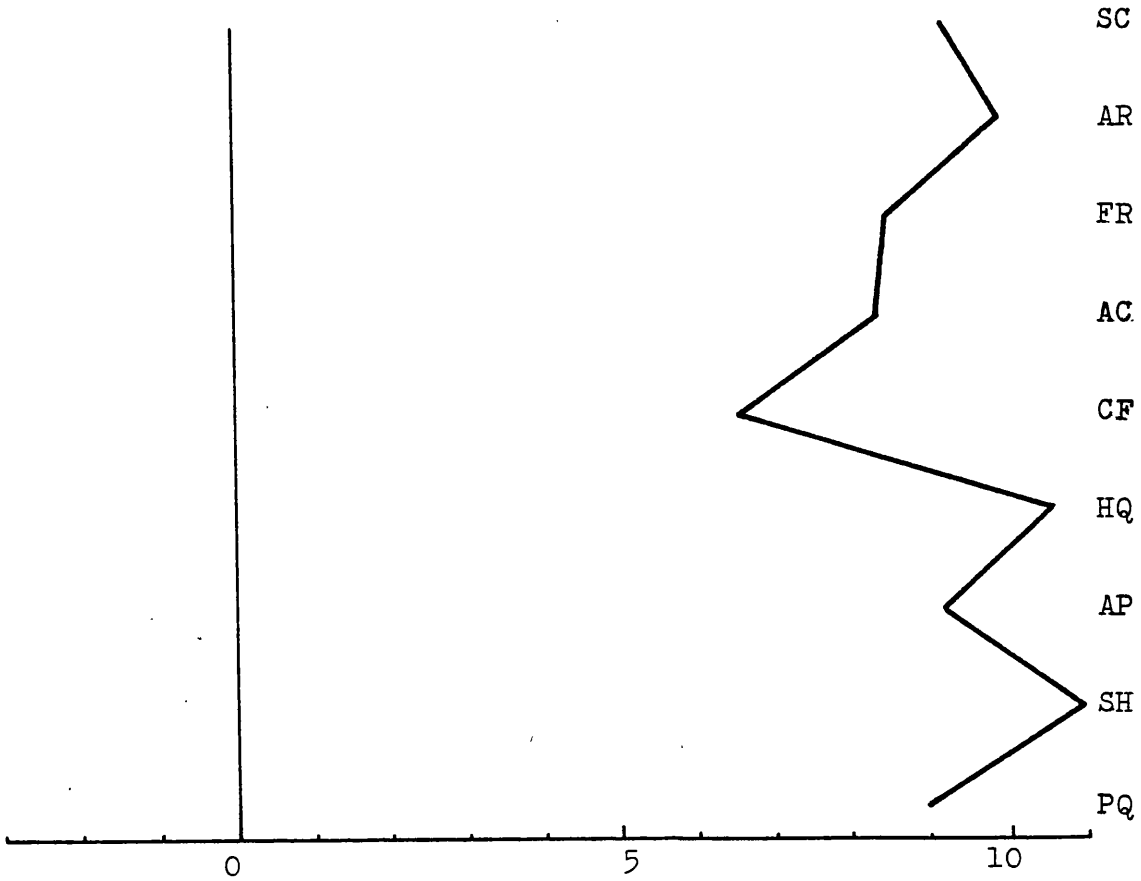
(vi) HUMBERSTONE



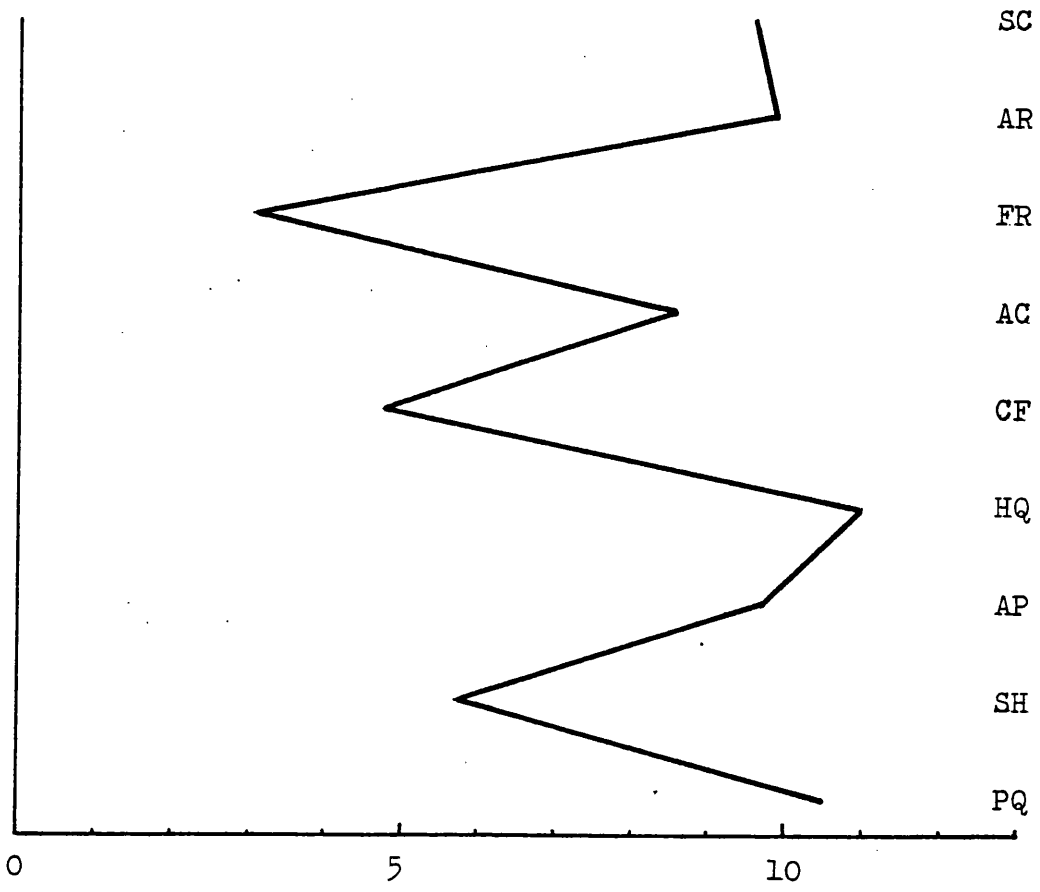
(vii) HIGHFIELDS



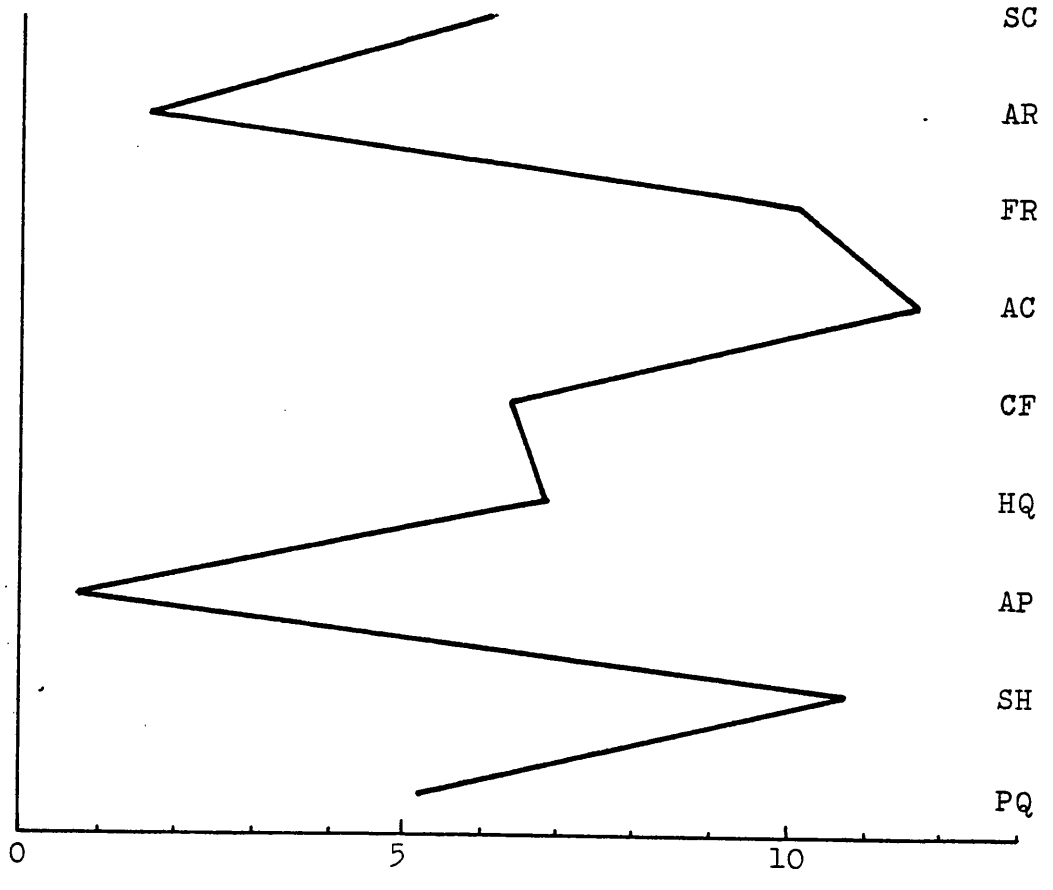
(viii) WIGSTON



(ix) STONEYGATE



(x) WOODGATE



council estates, rate highly on the friendliness of their residents, something of considerable importance to the Woodgate sample (evidenced by the lower evaluations of Oadby and Stoneygate on this dimension which contributes to their lower positions in Table 7.3).

The Type C profiles are once again represented by Woodgate, Highfields and Belgrave, and are similar to those of the Humberstone sample. The range of scores is again much greater than the other profile types, and accessibility, shopping facilities and the friendliness of the residents are again evaluated very positively. This time however, it is the suitability of the area for children and its general appearance (rather than housing quality and appearance) which, in the Belgrave and Highfields profiles only, fall into the zone of negative scores. Woodgate respondents, evaluating their own area, produce a similar profile trace, but somewhat displaced towards the positive side such that no negative scores occur on any dimension. There is a further small difference in the Belgrave and Woodgate profiles worthy of attention, and that is the position occupied by the dimension of housing quality in each area.

We have already noted (in Chapter 6) that the image held by Woodgate residents of the quality of the housing in their area was the dimension which differed most from the images of the area held by Humberstone and Oadby respondents. Far fewer of the Woodgate women considered the housing to be 'poor', and they were also the most accurate in their image of the age of the housing stock both in Woodgate and Belgrave. This is supported by the fact that housing quality (which

occasioned negative attitude scores from the Humberstone sample) is the fourth most highly evaluated attribute on the Woodgate and Belgrave profiles from the Woodgate sample. This is not explained solely by the fact that the attitude scale scores were derived from the values used to establish the image of each area, since the mean attitude scores were weighted to ensure that any particularly favoured attribute was indeed meaningful in the context of other attributes; it would therefore have been quite possible for evaluations of housing quality to have been subsumed within the general depression concerning the nature and appearance of the area, had this indeed been the attitude of the Woodgate residents.

Reference to Fig. 7.3 however, will demonstrate that the profile types A, B and C do not occupy sequential positions in the rankings implied by the overall attitude scores for each area as they do in the case of the Humberstone sample. The two Type A profiles, Oadby and Stoneygate, whilst occupying first and second positions respectively in the rankings of the raw data scores, here occupy third and fourth places, behind two of the Type B profiles, Wigston and Aylestone, which are largely indistinguishable from one another. Eyres Monsell and Humberstone, also Type B profiles, and very similar to Wigston and Aylestone, come after Oadby and Stoneygate, and the three Type C profiles follow, interrupted only by the remaining Type B profile, Braunstone, after Woodgate.

Attitudes towards the ten selected residential areas: the view from the Oadby sample (Figs. 7.9(i) to 7.9(x))

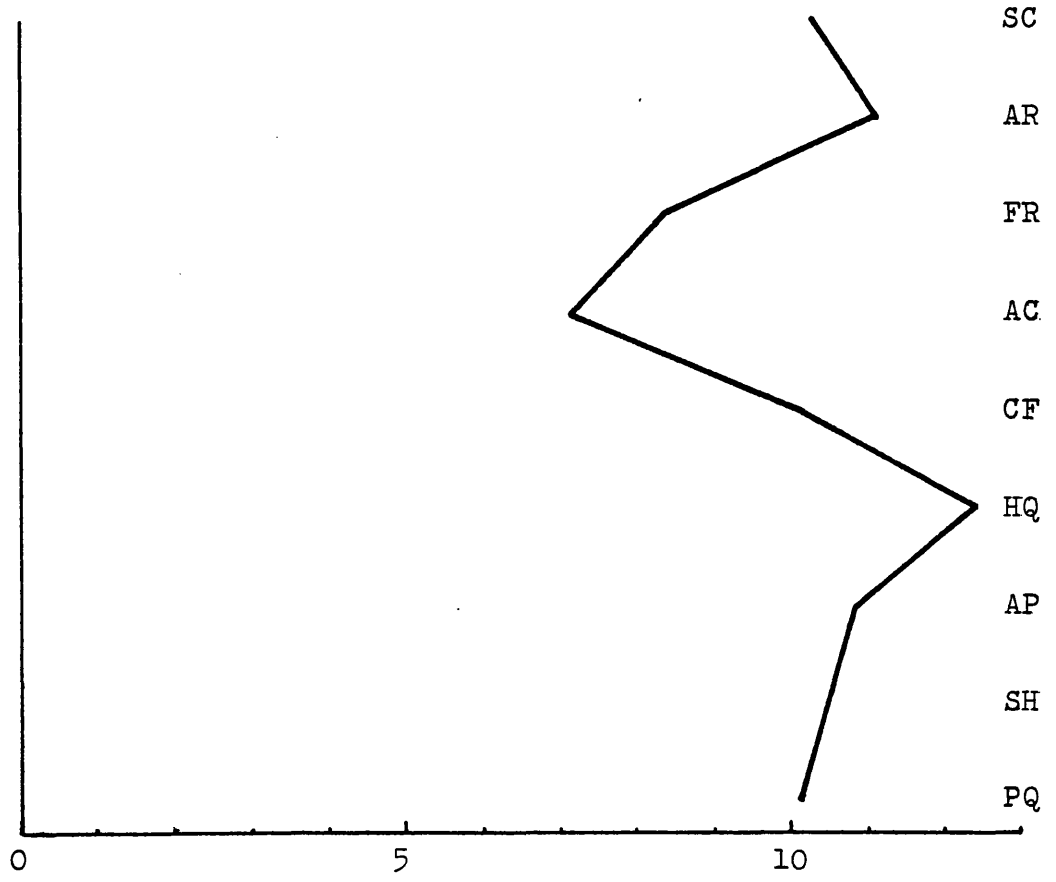
The Type A profiles evident from the Oadby sample again included Oadby itself. Wigston, however, is almost an intermediate type; part of its profile (Fig. 7.9(viii)) with its less favourable evaluation of the general appearance and, to a smaller extent, of its privacy/peace and quiet dimension, is more reminiscent of Braunstone, Aylestone and the Eyres Monsell estate, all Type B. The housing quality, the area's suitability for children, the community and shopping facilities and the quality of the schools in both Oadby and Wigston are all regarded highly. The friendliness of the two sets of residents and the accessibility are the only two dimensions (together with general appearance already mentioned in the case of Wigston) which are noticeably less favoured than the others.

Stoneygate's profile is also rather different. Its unfriendly residents and inaccessibility detract from its overall picture but so too, unlike Oadby and Wigston, do its shops and community facilities. Its most positively rated attribute is the quality of its schools, the only one of the thirty profiles in Figs. 7.7 to 7.9 where this is the case. This may appear a curious anomaly since within the area defined as Stoneygate in the location maps analysed previously (Figs. 6.1 to 6.3) there is neither a primary nor a secondary state school.

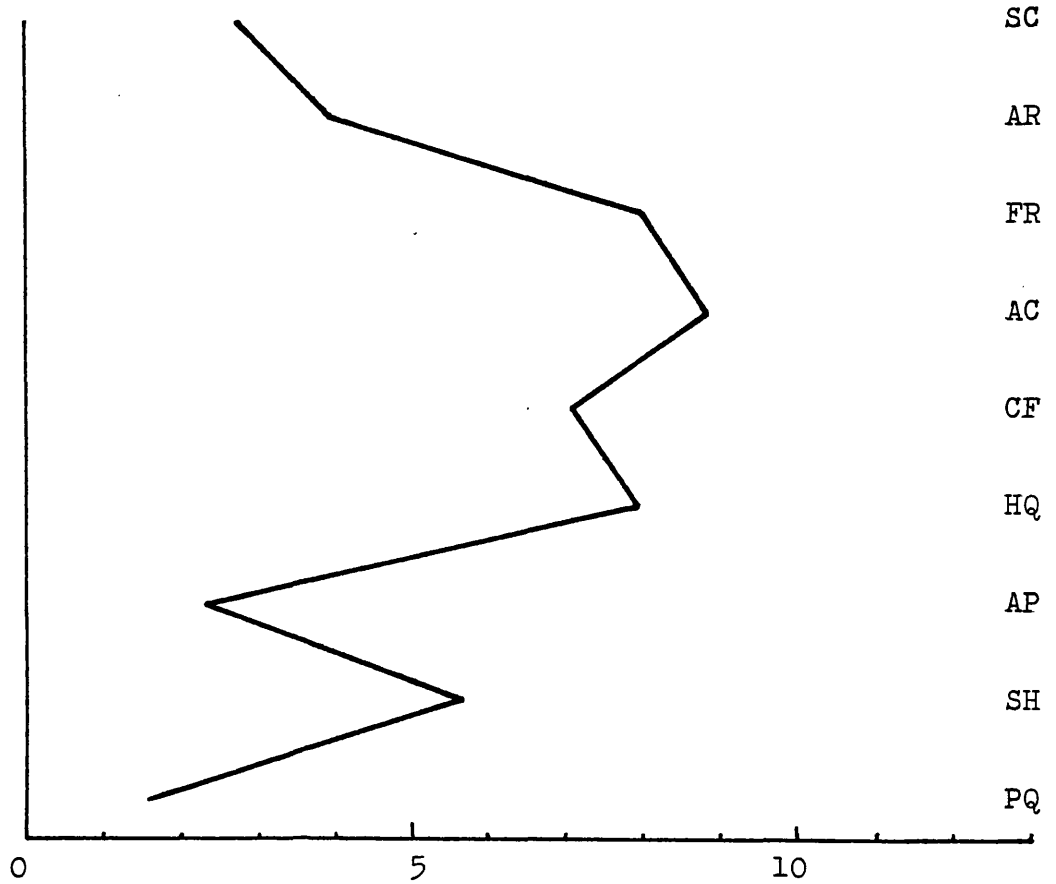
There are, however, a number of private schools, and specialist schools for partially sighted and hard of hearing

Fig. 7.9 Attitude Profiles: Oadby Sample

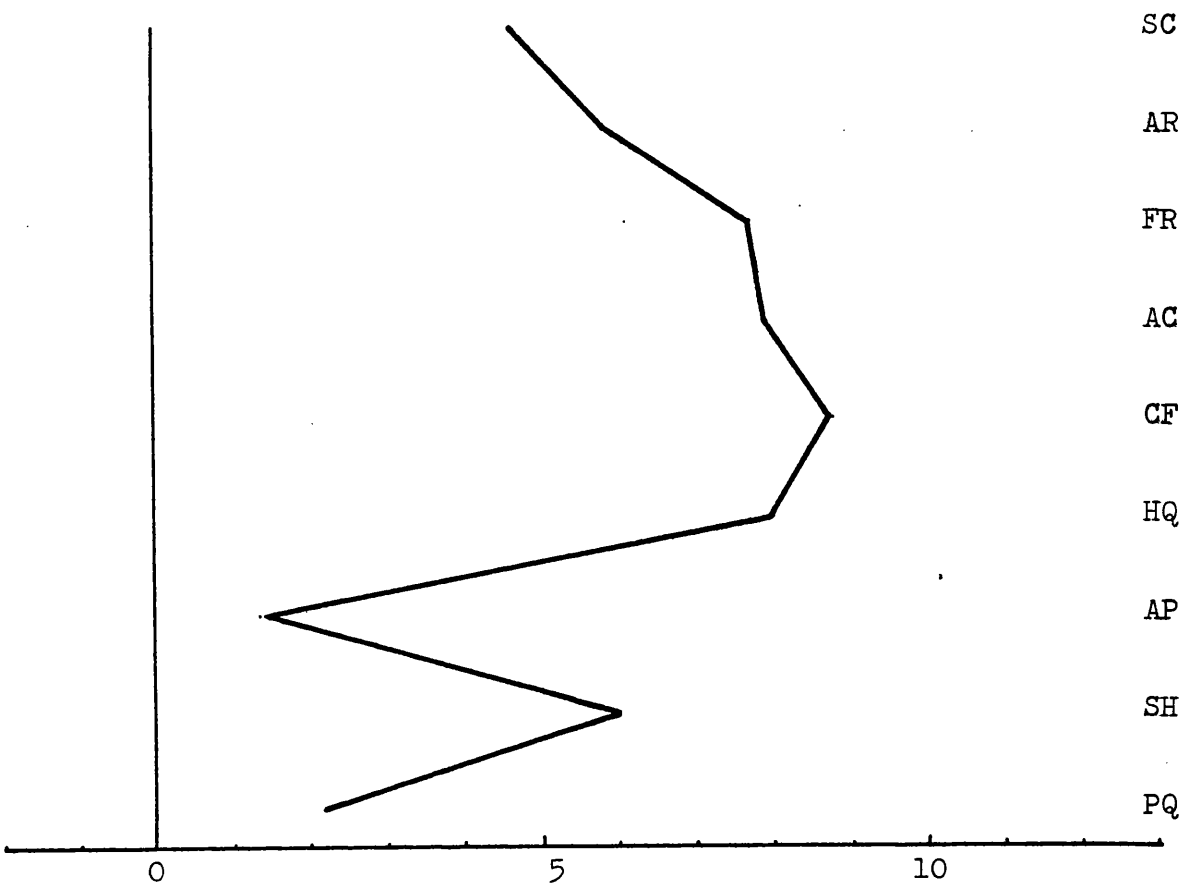
(i) OADBY



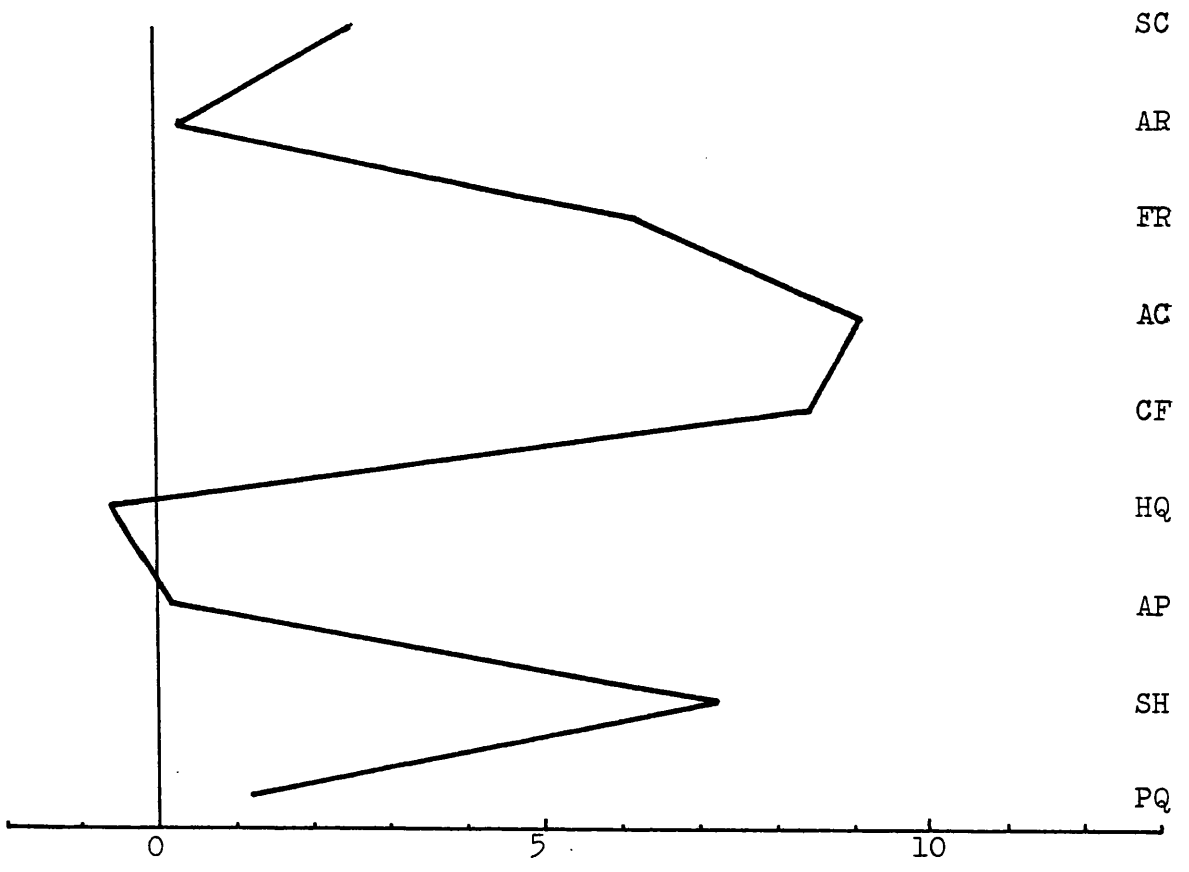
(ii) BRAUNSTONE



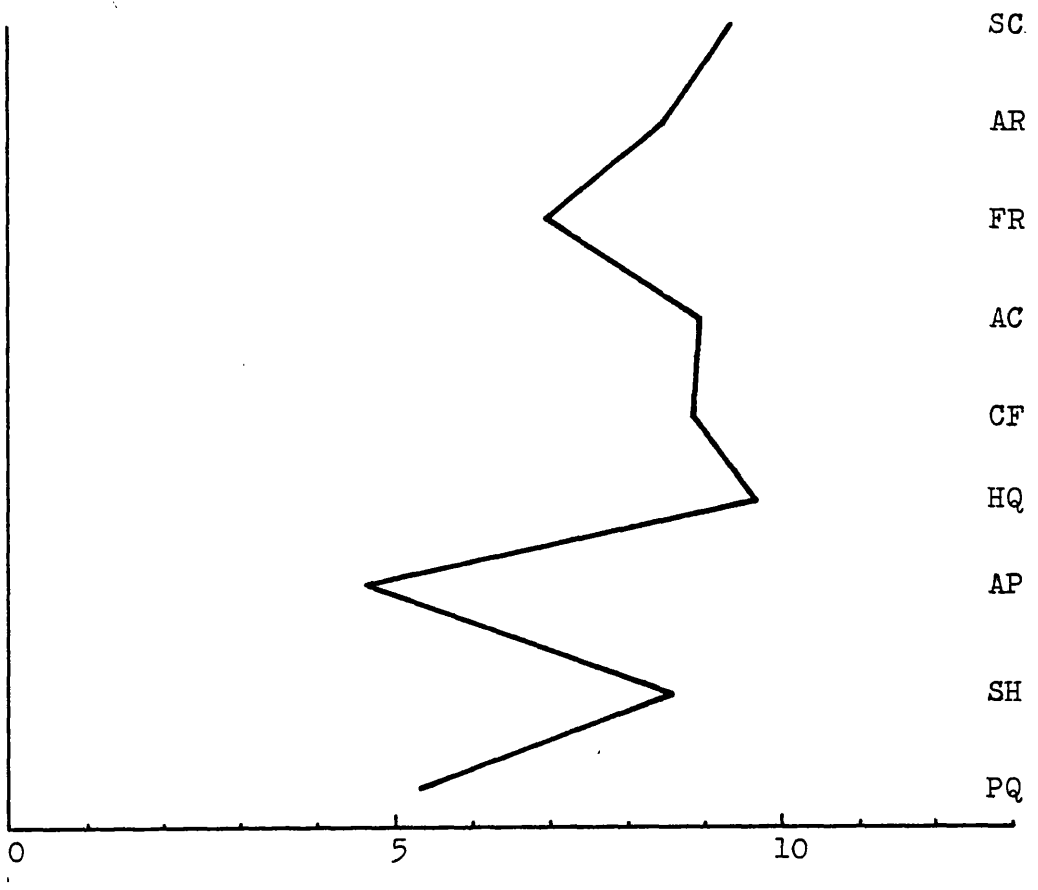
(iii) EYRES MONSELL



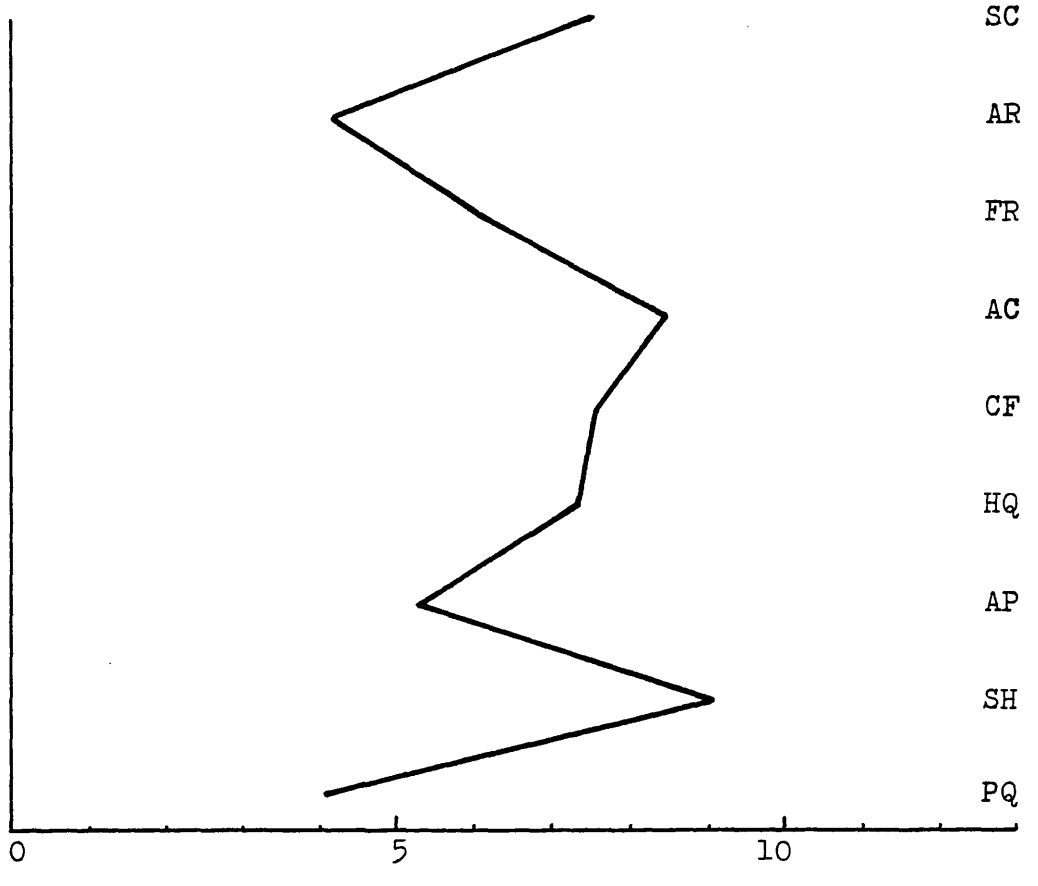
(iv) BELGRAVE



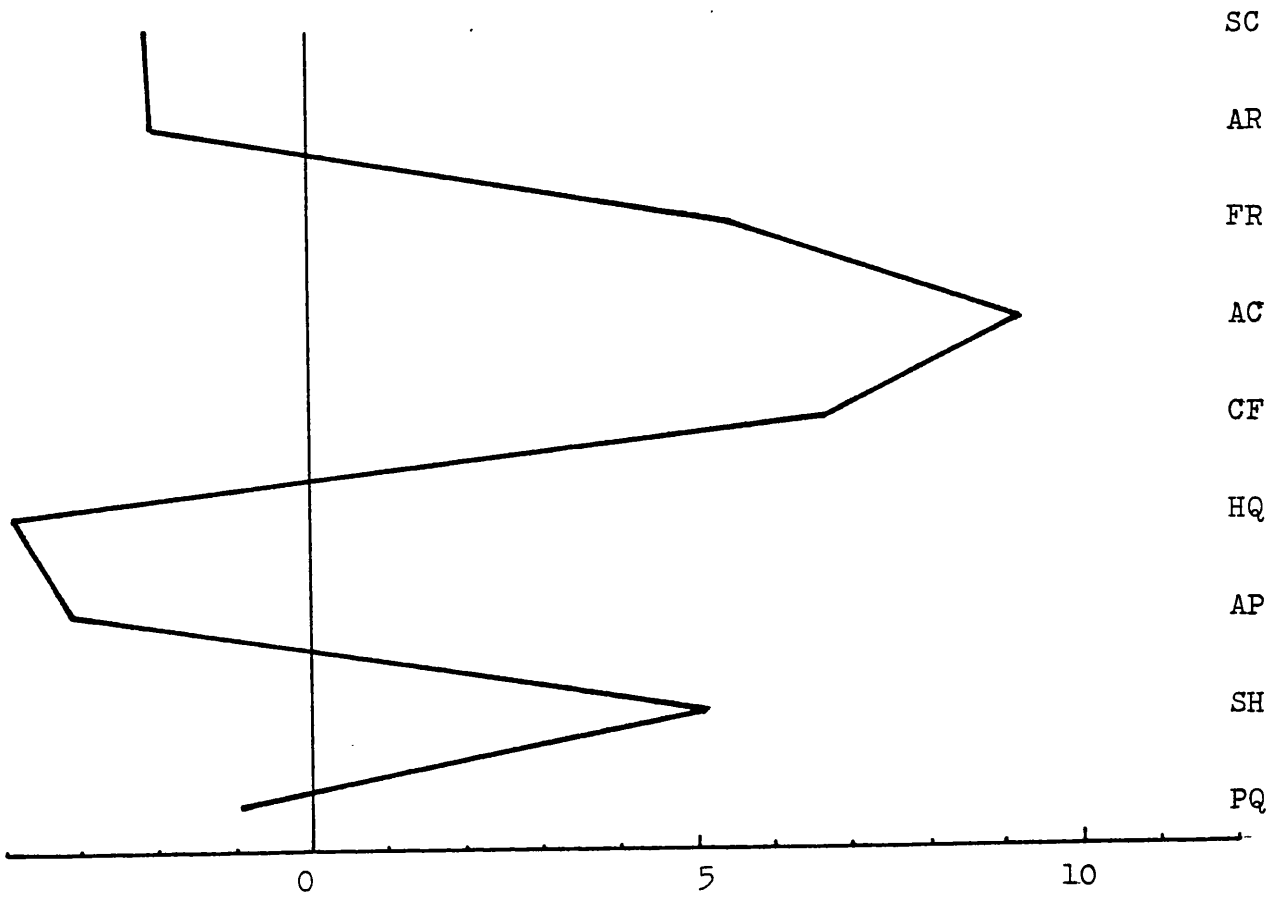
(v) AYLESTONE



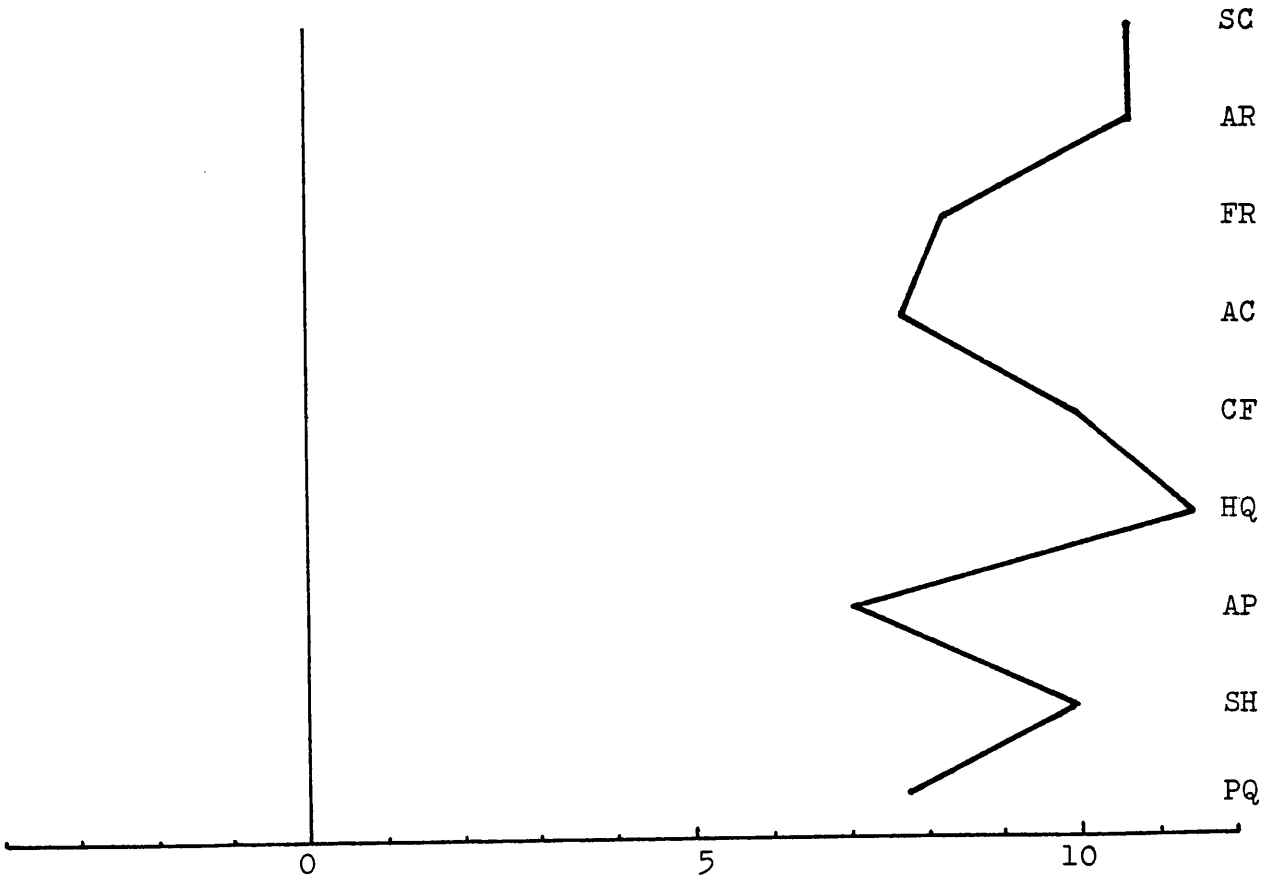
(vi) HUMBERSTONE



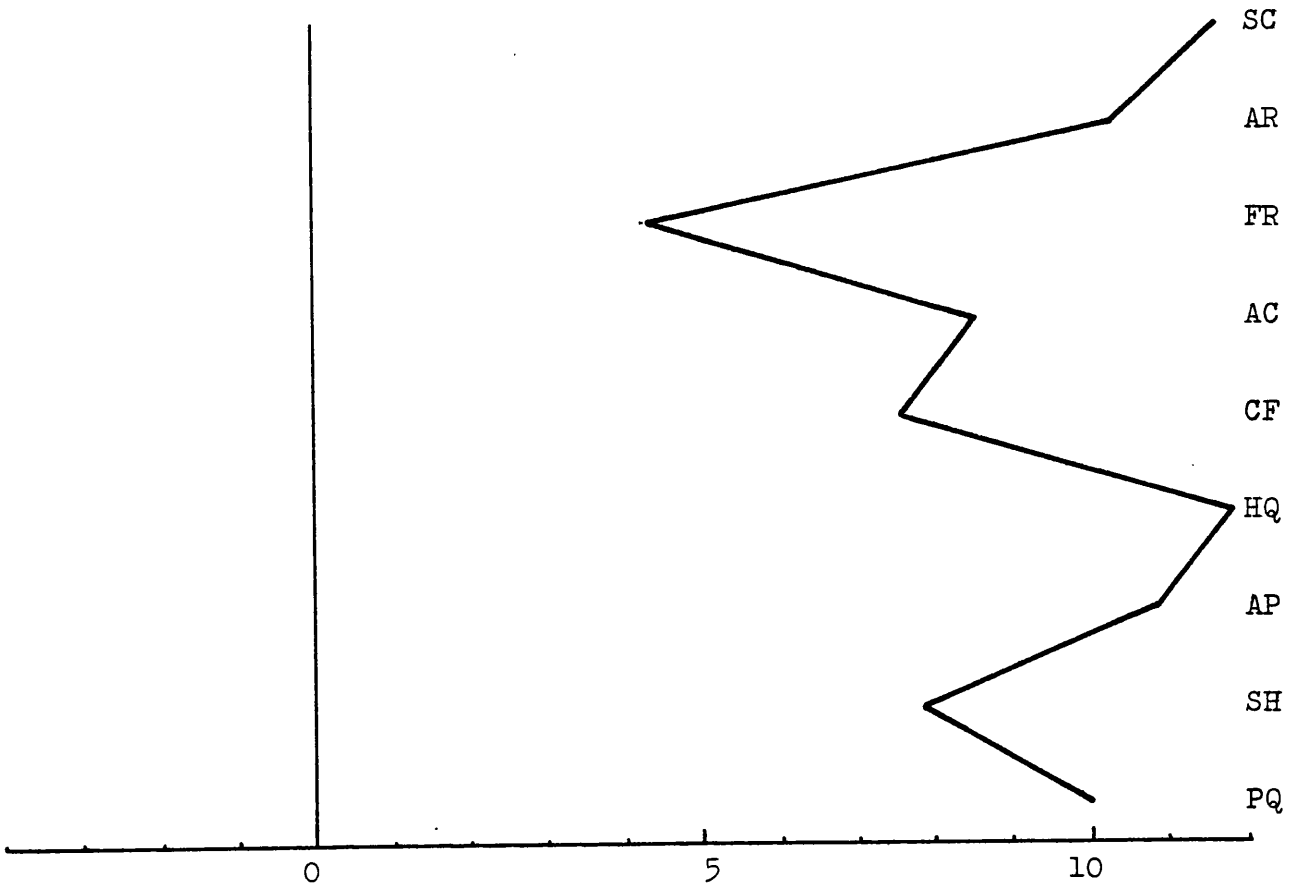
(vii) HIGHFIELDS



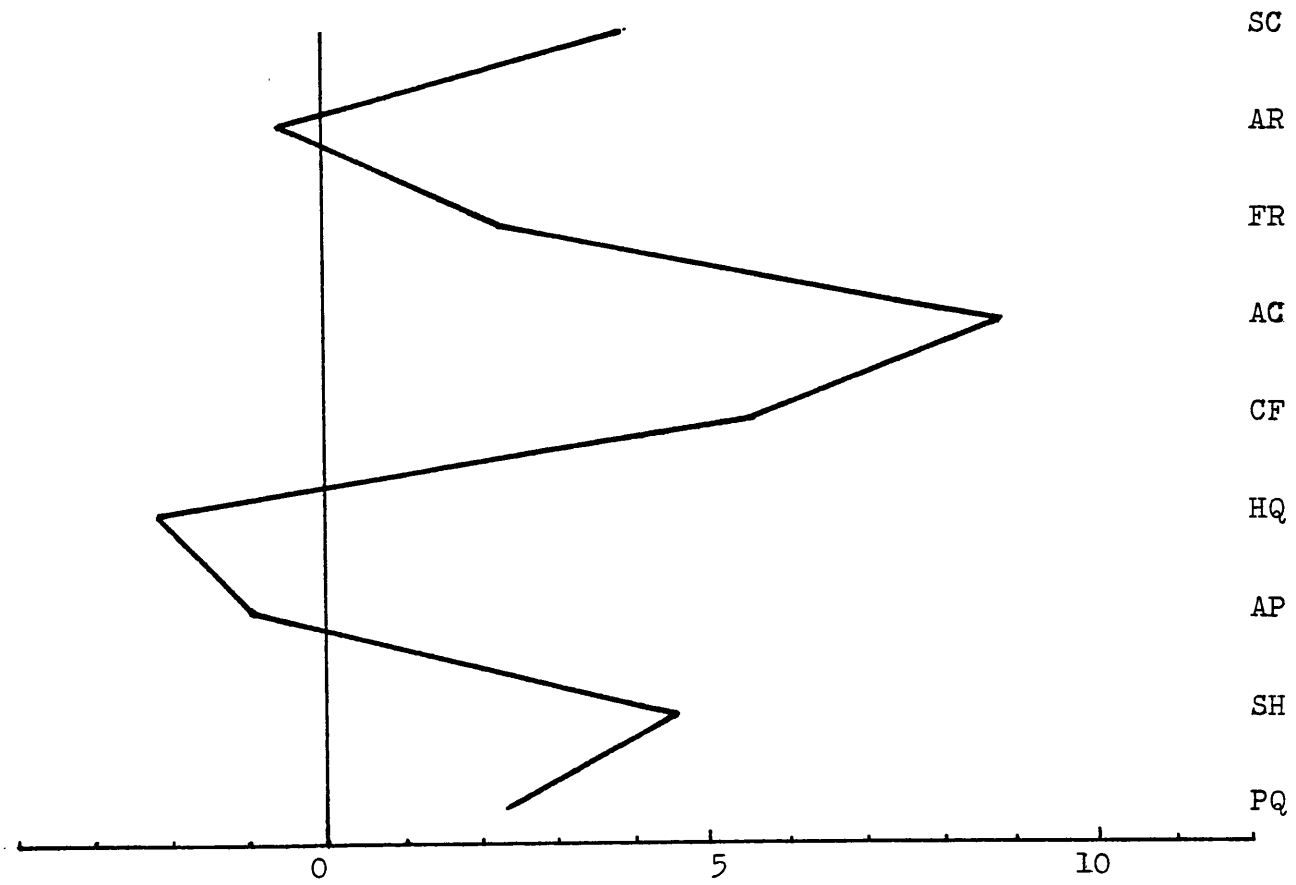
(viii) WIGSTON



(ix) STONEYGATE



(x) WOODGATE



children, together with privately owned and run nursery schools and kindergarten. On the edge of Stoneygate, more properly in Clarendon Park, is the local Church of England controlled infant and junior school, and there is a Roman Catholic primary school in nearby Knighton for which Stoneygate is a catchment area.[2] There is also in Stoneygate a large nurses' training school for the Leicester Royal Infirmary which should properly be included in an assessment of the schools of the area.

Oadby residents, unlike those of Woodgate and, more especially Humberstone, evaluate the private Stoneygate schools very highly. One cannot be certain from this evidence though whether the Humberstone sample is reacting unfavourably to the private schools in Stoneygate or to the complete lack of 'ordinary' state primary and secondary schools in the area.

The Type B profiles are divisible into two pairs. All four, again comprising Braunstone, Eyres Monsell, Aylestone and Humberstone are regarded highly for their housing quality, community facilities and accessibility. Aylestone and Humberstone are positively evaluated along the dimensions of shopping facilities and the quality of their schools. In Braunstone and Eyres Monsell (the two council estates), the schools are among the least favourably regarded attributes, but the friendliness of their residents is of greater importance. Indeed, the Braunstone and Eyres Monsell profiles are virtually indistinguishable except in so far as the

2 For the location of Clarendon Park see Fig. 5.7.

relative positions of accessibility and the quality of the community facilities are reversed (the latter being more favourably evaluated in Eyres Monsell).

Aylestone and Humberstone also have similar profile traces, although the quality of Humberstone as an area in which to bring up children is not rated so high as that of Aylestone.

Belgrave, Highfields and Woodgate are once again similar in their Type C profiles, but with the quality of schools in Woodgate and Belgrave reflecting a significantly more favourable attitude than those in Highfields. The quality of the schools, the suitability of the area for children, housing quality, general appearance and the privacy/peace and quiet dimension all receive negative scores in the Highfields profile whereas only housing quality in Belgrave and Woodgate and the suitability of Woodgate for children also achieve this dubious distinction.

The Type A, B and C profiles for the Oadby sample follow a similar sequential order in Table 7.3 as do those for the Humberstone group. The two pairs of Type B profiles are similarly separated, Aylestone and Humberstone placed above Braunstone and Eyres Monsell, with Woodgate, Belgrave and Highfields again occupying the bottom three positions.

Similarities and differences between profiles: application of a generalised distance formula

Confirmation of the extent to which the profiles of different areas are similar, and the existence of well differentiated profile types as suggested here, may be approached through an application of the generalised

distance formula used by Osgood, Suci and Tannenbaum (1957, p. 91-92). This method was designed to measure the similarity of meaning between semantic profiles, and was considered preferable to correlation coefficients, although the authors envisaged a potentially much wider use:

> 'It can also be applied in the comparison of two subjects on how similarly they perceive the same concept ... we are still dealing with the distance between two points in the semantic space, one point representing the placement in the semantic space .... by one group of subjects, and the other point the placement of this concept by the second group of subjects.'
>
> (Osgood et al. p. 92)

The distance, D, between two evaluations of the same attribute in different areas by one sample group, or between two evaluations of the same attribute in the same are by two (or more) sample groups is represented by the formula

$$D_{a-j} = \sqrt{\sum d_{a-j}^{2}}$$

For example, we can examine the extent to which all evaluations of Oadby made by Humberstone respondents differ from those which they make of Braunstone, and how this difference compares with that between Oadby and other areas, by calculating the differences in scores for each dimension between Oadby and Braunstone, summing them, and taking the square root.

Tables 7.4 to 7.6 are matrices of the generalised distance scores between each pair of areas constructed from the weighted attitude scores from each of the sample areas.

Application of the criterion of within and between group variation should clarify whether the three different types of attitude profile suggested by Figs. 7.7 to 7.9 do in fact exist, and whether they are mutually exclusive. Ideally, for such a classification to be appropriate, every generalised distance score between pairs of areas within a proposed profile type should be smaller than any distance score between a member of that type and members of any other type. In other words, if our hypothesis concerning three types of profiles in Humberstone is to be supported, the distance scores between Oadby and Wigston, Oadby and Humberstone, Oadby and Stoneygate, Wigston and Humberstone, Wigston and Stoneygate and between Stoneygate and Humberstone should be smaller (implying less overall variation) than between any one of these four areas and any of the other six. The less the internal variation within a group and the greater the difference between that group and another, the more obvious the existence of well differentiated profile types becomes.

Reference to Table 7.4 illustrates that this is indeed the case with the Humberstone sample. The generalised distances between Oadby, Humberstone, Stoneygate and Wigston are all fairly small, and certainly smaller than those between these four and the other six areas. The distance scores for Oadby, for example, further support its differentiation from the Types B and C profile, the generalised distances from

Table 7.4 Generalised Distances: Humberstone sample

	OAD	BR	EM	BE	AY	HU	HI	WI	ST	WO
OAD										
BR	15.61									
EM	15.00	2.18								
BE	23.91	13.39	13.48							
AY	9.17	9.09	7.37	18.25						
HU	3.84	16.31	15.54	27.07	9.25					
HI	27.15	13.56	13.31	6.41	18.83	27.38				
WI	4.90	11.83	11.13	23.20	5.83	6.43	23.39			
ST	4.91	14.94	13.93	26.29	9.14	8.00	25.94	6.39		
WO	25.72	13.53	12.93	4.95	17.06	25.60	5.70	21.98	24.62	

Table 7.5 Generalised Distances: Woodgate sample

	OAD	BR	EM	BE	AY	HU	HI	WI	ST	WO
OAD										
BR	11.58									
EM	8.02	6.37								
BE	23.15	12.99	17.35							
AY	7.10	9.66	2.97	19.59						
HU	7.96	4.83	4.71	16.73	4.35					
HI	27.19	18.51	23.12	7.86	24.33	21.05				
WI	5.17	9.62	5.41	20.94	3.02	5.35	25.88			
ST	7.56	11.28	9.53	22.58	8.42	7.58	26.33	7.88		
WO	17.01	8.51	12.33	9.45	12.78	11.14	14.86	11.20	17.03	

Table 7.6 Generalised distances: Oadby sample

	OAD	BR	EM	BE	AY	HU	HI	WI	ST	WO
OAD										
BR	17.40									
EM	15.87	3.50								
BE	23.28	9.98	10.78							
AY	9.20	9.89	7.84	16.05						
HU	12.69	7.26	6.65	11.85	5.68					
HI	30.84	15.94	17.04	7.91	23.35	19.24				
WI	4.62	14.34	12.33	20.55	5.33	9.85	27,97			
ST	5.87	14.91	16.23	23.10	9.10	12.09	30.25	6.89		
WO	26.17	13.55	14.24	6.86	18.68	14.60	8.68	23.36	24.41	

Braunstone, Aylestone and Eyres Monsell being in the 9 - 16 range, and those with Highfields, Woodgate and Belgrave in the over 20 range.

Again, the situation in the Woodgate sample is less clear. Wigston, Aylestone, Eyres Monsell and Humberstone are all closely linked with each other, and separated from Oadby and Stoneygate and the so-called Type C areas by larger distance scores, except for Wigston, which, according to the formula, is marginally closer to Oadby than it is to Eyres Monsell.

Within the Oadby sample (Table 7.6) Aylestone is in a similarly anomalous situation. Although clearly associated

with Humberstone, which is, in turn, linked with Eyres Monsell and Braunstone, the distance separating Aylestone from Wigston is smaller than that separating Wigston from Stoneygate, and considerably smaller than that separating Aylestone from either Eyres Monsell or Braunstone. It has previously been shown that the Wigston profile was almost an intermediate type between A and B, and its resemblance to those of Aylestone and Humberstone on certain dimensions (the relatively unfavourable evaluations of its general appearance and the privacy/peace and quiet dimension) may well be partly responsible for the 'pull' exerted on Aylestone. On the other hand, Aylestone's consistently 'average' image identified in Chapter 6 suggests that it lies in the middle ground, being neither particularly positively evaluated (like Type A profiles - Oadby, Wigston and Stoneygate) nor negatively so (Braunstone, Eyres Monsell and Belgrave for example).

Two problems inherent in the use of the generalised distance formula may contribute to a limited potential as a classificatory device in the present context. The assignation of a score of 1 to 5 to each attribute evaluation and the subsequent weighting procedure adopted introduces one of the scaling problems discussed in Chapter 3. With an interval scale of measurement as used here, one must assume that not only is the distance between 4 and 5 (good and very good) the same as that between 1 and 2 (very poor and poor) for that attribute, but also that the distance between 4 and 5 on one attribute is the same as that between

4 and 5 on another. If it is not, then calculation of D, which is based on the formula from Euclidean solid geometry may be inappropriate, and Factor Analytic solutions (not employed here but common in the geographic literature e.g. Downs, 1970a; Golant and Burton 1970) are fraught with problems.

Secondly, if D is calculated from factor scores (as Osgood, Suci and Tannenbaum, 1957 used), then the model requires orthogonal axes, and the scales across which the differences are calculated must be independent of one another. Otherwise,

> 'If the scales are not essentially independent, the investigator may conclude that a large D between two variables represents a large psychological discrimination between them in the total semantic space, when in reality the discrimination is mainly one dimension which happens to be magnified by summing over correlated variables.'
>
> (Osgood et al., 1957 p. 93)

It is for the very reason that the attribute scales as used in this work to measure attitude along a general index of favourability - unfavourability cannot be regarded as orthogonal, that a straight exercise in using the semantic differential technique has not been reproduced here. Our purpose is not to produce groups of interrelated adjectives to describe a residential area, or any other phenomenon, but to identify within the urban framework, groups of areas which are perceived and evaluated in similar or different ways, along a number of common dimensions. In doing this, however, certain of the advantages undoubtedly possessed by

the semantic differential technique can profitably be adapted while avoiding the methodological problems of the type which befell Downs (1970 b) and others in the early attempts to translate the procedure into geographical use.

One such advantage lies in the ease with which it is possible to summarise the meaning which each of the ten areas in our present example has for the respondents in terms of the nine dimensions measured. It has often been the aim of research studies using the semantic differential technique to isolate those scales which best represent an individual's total response to a concept, and though our purposes are rather different here, the idea of being able to produce what Golant and Burton term a 'word picture' of each of our residential areas, is intuitively appealing (Golant and Burton, 1970).

In an early attempt to link the semantic differential technique with the perception and interpretation of natural hazards, they devised a 'concept-scale polarity matrix'. Its rather grand title belied a simple matrix in which the columns represented twelve hazards such as earthquake or riot, and the rows the subjects' evaluations of these hazards along twenty one dimensions. Rather than using raw factor scores in the matrix, they imposed an arbitrary fivefold division on the range of scores, and labelled each division between the polar extremes of positive and negative, and substituted abbreviations of these labels in the matrix.

Such matrices constructed for the Oadby, Woodgate and Humberstone samples with which we are concerned, provide a concise synthesis of the attitudinal data for comparison with

the images of each area discussed in Chapter 6. Tables 7.8 to 7.10 are constructed from the same weighted scores as were used to draw the attitude profiles in Figs. 7.7 to 7.9, with arbitrary scale divisions imposed as follows:

Table 7.7 Arbitrary scale divisions imposed on weighted attitude scores

Weighted attitude score	Evaluation	Abbreviation
Less than 0	Very Poor/Very noisy/ Very Unfriendly	VP, VN, VUF
0.01 - 3.0	Poor/Noisy/Unfriendly	P, N, UF
3.01 - 6.0	Average	A
6.01 - 9.0	Good/Quiet/Friendly	G, Q, F
More than 9.0	Very Good/Very Quiet/ Very Friendly	VG, VQ, VF

The total evaluations along a number of dimensions for each area are obtained by reading down the columns - an approximation to Golant and Burton's 'word picture'. Reading across the rows demonstrates how one concept was evaluated throughout the ten areas included in the study.

Table 7.8 Concept-Scale Polarity Matrix: Humberstone sample

SCALES	OAD	BR	EM	BE	AY	HU	HI	WI	ST	WO
Quality of schools	G	A	A	A	G	G	P	G	G	A
Quality of the area for children	G	A	A	P	G	VG	VP	G	G	P
Friendliness of the residents	VF	F	F	F	F	VF	A	F	F	F
Accessibility	G	VG	G	VG	VG	VG	VG	G	G	G
Community facilities	G	G	G	A	G	G	G	G	A	A
Housing Quality	VG	G	G	VP	G	VG	VP	VG	VG	VP
Appearance	VG	P	P	VP	A	VG	VP	G	VG	VP
Quality of shops	VG	G	G	G	G	VG	A	VG	G	A
Privacy/peace and quiet	VQ	N	N	VN	Q	VQ	VN	Q	VQ	VN

Table 7.9 Concept-Scale Polarity Matrix: Woodgate sample

SCALES	OAD	BR	EM	BE	AY	HU	HI	WI	ST	WO
Quality of schools	G	A	G	P	G	G	VP	VG	VG	G
Quality of area for children	VG	G	VG	VP	VG	G	VP	VG	VG	P
Friendliness of the residents	F	F	VF	F	F	F	A	F	A	VF
Accessibility	A	VG	G	VG	VG	VG	VG	G	G	VG
Community facilities	G	A	A	P	G	A	A	G	A	G
Housing Quality	VG	G	G	A	VG	G	P	VG	VG	G
Appearance	VG	A	G	VP	G	G	VP	VG	VG	P
Quality of shops	G	G	G	VG	VG	G	A	VG	A	VG
Privacy/peace and quiet	VQ	A	A	N	Q	Q	VN	Q	VQ	A

Table 7.10 Concept Scale Polarity Matrix: Oadby sample

SCALES	OAD	BR	EM	BE	AY	HU	HI	WI	ST	WO
Quality of schools	VG	P	A	P	VG	G	VP	VG	VG	A
Quality of the area for children	VG	A	A	P	G	A	VP	VG	VG	VP
Friendliness of the residents	F	F	F	F	F	F	A	F	A	UF
Accessibility	G	G	G	VG	G	G	VG	G	G	G
Community Facilities	VG	G	G	G	G	G	G	VG	G	A
Quality of Housing	VG	G	G	VP	VG	G	VP	VG	VG	VP
Appearance	VG	P	P	P	A	A	VP	G	VG	VP
Quality of shops	VG	A	A	G	G	G	A	VG	G	A
Privacy/peace and Quiet	VQ	N	N	N	A	A	VN	Q	VQ	N

Links apparent between Images of and Attitudes towards residential areas

Since the imposition of categories such as 'very poor' or 'good' on the weighted attitude scores is purely arbitrary, it is unwise to draw direct comparisons between cells in the matrices of Tables 7.8 to 7.10 and the image categories of good, attractive and so on used in Chapter 6. However, it is possible to trace the element of meaning examined in the images of each area through and, incorporating it with the relative importance of attributes to the individual, examine how it is displayed in composite measures of attitude.

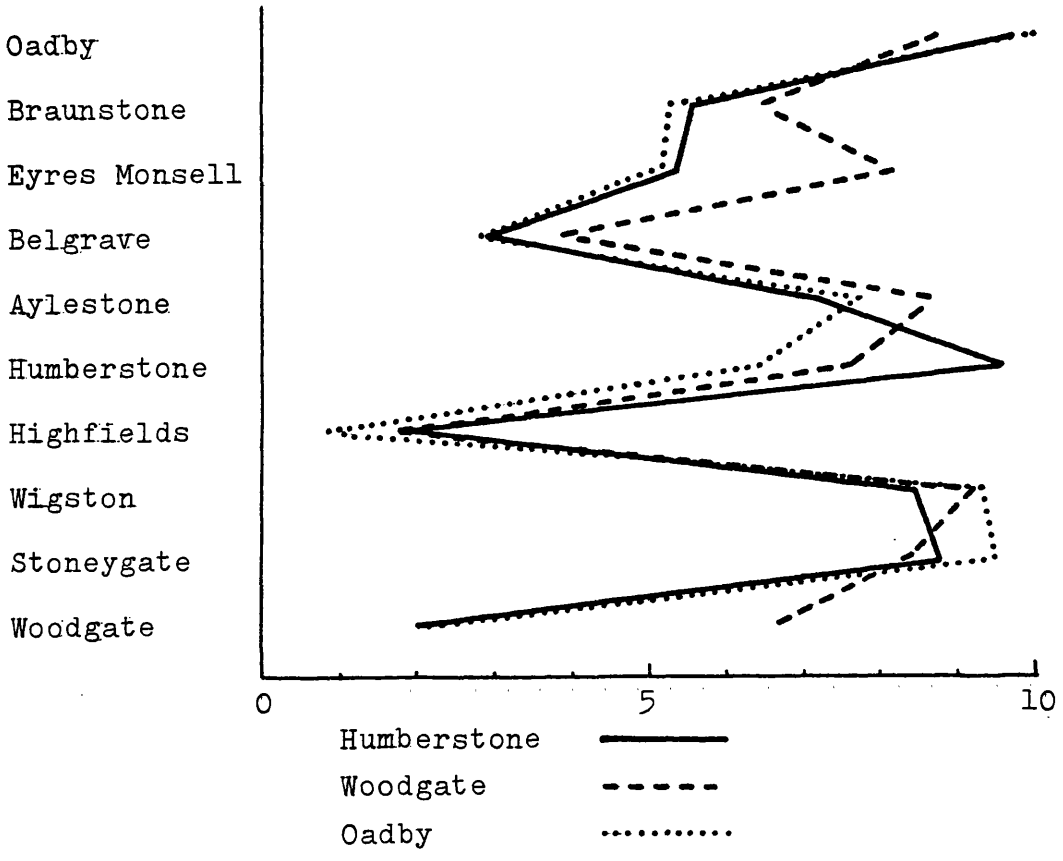
Despite being an area which didn't evoke a particularly strong image, Aylestone evokes fairly favourable attitudes, especially

from the Woodgate sample. Wigston, as we have seen from the generalised distance scores and profile types, also produces a favourable attitude, again especially from Woodgate. Humberstone residents are less positive, maybe because Aylestone produces its 'average' image on attributes which are less important to Humberstone respondents than to those in Oadby and Woodgate, and the weighted scale scores are consequently lower.

Braunstone also emerges more positively from Woodgate and this reflects the less harsh image of its general appearance and the quality of the area for children. It does not, however, echo the implied rankings of Table 7.3 where Braunstone occupies a lower rank in the Woodgate sample (8th) than in Humberstone or Oadby (6th). However, the absolute weighted attitude scale score (rather than its impled position) for Braunstone seen from Woodgate is higher than that from either of the other two areas, and it is to this that we should give our attention.

Fig. 7.10 is a combination of Figs. 7.4 to 7.6, and demonstrates the large degree of similarity in the weighted attitude scores derived from the Humberstone and Oadby samples. The more favourable attitude towards Humberstone of its own residents stands out, as does Oadby's slightly more favourable impressions of Wigston and Stoneygate. The particularly favourable attitudes towards Eyres Monsell, Aylestone and Wigston by the Woodgate respondents, as supported by Tables 7.8 to 7.10, are also apparent, although set in context, Woodgate's attitude towards Wigston is no more favourable than that of the Oadby sample.

Fig. 7.10 Attitude Profile using weighted scale scores for ten selected residential areas: Humberstone, Woodgate and Oadby samples



With such a large degree of similarity in both the three samples' images of the ten areas and their attitude profiles, it is difficult to know whether we have established almost exact congruence between image and attitude or no congruence at all. The position is complicated by the fact that in order to be certain that the meaning of the image was elicited, and that this same meaning was measured by the attitude scores, the same attributes had, of necessity, to be used in each section. The attitude scores were not, though, a simple duplication of

the image categories since the application of a weighting system related to the same attributes in a different context should have ensured that any similarities apparent were real, even though the extremes of the attitude continuum may have become rather accentuated in the process.

There is obviously a problem here; separation of the attributes contributing to and measured with respect to Image and Attitude would clearly have been unsatisfactory. It has been argued earlier that it is the meaning of an image which is probably the most important aspect, and it is therefore essential that the same meaning or evaluation is tapped by the attitude measures if any link between the two is to be established. Concentration purely on the identity or structural aspects of an image cannot impute meaning, whereas the dividing line between Image as a statement of meaning, and Attitude as that meaning measured, is also elusive.

There remains, however, a strong case for supporting the existence of a link in the hypothesised process between the Image and Attitude elements; the examination of the nature of any possible link between Attitude and Preference though might serve to clarify some of the earlier dilemmas and help confirm or deny the possibility and utility of regarding residential Behavioural Intentions as the outcome of a decision process based on images of, attitudes towards and preferences for a range of alternative environments. Investigation of the preference structures of the three samples and of different age or otherwise socially differentiated groups within them might also enable parallels to be drawn with the attitude profiles and images held. The following chapter therefore concentrates on this task.

8

Preference

'The measurement of spatial preferences has proved one way in which Geographers have been able to test and use concepts relating to perception and other behavioural approaches.'

(Herbert, 1973 p. 113, 114)

The analysis of individual patterns of preference, together with the study of environmental images is, as we have seen, one of the more common themes in Behavioural Geography. The aim here, however, is not to construct another of the familiar mental map type diagrams for Leicester, but to consider the empirically derived preference structures as the third element in the Perception - Behaviour process outlined in the Introduction.

Set within an urban context, the purpose of this chapter is to compare preference structures between persons occupying different locations in physical space, and between individuals of varying positions in social space. In this way, analysing preferences becomes a means towards the end of investigating the nature of the elements and links of our process, rather than the end in itself, which has been its more usual fate in the literature reviewed in Chapter 2.

There are at least five problem areas to be considered if we view the whole operation of the Perception-Behaviour process:

i) Do preferences for the different attributes of a residential area vary with different subgroups of the city, and if so, are the residential location of the respondent or socio-economic variables such as her age, amount of education, whether she has

children living at home, or her social class important in accounting for any of the variation ?

ii) Do preferences for the different residential areas of the city show any distinct variations between subgroups, and if so, are present residential location or socio-economic measures important explanatory variables ?

iii) Do the areas selected as preferable contain those attributes deemed to be important and particularly desirable by the respondent ?

iv) Do the preferences for attributes of areas and for the areas themselves bear any resemblance to, or reflect, the attitudes examined in Chapter 7. ?

v) Can the preferences be related to the stated intentions of behaviour with respect to specific areas analysed in Chapter 9 ?

The rest of this chapter is devoted to a consideration of the first four points; Chapter 9 will deal more specifically with the fifth.

i) Do preferences for the different attributes of a residential area vary with different subgroups of Leicester's population ?

Question 14 of the interview schedule (Appendix A) asked each respondent to rank twelve attributes of a residential area in order of their importance to her in choosing a new place to live (the twelve attributes are listed in Chapter 5). At this stage, constraints such as finance, or council tenancy were excluded (see also Chapter 5), and each individual was

given a completely free choice.

The selection of the twelve attributes (discussed in Chapter 5) had the advantage of ensuring that there was comparability between respondents but precluded the possibility of other dimensions of equal or greater importance emerging. Individuals were given the chance to discuss the list informally, though, and the only additional dimension suggested was 'proximity to open countryside'. Occasionally, proximity to, or in some cases distance from, parents and immediate family was given as a reason for the choices made in answer to the requests concerning which areas respondents would like to move to or would not be prepared to live in.

If we consider each of the samples separately, which attributes are the most preferred by each group ? Applying the formula outlined in Chapter 4

$$Mp = \frac{C + 0.5\,N}{n\,N}$$

we arrive at a preference ranking for the three samples as illustrated in Table 8.1.

One attribute, the quality of the housing, is consistently preferred over all the others by the Humberstone and Oadby samples and is also of considerable importance to the Woodgate group. Others, such as general appearance, and privacy/peace and quiet are also within the top half of all three rankings. The most consistent feature is the placement of the age of the respondents as the least important attribute, and the age and type of housing as similarly unimportant. There, however, the

Table 8.1 Total sample: Attribute Preference Structure

HUMBERSTONE n = 53		WOODGATE n = 49		OADBY n = 55	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.739				
Privacy	0.736				
				House/Qual	0.705
				Area/Child	0.663
		Privacy	0.660		
Friend/Res	0.654				
Appearance	0.645				
		Shops	0.639	Appearance	0.639
		House/Qual	0.633		
				Schools	0.623
		Access	0.618		
		Friend/Res	0.617		
		Appearance	0.614		
		Area/Child	0.603		
				Privacy	0.595
Access	0.585				
				Shops	0.554
Shops	0.552				
				Comm/Fac	0.531
		Schools	0.524		
Area/Child	0.519				
Comm/Fac	0.505			Friend/Res	0.505
House/Type	0.498				
Schools	0.473				
		Comm/Fac	0.469		
				Access	0.433
				House/Type	0.398
		House/Age	0.397		
House/Age	0.395				
				House/Age	0.386
		House/Type	0.373		
Age/Res	0.277				
		Age/Res	0.250		
				Age/Res	0.225

resemblance ends.

The friendliness of the residents, of considerable importance to the Humberstone and Woodgate samples, is a far lesser consideration for those in Oadby who particularly require a good area for bringing up children and good local schools, both of relative unimportance in the other two areas, especially Humberstone.

The distribution pattern of the scale values is also different for the three samples. In Humberstone, quality of the housing and privacy/peace and quiet were isolated at the top of the ranked list, both with higher scores than any other attribute in either of the other two samples. Some way behind these in importance come friendliness of the residents and general appearance, separated by another, though smaller, gap from the next six. Age of the housing, and the age of the residents are adrift at the bottom of the list, and are clearly of little importance in the residential decision process for these people.

With the Woodgate sample, privacy/peace and quiet is separated from four dimensions, all possessing similar scores - accessibility, friendliness of the residents, appearance and the quality of the area for bringing up children. In Oadby, quality of the housing stands apart from the quality of the area for children, which is followed closely by the general appearance and quality of the schools. Friendliness and accessibility appear much further down the list.

It is at this point that one might have expected a closer relationship between attributes such as housing quality and

general appearance, or the quality of the area for children and the quality of the schools, and it is probable that the comparison of complete samples is too gross to reveal any such relationships which might exist. The inclusion of persons of widely differing age, some with children and some without, some of whom have lived in the same area all their lives and some who intend to stay for no more than a few years, is bound to distort the underlying structure of similarities.

We therefore need to analyse the preference rankings separately in terms of these variables to compare structures both within and between the three samples. One relevant variable suggested by Table 8.1 is the age of the respondent, which is likely to affect whether she sees herself as actively concerned with the quality of the schools in an area into which she might move, or whether she can regard her child-raising days as completed, and the quality of the local schools as therefore of little consequence.

Table 8.2 therefore illustrates the preference rankings for the twelve attributes derived from the Humberstone sample stratified into four age groups of respondent. The first two groups, containing those women aged between 20 - 34, and 35 - 49, rate the quality of the schools and an area's suitability for children very highly (2nd and 4th in the younger group and 4th and 2nd respectively in the older group). In the 50 - 64 age group, these two attributes sink to 11th and 9th positions respectively, and to 12th and 11th, lowest of all, in the rankings of the Over 65 age group.

Conversely, the friendliness of the residents and the community facilities, 11th and 10th respectively for the

youngest group, rise progressively through 6th and 8th places in the 35 - 49 group, to 1st and 7th in the 50 - 64 age range, but decline in the oldest respondents' set to 4th and 9th. Accessibility, ranking 7th in importance to those women who may be assumed to be the young mothers with children, decreases to 10th place in the 35 - 49 group, and then rises steadily through 5th place for the 50 - 64 year olds, to 2nd position for those aged over 65.

The Over 65 group are more concerned about the quality of the local shops and the accessibility of the area and public transport connections with the city centre than they are about the quality of the housing, the only group in which this occurs. They are also more concerned about the age of residents in an area than are the other age groups, and are the only people for whom this particular attribute is not at the bottom of their rankings.

Table 8.3 illustrates the similar data for the Woodgate sample. The 20 - 34 age group place the quality of the area for children, and the quality of the schools far ahead of the other attributes. In the 35 - 49 age range, these two fall to 4th and 7th, and to 10th and 11th and 11th and 12th respectively in the two older groups. Woodgate respondents took care to mention that although they possessed a local junior school, there was no senior school in their area, and it would therefore appear that those women more likely to have children of senior school age are less concerned about the purely local schools, although they may remain concerned about the general suitability of an area in which to have children.

Woodgate respondents generally are less concerned about housing quality than their Humberstone counterparts, and the youngest and two older Woodgate groups resemble the Humberstone Over 65 group in regarding accessibility and the quality of the local shops as more important than the quality of their housing.

Privacy, of prime importance to the three older age groups in Woodgate is of comparatively little importance (8th) to the 20 - 34 range, and the general appearance of the area only seems important to the 35 - 49 group, as in Humberstone. Friendliness of the residents also peaks in the 50 - 64 age group in Humberstone, and is in second position for the Woodgate group of similar age, and is lowest among the younger respondents.

The lack of attention to privacy/peace and quiet by the 20 - 34 year old group in Woodgate is echoed by the same group in the Oadby sample (see Table 8.4), but although the relative importance of this attribute rises with the increasing age of respondent in Oadby, it nowhere attains first place as it does with the Woodgate respondents. The preoccupation with privacy/peace and quiet in Woodgate is interesting since we have already noted that the Woodgate sample evaluate this attribute fairly unfavourably with respect to their own area (see previous chapter), and this point should be borne in mind when we come to examine the preference structures for the ten areas later in the present chapter.

The youngest group in Oadby again place an area's suitability for children and the quality of its schools in the top two positions; quality of the housing is important

Table 8.2 Humberstone sample: Attribute Preference Structure by Age Group

AGE 20-34 n = 6		AGE 35-49 n = 15		AGE 50-64 n = 23		AGE OVER 65 n = 8	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
		House/Qual	0.814				
				Friend/Res	0.796		
Privacy	0.792					Privacy	0.792
						Access	0.781
Schools	0.742						
House/Qual	0.736						
				House/Qual	0.735		
				Privacy	0.731		
						Appearance	0.708
Area/Child	0.692						
		Area/Child	0.688				
						Friend/Res	0.685
				Appearance	0.682		
		Privacy	0.681				
				Access	0.672		
		Schools	0.660				
Appearance	0.658						
						Shops	0.625
				Shops	0.616		
						House/Qual	0.611
		Appearance	0.607				
						House/Type	0.570
				Comm/Fac	0.563		
House/Age	0.528						
		Friend/Res	0.522				
		House/Type	0.500				
Access	0.486						
		Comm/Fac	0.478				
Shops	0.472						
				House/Type	0.471		
		Shops	0.464				
House/Type	0.458						
		Access	0.453				
						Age/Res	0.438
						Comm/Fac	0.435
				Area/Child	0.420		
Comm/Fac	0.417						
						House/Age	0.403
		House/Age	0.383				
				House/Age	0.375		
				Schools	0.333		
				Age/Res	0.317		
Friend/Res	0.313						
						Area/Child	0.242
		Age/Res	0.216				
Age/Res	0.125						
						Schools	0.083

Table 8.3 Woodgate sample: Attribute Preference Structure by Age Group

AGE 20-34 n = 15		AGE 35-49 n = 13		AGE 50-64 n = 15		AGE Over 65 n = 6	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
						Privacy	0.858
Area/Child	0.831						
				Privacy	0.747		
Schools	0.736						
				Friend/Res	0.726		
		Privacy	0.715				
		Appearance	0.715				
				Access	0.708		
				Shops	0.696		
		House/Qual	0.694				
						Access	0.692
						Shops	0.692
						Friend/Res	0.675
				House/Qual	0.638		
		Area/Child	0.625			House/Qual	0.625
		Shops	0.625				
		Friend/Res	0.618				
Access	0.614						
				Appearance	0.601		
						Comm/Fac	0.583
Shops	0.581						
House/Qual	0.569	Schools	0.569				
						Appearance	0.558
Appearance	0.554			CommFac	0.554		
		House/Age	0.533				
						Age/Res	0.514
		Access	0.497				
Friend/Res	0.478						
						House/Type	0.459
Privacy	0.446						
House/Type	0.420						
Comm/Fac	0.410						
				House/Age	0.381		
				Area/Child	0.352		
		Comm/Fac	0.350				
				House/Type	0.347		
House/Age	0.322						
						House/Age	0.313
		House/Type	0.281				
Age/Res	0.261			Schools	0.261		
		Age/Res	0.250				
				Age/Res	0.174		
						Area/Child	0.167
						Schools	0.167

Table 8.4 Oadby Sample: Attribute Preference Structure by Age Group

AGE 20-34 n = 16		AGE 35-49 n = 31		AGE 50-64 n = 5		AGE Over 65	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
				House/Qual	0.875		
				House/Age	0.808		
				Privacy	0.758		
		Area/Child	0.723				
Area/Child	0.703						
		House/Qual	0.692				
Schools	0.682						
		Schools	0.680				
House/Qual	0.675						
		Appearance	0.671			n too small	
				Appearance	0.642	to be	
Comm/Fac	0.630						
		Privacy	0.611			reliable -	
Shops	0.583						
				Shops	0.575	Over 65 age	
				Friend/Res	0.575	group added	
Appearance	0.563						
Privacy	0.557					to 50-64	
		Shops	0.553			age group	
				Access	0.542		
		Comm/Fac	0.504				
		Friend/Res	0.473				
		Access	0.470				
Friend/Res	0.469						
House/Type	0.458						
				Comm/Fac	0.425		
		House/Type	0.358				
				House/Type	0.354		
Access	0.321						
				Age/Res	0.308		
		House/Age	0.304				
House/Age	0.274						
Age/Res	0.208						
		Age/Res	0.194				
				Area/Child	0.153		
				Schools	0.097		

for all age groups and the importance of accessibility again rises with increasing age of the respondents, this time without the slight decline in the 35 - 49 group found in the other two samples. The quality of the schools and the area's suitability for children are in 11th and 12th positions for the 50 - 64 age group, who are the only people to regard the age of the housing as significant (placing it 2nd).

Tables 8.2 to 8.4 may be redrawn to compare age groups between rather than within areas, thus highlighting the considerable similarity in the preference rankings elicited from individuals of similar age, irrespective of present residential location. The four different age groups are thus represented in Tables 8.5 to 8.8.

Having pointed to a probable relationship between age and involvement with a family of children, it is a simple matter to stratify the three samples again according to whether or not the respondents did actually have children still living at home, in the expectation that the preference rankings of those who did would have more in common with those of the youngest age groups and reflect the perceived importance of good schools and the suitability of an area for bringing up children.

Tables 8.9 and 8.10 therefore illustrate the differences in preference rankings of those respondents who had children still living at home (Table 8.9) and those who did not (Table 8.10). In Table 8.9, the concern for the schools and the area's suitability for children is very clear, although the Humberstone mothers still rate the quality of the housing and the privacy/peace and quiet dimension above the quality of

Table 8.5 Attribute Preference Structure for Age Group 20-34

HUMBERSTONE n = 6		WOODGATE n = 15		OADBY n = 15	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
		Area/Child	0.831		
Privacy	0.792				
Schools	0.742				
House/Qual	0.736	Schools	0.736		
				Area/Child	0.703
Area/Child	0.692				
				Schools	0.682
				House/Qual	0.675
Appearance	0.658				
				Comm/Fac	0.630
		Access	0.614		
				Shops	0.583
		Shops	0.581		
		House/Qual	0.569		
				Appearance	0.563
				Privacy	0.557
		Appearance	0.554		
House/Age	0.528				
Access	0.486				
		Friend/Res	0.478		
Shops	0.472				
				Friend/Res	0.469
House/Type	0.458			House/Type	0.458
		Privacy	0.446		
		House/Type	0.420		
Comm/Fac	0.417				
		Comm/Fac	0.410		
		House/Age	0.322		
				Access	0.321
Friend/Res	0.313				
				House/Age	0.274
		Age/Res	0.261		
				Age/Res	0.208
Age/Res	0.125				

Table 8.6 Attribute Preference Structure for Age Group 35-49

HUMBERSTONE n = 15		WOODGATE n = 13		OADBY n = 31	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.814				
				Area/Child	0.723
		Privacy	0.715		
		Appearance	0.715		
		House/Qual	0.694		
				Privacy	0.692
Area/Child	0.688				
Privacy	0.681				
				Schools	0.680
				Appearance	0.671
Shops	0.660				
		Area/Child	0.625		
		Shops	0.625		
		Friend/Res	0.618		
				Privacy	0.611
Appearance	0.607				
		Schools	0.659		
				Shops	0.553
		Age/House	0.533		
Friend/Res	0.522				
				Comm/Fac	0.504
House/Type	0.500				
		Access	0.497		
Comm/Fac	0.478				
				Friend/Res	0.473
				Access	0.470
Shops	0.464				
Access	0.453				
Age/House	0.383				
				House/Type	0.358
		Comm/Fac	0.350		
				Age /House	0.304
		House/Type	0.281		
		Age/Res	0.250		
Age/Res	0.216				
				Age/Res	0.194

Table 8.7 Attribute Preference Structure for Age Group 50-64

HUMBERSTONE n = 23		WOODGATE n = 15		OADBY n = 6 (includes one person aged Over 65)	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
				House/Qual	0.875
				Age/House	0.808
Friend/Res	0.796				
				Privacy	0.758
		Privacy	0.747		
House/Qual	0.735				
Privacy	0.731				
		Friend/Res	0.726		
		Access	0.708		
		Shops	0.696		
Appearance	0.682				
Access	0.672				
				Appearance	0.642
		House/Qual	0.638		
Shops	0.616				
		Appearance	0.601		
				Friend/Res	0.575
				Shops	0.575
Comm/Fac	0.563				
		Comm/Fac	0.554		
				Access	0.542
House/Type	0.471				
				Comm/Fac	0.425
Area/Child	0.420				
		Age/House	0.381		
Age/House	0.375				
				House/Type	0.354
		Area/Child	0.352		
		House/Type	0.347		
Schools	0.333				
Age/Res	0.317				
				Age/Res	0.308
		Schools	0.261		
		Age/Res	0.174		
				Area/Child	0.153
				Schools	0.097

Table 8.8 Attribute Preference Structure for Age Group Over 65

HUMBERSTONE n = 8		WOODGATE n = 6	
Attribute	Mp scale value	Attribute	Mp scale value
		Privacy	0.858
Privacy	0.792		
Access	0.781		
Appearance	0.708		
		Access	0.692
		Shops	0.692
Friend/Res	0.685		
		Friend/Res	0.675
Shops	0.625	House/Qual	0.625
House/Qual	0.611		
		Comm/Fac	0.583
House/Type	0.570		
		Appearance	0.558
		Age/Res	0.514
		House/Type	0.459
Age/Res	0.438		
Comm/Fac	0.435		
House/Age	0.403		
		House/Age	0.313
Area/Child	0.242		
		Area/Child	0.167
		Schools	0.167
Schools	0.083		

Table 8.9 Attribute Preference Structure for Respondents with Children still living at Home

HUMBERSTONE n = 23		WOODGATE n = 27		OADBY n = 45	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.781				
Privacy	0.697				
				Area/Child	0.693
		Area/Child	0.692		
				Schools	0.680
				House/Qual	0.673
Schools	0.669				
Area/Child	0.657				
		Schools	0.639	Appearance	0.639
		House/Qual	0.618		
		Appearance	0.615		
		Shops	0.594		
		Friend/Res	0.594		
		Privacy	0.587		
Appearance	0.583				
				Privacy	0.582
				Shops	0.563
		Access	0.554		
				Comm/Fac	0.551
				Friend/Res	0.505
Friend/Res	0.495				
Access	0.483				
Shops	0.481				
Comm/Fac	0.463				
		Comm/Fac	0.458		
House/Type	0.443				
House/Age	0.441				
				Access	0.430
		House/Type	0.379		
		House/Age	0.355		
				House/Type	0.354
				House/Age	0.294
		Age/Res	0.252		
Age/Res	0.219				
				Age/Res	0.208

Table 8.10 Attribute Preference Structure for Respondents without children still living at home

HUMBERSTONE n = 29		WOODGATE n = 21		OADBY n = 8	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
				House/Qual	0.865
		Privacy	0.763		
Privacy	0.760				
Friend/Res	0.750				
House/Qual	0.708	Access	0.708		
Appearance	0.705				
		Shops	0.695		
Access	0.682				
				Privacy	0.677
				House/Type	0.661
		House/Qual	0.648		
		Friend/Res	0.634		
		Appearance	0.629		
				House/Age	0.625
				Appearance	0.604
Shops	0.556				
Comm/Fac	0.530				
				Comm/Fac	0.479
				Shops	0.479
		Area/Child	0.458		
		Comm/Fac	0.453		
		House/Age	0.453		
				Area/Child	0.442
				Friend/Res	0.438
				Access	0.435
House/Type	0.416				
		House/Type	0.386		
House/Age	0.371				
				Age/Res	0.323
Age/Res	0.321				
		Schools	0.319		
Area/Child	0.308				
				Schools	0.242
Schools	0.232				
		Age/Res	0.219		

the environment for their children. The Woodgate and Oadby mothers share an identical ranking of their first four attributes, although those in Woodgate place the quality of the local shops and the friendliness of the residents as more important than the privacy/peace and quiet, in the lower positions.

When the rankings of those women without children are considered, however (Table 8.10), the three sample areas do not display the same amount of similarity. The quality of the schools ceases to be of importance to any group, but the Oadby and Woodgate women retain a slight interest in the suitability of the area for children. The age and type of the housing becomes more important for the Oadby childless sample (4th and 3rd respectively) than in any other group, and accessibility becomes far more important (now 2nd) for those in Woodgate. The interest shown in the age of the housing by the Oadby childless sample reflects a similar interest shown by the Oadby 50 - 64 age group mentioned earlier, who place age of housing second in importance. Not surprisingly, these are virtually the same people, and we must assume that their preference rankings, like those of all the other groups, reflect a combination of variables, of which age, and the possession of children are but two.

The relative importance of the accessibility dimension can also be examined by separating the car owners from the non car owners in each sample. It would be logical to expect that for those women possessing a car in the family, accessibility is of less concern than it is for those who need to rely on public transport.

Tables 8.11 and 8.12 therefore present the preference rankings for these two groups. Only two women in the Oadby sample did not have a car in their family, and rankings were therefore not sufficiently valid to be included.

It emerges that although accessibility is of greater concern to the non car owners, it is actually the friendliness of the residents in an area which becomes their primary interest. The quality of the local shops also features amongst the most important attributes, although Humberstone residents again place privacy/peace and quiet above either of these.

The preference rankings of the car owners in Oadby and Humberstone closely resemble those for each area illustrated in Table 8.1, since the proportion of car owners in each area is so high (92.7% and 86.8% respectively). The Woodgate car owners (49%) do rank accessibility lower (in 7th place) than the sample as a whole (3rd in Table 8.1) and friendliness of the residents in 8th place (4th in Table 8.1). Accessibility is thus 3rd for the non car owners in Humberstone but 5th for those with cars; in Woodgate it is 2nd and 7th respectively and in Oadby, it is 9th.

Consideration of social class as a possible differentiating variable was rather more problematical. The age at which each respondent completed her full-time education was a useful surrogate, although it too was correlated to a certain extent with the respondent's age. Social class was an obvious choice, but one of the several reasons why women had originally been chosen as the sample population, the fact that they were probably more easily contacted at home during the

Table 8.11 Attribute Preference Structure for those Respondents not having access to a car

HUMBERSTONE n = 7		WOODGATE n = 23	
Attribute	Mp scale value	Attribute	Mp scale value
Friend/Res	0.780		
Privacy	0.756		
Access	0.694		
Shops	0.694		
		Friend/Res	0.676
		Access	0.660
Appearance	0.658		
House/Qual	0.625		
House/Age	0.625		
		Area/Child	0.620
		House/Qual	0.614
		Shops	0.608
House/Type	0.592		
Comm/Fac	0.583		
		Appearance	0.567
		Privacy	0.556
		Schools	0.500
		Comm/Fac	0.490
		House/Type	0.458
		House/Age	0.431
Area/Child	0.354		
		Age/Res	0.239
Age/Res	0.167		
Schools	0.042		

Table 8.12 Attribute Preference Structure for those Respondents having access to a car

HUMBERSTONE n = 46		WOODGATE n = 24		OADBY n = 52	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.746	Privacy	0.726	House/Qual	0.695
Privacy	0.714	Shops	0.672	Area/Child	0.675
		Appearance	0.661		
		House/Qual	0.654		
Appearance	0.645			Appearance	0.643
Friend/Res	0.630			Schools	0.629
		Area/Child	0.588	Privacy	0.587
		Schools	0.586		
		Access	0.574		
Access	0.569			Shops	0.558
		Friend/Res	0.554		
Area/Child	0.539			Comm/Fac	0.539
Shops	0.532			Friend/Res	0.512
Schools	0.500				
Comm/Fac	0.492				
House/Type	0.483				
		Comm/Fac	0.444	Access	0.421
				House/Type	0.415
		House/Type	0.365		
House/Age	0.363				
		House/Age	0.355	House/Age	0.335
Age/Res	0.281				
		Age/Res	0.264	Age/Res	0.232

day, meant that many of them were obliged to describe themselves as 'housewives'. It would have been most unsatisfactory (as well as inaccurate) to have classified these women as Social Class E, or as unemployed, but equally, one could not classify one part of the sample according to their husbands' occupations and the other part according to the occupations which they themselves followed. Regretfully, therefore, social class was assessed according to the head of the household, a procedure which has recently been criticised by at least one female researcher, but which remains common in social survey methodology (Tivers, 1978).

In Humberstone and Oadby this tended to result in a very slight upgrading, many of the women engaged in full or part time clerical or manual work being married to men whose occupations led to their being classified as social classes A or B (professional and managerial positions). In Woodgate the trend was in the opposite direction, as 60% of the women went out to work, many of these as full or part-time secretaries and clerical assistants(social class C 1), whereas their husbands were in skilled or unskilled manual occupations (social classes C 2 and D).

Tables 8.13 to 8.15 illustrate the preference rankings for the samples based on the age at which the respondent completed her full time education. Owing to the different social composition of the sample areas, however, the number of respondents in some sub-groups is so low that categories have been combined. Thus, in the case of Oadby and of Humberstone, those people who left school between the ages of 17 - 18, 19 - 21 and Over 21 have been grouped.

Table 8.13 Attribute Preference Structure of those Respondents completing full-time Education aged 14 or under

HUMBERSTONE n = 18		WOODGATE n = 24		OADBY n = 4	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
				Friend/Res	0.792
		Privacy	0.774		
				Appearance	0.750
Friend/Res	0.734				
House/Qual	0.703				
Privacy	0.699				
		Friend/Res	0.679		
		Shops	0.668		
		Access	0.665		
				House/Qual	0.646
		House/Qual	0.640		
Appearance	0.619				
				Shops	0.604
Shops	0.599				
				Area/Child	0.597
		Appearance	0.582		
Access	0.575				
Comm/Fac	0.563			Comm/Fac	0.563
				Access	0.563
Schools	0.517				
Area/Child	0.514				
		Comm/Fac	0.500	Privacy	0.500
House/Type	0.495				
House/Age	0.452				
		Area/Child	0.409		
				Schools	0.375
		House/Age	0.362		
		House/Type	0.354		
Age/Res	0.350				
		Schools	0.318		
				House/Age	0.313
				Age/Res	0.271
		Age/Res	0.245		
				House/Type	0.229

Table 8.14 Attribute Preference Structure of those Respondents completing full-time Education aged 15 - 16

HUMBERSTONE n = 18		WOODGATE n = 21		OADBY n = 33	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
Privacy	0.787				
		Area/Child	0.773		
		Schools	0.718		
				House/Qual	0.698
				Area/Child	0.695
House/Qual	0.693				
				Schools	0.690
Appearance	0.660				
				Privacy	0.655
Access	0.650				
		Appearance	0.633		
		House/Qual	0.625		
		Shops	0.613		
				Appearance	0.612
				Shops	0.590
Friend/Res	0.574				
		Access	0.573		
		Privacy	0.544		
Shops	0.517				
		Friend/Res	0.511		
				Comm/Fac	0.506
House/Type	0.503				
Area/Child	0.494				
Schools	0.486				
				Friend/Res	0.484
House/Age	0.453				
		Comm/Fac	0.449		
Comm/Fac	0.446				
				Access	0.437
				House/Type	0.422
		House/Age	0.404		
		House/Type	0.381		
				House/Age	0.320
		Age/Res	0.256		
Age/Res	0.254				
				Age/Res	0.189

Table 8.15 Attribute Preference Structure of those Respondents completing full-time Education aged 17 and over

HUMBERSTONE n = 16		OADBY n = 16	
Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.842		
		House/Qual	0.833
Privacy	0.708		
		Appearance	0.646
Appearance	0.658		
		Area/Child	0.625
		Comm/Fac	0.604
Area/Child	0.569		
		Schools	0.575
Friend/Res	0.567		
		Privacy	0.563
Access	0.542		
Shops	0.529		
Comm/Fac	0.494		
House/Type	0.490		
Schools	0.473		
		Shops	0.447
		Friend/Res	0.436
		House/Type	0.423
		House/Age	0.423
		Access	0.311
		Age/Res	0.298
House/Age	0.292		
Age/Res	0.223		

None of these categories is of relevance to the Woodgate sample, as only three women from this area were more than 16 years old when they completed their full time education. Although rankings have been calculated for the Oadby women who were 14 or under when they left school, the absolute number of these, four, is extremely low.

That the people represented in Table 8.13 are the older members of the three samples is evidenced by the lack of attention paid to the quality of the schools and, in the case of Humberstone and Woodgate, to the suitability of an area for children. The friendliness of the residents is of primary concern for the Humberstone and Oadby samples, the predilection of the Woodgate women for privacy/peace and quiet edging the friendliness attribute into second place. Their constant lack of concern for general appearance causes it to rank 6th as opposed to 2nd or 4th in Oadby and Humberstone respectively. But these are not the same Oadby women who considered the age of the housing in an area to be important, and here the supposition of increased age does not seem to be borne out.

The Woodgate and Oadby samples as shown in Table 8.14 are clearly the younger women, and those with children, not only evidenced by the importance of the schools and the quality of the area for children, but also by such features as the characteristic decline in the perceived importance of privacy and the friendliness of the residents in the Woodgate group (compare with Table 8.3, age group 20 - 34 and with Table 8.9 for the Woodgate sample). These two attributes were first and second in importance to the Woodgate sample in Table 8.13.

In Humberstone, the presence of the younger mothers is less clear, since although 43% of the sample were mothers, it was a generally older group of women, and very few of them had really young children (only two of them had children under 5, and only nine had children in the 5 - 10 age range). The increased concern for schools therefore, is only likely to emerge when this particular group of young mothers is isolated, as in Tables 8.2, 8.5 or 8.9, and even then, as already revealed, the quality of the housing and the privacy/peace and quiet dimensions are as, if not more, important.

Tables 8.16 to 8.19 demonstrate that the social class of the head of the household is not, in itself, particularly satisfactory in distinguishing between preference rankings. Only one respondent in Humberstone, and none of those in Oadby, was classified in social classes D or E and only five women from Woodgate as social classes A, B or C 1. [1] The only group across which all three samples may be considered is, therefore, the skilled manual workers, C 2, shown in Table 8.18. Whilst such a distribution of social classes confirms the choice of the three areas as discussed in Chapter 5, it is for that precise reason that we cannot expect similar rankings from persons of similar class in different sample areas.

It will be remembered that Factor 1 of the Principal Components Analysis of census data which formed the basis of the selection of the sample areas was termed 'socio-economic status' and was composed of various measures, including

1 For social class categories used, see Appendix F.

Table 8.16 Attribute Preference Structure: Social Class A and Social Class B

HUMBERSTONE n = 16		OADBY n = 19	
Attribute	Mp scale value	Attribute	Mp scale value
		Schools	0.748
Privacy	0.734		
		House/Qual	0.742
House/Qual	0.719		
Appearance	0.691	Area/Child	0.691
Schools	0.643		
		Shops	0.629
Area/Child	0.625		
		Appearance	0.616
		Comm/Fac	0.542
Friend/Res	0.529		
Access	0.495		
Shops	0.492		
House/Type	0,478		
		Privacy	0.477
		Friend/Res	0.476
		Access	0.444
Comm/Fac	0.414		
House/Age	0.410		
		House/Age	0.287
		House/Type	0.281
Age/Res	0.231		
		Age/Res	0.229

Table 8.17 Attribute Preference Structure: Social Class C1

HUMBERSTONE n = 16		OADBY n = 18	
Attribute	Mp scale value	Attribute	Mp scale value
		House/Qual	0.771
House/Qual	0.756		
Privacy	0.693		
Friend/Res	0.664		
		Appearance	0.650
Access	0.625	Privacy	0.625
		Area/Child	0.620
		Comm/Fac	0.583
Appearance	0.577		
		Schools	0.568
Shops	0.560		
House/Type	0.558		
		House/Type	0.521
Area/Child	0.517		
Comm/Fac	0.516		
		Shops	0.500
		Friend/Res	0.498
		House/Age	0.458
Schools	0.375		
		Access	0.370
Age/Res	0.354		
House/Age	0.327		
		Age/Res	0.279

Table 8.18 Attribute Preference Structure: Social Class C2

HUMBERSTONE n = 9		WOODGATE n = 17		OADBY n = 12	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.870				
				Area/Child	0.739
Privacy	0.736				
Friend/Res	0.719				
				Privacy	0.701
		Privacy	0.656		
		Appearance	0.651		
		Shops	0.635		
				Appearance	0.618
		Access	0.610		
		Area/Child	0.609		
				House/Qual	0.597
				Schools	0.587
		House/Qual	0.583		
		Friend/Res	0.581		
Appearance	0.579				
		Schools	0.563		
Access	0.554				
Shops	0.542				
				House/Type	0.535
Comm/Fac	0.518				
House/Age	0.510				
				Friend/Res	0.507
				Shops	0.493
Schools	0.470				
Area/Child	0.458			Comm/Fac	0.458
House/Type	0.444				
				Access	0.436
		Comm/Fac	0.417		
		House/Age	0.347		
		House/Type	0.316		
				House/Age	0.278
		Age/Res	0.264		
				Age/Res	0.186
Age/Res	0.153				

Table 8.19 Attribute Preference Structure: Social Class D and Social Class E

WOODGATE n = 15	
Attribute	Mp scale value
House/Qual	0.714
Friend/Res	0.625
Appearance	0.625
Area/Child	0.587
House/Age	0.583
Privacy	0.581
Shops	0.581
Access	0.564
House/Type	0.486
Schools	0.475
Comm/Fac	0.403
Age/Res	0.242

occupation and car ownership. The three areas eventually chosen as the samples fell towards the extremes of the socio-economic status spectrum, and since they are differentiated so markedly in terms of class, and class is correlated with so many other variable, the pattern is bound to be complex.

Earlier in this chapter, it was shown in Table 8.1 how the overall preference rankings of the three sample areas were substantially different, although Humberstone and Oadby possessed several features in common. In essence, those three rankings were already stratified according to social class. It may be therefore, that in order to establish whether persons of similar class in different areas of a city rank attributes of a residential area in a similar manner, one should select sample areas of a very mixed character without an overwhelming preponderance of one or two particular social groups.

To summarise so far, it has been shown that the preference rankings for attributes of an alternative residential area differ between the three samples when those samples are taken as wholes. When they are broken down in terms of car ownership, the presence of children in the family, age, and to a lesser extent, the age at which the respondent completed her full time education, groups of similar social structure, largely irrespective of their location within the city, share the same concerns, and display considerable similarity in their preferences.

The next step is to examine the preference structures for actual residential areas, to establish whether the same variations occur and,if so, whether they may be attributed

to the same process.

ii) Do preferences for the different residential areas of the city show any distinct variations between different sections of the population ?

Question 15 on the Questionnaire schedule (see Appendix A) asked each person to arrange the ten selected residential areas of the city in order, starting with the one in which she would most like to live, were she able to do so, and finishing with the least preferred area at the bottom of her list. Table 8.20, calculated according to the formula previously employed, summarises the ranked data for each of the three sample areas.

The most noticeable feature is the fact that, far from preferring their own area above all the others, consistent with the 'tennis ball model' suggested by Gould and White (1968), Woodgate residents place their own area halfway down their list in fifth place. The most commonly preferred areas for all three samples are Oadby, Stoneygate and Wigston (Humberstone women place their area at the top of their lists); the least liked areas are Belgrave, Woodgate and Highfields for the Humberstone and Oadby samples, and Belgrave, Braunstone and Highfields for the Woodgate residents.

Breakdown of the data by age, illustrated in Tables 8.21 to 8.23 does little to alter the picture very markedly except in one important respect; the older the age of the Woodgate respondent, the higher Woodgate emerges on her preference rankings, although it never becomes the most preferred area. For the two youngest groups, Woodgate is in 6th position; it

Table 8.20 Total sample: Area Preference Structure

HUMBERSTONE n = 53		WOODGATE n = 49		OADBY n = 55	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
Humberstone	0.899	Oadby	0.770	Oadby	0.938
Oadby	0.799	Stoneygate	0.710	Stoneygate	0.834
Stoneygate	0.764	Wigston	0.709	Wigston	0.744
Wigston	0.587	Humberstone	0.615	Aylestone	0.570
Aylestone	0.526	Woodgate	0.614	Humberstone	0.564
Braunstone	0.393	Aylestone	0.584	Braunstone	0.364
Eyres Monsell	0.327	Eyres Monsell	0.428	Eyres Monsell	0.353
Belgrave	0.313	Belgrave	0.350	Woodgate	0.329
Woodgate	0.218	Braunstone	0.329	Belgrave	0.310
Highfields	0.103	Highfields	0.074	Highfields	0.080

Table 8.21 Humberstone sample: Area Preference Structure by Age Group

AGE 20-34 n = 6		AGE 35-49 n = 14		AGE 50-64 n = 21		AGE Over 65 n = 7	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
Humb'stone	0.917	Humb'stone	0.886	Humb'stone	0.928	Humb'stone	0.950
		Stoneygate	0.843				
Oadby	0.800	Oadby	0.800	Oadby	0.840	Stoneygate	0.833
Stoneygate	0.633			Stoneygate	0.775	Oadby	0.779
		Wigston	0.608				
Wigston	0.583			Wigston	0.604		
						Wigston	0.570
Aylestone	0.567	Aylestone	0.559				
				Aylestone	0.542		
Braunstone	0.467			Braunstone	0.459		
						Aylestone	0.430
						Belgrave	0.410
						Braunstone	0.390
						E. Monsell	0.350
E. Monsell	0.333						
		Braunstone	0.332				
		E. Monsell	0.323				
				E. Monsell	0.314		
				Belgrave	0.314		
		Belgrave	0.305				
Belgrave	0.283						
Woodgate	0.267						
		Woodgate	0.250				
				Woodgate	0.212		
Highfields	0.150					Woodgate	0.150
						Highfields	0.150
		Highfields	0.105				
				Highfields	0.067		

Table 8.22 Woodgate sample: Area Preference Structure by Age Group

AGE 20-34 n = 15		AGE 35-49 n = 12		AGE 50-64 n = 14		AGE Over 65 n = 5	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
						Oadby	0.883
		Wigston	0.790				
Oadby	0.786						
		Oadby	0.759				
Stoneygate	0.735			Oadby	0.735		
		Stoneygate	0.732				
Wigston	0.714						
						Woodgate	0.700
						Belgrave	0.700
				Stoneygate	0.696		
				Woodgate	0.686		
				Wigston	0.668		
		Humb'stone	0.658				
		Aylestone	0.623	Humb'stone	0.623		
						Braunstone	0.617
Aylestone	0.607						
Humb'stone	0.590						
						Stoneygate	0.583
						E. Monsell	0.583
		Woodgate	0.568				
Woodgate	0.559			Aylestone	0.559		
						Humb'stone	0.500
						Wigston	0.500
				E. Monsell	0.450		
E. Monsell	0.427						
Braunstone	0.390						
Belgrave	0.350					Aylestone	0.350
		E. Monsell	0.340				
				Braunstone	0.330		
				Belgrave	0.320		
		Belgrave	0.300				
		Braunstone	0.220				
						Highfields	0.200
		Highfields	0.080				
				Highfields	0.060		
Highfields	0.059						

Table 8.23 Oadby sample: Area Preference Structure by Age Group

AGE 20-34 n = 14		AGE 35-49 n = 30		AGE 50-64 n = 6		AGE Over 65	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
Oadby	0.929	Oadby	0.943	Oadby	0.933	n too small to be reliable - Over 65 age group added to 50-64 age group	
Stoneygate	0.850	Stoneygate	0.821	Stoneygate	0.867		
Wigston	0.765	Wigston	0.761	Humb'stone	0.725		
Humb'stone	0.567	Aylestone	0.577	Aylestone	0.575		
Aylestone	0.558	Humb'stone	0.539	Wigston	0.570		
E. Monsell	0.358	Woodgate	0.388	Braunstone	0.475		
Belgrave	0.333	Braunstone	0.367	E. Monsell	0.317		
Woodgate	0.305	E. Monsell	0.338	Belgrave	0.283		
Braunstone	0.275	Belgrave	0.285	Woodgate	0.217		
Highfields	0.083	Highfields	0.075	Highfields	0.117		

rises to 3rd for the 50 - 64 year old group and to equal 2nd, with Belgrave curiously enough, for the Over 65 group. Belgrave also improves its preference position among the older Humberstone age groups, though the pattern is not repeated in the Oadby sample. The supposition is strong in the case of the Woodgate sample that this is an instance where the older residents are remembering Belgrave when it was one of the more desirable parts of the city and the large, imposing villas were still middle class single family homes. This may well be part of the explanation for the similar increase in preference for Belgrave witnessed in the Humberstone Over 65 age range. Otherwise, the Humberstone age groups are virtually identical in their preference rankings - the 35 - 49 group differs from the 20 - 34 and 50 - 64 only by the reversal of the positions of Oadby and Stoneygate to produce a list (except for Belgrave) identical to that of the oldest group.

The 35 - 49 age group in Woodgate place Wigston at the top of their list, but apart from the reversals of Aylestone and Humberstone, and Belgrave and Braunstone, the three youngest groups produce very similar rankings. The same three Oadby groups are also similar, except for a tendency for Braunstone to improve its position with the increasing age of the respondent. Whether or not its position truly reflects preference or merely its evaluation as better than Eyres Monsell, Belgrave, Woodgate and Highfields it is not possible to judge; either way, an element of preference is involved in the decision behind the ranking.

The suggestion that length of residence in Leicester might,

like the age of the respondent, contribute to an increased preference for Woodgate (and possibly Belgrave) can be examined by reference to Table 8.24, where the preference rankings of those Woodgate respondents who had lived in Leicester all their lives (although this does not necessarily imply advanced age of course) are compared with those who were born outside Leicester. Woodgate is indeed given a higher preference ranking and scale value by those respondents who have lived in the city all their lives, but when the length of time in which respondents had lived at their present addresses is considered, the same relationship does not hold. In the case of Woodgate itself, the situation is complicated by a significant minority of women who, although they had lived in the area since they were born, had changed houses upon the death of a parent, or marriage. This information was given incidentally during the course of several interviews but could not be revealed by the structure of the questionnaire(see Table 8.25)

Since over 50% of the Woodgate sample had lived in their present homes for more than ten years, these are the people contributing to the overall 5th position of Woodgate in Table 8.20, and it seems clear that increased length of residence in the area does not lead to progressively increased preference for it (but see evidence in Chapter 9 concerning the effect of increased age upon the stated desire to move from the area). Oadby and Wigston are consistently preferred over Woodgate itself and, except for the group who have lived in Woodgate for between 6 and 10 years, so too are Stoneygate, Aylestone and Humberstone.

In her study of the relationship between urban form and

Table 8.24 Woodgate sample: Area Preference structure by Length of Residence in Leicester

Residents born in Leicester and living in City all their lives n = 31		Residents born outside Leicester * n = 15	
Area	Mp scale value	Area	Mp scale value
		Oadby	0.771
Oadby	0.769		
Wigston	0.758		
		Stoneygate	0.743
Stoneygate	0.692		
Woodgate	0.655		
Humberstone	0.642	Wigston	0.642
		Aylestone	0.600
Aylestone	0.575		
		Humberstone	0.564
		Woodgate	0.563
		Eyres Monsell	0.443
Eyres Monsell	0.418		
		Belgrave	0.373
Belgrave	0.336		
		Braunstone	0.312
		Highfields	0.089
Highfields	0.065		

* Only 3 Woodgate respondents had lived in Leicester for less than 10 years.

Table 8.25 Woodgate sample: Area Preference Structure by Length of Residence in Present House

1 - 5 YEARS n = 13		6 - 10 YEARS n = 11		OVER 10 YEARS/ ALL LIFE n = 25	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
		Oadby	0.860		
				Oadby	0.787
Stoneygate	0.786				
				Wigston	0.764
		Wigston	0.730		
		Woodgate	0.707		
				Stoneygate	0.687
Wigston	0.683				
Humberstone	0.681				
		Stoneygate	0.670		
Oadby	0.667				
				Aylestone	0.606
				Humberstone	0.603
				Woodgate	0.600
Aylestone	0.583				
Woodgate	0.550	Aylestone	0.550		
		Humberstone	0.550		
		Eyres Monsell	0.438		
Eyres Monsell	0.408				
				Eyres Monsell	0.406
Belgrave	0.405				
				Belgrave	0.343
		Braunstone	0.313		
Braunstone	0.310				
		Belgrave	0.288		
				Braunstone	0.163
				Highfields	0.090
		Highfields	0.075		
Highfields	0.000				

cognitive structure, Georgia Zannaras posits length of residence in an urban place as the most important of all the possible personal variables in discriminating between which features of the urban environment are most frequently used by an individual for mobility purposes. She points out that 'length of residence' has been considered meaningful by workers in the field of urban perception and cognitive distance, although in her own study the variable does not appear to be particularly important. She suggests, and it is difficult to dissent from her view, that simple measures

> '..... such as 'length of residence' or 'urban experience' tell us very little about the nature of an individual's existence in a city - it may be an active or passive existence.'
>
> (Zannaras, 1976 p. 348)

Tables 8.26 to 8.29 again demonstrate that the variables examined earlier in the context of preferable attributes of a residential area are not particularly meaningful in differentiating between the preference structures for actual areas of the three samples. The only significant alteration in the ranked lists appears to be a slight upward movement of Woodgate in the rankings of those Woodgate women without access to a family car (Table 8.29) and those without children still living at home (Table 8.27).

Otherwise, the rankings for each sample very closely approximate to the overall picture presented in Table 8.20. Rankings calculated according to the age at which the respondent completed her full time education remain absolutely constant for Oadby and Humberstone, the only minor

Table 8.26 Area Preference Structure of those Respondents with children still living at home

HUMBERSTONE n = 22		WOODGATE n = 25		OADBY n = 43	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
				Oadby	0.936
Humberstone	0.891				
				Stoneygate	0.838
Oadby	0.807				
Stoneygate	0.780				
		Oadby	0.750		
				Wigston	0.740
		Wigston	0.733		
		Stoneygate	0.715		
		Humberstone	0.626		
Wigston	0.617				
		Aylestone	0.600		
				Aylestone	0.571
				Humberstone	0.553
Aylestone	0.545	Woodgate	0.545		
		Eyres Monsell	0.426		
		Belgrave	0.365		
Braunstone	0.361				
				Eyres Monsell	0.357
				Braunstone	0.353
				Woodgate	0.350
Eyres Monsell	0.340				
Belgrave	0.318				
				Belgrave	0.296
		Braunstone	0.287		
Woodgate	0.266				
Highfields	0.113				
		Highfields	0.092		
				Highfields	0.083

Table 8.27 Area Preference Structure of those Respondents without children living at home

HUMBERSTONE n = 26		WOODGATE n = 20		OADBY n = 8	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
				Oadby	0.950
Humberstone	0.941			Stoneygate	0.825
Oadby	0.819				
		Oadby	0.800		
Stoneygate	0.791			Wigston	0.750
		Wigston	0.712		
		Stoneygate	0.694		
		Woodgate	0.681		
		Humberstone	0.600	Humberstone	0.600
Wigston	0.570				
		Aylestone	0.565		
				Aylestone	0.550
Aylestone	0.525				
Braunstone	0.471				
		Eyres Monsell	0.443		
		Braunstone	0.371		
				Braunstone	0.370
				Belgrave	0.500
Belgrave	0.321				
				Eyres Monsell	0.310
		Belgrave	0.304		
Eyres Monsell	0.300				
				Woodgate	0.250
Woodgate	0.175				
Highfields	0.097				
				Highfields	0.070
		Highfields	0.050		

Table 8.28 Area Preference Structure for those Respondents having access to a car

HUMBERSTONE n = 43		WOODGATE n = 23		OADBY n = 49	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
Humberstone	0.892	Oadby	0.807	Oadby	0.942
Oadby	0.795	Stoneygate	0.755	Stoneygate	0.826
Stoneygate	0.760	Wigston	0.740	Wigston	0.748
Wigston	0.579	Humberstone	0.602	Aylestone	0.560
Aylestone	0.526	Aylestone	0.580	Humberstone	0.559
Braunstone	0.406	Woodgate	0.561	Braunstone	0.359
Eyres Monsell	0.322	Eyres Monsell	0.379	Eyres Monsell	0.350
Belgrave	0.303	Braunstone	0.327	Woodgate	0.337
Woodgate	0.220	Belgrave	0.321	Belgrave	0.305
Highfields	0.097	Highfields	0.074	Highfields	0.081

Table 8.29 Area Preference Structure for those Respondents not having access to a car

HUMBERSTONE n = 7		WOODGATE n = 23	
Area	Mp scale value	Area	Mp scale value
Humberstone	0.950		
Oadby	0.821		
Stoneygate	0.810		
		Oadby	0.730
		Wigston	0.678
		Woodgate	0.666
		Stoneygate	0.661
Wigston	0.650		
		Humberstone	0.629
		Aylestone	0.589
Aylestone	0.525		
		Eyres Monsell	0.471
Belgrave	0.417		
		Braunstone	0.379
		Belgrave	0.332
Eyres Monsell	0.317		
Braunstone	0.250		
Woodgate	0.200		
Highfields	0.150		
		Highfields	0.075

variation occuring in the Woodgate sample, where those women who left school at 14 years or under (N = 23) place Aylestone at the top of their list.

It is now possible to suggest tentative answers to the first two questions posed at the beginning of this chapter. Preferences for different attributes of a residential area do indeed vary across different subgroups of the city's population. Residential location (and/or social class) is not particularly meaningful in differentiating between the groups, but persons of similar age, family structure, educational background and potential mobility are remarkably similar in their preferences for attributes of a residential area, irrespective of their present residential location.

These same variables, however, are not particularly meaningful in differentiating between preferences for areas, although residential location (and/or social class) does seem to be. Persons in one location possess very similar preferences for other areas irrespective of age, education, family structure, potential mobility and so on, but consistently differ in their preferences from people of similar social character living in another area.

With this pattern beginning to emerge, it was important to discover whether the preference patterns for areas were unique to the three sample areas selected (in which case social class was the more likely determinant) or whether they somehow reflected broader trends of preference and dislike over the whole city (in which case residential location was the more probable explanation). Had the three samples been areas of very mixed social characteristics, or physically contiguous,

the additional variable of either class or location would have been held constant, but since this was not the case, an alternative exercise was necessary to clarify the position.

The relative importance of an individual's location in physical space on preference structures for residential areas in Leicester: an application of Trend Surface Analysis

The methodology employed in this part of the analysis has been outlined in Chapter 5 in the section discussing the supplementary questionnaire schedule which was employed to obtain the necessary data. 658 people living in 66 different areas of the city were interviewed and answered a very short questionnaire in which they selected the five areas which they most preferred and in which they would most like to live, and the five areas which they liked least, from an initial list of twenty. (See Fig. 5.7 for location of areas).

As previously suggested in Chapter 2, it was felt that Trend Surface Analysis was ideally suited to the challenge of modelling the form of the preference surface over an urban area. Although its use has been advocated by Gould (1966), it is rather more familiar to geologists and geomorphologists. Its use with data from Human Geography is rare, despite some early pleas and experiments (Chorley and Haggett,1965; Robinson and Fairbairn, 1967, 1969; Haggett and Bassett, 1970). This may in part be due to the less than satisfactory nature of some of these exploratory studies, although new techniques have all too often been branded by association with a poorly conceived project and their full potential remained unrealised. The approach recently adopted by Wrigley (1977) which is known as probability

surface mapping, may herald further development in the field.

The familiar vocabulary of 'mental maps' and preference structures are echoed by this definition of Trend Surface Analysis:

> 'The basic model used attempts to decompose each observation on a spatially distributed variable into a component associated with any regional trends present in the data and a component associated with purely local effects. This separation into two components is accomplished by fitting a best fit surface of a previously specified type using standard regression techniques. The values predicted by this trend surface are assigned to the regional effects whereas the local departures of the observed data from it, or residuals, are assigned to the local effects.'
>
> (Unwin, 1975b;p. 3)

Gould and White's model of a surface, which they chose to model by using Principal Components Analysis,

$S = G + L$ where S = Surface as perceived at a particular location
G = General (national) surface
and L = Local dome

(Gould and White, 1968)

is therefore the same as that given by Unwin:

Observed value of surface = Trend component at that point + Residual at that point

(Unwin, 1975b;p.5)

The major problem with using Trend Surface Analysis in Human Geography results from the type of data with which the subject is frequently obliged to work. Trend Surface Analysis is a method of analysing a spatial series in which the variable

under consideration is areally continuous and possesses a value at each and every location. (Temperature or geological strata are therefore good examples of suitable data). Point valued data has been subjected to Trend Surface Analysis, but the critical criterion for validity appears to be the establishment of a relationship between the points and the surface hypothesised to connect them. Areal data, such as census returns or crop acreage for example, may be considered unsuitable by some (Unwin, 1975) not only because of problems connected with the different sizes and shapes of areas, and the potential location of points within them, but also because area valued data contravene the underlying mathematical equations of the technique, which assume continuity.

The criterion for the acceptance of the validity of Trend Surface Analysis in the present context lies in the existence of a preference surface over the city of Leicester to which the 'domes' and 'troughs' over areas are related. There is no area for which no individual displays relative preference, neutrality or dislike, and whilst there may be abrupt faults in the surface, such as between Stoneygate and Highfields of the type suggested by Figs. 6.1, 6.2 and 6.3, it is impossible to conceive of a location for which the surface does not exist and where there is, therefore, no theoretical value. Residential areas are not discrete entities in the sense that census units are; one man's Stoneygate is another's Clarendon Park or Knighton. An area to which a particular name is assigned, though possessing a great deal of common agreement, is unique to the individual assigning it, and each area fades, sinks or rises into the one beside or beyond it.

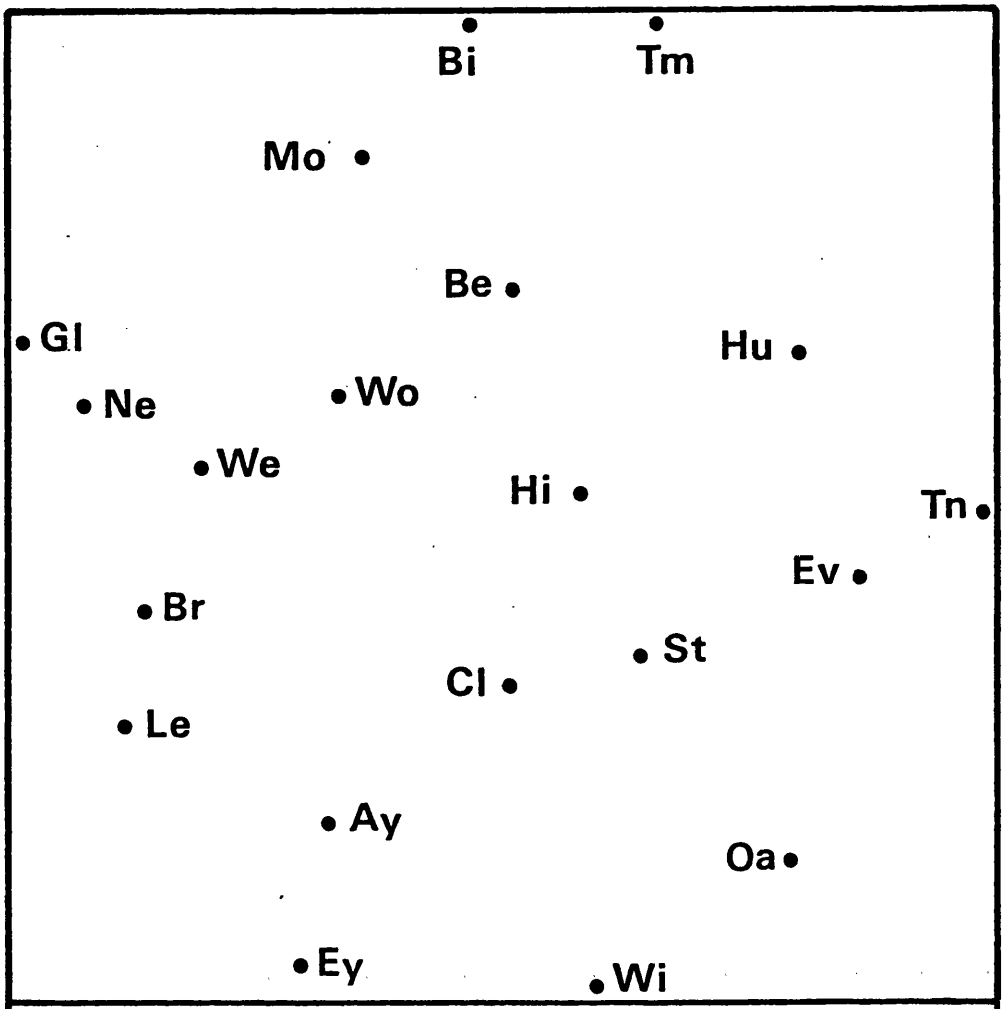
As a first stage in the construction of the preference surface for the city of Leicester, the observed value for each of the twenty areas was obtained by calculating the total number of preferences expressed towards it by all the 658 respondents. The procedure derived from the method of paired comparisons was again used, so that an area placed at the top of an individual's list received a score of 19, and an area placed twelfth received a score of eight and so on.

The computer program employed (O'Leary, Lippert and Spitz, 1966) calculated four Trend Surfaces (linear, quadratic, cubic and quartic) and associated residuals from the complete data set for the twenty areas. The points from which the surfaces were drawn are located in Fig. 8.1 and were selected to be as close to the geographical centre of each area as possible, except where this position coincided with an area of parkland or other unoccupied space, in which case the nearest zone of housing was chosen.

The resulting surfaces (Figs. 8.2 to 8.5) summarise the underlying patterns in the preference data. The linear (first order) surface reveals the basic trend - the direction of preference or dislike across the city, and the successive quadratic, cubic and quartic (second, third and fourth order) surfaces illustrate the preference dimension in greater detail, isolating the most liked from the most disliked areas, and increasingly approximating to the actual and highly complex patterns of preference within the data.

The associated residuals from each surface (Appendix G) indicate whether the observed value for a point is above that predicted by the general trend surface (a positive residual) or

Fig. 8.1 Location of Twenty Data Points used in Trend Surface Analysis



Ay	Aylestone	Le	Leicester Forest East
Be	Belgrave	Mo	Mowmacre Hill
Bi	Birstall	Ne	New Parks
Br	Braunstone	Oa	Oadby
Cl	Clarendon Park	St	Stoneygate
Ev	Evington	Tm	Thurmaston
Ey	Eyres Monsell	Tn	Thurnby
Gl	Glenfield	We	Western Park
Hi	Highfields	Wi	Wigston
Hu	Humberstone	Wo	Woodgate

below it (a negative residual). Positive residuals over an area or group of areas indicate a 'dome' of preference above the general trend surface, and negative residuals suggest a trough or depression. With only twenty discrete points, maps drawn from the residuals are rather scanty, and so attention is focussed here on the general surface maps with additional details taken from the residuals as confirmation. Although a quartic order surface was obtained for the data, some of the detail was extremely complex and, with only twenty data points likely to be rather spurious. The first three orders of surface therefore proved the most valuable in modelling the data and form the basis of the material presented in this section.

Fig. 8.2 presents the linear, quadratic and cubic preference trend surfaces for the whole city of Leicester computed from the total sample of 658 respondents. The linear surface reveals a steeply dipping trend with the highest values in the south east and the lowest in the north west of the city. The quadratic and cubic surfaces indicate the development of a region of disliked areas in the central part of the city, eventually being extended to include the south western corner, surrounded by a sharply increasing ridge of preferred areas.

Figs. 8.3 to 8.5 illustrate the linear, quadratic and cubic order preference surfaces of the city as viewed by respondents from each of the twenty control areas. Most of the 66 socially differentiated areas in which the interviews were conducted (see Chapter 5) were subsumed within one of the twenty control areas; only a mixed inner city area in the west, a high and a medium status area in the south, two small local authority estates in the east and an outlying suburb (60 respondents in all)

TREND SURFACE ANALYSIS

Key to Figs. 8.2 - 8.5

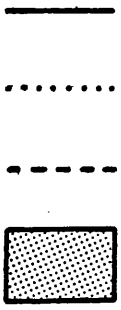
Absolute locations should not be inferred from these maps as they are intended to demonstrate trends rather than precise data values. It is accepted that extreme positive or negative values distort the trends in their direction. Associated residuals appear in Appendix. G.

The reference contour represents a value of 0.

Each positive isopleth represents an increase in the value of +5.

Each negative isopleth represents an increment of -5.

The zones of negative preference have been shaded for ease of comparison.



Reference contour set at zero

Positive isopleths; increments of +5

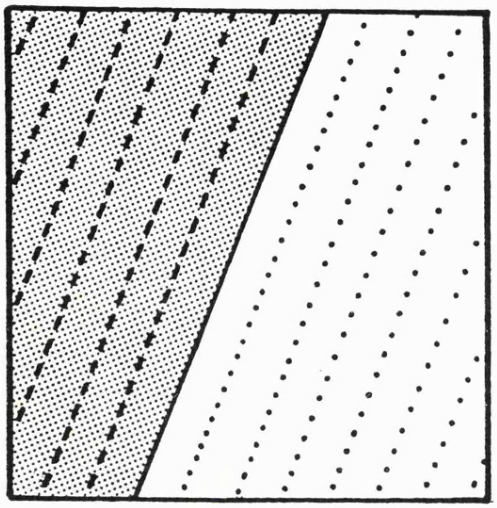
Negative isopleths; increments of -5

Areas of negative preference

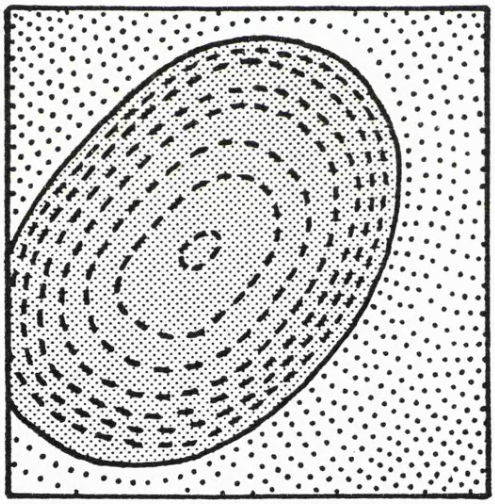
Fig. 8.2

General:

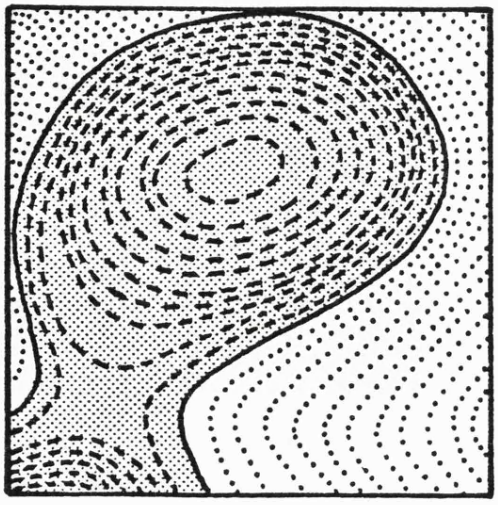
Linear



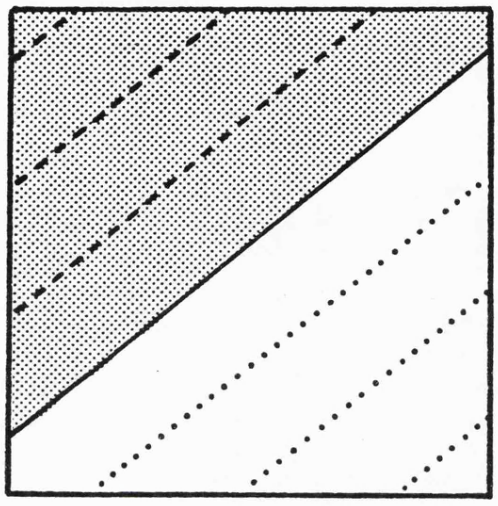
Quadratic



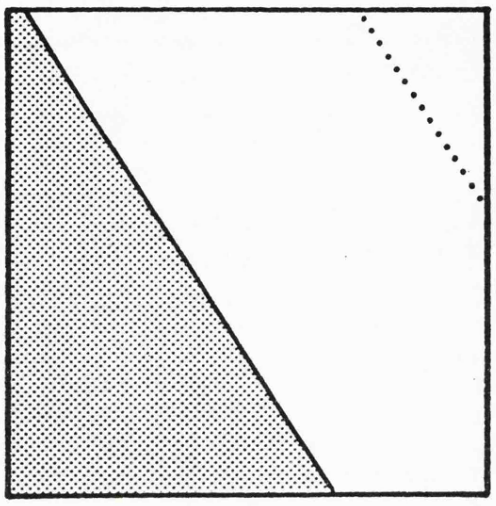
Cubic



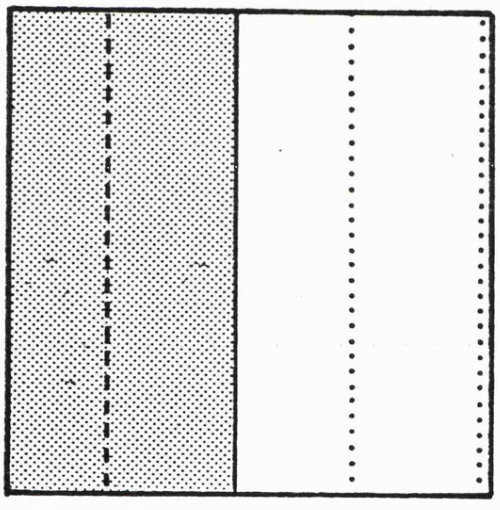
Aylestone



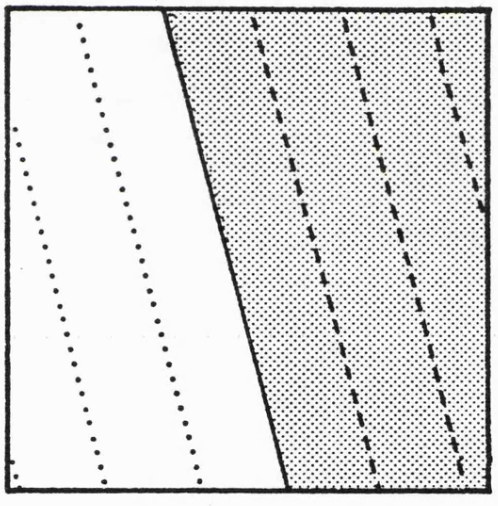
Belgrave



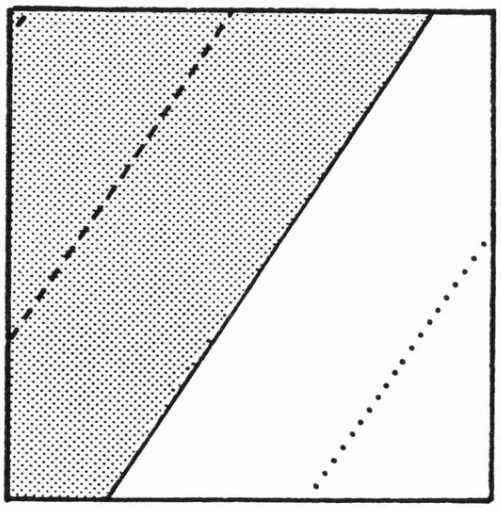
Birstall



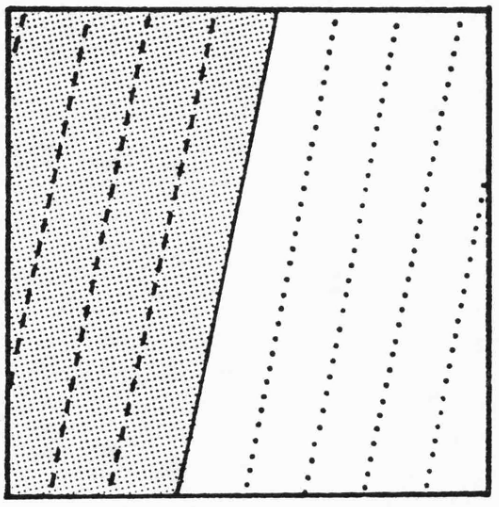
Braunstone



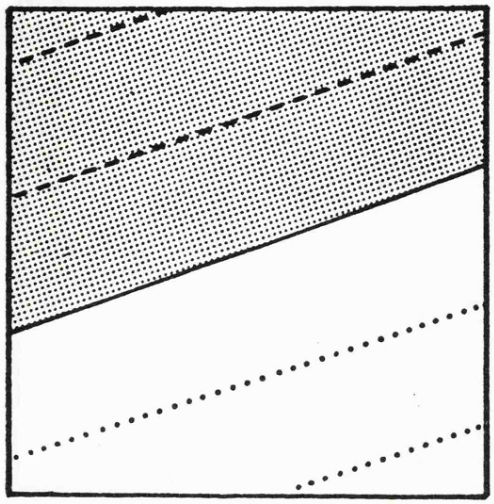
Clarendon Park



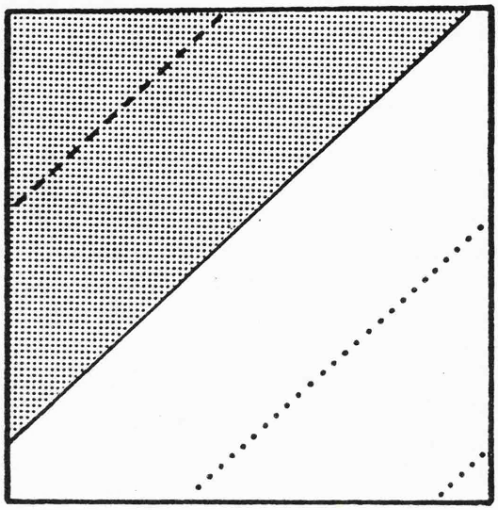
Evington



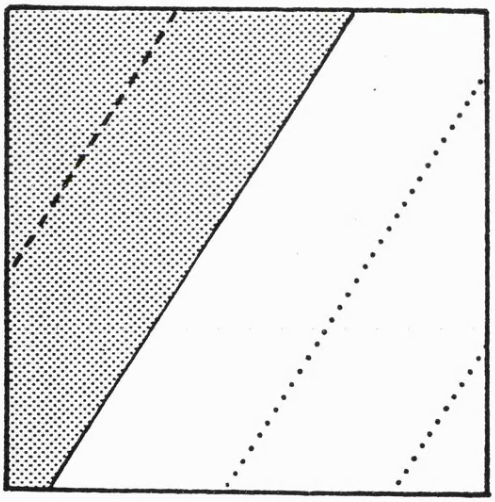
Eyres Monsell



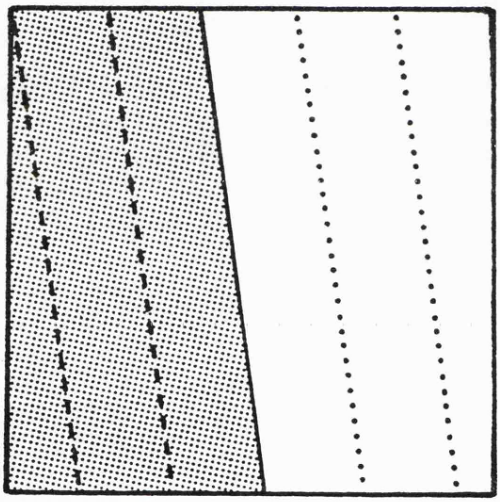
Glenfield



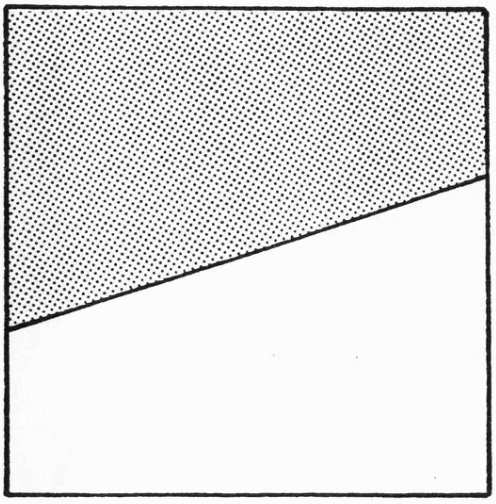
Highfields



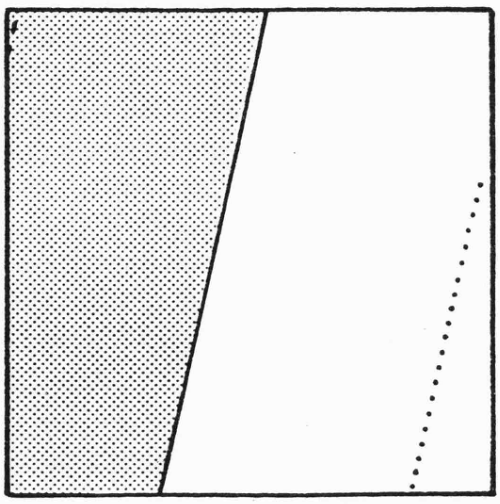
Humberstone



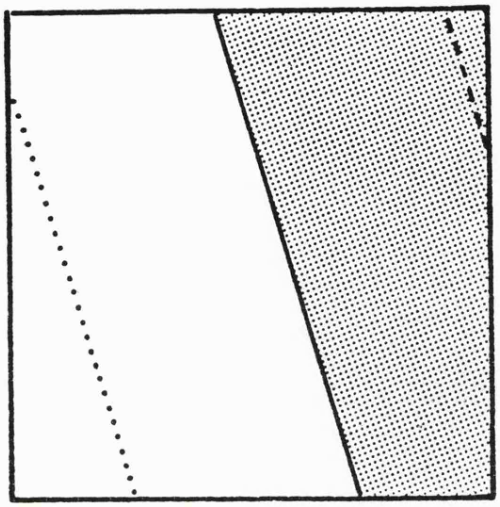
Leicester Forest East



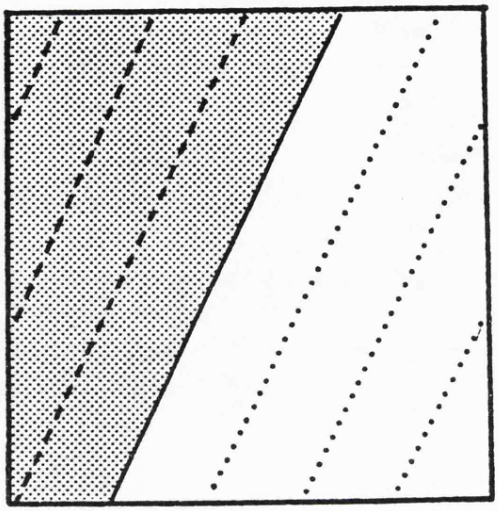
Mowmacre Hill



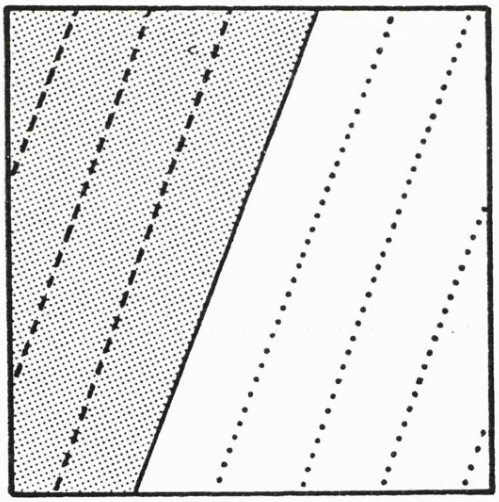
New Parks



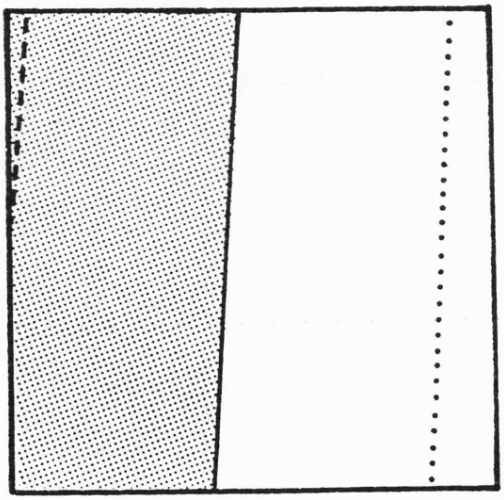
Oadby



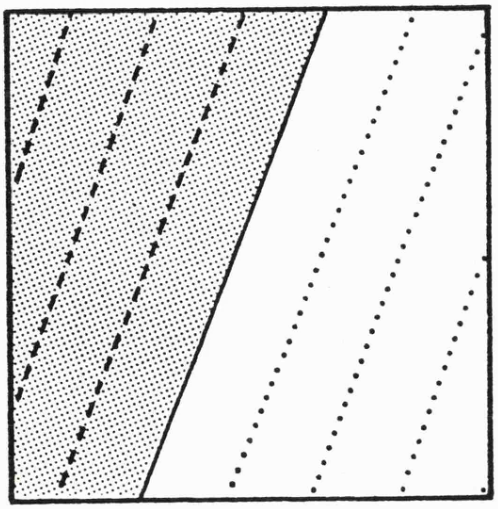
Stoneygate



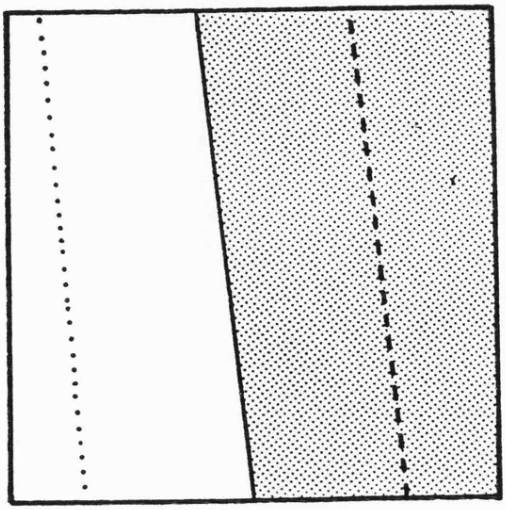
Thurmaston



Thurnby



Western Park



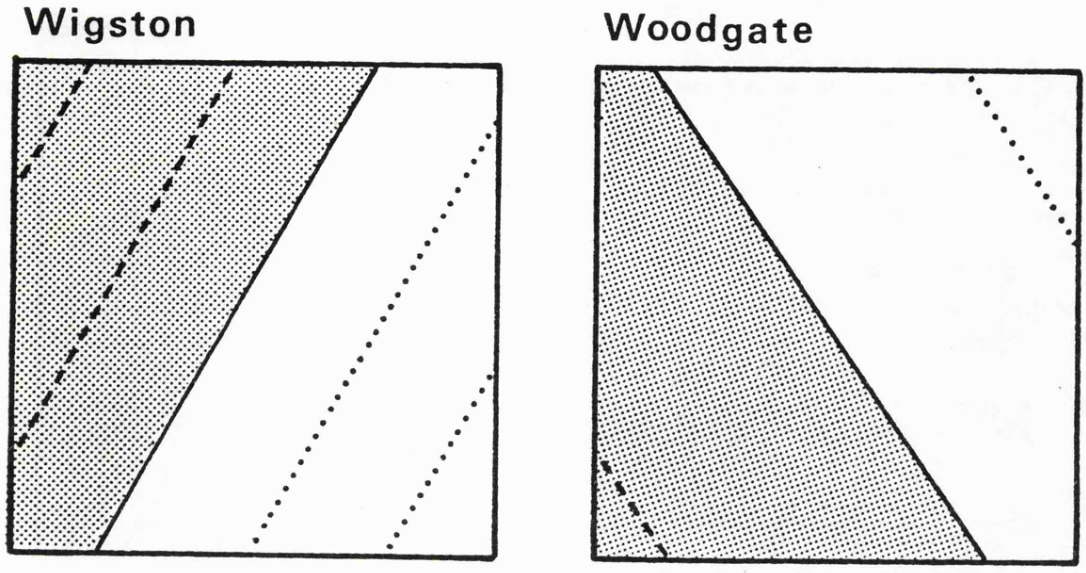
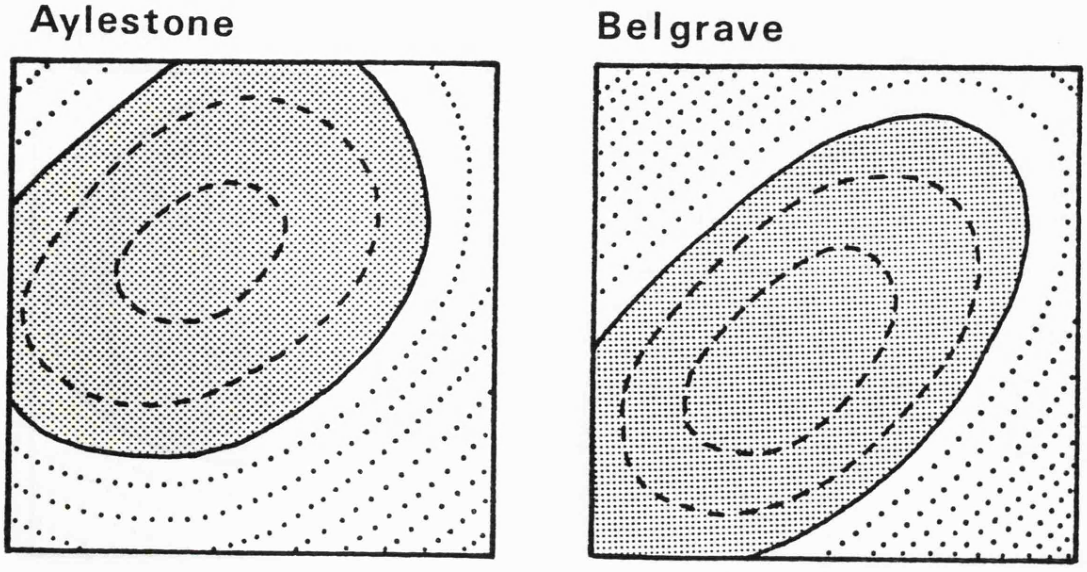
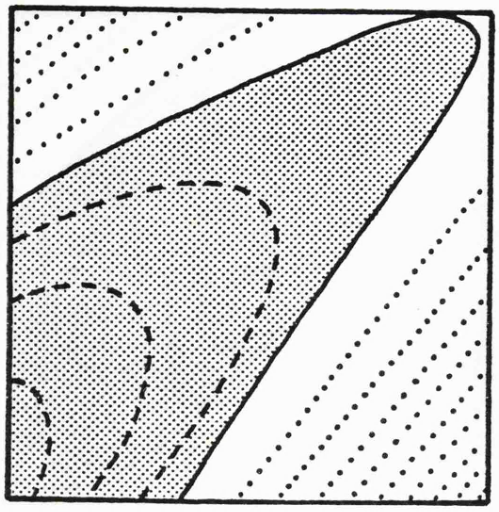


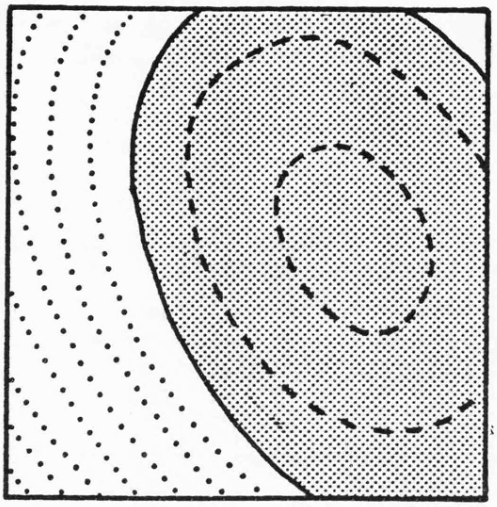
Fig. 8.4 QUADRATIC SURFACES



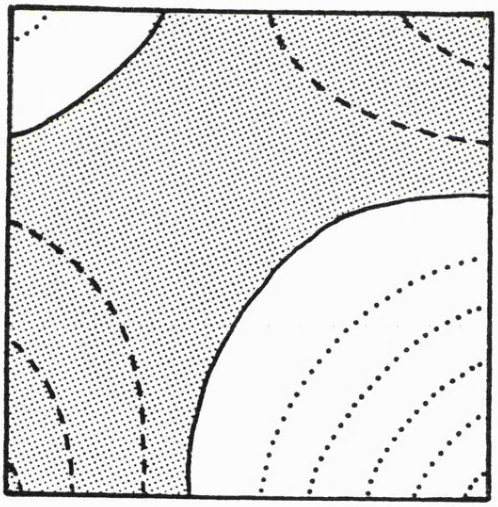
Birstall



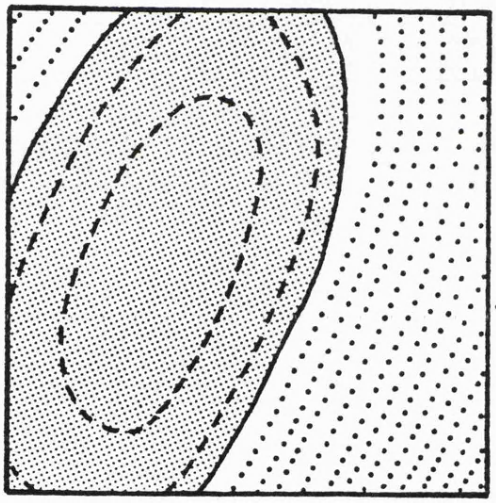
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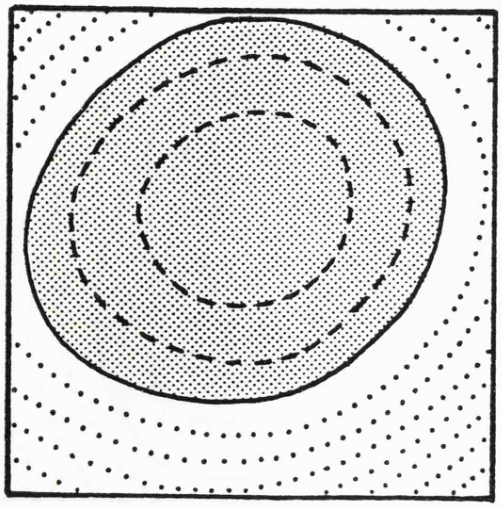
Clarendon Park



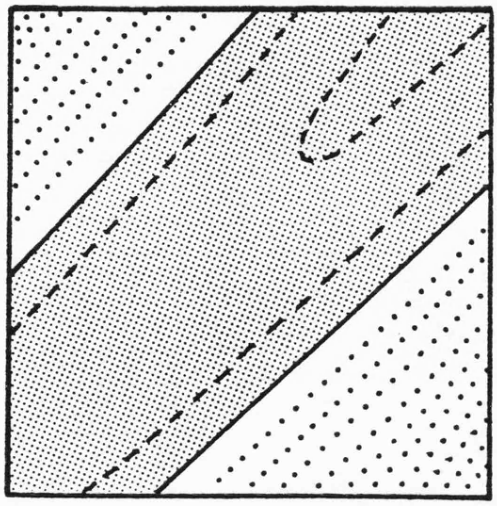
Evington



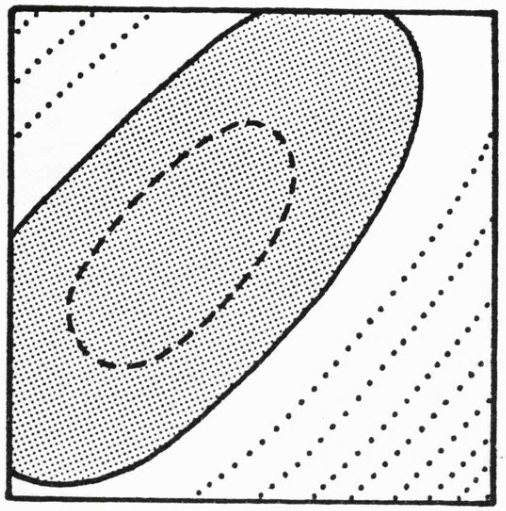
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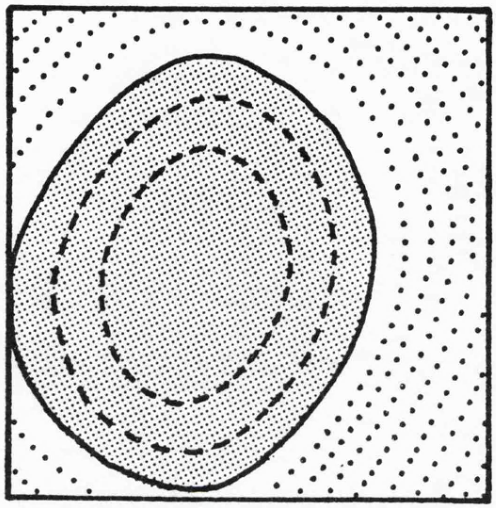
Glenfield



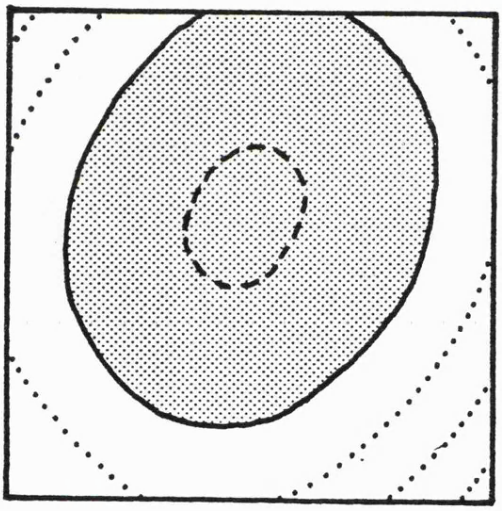
Highfields



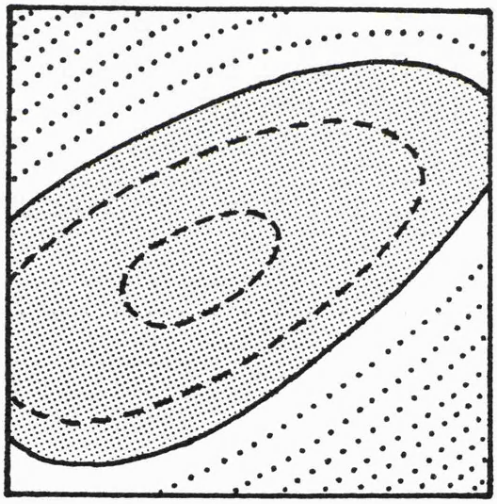
Humberstone



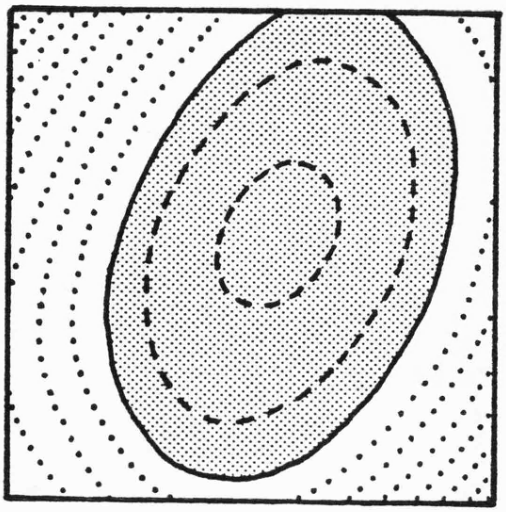
Leicester Forest East



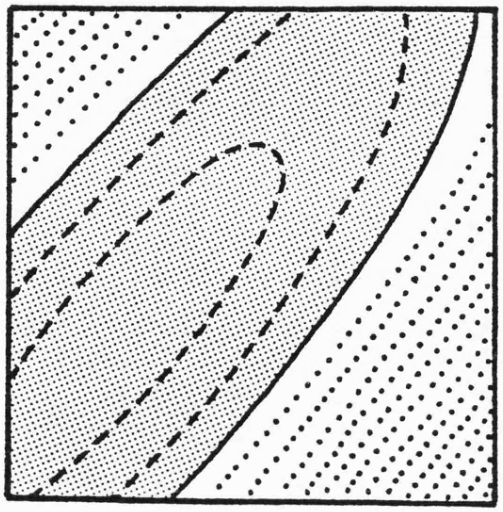
Mowmacre Hill



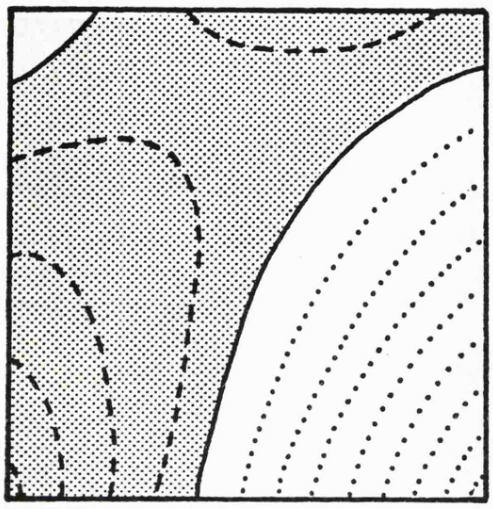
New Parks



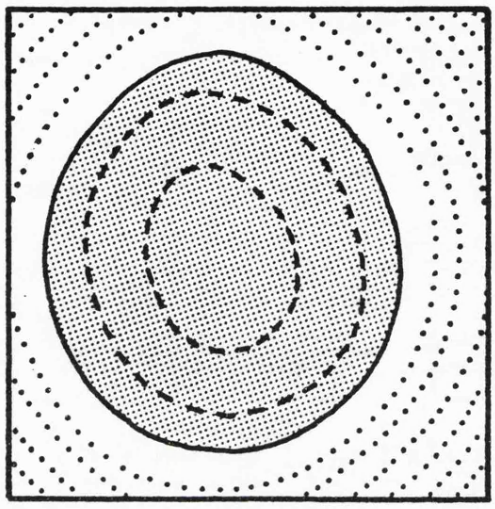
Oadby



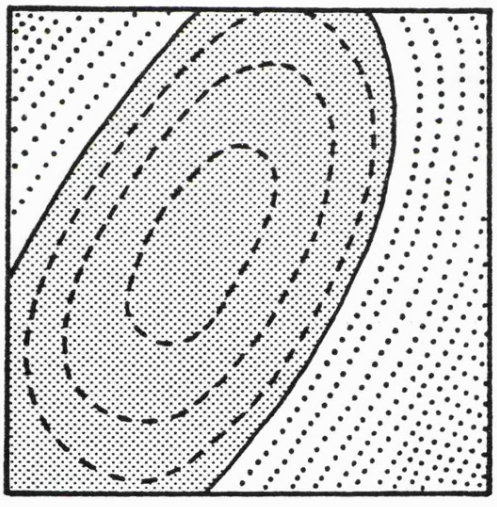
Stoneygate



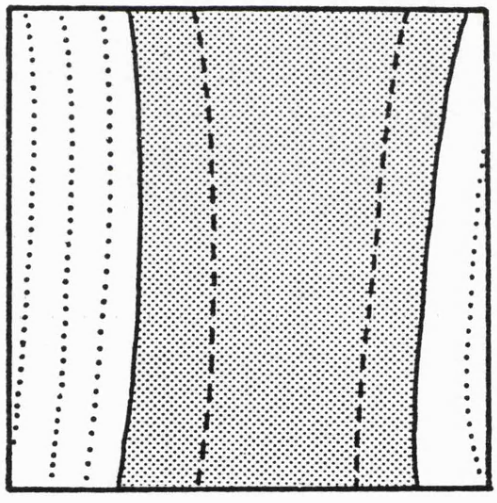
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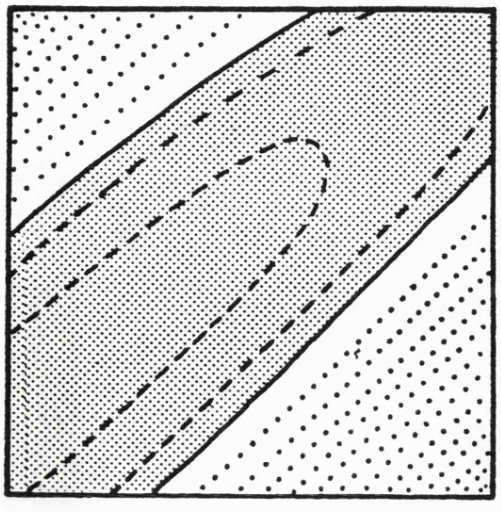
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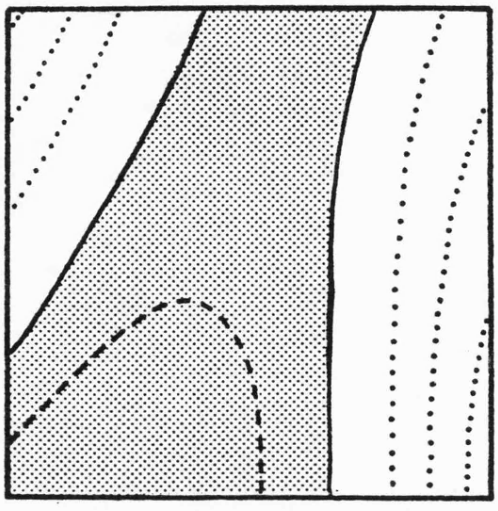
Western Park



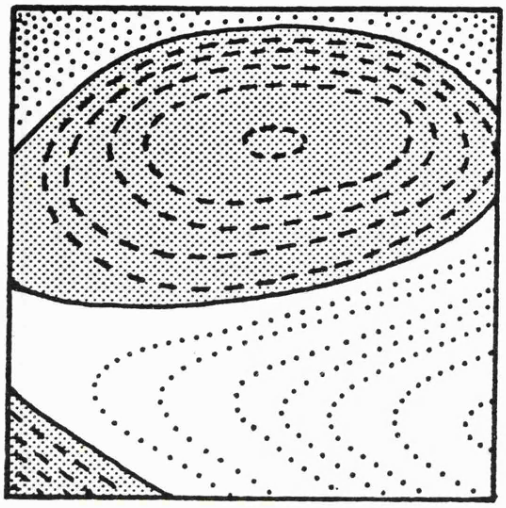
Wigston



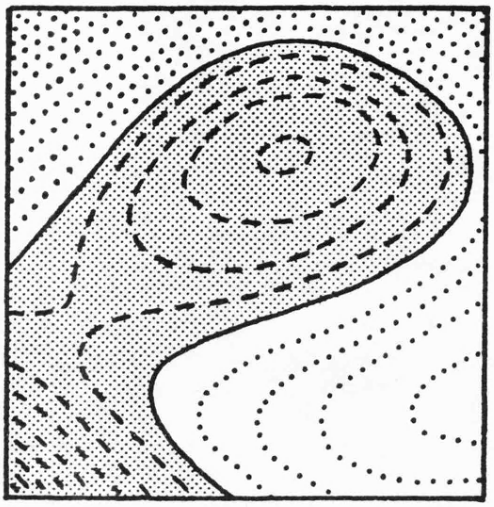
Woodgate



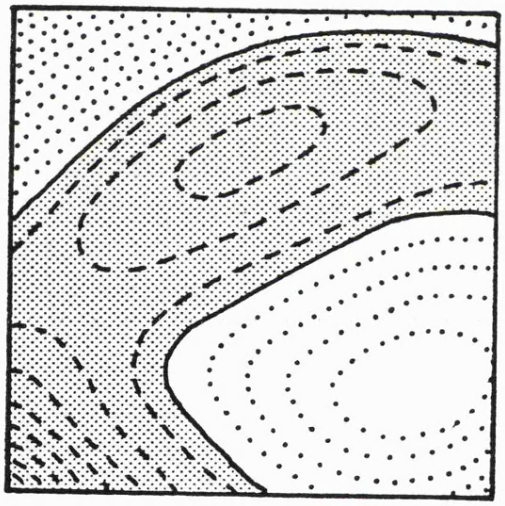
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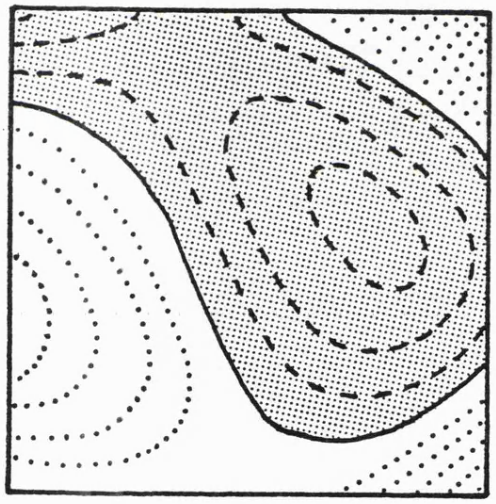
Belgrave



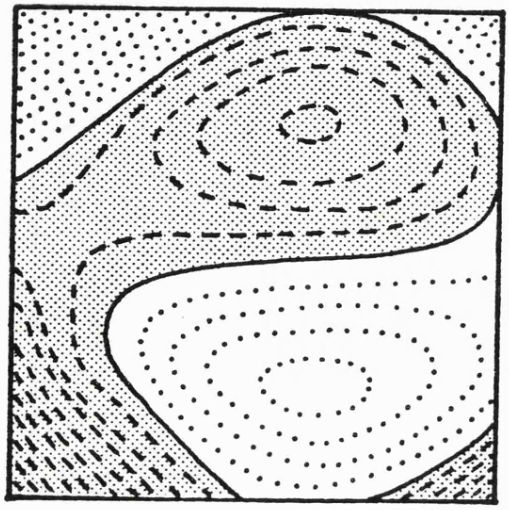
Birstall



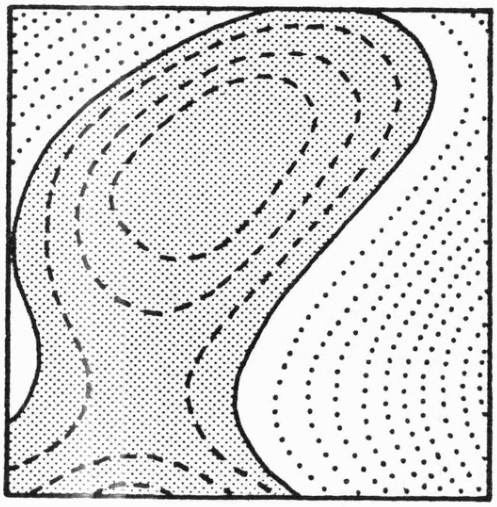
Braunstone



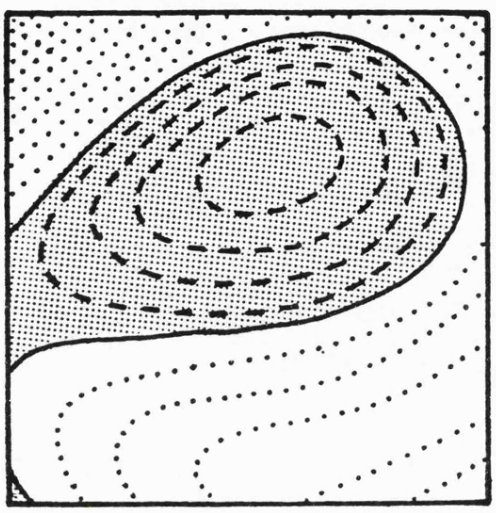
Clarendon Park



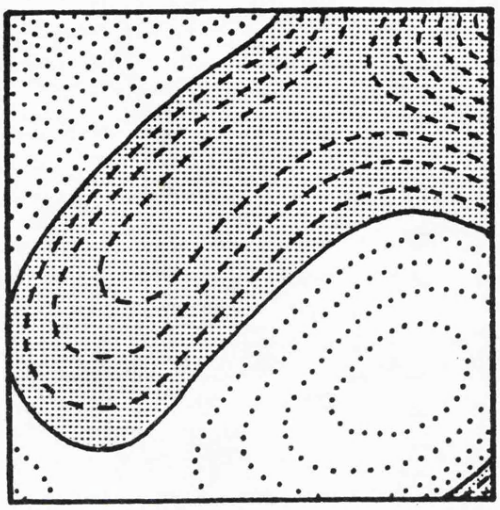
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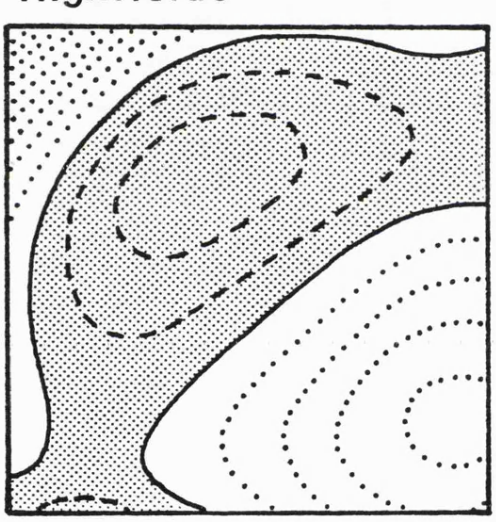
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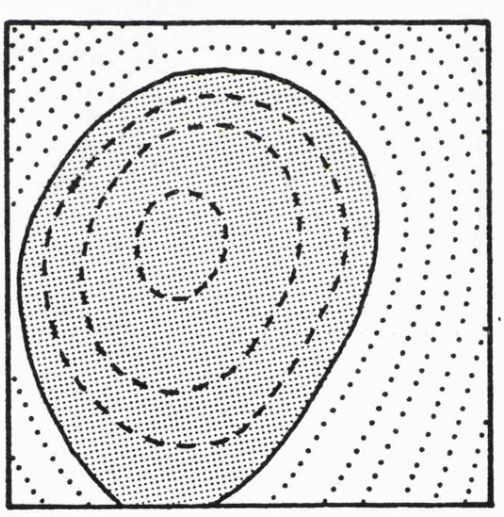
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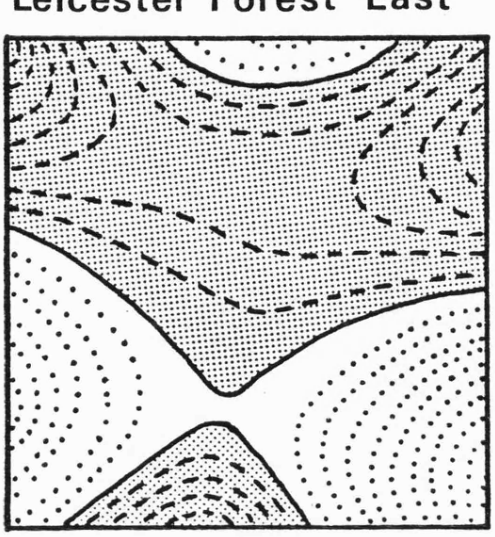
Highfields



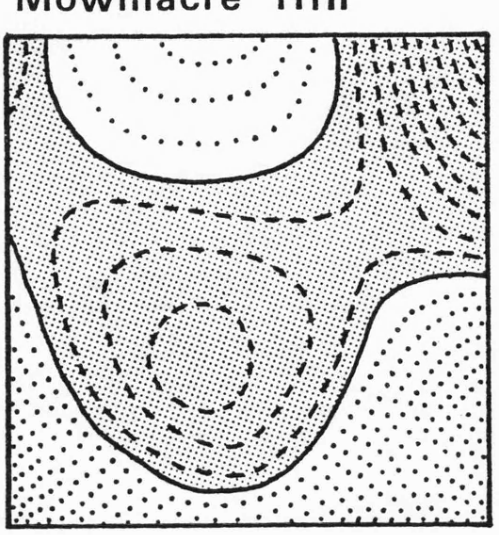
Humberstone



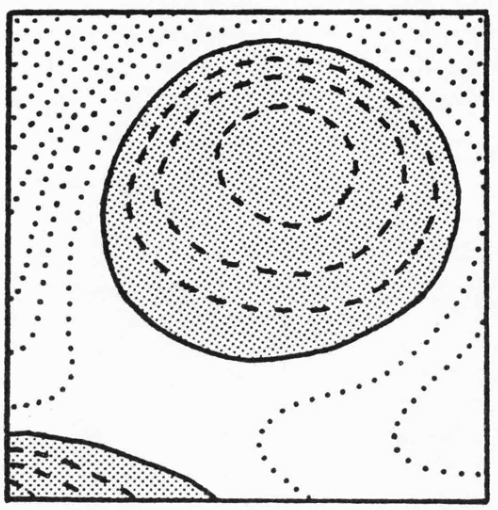
Leicester Forest East



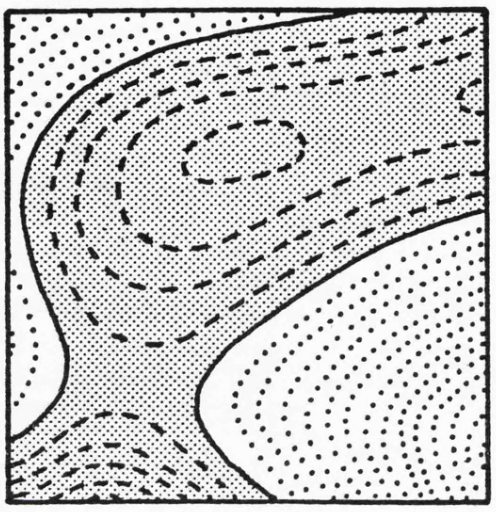
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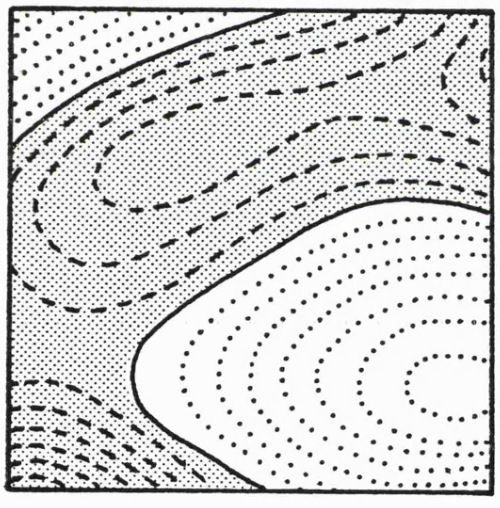
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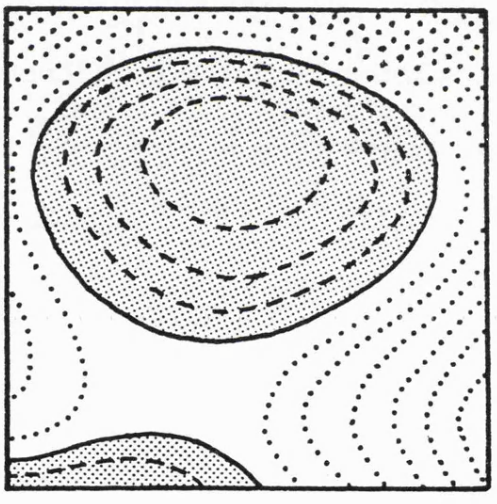
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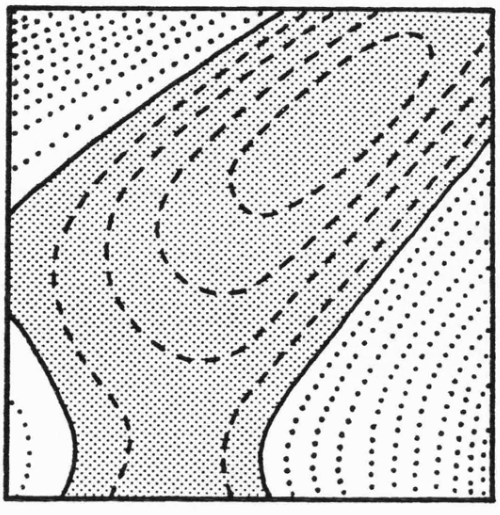
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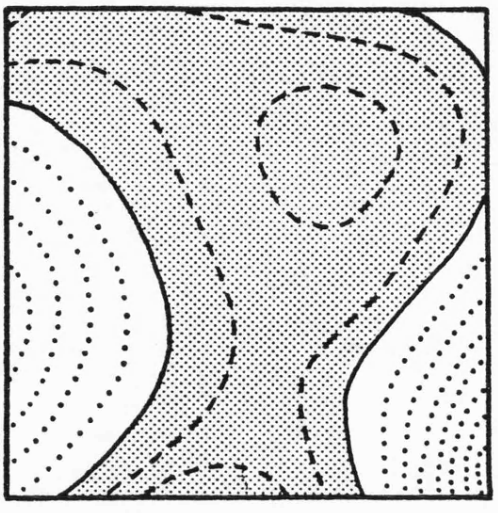
Thurmaston



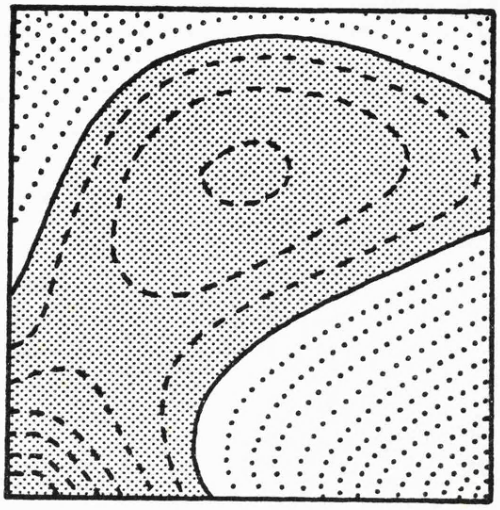
Thurnby



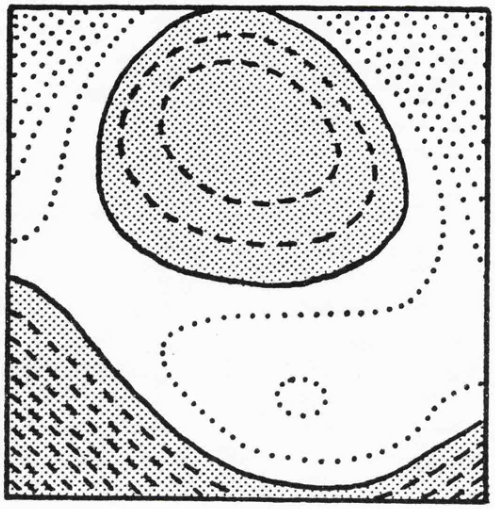
Western Park



Wigston



Woodgate



were not included. Some of the areas, notably Oadby and Wigston, being larger and more socially diverse than others, thus contained total sample populations of 40 persons, whereas Woodgate, the smallest, possessed only 10. The actual number of people providing the preference data therefore varied between areas, but the procedure of paired comparisons, which takes into account the number of persons responding to each stimulus permits valid comparison, and there could have been no significant bias in the data towards the larger areas.

The overwhelming trend evident from the linear surfaces in Fig. 8.3 reveals a surface dipping from south east to north west across the city, a reflection of the overall linear surface in Fig. 8.2. This is well illustrated by areas as socially diverse as Evington, Eyres Monsell and Highfields. Not even Glenfield (in the west) or Birstall (in the north) overcome the basic preference for the south eastern quadrant of the city.

The surface generally dips more steeply when viewed from high status areas (evidenced by the proximity of the contours in the Evington and Stoneygate maps) rather than the medium or low status ones (Thurmaston or Mowmacre Hill), suggesting greater discrimination by these higher status areas (which are themselves located in the south eastern parts of the city).

The surface as viewed from Belgrave or Woodgate retains the preference for the eastern side of the city, but dips from north east to south west, perhaps reflecting the location of these two areas in the northern part of the city (although other areas in the north, such as Birstall or Mowmacre Hill, do not display this difference). Humberstone, in the east, distorts the dip in a similar though less extreme manner, whereas Leicester Forest East, in the west of the city, distorts the trend to a more

south-south-east - north-north-west direction.

The three anomalies are undoubtedly Braunstone, Western Park and New Parks, revealing surfaces which are mirror images of the general surface and the view from most of the other areas. From Fig. 8.1, it is clear that these three areas all lie to the west of the city centre, and preference for their local area thus overcomes the basic trend of preferences towards the south east. Glenfield, which might be expected to resemble these three in fact agrees closely with the general view; its position as a high status area on the edge of the surrounding ridge of desirability elevates it above and away from the inner city trough to which the residents of similar status in Western Park are much closer.

The quadratic surfaces all display indications of a trough or depression over the city centre. From some areas, the trough is completely isolated and surrounded by a ridge of desired areas (e.g. Thurmaston and Eyres Monsell); from most others it is almost physically distinct (e.g. Belgrave and Aylestone). The shape of the depression reflects the location of the sample; that seen from Evington or Thurnby in the east is aligned nnrth-north east - south-south-west and that from Braunstone is aligned north west to south east. The trough over the central city perceived from Oadby and Wigston in the south east and Glenfield in the north west lies north east to south west, whereas that from Mowmacre Hill in the north lies west-south-west to east-north-east, and that from Western Park is almost due north - south. Clarendon Park and Stoneygate nearer the centre of the city have a slightly more complex surface, with preferred areas in the south east and north west, and disliked areas in the north east and south west, with themselves situated on the edge of a col - like feature.

The cubic surfaces are more complex, but display broad features of agreement with each other. The preferred south eastern and north western areas of the city are evident for all areas except Braunstone, Leicester Forest East and Western Park (who prefer the west to the north west) and Mowmacre Hill (who prefer the north to the north west) and Woodgate and Clarendon Park, who appear not to like the south eastern corner. The 'contours' in the furthest corners of the maps should be treated with caution though, since they are extrapolations from the data and not based on values from actual data points in those regions.

The spatial extent of the disliked areas appear to be greater for the medium to high status areas (see maps for Oadby, Stoneygate, Thurnby and Western Park for example) than it is for the lower status areas (e.g. New Parks or Eyres Monsell). The alignment and positioning of the trough again reflects the location of the area providing the preference data - the differences between Aylestone, Braunstone, Clarendon Park, Evington and Mowmacre Hill maps illustrate this point very clearly.

The indications of the patterns of preference revealed by the Trend Surfaces are confirmed by a consideration of the residuals (Appendix G). From the first degree surfaces, the positive residuals for most areas are highest for the high status areas of Oadby, Stoneygate, Glenfield and Birstall, and also for the area from which the city is being viewed. Eyres Monsell also demonstrates high positive residuals for Aylestone, and Leicester Forest East for Braunstone. New Parks and Woodgate possess high residuals for Glenfield.

The highest negative residuals are consistently received by Highfields, although other disliked areas such as Belgrave and

Braunstone feature as less extreme, though still negative. By the time the third order residuals are considered, Highfields and Braunstone have become established as firmly negative areas; all the 20 residuals for Highfields at this order are negative, nineteen of them (the exception being New Parks) being in excess of - 10. Twelve of the residuals for Braunstone are also greater than - 10, although none of the residuals for Belgrave are this large. The third area emerging with a concentration of large negative residuals is New Parks, with nine greater than - 10.

The two areas of strong positive residuals - observed scores above those suggested by the third order trend surfaces are Stoneygate and Western Park. Stoneygate is elevated above the edge of the precipice dropping down into Highfields, and Western Park is perceived as a small, isolated but desirable area, surrounded by the general trough over the central city. Sixteen of the residuals for Western Park and eleven of those for Stoneygate are greater than + 10; all of them, save Eyres Monsell's view of Stoneygate, are positive.

From the set of maps presented in Figs. 8.2 to 8.5, we have a very clear idea of the general preference surface of the city of Leicester and of this surface viewed from twenty different residential areas within the city. There is a great deal of evidence to support a general shared viewpoint of a trough of disliked districts over the city centre, surrounded by an increasing ridge of preferred areas lying towards the south and east of the city. Where the viewpoints are located in this area, some of the residuals are very large (e.g. Stoneygate's

view of itself, with residuals of 36.5, 36.9 and 24.8) whereas Oadby's are smaller since there is less difference between the observed values and the values predicted by the general trend surfaces.

Stoneygate and Western Park stand out from the residual data as two areas preferred above the overall surfaces, whereas Highfields, and, to a lesser extent Braunstone and New Parks, consistently display negative residuals and are disliked to an even greater extent than predicted by the surfaces.

Location of the sample viewpoint can be seen to be of considerable importance; occasionally the influence is sufficient to completely reverse the general trend for a particular area (Braunstone and New Parks for example), although more usually the direction and dip of the surface are distorted rather than reversed.

iii) Do the areas selected as preferable contain the attributes deemed to be important ?

In order to answer this question, one needs to compare the images of each area as seen by each of the three samples (established in Chapter 6) with the preference rankings for attributes and areas examined earlier in the present chapter.

As we have seen, the preferred areas are consistently Oadby, Wigston, Stoneygate and, to a lesser extent, Humberstone. The least preferred are Belgrave, Highfields and either Woodgate or Braunstone. Taking each sample in turn, it is possible to examine the extent to which the images of the most preferred areas contain those attributes considered most important and the least liked areas are significantly lacking in those same

attributes. A crude division between the 'younger' (20-34 and 35-49 year old age groups) and 'older' (50-64 and Over 65) samples in each area enables inclusion of the age-specific attributes concerning schools, the suitability of an area for bringing up children and so on.

The pattern which emerges from Tables 8. 30 to 8.43 is clear. Although a minority of respondents view certain attributes of their most preferred areas somewhat critically, the vast majority, as expected, regard them as 'good' or 'very good', in the aspects of greatest importance. It seems to be the perceived lack of these important attributes in certain areas which results in their being placed at the bottom of the preference rankings. Indeed, the only strongly positive images of the unpopular areas are of attributes not considered especially important - the quality of the shops and accessibility to public transport and the city centre, and these are not sufficiently strong to increase the area's positions in the preference rankings.

There is an interesting situation concerning the stability of the preferences analysed earlier in this chapter. Could we assume that, should the preferences for attributes alter as a result of changed family circumstances, differing attitudes or any other reason, the preferences for given areas would similarly change to reflect them ? The suggestion from the evidence presented here is that they probably would; in the case of Woodgate for example, the older the respondent, the more she values friendliness, accessibility and the quality of the shops. The image of Belgrave is poor in most respects but those three attributes (see Chapter 6), and, surely enough, Belgrave rises

Table 8.30 Humberstone sample: Images of the most preferred areas n = 53 *

	Quality of Housing			Privacy/ Peace and Quiet			Friend-liness			Appearance		
IMAGE	OA	ST	HU	OA	ST	HU	OA	ST	HU	OA	ST	HU
Very poor	-	-	-	-	-	-	-	8	-	-	-	2
Poor	-	-	2	5	6	3	11	23	2	-	-	-
Average	6	4	10	40	20	32	36	46	33	11	14	22
Good	50	62	73	52	38	57	44	23	47	69	31	61
Very good	44	69	12	2	35	5	5	-	18	20	54	12
Undecided	-	4	2	-	-	3	3	-	-	-	-	2

Table 8.31 Humberstone sample Ages 20-49: Images of the most preferred areas n = 21

	Privacy/ Peace and Quiet			Quality of Schools			Quality of Housing			Suitability of area for children		
IMAGE	OA	ST	HU	OA	ST	HU	OA	ST	HU	OA	ST	HU
Very poor	-	-	-	-	-	-	-	-	-	-	-	-
Poor	9	11	6	6	7	6	-	-	-	-	20	-
Average	43	17	17	18	23	23	5	-	11	10	20	16
Good	48	28	65	47	54	59	48	53	78	50	27	68
Very good	-	44	12	29	15	12	48	47	11	40	33	16
Undecided	-	-	-	-	-	-	-	-	-	-	-	-

* All figures in Tables 8.30 to 8.43 are given as percentages of n.

Table 8.32 Humberstone sample Aged Over 50: Images of friendliness in the most preferred and most disliked areas n = 31

	Most preferred areas			Most disliked areas		
IMAGE	OA	ST	HU	BE	WO	HI
Very unfriendly	-	-	-	-	-	-
Unfriendly	11	19	-	17	-	20
Average	44	39	18	49	66	80
Friendly	33	42	59	34	33	-
Very friendly	11	-	23	-	-	-
Undecided	-	-	-	-	-	-

Table 8.33 Humberstone sample: Images of the most disliked areas n = 53

	Quality of Housing			Privacy/ Peace and Quiet			Friend - liness			Appearance		
IMAGE	BE	WO	HI	BE	WO	HI	BE	WO	HI	BE	WO	HI
Very poor	12	27	27	10	18	41	10	6	15	26	52	74
Poor	55	48	55	59	56	48	10	6	30	68	35	24
Average	24	21	15	28	22	11	40	69	45	6	13	2
Good	9	-	3	3	4	-	35	19	10	-	-	-
Very good	-	-	-	-	-	-	5	-	-	-	-	-
Undecided	-	3	-	-	-	-	-	-	-	-	-	-

Table 8.34 Humberstone sample Ages 20-49: Images of most disliked areas n = 21

	Privacy/ Peace and Quiet			Quality of Schools			Quality of Housing			Suitability of area for children		
IMAGE	BE	WO	HI	BE	WO	HI	BE	WO	HI	BE	WO	HI
Very poor	11	7	47	9	-	15	17	29	41	12	14	63
Poor	50	53	41	45	-	46	50	50	41	59	50	37
Average	33	33	12	36	40	31	28	21	18	29	36	-
Good	6	7	-	9	50	8	5	-	-	-	-	-
Very good	-	-	-	-	10	-	-	-	-	-	-	-
Undecided	-	-	-	-	-	-	-	-	-	-	-	-

Table 8.35 Woodgate sample: Images of the most preferred areas n = 49

	Privacy/ Peace and Quiet			Quality of Shops			Quality of Housing			Access-ibility		
IMAGE	OA	ST	WI	OA	ST	WI	OA	ST	WI	OA	ST	WI
Very poor	-	-	4	5	10	-	2	-	-	3	-	-
Poor	8	-	4	2	25	-	10	-	-	25	14	25
Average	51	23	50	19	30	25	15	4	17	25	33	40
Good	30	32	42	54	25	50	38	28	58	28	33	25
Very good	8	41	-	19	10	25	33	68	25	19	19	10
Undecided	3	4	-	-	-	-	-	-	-	-	-	-

Table 8.36 Woodgate sample Ages 20-49: Images of the most preferred areas n = 28

	Suitability of area for children			Quality of Schools			Privacy/ Peace and Quiet			Appearance		
IMAGE	OA	ST	WI	OA	ST	WI	OA	ST	WI	OA	ST	WI
Very poor	5	7	-	11	-	-	-	-	5	8	-	5
Poor	5	-	7	11	7	-	-	-	-	4	5	-
Average	27	27	27	26	21	28	52	27	58	8	25	25
Good	50	53	53	36	43	72	39	33	37	54	45	70
Very good	13	13	13	16	29	-	9	40	-	25	25	-
Undecided	-	-	-	-	-	-	-	-	-	-	-	-

Table 8.37 Woodgate sample Aged Over 50: Images of friendliness in the most preferred and most disliked areas n = 21

	Most preferred areas			Most disliked areas		
IMAGE	OA	ST	WO	AY	BR	HI
Very U/F	-	-	-	-	-	-
Unfriendly	-	50	-	-	-	33
Average	33	50	40	33	16	66
Friendly	66	-	30	66	67	-
V. Friendly	-	-	30	-	16	-
Undecided	-	-	-	-	-	-

Table 8.38 Woodgate sample: Images of the most disliked areas n = 49

	Privacy/ Peace and Quiet			Quality of Shops			Quality of Housing			Access-ibility		
IMAGE	BE	BR	HI	BE	BR	HI	BE	BR	HI	BE	BR	HI
Very poor	22	23	35	-	-	-	8	4	38	-	4	-
Poor	52	27	50	-	26	24	50	15	31	4	4	-
Average	17	43	15	20	61	33	29	62	23	13	42	17
Good	9	8	-	55	9	29	8	15	-	65	38	61
Very good	-	-	-	20	4	14	4	4	4	17	11	22
Undecided	-	-	-	5	-	-	-	-	4	-	-	-

Table 8.39 Woodgate sample Ages 20-49: Images of the most disliked areas n = 28

	Suitability of the area for children			Quality of Schools			Privacy/ Peace and Quiet			Appearance		
IMAGE	BE	BR	HI	BE	BR	HI	BE	BR	HI	BE	BR	HI
Very Poor	17	-	50	-	-	14	22	20	30	47	10	60
Poor	56	16	31	60	31	79	61	30	55	37	32	40
Average	27	56	6	27	54	7	11	40	15	11	53	-
Good	-	28	6	13	7	-	6	10	-	5	5	-
Very good	-	-	6	-	7	-	-	-	-	-	-	-
Undecided	-	-	-	-	-	-	-	-	-	-	-	-

Table 8.40 Oadby sample: Images of the most preferred areas n = 55

	Quality of Housing			Suitability of area for children			Appearance			Quality of Schools		
IMAGE	OA	ST	WI	OA	ST	WI	OA	ST	WI	OA	ST	WI
Very poor	-	-	-	2	-	-	-	-	2	-	-	-
Poor	-	2	-	-	5	2	-	2	16	2	-	-
Average	4	2	29	27	25	32	21	14	49	8	8	23
Good	54	39	53	33	47	49	57	45	29	55	58	49
Very good	37	51	11	35	19	13	21	36	-	33	29	23
Undecided	6	5	7	2	3	3	-	2	4	2	5	6

Table 8.41 Oadby sample Ages 20-49: Images of the most preferred areas n = 47

	Suitability of area for children			Quality of Schools			Quality of Housing			Appearance		
IMAGE	OA	ST	WI	OA	ST	WI	OA	ST	WI	OA	ST	WI
Very poor	2	-	-	-	-	-	-	-	-	-	-	3
Poor	-	6	-	2	-	-	-	3	-	-	3	16
Average	31	29	36	7	9	22	4	-	26	25	14	47
Good	36	48	45	58	63	50	56	47	53	59	51	31
Very good	31	16	15	30	23	22	36	47	13	16	32	-
Undecided	-	-	3	2	5	6	4	3	8	-	-	3

Table 8.42 Oadby sample: Images of most disliked areas

n = 55

	Quality of Housing			Suitability of area for children			Appearance			Quality of Schools		
IMAGE	WO	BE	HI	WO	BE	HI	WO	BE	HI	WO	BE	HI
Very poor	16	5	32	20	14	50	37	42	71	-	-	25
Poor	60	70	63	50	55	38	44	34	29	46	44	55
Average	16	22	2	25	24	6	7	24	-	38	56	10
Good	4	3	-	5	7	3	7	-	-	8	-	10
Very good	4	-	-	-	-	-	-	-	-	8	-	-
Undecided	-	-	2	-	-	3	4	-	-	-	-	-

Table 8.43 Oadby sample Ages 20-49: Images of the most disliked areas n = 47

	Suitability of area for children			Quality of Schools			Quality of Housing			Appearance		
IMAGE	BE	BR	HI	BE	BR	HI	BE	BR	HI	BE	BR	HI
Very poor	13	23	50	40	19	28	7	3	32	42	26	71
Poor	62	12	37	60	12	61	70	23	68	35	48	29
Average	21	38	7	-	56	11	20	64	-	23	23	-
Good	4	27	3	-	6	-	3	10	-	-	3	-
Very good	-	-	-	-	-	-	-	-	-	-	-	-
Undecided	-	-	3	-	6	-	-	-	-	-	-	-

to joint second preference position for the over 65s.

iv) Do the preferences for attributes and the preferences for areas bear any resemblance to, or reflect, the attitudes revealed in Chapter 7 ?

The key to answering this question lies in a comparison of Table 8.20 with Tables 7.2 and 7.3. Although the scale scores are not themselves directly comparable, the ranked positions of the ten areas are, and these display a great deal of similarity. When the overall weighted attitude score for Humberstone (Table 7.3) is compared with the preference structure from the same sample (Table 8.20) the order of the ten areas is identical except for a reversal of Humberstone and Oadby in the first two positions. The overall attitude scores place Oadby first, whereas the preference scale values accord this position to Humberstone, a situation reflecting the local attraction echoed by the Trend Surface and associated residual data.

The two rankings for Oadby are also virtually identical, with only the 8th and 9th placed areas varying their positions in the preference lists, Woodgate thus becoming slightly preferred over Belgrave which received the slightly higher overall favourability score. The Woodgate attitude and preference scores do not appear to be so consonant, however, and the unweighted raw attitude rankings bear more resemblance to the preference rankings than do the weighted attitude scores (see Table 7.2 for comparison). Woodgate itself is higher in the preference rankings (Table 8.20) than its attitude scores would suggest, possibly indicating an increased attachment for home area in the preference structure, whereas Wigston and Aylestone (first

and second in their weighted attitude scores) are in 3rd and 6th position. The elevation of Wigston and Aylestone from the raw attitude scores to the most favourable areas in Table 7.3 has already been remarked upon.

The difference between the raw and weighted attitude scores in Chapter 7 (Tables 7.2 and 7.3) demonstrated that not only was Highfields evaluated in an unfavourable manner, but that it was so evaluated particularly on attributes of importance to members of the sample. The consistent allocation of Highfields to bottom place in every set of preferences calculated serves to confirm this observation.

The details of the attitude profiles presented in Chapter 7 (Figs. 7.7 to 7.9) also reveal very close similarity between attitudes towards and preferences for attributes of residential areas and the areas themselves.

In the Humberstone sample, what were termed the Type A profiles included Humberstone itself, Oadby, Wigston and Stoneygate, and emphasised the housing quality, privacy/peace and quiet and the general appearance of the areas as being extremely favourable. It was noted that these four areas occupied the top four positions in the favourability index in Table 7.3. The Type B profiles, which included Aylestone, Braunstone and Eyres Monsell also emphasised housing quality, but added accessibility, the quality of the local shops, and the quality of the community facilities. Appearance, privacy/peace and quiet and the areas' suitability for children were all viewed unfavourably. The Type C profiles, Belgrave, Woodgate and Highfields, displayed positive evaluations of shopping and community facilities, friendliness of the residents and accessibility, but very

unfavourable evaluations of housing quality, privacy/peace and quiet and general appearance, and occupied the lowest three positions in Table 7.3.

It has already been noted that only the reversal of Oadby and Humberstone distinguishes the rank order of the Humberstone sample in Table 7.3 from Table 8.20, and so the three types of profile remain separated in the preference structures for areas. They also reflect the groupings of areas in the generalised distance scores presented in Tables 7.4 to 7.6. What is interesting, however, is the way in which they also reflect the preferences for attributes (Table 8.1). Three of the four most important attributes for Humberstone respondents are the quality of the housing, privacy/peace and quiet, and the general appearance of the area - the three attributes evaluated in the Type A profiles most favourably.

Similarly these are the three attributes evaluated most unfavourably in the Type C profiles of the most disliked areas. The Type B profiles for the middle ranking areas stress, with the exception of the friendliness of the residents (in 3rd position) those attributes placed more or less centrally in the attribute rankings - accessibility (5th), shopping and community facilities (6th and 8th).

The Oadby profile types follow a like pattern; Oadby itself and Wigston (1st and 3rd in the preference rankings) are evaluated favourably on most counts except friendliness and accessibility (8th and 9th respectively for the Oadby sample, Table 8.1). Stoneygate's highly valued schools (4th) compensate for its poorer shops and community facilities (6th and 7th). Aylestone and Humberstone, the more preferable examples of the Type B profiles have favourably evaluated schools

(4th), shops (6th) and housing quality (1st), whereas the other pair of Type B profiles, Eyres Monsell and Braunstone, have a low evaluation made of their schools, which is not compensated by more friendly residents, in 8th place.

It is obvious that the use of Question 14 on the schedule to weight raw attitude scores from Question 17 will result, to a certain extent, in a similarity between the attitude profiles and the most preferred attributes. However, the use of the weighting system accentuated rather than altered the differences between areas and attributes, and highlighted rather than created the different profile types.

It does not help to explain why the three different profile types should exist in the first place, except insofaras they mirror the evaluations made of attributes within areas, nor why a similar relationship between the types, preferences for attributes and the preferences for areas does not appear to hold for the Woodgate sample.

The Woodgate sample place Oadby at the top of their preference structure, and accessibility 4th in Table 8.1; Oadby's least favoured attribute is, however, its accessibility (see Fig. 7.8). Stoneygate, 2nd in Table 8.20, has poorly evaluated shops, which are 2nd in the overall Woodgate structure of preferences, and unfriendly residents, which is ranked 5th. The Type B profiles all have reasonably positive evaluations of attributes near the top of Woodgate's list (rather than towards the middle as in the case of Humberstone and Oadby).

It is though, the exception which proves the rule; the most important dimension to the Woodgate sample is that of privacy/ peace and quiet, which is only moderately favoured in the Type B

profiles, whereas in Oadby and Stoneygate it is the much more favourable evaluation of this attribute which distinguishes the form of their profiles from the others and, presumably, accounts for their positions at the top of the preference lists. The positions of Wigston and Aylestone at the top of the weighted attitude scores is therefore explained by their consistently favourable evaluation on most dimensions, but this evaluation is not translated into a similar position in the overall preference rankings owing to their lower performance on the attribute of maximum importance. The overriding importance of the privacy/ peace and quiet dimension for the Woodgate sample is evident throughout the present chapter, and it is clearly sufficiently strong to prevent a straightforward progression from,and one to one correspondence between,overall favourability attitude scores and preference rankings.

Conclusion

We are now in a position to summarise the answers developed during the course of this chapter to the questions posed at its outset.

i) Do preferences for different attributes of a residential area vary with different subgroups of the city, and if so, do they vary spatially or socially ? The data presented in Tables 8.1 to 8.19 demonstrate that preferences for the twelve different attributes of a hypothetical residential area examined in the questionnaire schedule, do indeed vary according to age, family structure, mobility and educational status of the respondent, but that her present residential

location, and social class, are not particularly meaningful variables. Attributes concerned with local facilities and accessibility are of greater concern to the older women without families and no access to a car, whereas attributes concerned with children are, not surprisingly, of much greater importance to those women actively involved with a family or young enough to consider being involved with one. The preference rankings derived from women of similar social characteristics in different locations are generally more similar than those from women of differing social characteristics in the same area.

ii) Do preferences for the different residential areas of a city show any distinct variations between subgroups, and if so, are present location or socio-economic characteristics of the individual important explanatory variables ? The situation here is rather different. The preference rankings, in so far as they do vary, do so by location of the respondent; stratification by social variables does not produce significantly different rankings either within or between sample locations. Since the interview areas were chosen to reflect contrasting social areas, there existed the possibility that class rather than location was, in fact, the determining variable.

Sets of Trend Surface maps were constructed from preference data obtained from 658 randomly selected subjects in 66 different locations in 20 areas of the city. These maps confirmed the existence of a common pattern of preference over the city with local variations such as peaks over the observation point and depressions over adjacent areas or the city centre. Persons resident in one area, irrespective of age, car ownership, and family structure consistently differ in their preferences

for alternative residential areas from persons living in another location. These preferences are a reflection of the general trend surface (in this case preference for the south east of the city, encompassing Oadby, Wigston, Stoneygate and part of Evington) and the more local variations of a specific kind (such as a peak around Humberstone or a less shallow depression over Woodgate).

iii) Do the areas selected as preferable contain the attributes deemed particularly desirable ? Parallel consideration of Chapter 6 demonstrates that, once again, the answer is positive. The images of the most preferred areas emphasise the existence of the most preferred attributes; conversely, the images of the least liked areas not only fail to incorporate the most important attributes, but also frequently do not contain good examples of any attribute. Good shopping facilities and very good accessibility and public transport are among the less contentious attributes which the more unpopular areas may exhibit. These images are consistent with the overall favourability scores calculated in Chapter 7 and, through those, with the preference structures analysed in the present chapter.

iv) Do the preferences for attributes of areas and for the areas themselves bear any resemblance to, or reflect the attitudes examined in Chapter 7 ? This is the evidence on which our hypothesised link between attitude and preference largely rests. It has been shown that prediction of preference from attitude is not a simple procedure, although there are connections between the two.

The Woodgate sample do not produce preference structures for areas entirely consonant with their overall favourability scores

and additional information concerning the relative importance of attributes, and an evaluation of these attributes as they are perceived to exist in each area is required for a more accurate analysis. Given that we can uncover an individual's general attitude towards an area on a favourability - unfavourability dimension, and given that we know how she values different attributes in isolation and perceives them to exist in specific residential areas, we are a long way towards suggesting what her preferences towards those areas will be.

The considerable similarities evident in this chapter between the attributes and area preference structures and the weighted attitude scores, attitude profiles and generalised distance scores analysed in Chapter 7, encourage great faith in the existence and operation of the Perception - Behaviour process as it is hypothesised to exist in the present context. The most preferred areas contain positive evaluations of the most preferred attributes, and groups of areas evident from the profile types and generalised distance scores recur in the area preference structures. Where perfect congruence does not occur, explanation is possible in terms of the attribute preference structures and evaluations of the attributes in the areas in question.

With respect to the general preference surface, Trend Surface Analysis enables the local desirability component, if present, to be separated from the general preference pattern in order to clarify the relationship within and between the different rankings. The final link in the chain of the Perception - Behaviour process concerns whether there are any indications of a relationship between these complex preference structures and the behavioural intention to act

upon them. This is one of the aspects examined in Chapter 9. It is from this final element and link in the process that the soundest evidence for the operation of the process as suggested in Fig. 1.1 might be expected to come.

9

Behavioural Intention

'..... if your own house is blown down, you must go somewhere else, mustn't you, Piglet ? What would you do, if your house was blown down ?'

Before Piglet could think, Pooh answered for him.

'He'd come and live with me,' said Pooh, 'wouldn't you, Piglet ?'

A.A. Milne (1928)

The House at Pooh Corner

The evidence which is examined in this chapter concerns the Behavioural Intention element of the Perception - Behaviour process, which is hypothesised to reflect a combination of related images, attitudes and preferences for attributes of a residential area, and the areas in Leicester themselves. It falls into two separate but related parts.

The first of these involves a brief examination of the existing patterns of movement within the city and surrounding districts by members of the samples visiting their families and friends and travelling to work. The purpose of this section is to establish a framework of contacts across the city to provide an indication of those areas which are visited by respondents and the frequency of those visits, to suggest districts of increased familiarity to each sample group.

This relates to the second, and more important set of data, that concerning the stated desires of the respondents to move from their present location and the areas in which they would prefer to live. Whilst not expecting that their own houses would be blown down, respondents were also asked to consider

how they might behave if they were forced to move.

It is tempting to argue that there is a relationship between the 'ground' of Gestalt Psychology and the observed behaviour patterns of our sample and between the corresponding 'figure' and any behavioural intentions concerning residential mobility, but it was both impractical and unnecessarily restrictive to concern this investigation solely with respondents who were about to, or had just moved. As a consequence, the behaviour which was capable of observation and measurement could not be that which bore direct relationship to the Behavioural Intention element of the process.

The general 'mobility' context is therefore provided by journey to work patterns and by examination of the visits of varying frequency made by members of the sample to friends and relatives in various areas of the city and county. It is offered merely as a 'backdrop' of familiar and unfamiliar areas against which the final element of the process may be set.

The suggestion made is that there is a relationship between the type or quality of the image held by an individual of an area and the frequency with which that area is visited. An area visited frequently may thus appear more likely to produce a clearly defined image than one visited only occasionally. This is not the whole explanation, however, since there is a strong likelihood that an area (such as Highfields, perhaps) which evokes a very detailed but negatively evaluated image will be avoided for precisely that reason. The fact remains, however, that Aylestone, producing in all three samples, an indistinct 'average' image, and Eyres Monsell, which was the most consistently inaccurately located area (see Chapter 6) are

amongst the least often visited. Presumably, had a sample of respondents from Eyres Monsell or Aylestone been interviewed, a feeling of local loyalty comparable to that evident in Woodgate or Humberstone, would have been identified, related to their familiarity with that part of the city.

If an individual's zone of familiarity is, as one might expect, concentrated around his home location, and the contents of his image of the surrounding areas are thus brought into sharper relief, his resultant attitudes and preferences could be expected to demonstrate Gould's Tennis Ball effect (Gould and White, 1968). This takes no account of the evaluations placed upon those images, however, which may equally well be negative. What we might expect therefore, is that the extremes of positive and negative evaluations and of preferences might exhibit a distance decay function and that the ill-defined 'average' areas are furthest from the respondent and/or those visited least often.

Although this appears to be true in the samples investigated here, the reverse does not hold, since the Woodgate respondents live on the opposite side of the city and at a considerable distance from Oadby and visit it only occasionally, yet seem to possess a well-defined image of the area and place it at the top of their preference lists. It is this type of situation which must cause one to doubt the overly simplistic notion of sectoral mental maps discussed in Chapter 2, yet the existence of some degree of sectoral bias towards the respondent's own particular part of the city cannot be denied (see Figs. 9.1 to 9.6).

As can be seen from Table 9.1, 62% (33 people) of the Humberstone sample had close members of their family (defined as parents, parents in law, grandparents, brothers, sisters or children) living in Leicester. Nineteen different locations were mentioned a total of 58 times, with a strong bias towards Humberstone itself and Evington, and a small number in the high status area of Western Park. From Table 9.2, 60% (32) of the group had close friends living in the city or immediate suburbs, again heavily concentrated in Evington and Scraptoft and with a small outlier in Western Park. Figs. 9.1 and 9.2 illustrate the number of times an area was mentioned as a proportion of the total number of locations given, and demonstrate the preponderance of relatives and friends in the eastern parts of the city, and particularly around Humberstone itself.

The family ties of the Woodgate sample were much stronger, 98% (48) of them having close family members living in Leicester. Eighteen different areas were mentioned on 88 separate occasions, and Fig. 9.3 illustrates their spread across the city. Woodgate, Braunstone, Glenfield, New Parks and Newfoundpool, all areas to the west of the city centre, bear the main concentration, with significant numbers in Belgrave and the Gipsy Lane area to the north. The close friends of the Woodgate sample, shown in Fig. 9.4, were spread through 17 areas of the city, with no obvious bias towards the western areas. Indeed, the greatest numbers of friends were found in Birstall, to the north, Aylestone in the south west, Glenfield in the west and Wigston, in the south east.

Neither Humberstone nor Woodgate had strong family or friendship ties with the rural parts of the county beyond the

Table 9.1 Total sample: Possession of Close Family in Leicester

	HUMBERSTONE n = 53	WOODGATE n = 49	OADBY n = 55
YES	62.3	98.0	41.8
NO	37.7	2.0	58.2

Table 9.2 Total sample: Possession of Close Friends in Leicester

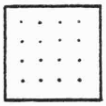
	HUMBERSTONE n = 53	WOODGATE n = 49	OADBY n = 55
YES	60.4	67.3	58.2
NO	39.6	32.7	40.0

Table 9.3 Total sample: Length of Residence in Leicester

	HUMBERSTONE n = 53	WOODGATE n = 49	OADBY n = 55
1-5 yrs	3.8	2.0	14.5
6-10 yrs	3.8	4.1	21.8
Over 10 yrs	50.9	24.5	38.2
Born in Leicester	41.5	69.4	25.5

Key to Figs. 9.1 to 9.6 and 9.8 to 9.16

Areas mentioned as % of the total responses



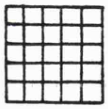
0 - 5 %



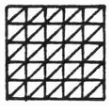
5.1 - 10 %



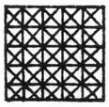
10.1 - 15%



15.1 - 20%

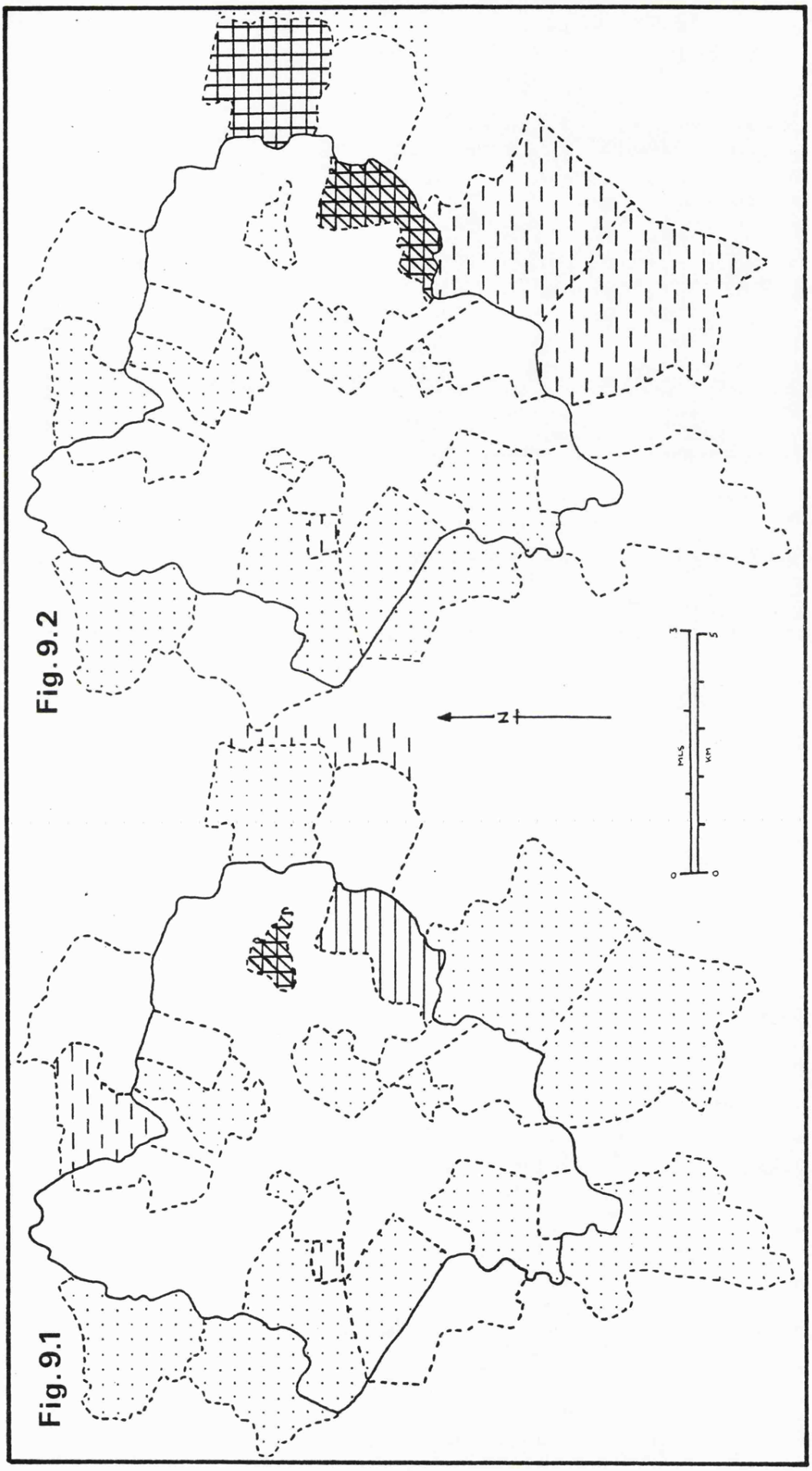


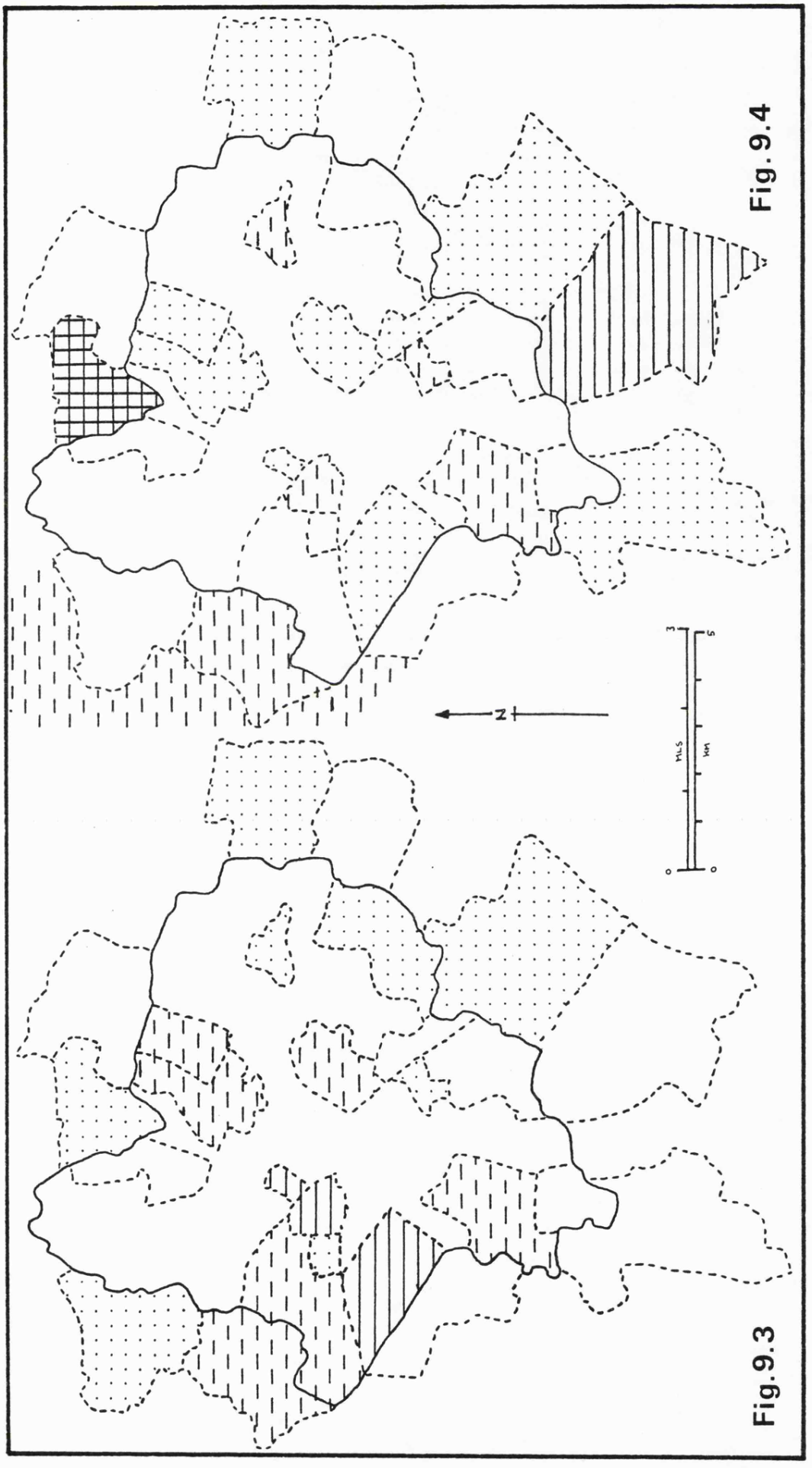
20.1 - 25%

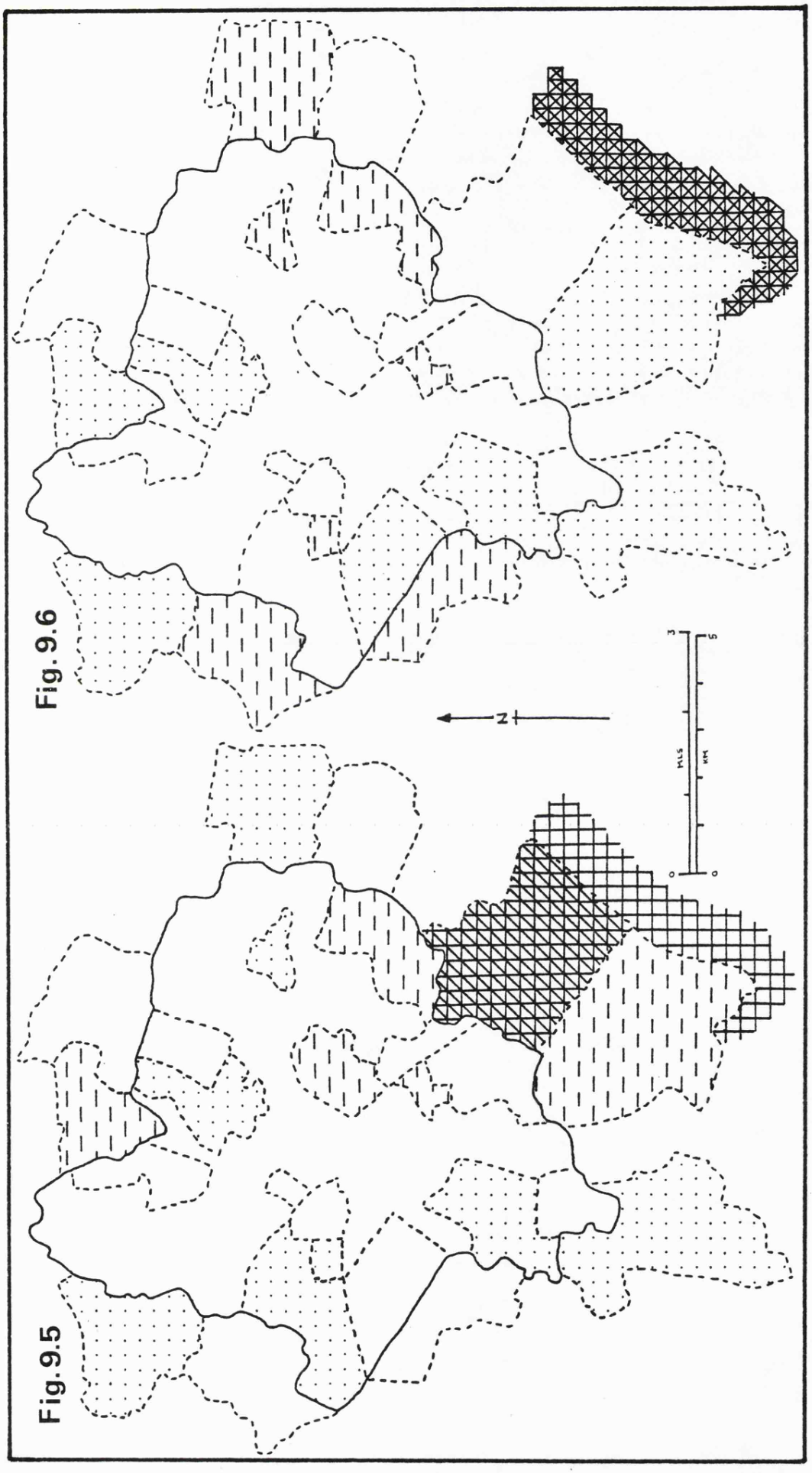


Over 25.1 %

The number of areas shown on the maps do not include references to 'the central city' or 'the council' which were too imprecise to map adequately. These references are, however, included in the text, and in Tables 9.23 to 9.26.


Fig.9.2
N
3
5
MLS
KM
0
0
Fig.9.1


Fig.9.4
N
3
5
MLS
KM
0
0
Fig.9.3


Fig.9.6
Fig.9.5
N
MILES
KM

contiguous suburbs of Oadby and Wigston, Birstall or Glenfield. Only three sets of relations, and three sets of friends of Humberstone, and four sets of friends of the Woodgate sample lived beyond the built up city area. On the other hand, one sixth of the Oadby family ties and over one third of their friendship links were with this outer part of the county.

Only 41.8% (23) of the Oadby women had close members of their family living in Leicester, of whom the largest concentrations were in Oadby itself and the outer county area. 58% (32) maintained friendships in 16 different areas, mentioned a total of 59 occasions. 40% of these were with the county, mainly in 'commuter' villages such as Fleckney, Kibworth, Great Glen, Cosby, Countesthorpe or Burton Overy, all lying to the south and south east of the city. Other friendships were maintained in areas such as Glenfield, Leicester Forest East, Western Park, Scraptoft, Evington, Humberstone and Clarendon Park which, with the possible exception of part of Clarendon Park, are all areas of similar social status to Oadby, and located around the edge of the city (see Fig. 5.7). Figs. 9.5 and 9.6 illustrate the family and friendship links of the Oadby sample.

Undoubtedly, the differing intensity of family and friendship contacts of the three samples is connected with the information presented in Tables 9.3 and 9.4 concerning the length of time respondents in each area had been living in Leicester and in their present house. Oadby, it will be recalled from Chapter 5, contained a younger and more mobile population than either Humberstone or Woodgate, and this is reflected in the higher proportion of recent arrivals in the

Table 9.4 Total sample: Length of Residence in Present House

	HUMBERSTONE n = 53	WOODGATE n = 49	OADBY n = 55
Under 1 yr.	1.9	-	1.8
1 - 5 yrs.	11.3	26.5	23.6
6-10 yrs.	20.8	22.4	45.5
Over 10 yrs.	64.2	49.0	29.1
Born in present house	1.9	2.0	-

Table 9.5 Total sample: Frequency of Visits to Family in Leicester

	HUMBERSTONE	WOODGATE	OADBY
No. of separate visits	58	88	34
No. per respondent	1.09	1.80	0.62
No. per respondent with close family in Leicester	1.76	1.83	1.48
Visits made weekly	43	45	53
,, ,, monthly	40	33	24
,, ,, every 6 months	7	8	6
,, ,, yearly	7	9	12

Table 9.6 Total sample: Frequency of visits to Friends in Leicester

	HUMBERSTONE	WOODGATE	OADBY
No, of separate visits	62	51	59
No. per respondent	1.17	1.04	1.07
No. per respondent with friends in Leicester	1.94	1.55	1.84
Visits made weekly	31	27	17
,, ,, monthly	30	47	37
,, ,, every 6 months	21	25	22
,, ,, yearly	16	-	12

area and the much higher proportion of persons who were born in Leicester in Humberstone and, especially, Woodgate.

In addition to establishing to which areas of the city visits to friends and relatives were made by members of the three samples, it was important to know how frequently these journeys were made. Increased frequency of visit should suggest increased familiarity with an area, and might help to explain that area's position in the preference structures or Trend Surface maps. The fact that Oadby was placed at the top of the preference rankings of a Woodgate sample who possessed few friends or relatives living there, or any other obvious reason for visiting the area, suggests that rather more than personal experience affects the perception and evaluation of residential neighbourhoods.

Tables 9.5 and 9.6 demonstrate the frequency of visits made by each sample. The large number of weekly visits made by the Woodgate sample to close family members includes a large number of daily visits which were not recorded separately on the interview schedule. The higher car ownership of the Oadby sample thus did not result in significantly more frequent journeys to see friends or relatives than those made by either of the other groups. However, it was the possession of a car which made visits to friends and relations in the outlying villages and rural county area, where a large proportion of the Oadby contacts lived, possible at all (see Figs. 9.5 and 9.6). Many of the villages are not accessible by bus from the city, and few of those that are have regular services in the evenings or at weekends. Oadby was also the only sample in which the practice of meeting friends on neutral ground (which was usually a public house) halfway between, or at an equal distance from the

two homes was occasionally found, again an option only readily available to car owners.

As might be expected, visits to areas closest to the respondent's own home are generally more numerous than those made to more distant locations. The Humberstone sample itemised 55 separate visits to friends and family in Humberstone itself, and the adjacent areas of Scraptoft, Evington and Birstall; of these 50% were repeated weekly, and 36% every month. Of the 14 journeys made to the more distant though similar status areas of Oadby, Wigston, and Glenfield, only one was made weekly, and 6 every month.

The pattern is repeated in Woodgate, where 46 visits were recorded to Woodgate itself and the adjacent areas of New Parks, Newfoundpool, Belgrave, Gipsy Lane and Western Park, 45% of them being made weekly and 39% at least once a month. In the case of the Oadby sample, however, the 15 visits made within Oadby itself and the adjacent areas of Wigston, Stoneygate and Evington are together outnumbered by the 26 made beyond the city boundaries and into the outlying villages. These 26 represent 31% of all the visits mentioned by the Oadby sample; no other area or group of areas dominates the family and friendship contacts to such an extent in either the Humberstone or Woodgate samples. Although the largest number of journeys by the Oadby sample is made to the outer villages, the visits are less frequent (mainly monthly or every six months) than those made to the adjacent areas, thus resembling the patterns found in Humberstone and Woodgate.

Information was also sought concerning the place of work of those respondents working outside their own homes, in order to gain further evidence concerning those areas of the city with which they were most likely to be familiar. This data is

presented in Table 9.7. Table 9.8 illustrates the differences in the methods of transport used by each of the three samples to travel to work. The Oadby women are again heavily dependent on cars, 64% of the women going out to work using them for their journey. Eighteen of the Woodgate women who work outside their homes walked, several of them walking into the city centre.

The differing character of 'inner city' Woodgate with several large industrial firms and a large number of small business concerns, and a large modern housing estate in Oadby are obviously reflected in the availability of female employment in the former and the comparative lack of it in the latter. Beyond the estate itself though, Oadby does possess several large employers of female labour (the Headquarters of the Leicester Building Society, the Invicta Plastics factory and headquarters, and a light industrial estate including several knitwear factories), although the higher car ownership means that women looking for work are able to travel further afield than is possible for those living in Woodgate.

As far as the relationship hypothesised to exist between the type or quality of the image of an area and the frequency with which that area is visited is concerned, the evidence is inconclusive. This is largely because Evington and the large group of outlying villages south and east of Oadby, which is where a large portion of the Humberstone and Oadby contacts lived, were not included in the ten areas for which images were examined in Chapter 6. Since the built up area of the city was defined as the unit of analysis, the exclusion of the commuter villages was unavoidable, and it is therefore the non-inclusion

Table 9.7 Total sample: Places of Work of Women working outside their Homes

	HUMBERSTONE n = 16	WOODGATE n = 27	OADBY n = 28
Women working outside their own homes as % of total sample	30	56	51
Women working in their own local area as % of those working outside their own homes	12.5	59	39
Women working in city centre as % of those working outside own home	37.5	22	29
Women working in outer city as % of those working outside own home	25	11	14
Women working in county as % of those working outside own home	25	7	18

Table 9.8 Total sample: Modes of Travel for those women working outside their own homes

	HUMBERSTONE n = 16	WOODGATE n = 27	OADBY n = 28
Car	44	15	65
Bus	38	18	17
Walk	18	67	18

of Evington which is the more regrettable.

However, the Humberstone sample, like the Woodgate group, possess a very well defined image of Oadby (see Chapter 6) which is visited far less frequently than Evington, which suggests that even though familiarity with and frequency of visit to an area may influence the formation of an image of that place, it is not the only, and maybe not the most important source of information.

The particular advantages conferred by car ownership are reflected in the different ways in which the respondents had found the house in which they were currently living. [1] Asking an individual how she would set about finding a house for any future move was rather too hypothetical, and any such results could not adequately be regarded as statements of 'intent'. Knowing how she had behaved in the past, however, was some guide to actual behaviour in that same situation. Table 9.9 summarises the different methods used by respondents to find their present homes.

The Humberstone sample displayed a greater reliance on 'institutional' sources of information, illustrated by the importance of local estate agents and the daily evening newspaper, the Leicester Mercury (which issues a weekly house-buying supplement in addition to its general property advertisements.) In Woodgate, these two sources were less

1 A Ph.D thesis currently in preparation, entitled 'Search procedures in Residential Mobility' by W. J. Balderson, has examined the temporal and spatial dimensions of residential search behaviour. Samples of respondents, identified as potential migrants through their contacts with estate agents in Leicester, supplied detailed diaries of their search procedure and the channels of information and sources used.

important, but by far the most important sources of relevant information were members of the respondent's family and friends. No-one in the Oadby sample had found her house as the result of a recommendation from a family source, although friends were minor generators of relevant information (though still less important than in either of the other two groups). The major source from where the Oadby sample's information came was, in fact, the building firms who were responsible for developing the Brocks Hill estate. Virtually all the responses coded as 'other methods' in the Oadby group in Table9.9 concerned visits to the site and builders' offices made before or during construction, often while the would-be purchasers were living a considerable distance from Leicester itself. This method of selection is typified by the remark:

> 'When we knew we were coming to Leicester we just came up and drove round for a few weekends until we found the right area - the houses were just starting to go up, so we went to see the builder.'
>
> An Oadby respondent

The spatial bias concealed within such a statement remains largely unknown; presumably only certain areas were investigated on the basis of information already acquired, and we have to await the completion of the research mentioned above before we are in a position to know how this particular process operates.

Some responses of the kind quoted above are contained within the 'casual visit' category, although 'casual' is probably a misnomer, since most of these respondents seemed to be already actively looking for new accommodation before they arrived in Oadby as a possible site:

Table 9.9 Total sample: Methods used to find Present Home

METHOD	HUMBERSTONE n = 53	WOODGATE n = 49	OADBY n = 55
Through an Estate Agent	34.0	22.4	27.3
A local Newspaper	18.9	8.2	10.9
A casual visit to the area	9.4	2.0	18.2
Recommendation of a friend	17.0	20.4	10.9
Recommendation from family	5.7	28.6	-
Some other method	15.1	18.4	32.7

Table 9.10 Total sample: Source of Information by Car Ownership

CAR OWNER-SHIP	ESTATE AGENT n = 43	NEWS-PAPER n = 20	CASUAL VISIT n = 16	FRIEND n = 25	FAMILY n = 17	OTHER n = 35
YES	29.8	11.6	13.2	14.0	8.3	23.1
	83.7	70.0	100.0	68.0	58.8	80.0
NO	20.0	17.1	0.0	22.9	20.0	20.0
	16.3	30.0	0.0	32.0	41.2	20.0

Table 9.10 Top figure of each pair = % row
Bottom figure each pair = % column

'We just went out for a drive one Sunday
to see what was available .....'

An Oadby respondent

The 'other' category for the Woodgate sample concerns those women who have, in the main, inherited their homes from parents, or other relatives, or adopted them on marriage to a man already living there. The latter reason also applies to the eight Humberstone women in this category.

Readership of the local newspaper did not vary very much between the three samples; 98% in Humberstone, 96% in Woodgate and 86% of the Oadby women claimed that they read the paper regularly. All three areas are well within the circulation area monopolised by the Mercury group; there are no other local or regional daily newspapers and only Oadby and Wigston has its own weekly newspaper, owned and run by the Mercury Group, the Oadby and Wigston News, which does not carry more than a handful of property advertisements in any one issue. [2]

When the various methods of seeking information concerning a change of residence are stratified according to whether or not the respondent's household had access to a car, the relative importance of personal sources of information to the non-car owners becomes apparent. Whilst the absolute totals are not large, one fifth of those women without a car had found their present home as a result of the recommendation from a member of their family, whereas the comparable figure for car owners was only 8%.

2 At the time of the fieldwork for this research, the Oadby and Wigston News was sold under its previous name 'The Oadby and Wigston Advertiser'.

We can now turn our attention to the other data set, that more closely involved with the Behavioural Intention element of the Perception - Behaviour process. There are a number of aspects to be considered.

i) Who are the people who state a desire to move from their present residential area ?

ii) What are their images of their present local areas ?

iii) How do they evaluate those images; what are their attitudes towards their own local areas ?

iv) What are their preference structures for attributes of areas ?

v) Which are the areas to which they state a desire to move ? Which areas do they think they might move to if they were forced to move (a question which can include those people who do not wish to move at present.)

vi) Which areas would they definitely not consider moving to ?

vii) How are these intentions related to their attitudes and preferences towards other areas ?

viii) Can the intention to move be matched with the images, attitudes of favourability and preference for the local area ?

ix) Can the desired areas/undesired areas be matched with images, attitudes and preferences for attributes and the areas themselves ?

i) Who are the people who wish to move from their present Residential Area ?

The proportion of people wishing to move from each of the three sample areas is far from consistent, as can be seen from Table 9.11. Indeed, the proportions wishing to move and remain in Humberstone and Woodgate are mirror images of each other.

Tables 9.12 and 9.13 illustrate the age and family, and occupational structure of the three areas, and Tables 9.14 to 9.17 examine the differing age, family and residential mobility structure of those respondents who wish to move (as expressed in their answers to Question 10 on the Questionnaire schedule, Appendix A), and those who prefer to remain in their present homes.

Table 9.12 confirms one of the criteria for the initial selection of Humberstone, Woodgate and Oadby as sample areas. The Humberstone sample can be seen to be much older than either of the others; the Oadby sample has a concentration of young and early middle-aged women, whereas Woodgate has a more evenly balanced structure, with young, early and later middle-aged respondents. This is reflected in the differing proportions of women in each sample having children living at home; the overall total is 57.6%, but in Humberstone it is only 35.8% whereas in Oadby, with a much higher proportion of young women, it rises to 81.8%.

From Table 9.3 it is clear that the Woodgate sample contains the highest proportion of women who have lived in Leicester all their lives; the overall average is 44.6%, and Humberstone is

Table 9.11 Total sample: Desire to Move

	HUMBER-STONE n = 53	WOODGATE n = 49	OADBY n = 55
Wishing to move	22.6	77.6	41.8
Not wishing to move	77.4	22.4	56.4
Not sure	-	-	1.8

Table 9.12 Total sample: Age and Family Structure

AGE GROUP	FAMILY STRUCTURE	HUMBER-STONE n = 53	WOODGATE n = 49	OADBY n = 55
TOTAL	+ child	35.8	55.1	81.8
	- child	54.7	40.1	12.7
20-34	+ child	11.3	24.5	23.6
	- child	-	6.1	3.6
35-49	+ child	15.1	20.4	52.7
	- child	5.7	4.1	3.6
50-64	+ child	9.4	8.2	3.6
	- child	32.1	22.4	5.5
Over 65	+ child	-	2.0	1.8
	- child	17.0	8.2	-
Missing Data		9.4	4.1	5.5

Table 9.13 Total Sample: Occupational Structure

	TOTAL		HUMBERSTONE n = 53		WOODGATE n = 49		OADBY n = 55	
CLASS	R	H/H	R	H/H	R	H/H	R	H/H
A	-	4.5	-	11.3	-	-	-	1.8
B	1.9	18.5	5.7	15.1	-	4.1	-	34.5
C1	28.7	23.6	22.6	30.2	20.4	6.1	41.8	32.7
C2	1.9	24.8	3.8	18.9	2.0	34.7	-	21.8
D	15.9	10.2	3.8	1.9	34.7	30.6	10.9	-
Retired	4.5	11.5	11.3	15.1	2.0	16.3	-	3.6
Housewife	44.0	0.6	49.1	1.9	36.7	-	45.5	-
Not Given	3.2	6.4	3.8	5.7	4.0	8.1	1.8	5.4

Table 9.14 Total sample: Desire to Move by Age and Family Structure

		AGE GROUPS			
DESIRE TO MOVE		20-34	35-49	50-64	Over 65
YES	+ child	37.8	48.9	11.1	2.2
		54.8	46.8	45.5	50.0
	- child	16.0	16.0	60.0	8.0
		80.0	57.1	48.4	15.4
	Total	58.3	47.3	45.5	18.8
NO	+ child	31.1	53.3	13.3	2.2
		45.2	51.1	54.5	50.0
	- child	3.2	9.7	51.6	35.5
		20.0	42.9	51.6	84.6
	Total	41.7	49.1	50.0	75.0
Missing Data		-	3.6	4.5	6.3

Table 9.14 Top figure of pair = % row
Bottom figure of pair = % column

close to this figure at 41.5%. 69% of the Woodgate women have lived in the city since they were born; only 25% of the more mobile Oadby sample had done so. As expected, Oadby contained the largest proportion of recent in-migrants to the city, with figures above the mean for the whole sample. The Humberstone sample are again the most immobile in terms of residential relocation; 64% of them had been living in their present house for more than ten years. The Oadby and Woodgate samples each contained a number of fairly recent movers, a large proportion of the Oadby women having lived in their present homes for between 6 and 10 years, since the estate was built (see Table 9.4).

Table 9.13 again confirms the sample selection procedure followed in Chapter 5. The heads of households of the Humberstone sample hold occupations predominantly classified in social groups A, B and C1, and those in Oadby in categories B and C1. The Woodgate sample heads of households are mainly semi-skilled and manual workers, with occupations in the C2 and D categories.[3] A slightly higher proportion of respondents in Woodgate have full or part time jobs as compared with Humberstone and Oadby.

If we consider the stated desire to move stratified by age group (Table 9.14) a fairly straightforward relationship emerges; the younger respondents, as expected, demonstrate a greater willingness to move. Whereas 58% of the 20-34 age group would like to move, only 18% of those respondents over 65 years old agree.

3 For Social Class categories employed, see Appendix F.

The younger respondents, largely irrespective of whether they have children or not (most of them do) are far more keen to move than the older women. This is unlikely to be a simple relationship between age and dislike of moving however; those women with children of senior school age, the slightly older sample members, considered themselves more restricted by educational concerns than those women with pre- or junior school age children.

Those women who had lived in Leicester all their lives were more keen to move than the non-natives (Table 9.16). This of course does not necessarily imply elderly people; a large proportion of the Woodgate sample had been born in Leicester and, as we have seen, the Woodgate sample is fairly well balanced in its young and middle-aged respondents. Those women who had lived in their present house for over 10 years, however, were much less keen to move, 60% of them preferring to remain where they were. In this group are many of the 'immobile' Humberstone sample.

The data in Table 9.11 thus fairly accurately reflects the social composition of the three sample areas; 77% of the more elderly and childless Humberstone sample prefer to remain at their present location, and 77% of the younger, rather more mobile Woodgate respondents wish to move. The 42% of the Oadby women who wish to move is, though, slightly lower than might have been expected from a highly mobile population and may suggest the possibility of a slight stabilising of the population mentioned in Chapter 5; on the whole though, the Oadby sample does still appear to be fairly mobile.

In considering the possible reasons underlying these patterns,

Table 9.15 Desire to Move by Area and Family Structure

	HUMBERSTONE		WOODGATE		OADBY	
Desire to Move	+ child	- child	+ child	- child	+ child	- child
YES	33.3	66.7	60.5	36.8	82.6	13.0
	21.1	26.7	85.2	70.0	41.3	37.5
NO	36.6	53.7	36.4	54.5	83.9	16.1
	78.9	73.3	14.8	30.0	56.5	62.5
Missing Data	4;n = 49		2; n = 47		2; n = 53	

Table 9.16 Desire to Move by Length of Residence in Leicester

	1-5 yrs	6-10 yrs	>10 yrs	All life
Desire to Move	n=11	n=16	n=60	n=70
YES	4.1	9.6	31.5	54.8
	27.3	43.8	38.3	57.1
NO	9.5	10.7	44.0	35.7
	72.7	56.3	61.7	42.9

Table 9.17 Desire to Move by Length of Residence in Present House

	1 yrs	1-5 yrs	6-10 yrs	>10 yrs	All life
Desire to Move	n=2	n=32	n=47	n=74	n=2
YES	1.4	24.7	32,9	39.7	1.4
	50.0	56.3	51.1	39.2	50.0
NO	1.2	16.7	27.4	53.6	1.2
	50.0	43.8	48.9	60.8	50.0

Tables 9.16 and 9.17: Top figure of pair = % row

Bottom figure of pair = % column

it is clear that more than a simple relationship between age and the possession of a family encourages people to state a desire to move house. To broaden our information base, we therefore need to consider firstly, how these women view their present area of residence. In other words, we should examine their images of their own areas, their attitudes towards it, together with their preferences for attributes of residential areas in general, and consider whether the potential movers and non-movers differ systematically with respect to these elements from each other. In this way, we should be able to establish whether those who wish to move have similar or less favourable images of and attitudes towards their own areas than those who wish to remain. Then we can examine whether the potential movers evaluate alternative desired areas more favourably than the non-movers, and whether the 'preferred' areas of the potential movers are perceived as containing attributes which are of importance to these women, and these same areas are evaluated more positively than their present areas of residence.

ii) Images of their Local Areas held by potential movers and non-movers.

Taking all the answers to Question 20 in total, there is very little difference in the images of their local areas held by the potential movers and non-movers. There is a slight decrease in 'good' or 'very good' images of Woodgate amongst the potential movers, and a consequent slight increase in the 'poor' category of this group. In the case of Oadby, a significantly lower proportion of the movers regard the area as

'very good' and a higher proportion consider it to be 'average'. Table 9.18 summarise this data from Question 20, stratified between movers and non-movers.

When individual attributes are considered, image differences become more apparent. For instance, from Table 9.19, it is evident that the potential movers in Humberstone possess more favourable images of the friendliness of the local residents, the attractiveness of the area and its suitability for bringing up children; the absolute number of responses from this group, however, is rather low to make confident comparisons.

The potential movers in Woodgate have a more critical image of the area's attractiveness, noisiness, its suitability for children, and the quality of its schools, which corresponds to the data presented earlier in this chapter concerning the age and family characteristics of this Woodgate sample who wished to move away from the areas. Similar evidence appears from the Oadby sample; a significantly higher proportion of the non-movers possess complimentary images of the area's shopping facilities and the friendliness of its residents and quality of its schools.

iii) Attitudes towards their local areas held by potential movers and non-movers

It might be expected that those persons wishing to move would evaluate their present area less favourably than those wishing to remain. The weighting system devised for measuring attitudes towards areas discussed in Chapter 7 related the evaluation of areas along the nine attributes to the relative importance of each attribute to the respondent, as revealed by

Table 9.18 Images of Local Area for Movers and Non-Movers

	HUMBERSTONE		WOODGATE		OADBY	
	Movers	Non-movers	Movers	Non-movers	Movers	Non-movers
	n = 12	n = 41	n = 38	n = 11	n = 23	n = 31
	r =107	r = 335	r =334	r = 88	r = 189	r = 366
Very Poor*	-	1	5	4.5	1	-
Poor	2	4	19	12.5	5	4
Average	23	26	38	40	28	19
Good	57	50	26	32	54	53
Very good**	18	19	12	11	13	24

n = number of respondents

r = number of responses

% figures in Table 9.18 refer to %r

* Includes designations such as Very unattractive, very unfriendly, very noisy etc.

** Includes designations such as Very attractive, very friendly, very quiet etc.

Table 9.19 Images of Local Area for Movers and Non-movers: Separate attributes

		FRND/RES		HSE/QUAL		APPEAR.		PRIVACY		AREA/CHD		COMM/FAC		SCHOOLS		SHOPS		ACCESS	
		m	n-m	m	n-m	m	n-m	m	n-m	m	n-m	m	n-m	m	n-m	m	n-m	m	n-m
		r=12	r=37	r=12	r=36	r=12	r=38	r=12	r=37	r=12	r=36	r=12	r=37	r=11	r=36	r=12	r=39	r=12	r=39
HUMBERSTONE	Very Poor	-	-	-	-	-	-	-	2.4	-	-	-	2.4	-	-	-	-	-	-
	Poor	8.3	2.4	-	-	-	-	-	4.9	8.3	-	-	-	-	9.8	-	9.8	-	4.9
	Average	25	41.5	16.7	9.8	8.3	31.7	41.7	31.7	8.3	19.5	25	31.7	25	12.2	41.7	29.3	16.7	7.3
	Good	50	34.1	75	61	83.3	53.7	50	43.9	66.7	53.7	75	39	50	43.9	16.7	34.1	41.7	46.3
	Very Good	16.7	12.2	8.3	17.1	8.3	7.3	8.3	7.3	16.7	14.6	-	17.1	16.7	22	41.7	22	41.7	36.6
WOODGATE	Very Poor	-	-	-	-	10.5	9.1	10.5	9.1	15.8	-	-	9.1	2.6	9.1	-	-	2.6	-
	Poor	2.6	-	18.4	9.1	34.2	18.2	26.3	18.2	50	18.2	13.2	27.3	18.4	9.1	5.3	-	2.6	-
	Average	57.9	36.4	47.4	36.4	50	36.4	55.3	54.5	23.7	45.5	44.7	27.3	36.8	36.4	18.4	27.3	2.6	18.2
	Good	34.2	36.4	21.1	45.5	2.6	18.2	7.9	9.1	7.9	18.2	28.9	27.3	36.8	36.4	60.5	45.5	26.3	18.2
	Very Good	5.3	18.2	2.6	-	2.6	-	-	-	-	-	10.5	-	-	-	15.8	18.2	65.8	54.5
OADBY	Very Poor	-	-	-	-	-	-	-	-	-	-	4.3	-	-	-	-	-	-	-
	Poor	17.4	9.7	-	-	-	-	-	-	4.3	3.2	4.3	3.2	-	3.2	-	-	13	12.9
	Average	34.8	22.6	13	6.5	26.1	12.9	30.4	48.4	30.4	22.6	13	12.9	13	-	30.4	-	34.8	38.7
	Good	39.1	58.1	60.9	51.6	65.2	77.4	56.5	35.5	47.8	51.6	56.5	41.9	52.2	64.5	30.4	32.3	30.1	38.7
	Very Good	-	6.5	17.4	35.5	-	6.5	-	12.9	8.7	16.1	17.4	35.5	17.4	25.8	34.8	64.5	8.7	6.5

r = no. of responses m = potential movers n-m = non-movers

her preference rankings in Question 14.

By repeating this procedure, it is possible to examine differences in the overall favourability displayed towards their local area by each sample, and by the potential movers and non-movers within each area. If we construct attitude profiles towards the local area along the nine dimensions used previously, it is clear that in general, Woodgate is evaluated less favourably by the total number of its respondents than either of the other two areas. Table 9.20 and Fig. 9.7 illustrate this well. Woodgate's most positively evaluated features are its accessibility to the city centre, the quality of its shops and the friendliness of its residents, attributes which are ranked in 2nd, 4th and 5th positions in Table 8.1.

The quality of the housing in Oadby is its most positively evaluated attribute, followed by its general appearance, the quality of the area for bringing up children, and the quality of the local schools (its shops are not so positively evaluated as those in Woodgate). These attributes are ranked 1st, 3rd, 2nd and 4th in Table 8.1. Humberstone is also evaluated positively, its two highest attributes being the quality of its housing and its privacy/peace and quiet dimension (1st and 2nd in Table 8.1)

If we separate those respondents stating a desire to move from those wishing to remain in their present area for each sample, differences become apparent in their respective evaluations of their local area as evidenced by the mean scale scores for each attribute, presented in Table 9.21.

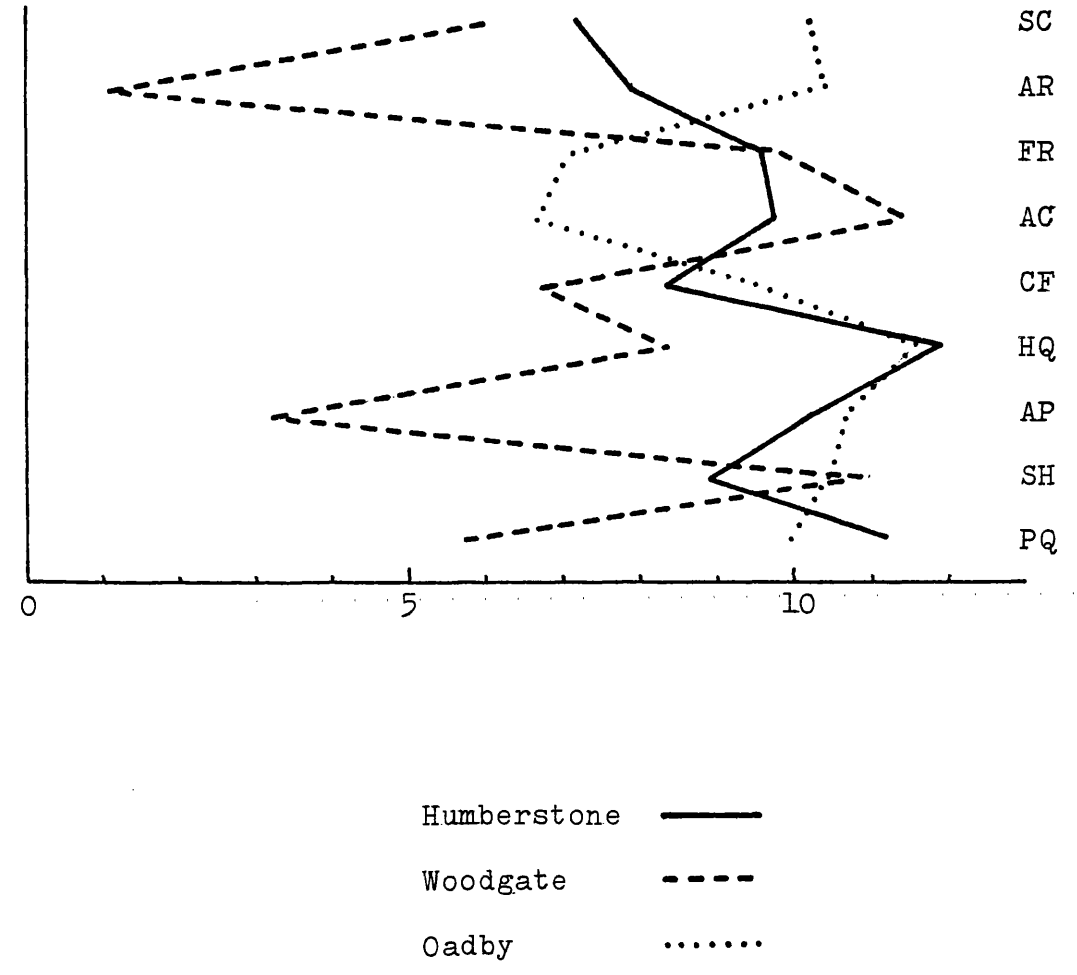
Table 9.20 Attitude Scale Scores towards Local Areas

ATTRIBUTE	HUMBERSTONE	WOODGATE	OADBY
Quality of Schools	7.149	5.911	10.16
Area for Children	7.851	1.022	10.353
Friendliness	9.510	9.625	7.077
Accessibility	9.680	11.354	6.64
Community Facilities	8.292	6.553	9.415
Quality of Housing	11.875	8.304	11.549
Appearance	10.163	3.152	10.692
Quality of Shops	8.84	10.958	10.491
Peace and Quiet	11.143	5.708	9.863

Table 9.21 Attitude Scale Scores towards Local Areas: Movers and Non-movers

ATTRIBUTE	HUMBERSTONE		WOODGATE		OADBY	
	Movers n=12	Non-movers n=41	Movers n = 38	Non-movers n=11	Movers n=23	Non-movers n=31
Quality of Schools	3.818	8.167	5.75	6.556	10.8	9.733
Area for Children	5.091	8.694	0.861	1.667	10.14	10.5
Friendliness	11.091	9.053	9.237	11.10	5.95	7.84
Accessibility	11.00	9.308	11.184	12.0	6.41	6.81
Comm. Facilities	9.818	7.838	6.703	6.0	8.57	10.07
Quality of Housing	11.455	12.0	7.833	10.0	11.91	11.3
Appearance	10.273	10.13	3.00	3.78	9.91	11.23
Quality of Shops	10.82	8.28	11.16	10.2	9.96	10.87
Peace and Quiet	10.55	11.32	4.63	9.80	10.35	9.55

Fig. 9.7 Attitude Profiles towards Local Area: Humberstone, Woodgate and Oadby samples



On the whole, the Woodgate and Oadby respondents expressing a desire to move do evaluate their own local areas rather less favourably than those who wish to remain. There are some instances, however, where more positive evaluations of attributes are made by potential movers (e.g. the quality of the schools and housing in Oadby and the quality of the shops in Woodgate). This is most obvious in the Humberstone sample, where the potential movers evaluate all but four attributes of their local area more favourably than those preferring not to move. The small size of this sample (n = 12) is a complicating factor here, but the four attributes evaluated less favourably by the potential movers are of interest. The quality of the schools and the suitability of the area for children are far less positively evaluated, yet only 4 of the 12 would-be movers had children in the family (see Table 9.15) These two attributes appear way down the list of preferences for the Humberstone sample as a whole (Table 8.1) The quality of the housing and the appearance of the area, however, are also less positively evaluated by the would-be movers, and these are of far greater importance in the preference structure of the total sample.

iv) Preference Structures for movers and non-movers

In order to examine the relative importance of the nine attributes to respondents wishing to move from each sample area, attribute preference structures, similar to those presented in Chapter 8 may be constructed. Table 9.22 demonstrates these attribute preference structures for each of the three sample areas. Comparison with Table 8.1 shows that

Table 9.22 Attribute Preference Structure: Potential movers

HUMBERSTONE n = 12		WOODGATE n = 38		OADBY n = 23	
Attribute	Mp scale value	Attribute	Mp scale value	Attribute	Mp scale value
House/Qual	0.742				
				Area/Child	0.728
				House/Qual	0.724
				Schools	0.693
Friend/Res	0.681				
		Shops	0.655		
Privacy	0.629				
				Privacy	0.636
		House/Qual	0.625		
		Area/Child	0.620		
		Privacy	0.618		
Shops	0.611				
Access	0.604	Access	0.604		
		Appearance	0.604		
Comm/Fac	0.600	Friend/Res	0.600		
				Appearance	0.595
Appearance	0.580				
House/Type	0.542			Shops	0.542
		Schools	0.534		
				Comm/Fac	0.524
				Friend/Res	0.485
		Comm/Fac	0.464		
Age/House	0.433				
				Access	0.423
				House/Type	0.415
		House/Type	0.398		
		Age/House	0.366		
Area/Child	0.323				
Schools	0.313				
				Age/House	0.263
Age/Res	0.255				
		Age/Res	0.235		
				Age/Res	0.189

although the broad preference structures of each sample and of the potential movers within that sample are similar, there are certain differences which are explicable in terms of the social and family characteristics of those persons wishing to move, examined earlier in the present chapter.

The quality of the shops, community facilities and accessibility all ranked higher in Table 9.22 than the general appearance of the area for the Humberstone potential movers, whereas appearance is the 4th most important attribute for the sample as a whole (Table 8.1). The Woodgate potential movers considerably elevate the importance of the quality of the area for bringing up children in comparison with the total sample, raising it from 7th position in Table 8.1 to 3rd in Table 9.22. Privacy, accessibility and general appearance all decline in importance for the potential movers, and the quality of the shops and housing become relatively more important. With the Oadby group, the quality of the area for children, and the quality of the local schools, are more important (1st and 3rd in Table 9.22) and possess higher mean scale scores, than for the sample as a whole (2nd and 4th in Table 8.1), although the lower 7 ranks remain unchanged.

These differences reflect the composition of the sample populations of Oadby and Woodgate discussed earlier; predominantly younger mothers with children of whom a significant proportion (see Table 9.15) wish to move. The non-movers are generally older, without families still living at home.

If we place these preference structures for the potential movers in each sample alongside their evaluations of their

present area, it is possible to suggest whether their intention to move is linked in any way with less positive evaluations of attributes which are considered to be important in a residential area, whether their behavioural intentions can be matched with their attitudes and preferences.

Considering the six most important attributes to the Oadby potential movers (Table 9.22), with Table 9.21, we see that the most important, the quality of the area for children, and the general appearance and quality of the shops (1st, 5th and 6th) are evaluated less positively by the potential movers than the non-movers. In the case of Woodgate, five of the first six attributes, the quality of the housing, the quality of the area for children, privacy/peace and Quiet, accessibility and general appearance are rated lower by the movers. In the Humberstone sample, the 1st and 3rd most important attributes, housing quality and privacy/peace and quiet, are similarly evaluated.

The evidence, though inconclusive, thus suggests quite strongly that the perceived relative absence of a preferred attribute is correlated with the desire to move i.e. that the behavioural intentions with respect to the residential decision process may be matched with attitudes and preferences towards the present area and attributes of residential areas in general.

The next stage is to establish where the potential movers from each sample would like to move and to examine their images, attitudes and preferences for these stated alternative areas.

v) Which are the areas to which they state a desire to move ?

> 'Given the increasing rates of social and spatial mobility that all Western Societies are witnessing, the choice of a place to live is more than ever a true choice. Constraints of family ties, work place, and housing supply are of decreasing importance. The question Where would you like to live is far more meaningful, and cognitive mapping helps us to answer it.'
>
> (Downs and Stea, 1977; pp. 16,17)

Table 9.11 summarised the answers given to Question 12 on the schedule, 'If you were given the opportunity to move elsewhere in Leicester, and money were no problem for you, would you do so ?' Humberstone respondents were the least prepared to move, but for those who were enthusiastic at the idea of moving, only four areas of the city were preferable to their present one - Evington, Scraptoft, Anstey and Clarendon Park, of which Evington was the clear favourite. Table 9.23 illustrates the frequency with which other areas were mentioned by those Humberstone respondents wishing to move.

Question 13, 'Supposing you were forced to leave your present house now: in which area(s) would you start looking for a new one ?' introduced a measure of financial restriction, obliging all respondents (not just those wishing to move) to consider possible locations in the light of their own or their husbands' present place of work. Although it could in no way be regarded as a statement of intent, the answers to this question did at least require a more realistic evaluation of the alternatives, since the constraints mentioned by Downs and Stea above, whilst

decreasing, are still important.

From Table 9.23, it is evident that the Humberstone sample considered that, in the event of an enforced relocation, they would be most likely to remain within their present area. Of the 82 alternatives suggested, (each respondent could offer two) 28% were for Humberstone, 24% for Scraptoft and 23% for Evington. Those respondents who mentioned Highfields and Clarendon Park explained that only an abrupt change in their family circumstances could result in their moving, in which case they would be most likely to need cheap, inner city rented accommodation, more readily found in these two areas.

The Woodgate respondents who were far more enthusiastic at the prospect of moving (see Table 9.11), expressed a wish to move further out towards the western outskirts of the city and surrounding countryside. Their preferred alternative areas are illustrated in Table 9.24. When they considered the prospect of being obliged to move, however, a significant proportion welcomed the opportunity of moving out of the area completely, and Glenfield was the most popular choice. Unlike the Humberstone sample, their own area was placed in second position, followed by the north west part of the county. Woodgate was the only area in which 'the Council' was invoked as a realistic choice; 10% of the alternatives mentioned 'the Council' rather than an actual area, again assuming that only a comprehensive redevelopment programme or similar major upheaval would cause them to move, in which case they would need to be found housing by the Local Authority.

41.8% of the Oadby sample were prepared to move were they free to do so, the most popular alternative areas being the villages

Table 9.23 Humberstone sample: choice of alternative areas

'Free' choice	r=13 %	'Enforced' choice	r=82 %
Evington	43	Humberstone	28
Scraptoft	29	Scraptoft	24
Humberstone	7	Evington	23
Anstey	7	Oadby	7
Clarendon Park	7	Highfields	5
South east county	7	Clarendon Park	5
		Central city	5
		Gipsy Lane area	2
		Aylestone	1

Table 9.24 Woodgate sample: choice of alternative areas

'Free' choice	r=21 %	'Enforced' choice	r=73 %
Anstey	21	Glenfield	21
Glenfield	19	Woodgate	14
North west county	12	North west county	14
Leicester Forest E.	7	'Other' - Council	10
'Other' -'county'	7	Anstey	8
Birstall	7	Oadby	5
Oadby	5	Birstall	5
Evington	5	Leicester Forest E.	4
Scraptoft	5	Newfoundpool	4
New Parks	2	Clarendon Park	4
Aylestone	2	Aylestone	3
Newfoundpool	2	New Parks	1
Clarendon Park	2	Scraptoft	1
Belgrave	2	Evington	1
South east county	2	Gipsy Lane Area	1
		Western Park	1
		Humberstone	1
		Wigston	1

Table 9.25 Oadby sample: choice of alternative areas

'Free' choice	r=29 %	'Enforced' choice	r=90 %
South east county	34	Evington	26
Evington	17	South east county	23
Oadby	11	Oadby	22
Anstey	11	Wigston	10
Scraptoft	10	Anstey	6
'Other' - county	7	Clarendon Park	3
Glenfield	7	Scraptoft	3
Wigston	3	'Other' - county	2
		Humberstone	2
		Braunstone	1
		Western Park	1

Table 9.26 Total sample: Areas to which respondents would not move

HUMBERSTONE	r=74 %	WOODGATE	r=77 %	OADBY	r=83 %
Highfields	30	Highfields	40	Highfields	34
Belgrave	20	Braunstone	18	'Other'-city	16
Braunstone	15	Belgrave	18	Braunstone	14
Central city	12	'Other'	6	Belgrave	13
Eyres Monsell	9	Aylestone	4	Eyres Monsell	5
Wigston	5	New Parks	4	Wigston	4
Woodgate	3	Gipsy Lane area	3	Western Park	4
New Parks	3	Western Park	3	Birstall	2
Birstall	1	Woodgate	1	Humberstone	2
Humberstone	1	Humberstone	1	South east county	2
		Oadby	1	Leicester Forest East	1
				Scraptoft	1
				Glenfield	1

south and east of Oadby in the county, Evington, another part of Oadby itself and Anstey in the north west of the city. Evington was again perceived as the most likely alternative in the event of an enforced move, followed by the south eastern parts of the county and Oadby itself. Oadby was thus the only sample in which a significant proportion of the choices were for the outer rural areas. No-one in Humberstone expressed a desire to move further out than Scraptoft, although a few of the Woodgate respondents favoured the Charnwood Forest area to the north west of the city. Table 9.25 illustrates the areas selected by the Oadby respondents.

Mapping this data causes the spatial distribution of the alternative residential choices to become apparent. Figs. 9.8 to 9.10 and Figs. 9.11, 9.13 and 9.15 clarify the information presented in Tables 9.23 to 9.25, and it can be seen that a certain degree of bias towards the home area of the respondents exists. The evidence for sectoral bias is similar in the maps of the enforced relocation choices (Figs. 9.11, 9.13 and 9.15) to the maps demonstrating preferred areas in a free choice situation (Figs. 9.8 to 9.10). The Woodgate sample, however, whilst exhibiting increased levels of desirability for areas to the north west of the city, also demonstrate a degree of liking for areas in the south and east (Oadby, Evington and Wigston) as evident in Fig. 9.13. It is possible to suggest that, in the case of the Woodgate respondents, being forced to move was considered less of a disaster than it was in Humberstone or Oadby where satisfaction with the home area (see earlier this chapter) was much greater. This was certainly the impression

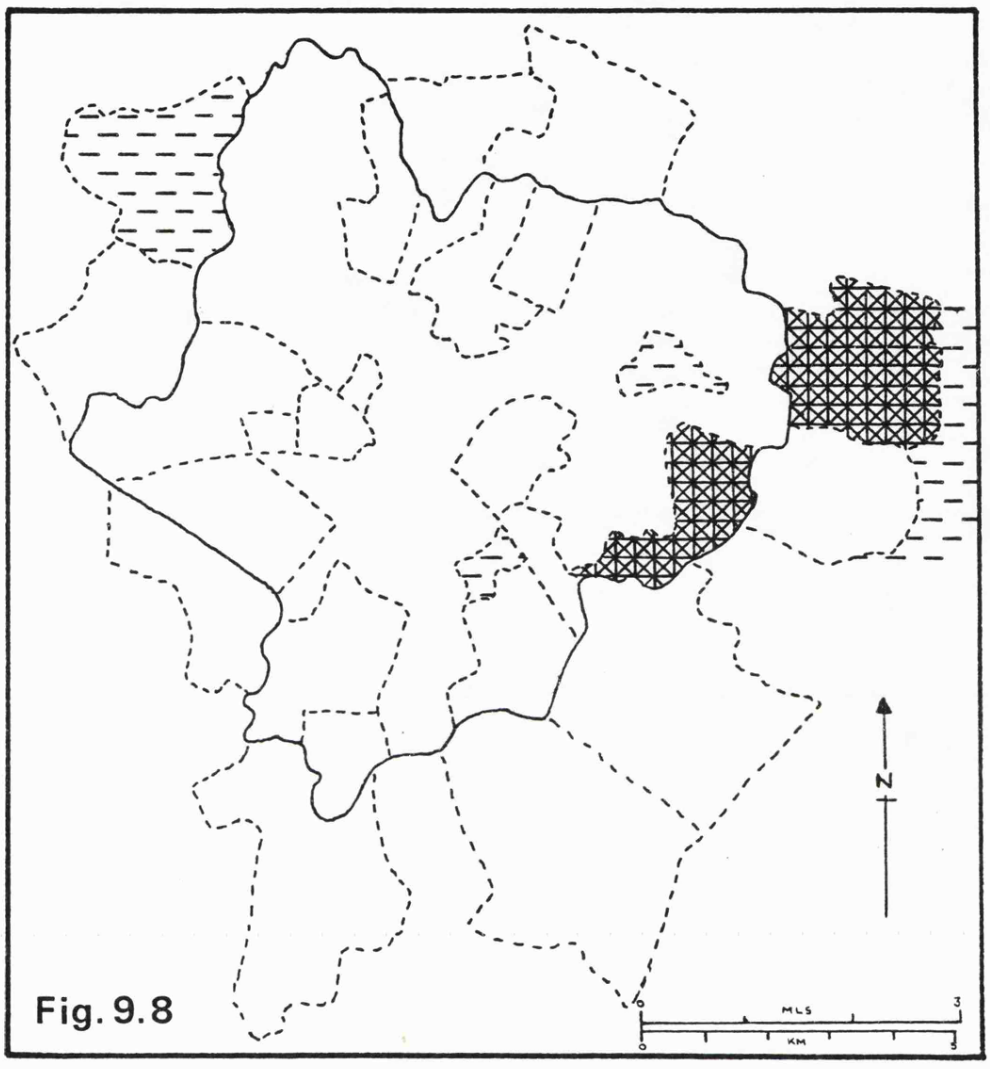


Fig. 9.8

Fig. 9.8 Humberstone sample: Free choice alternative residential areas

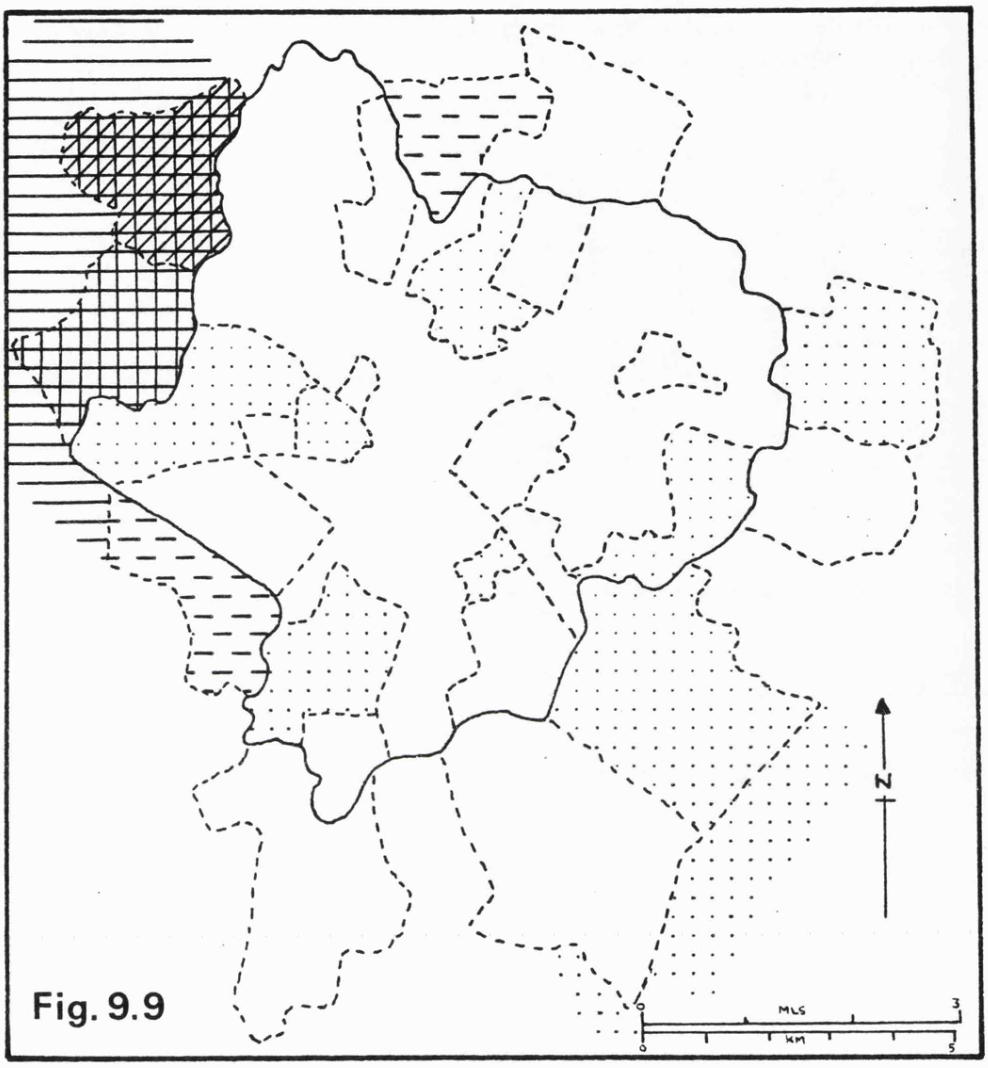


Fig. 9.9

Fig. 9.9 Woodgate sample: Free choice alternative residential areas

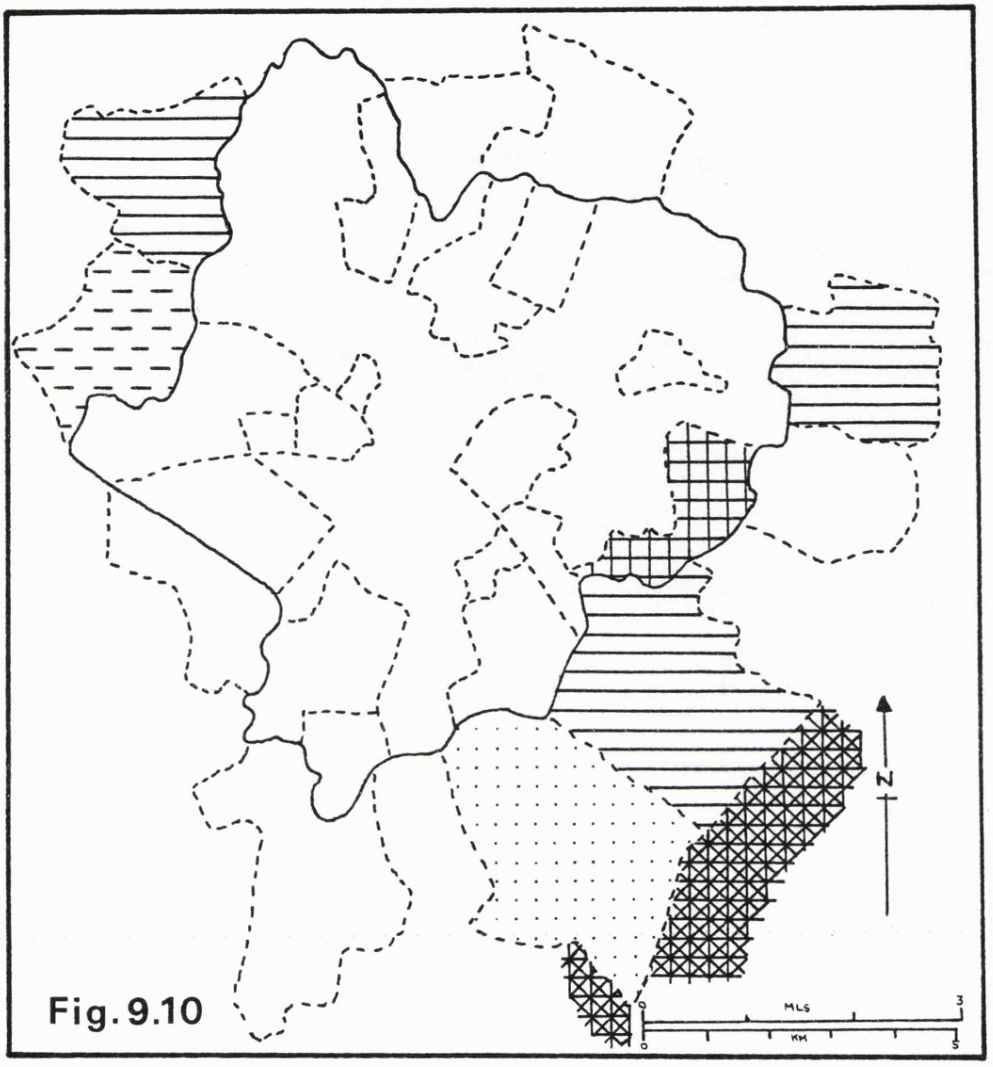
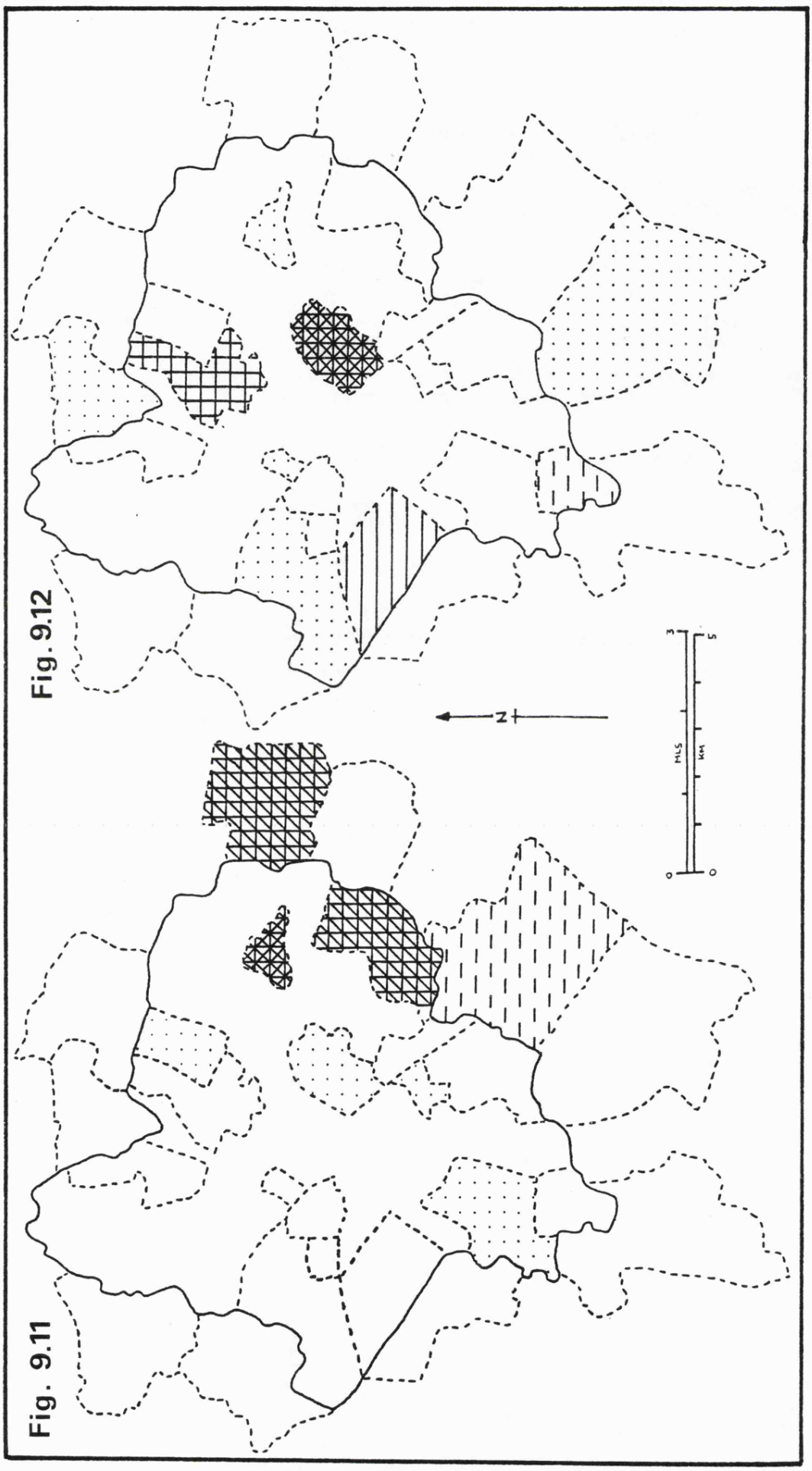
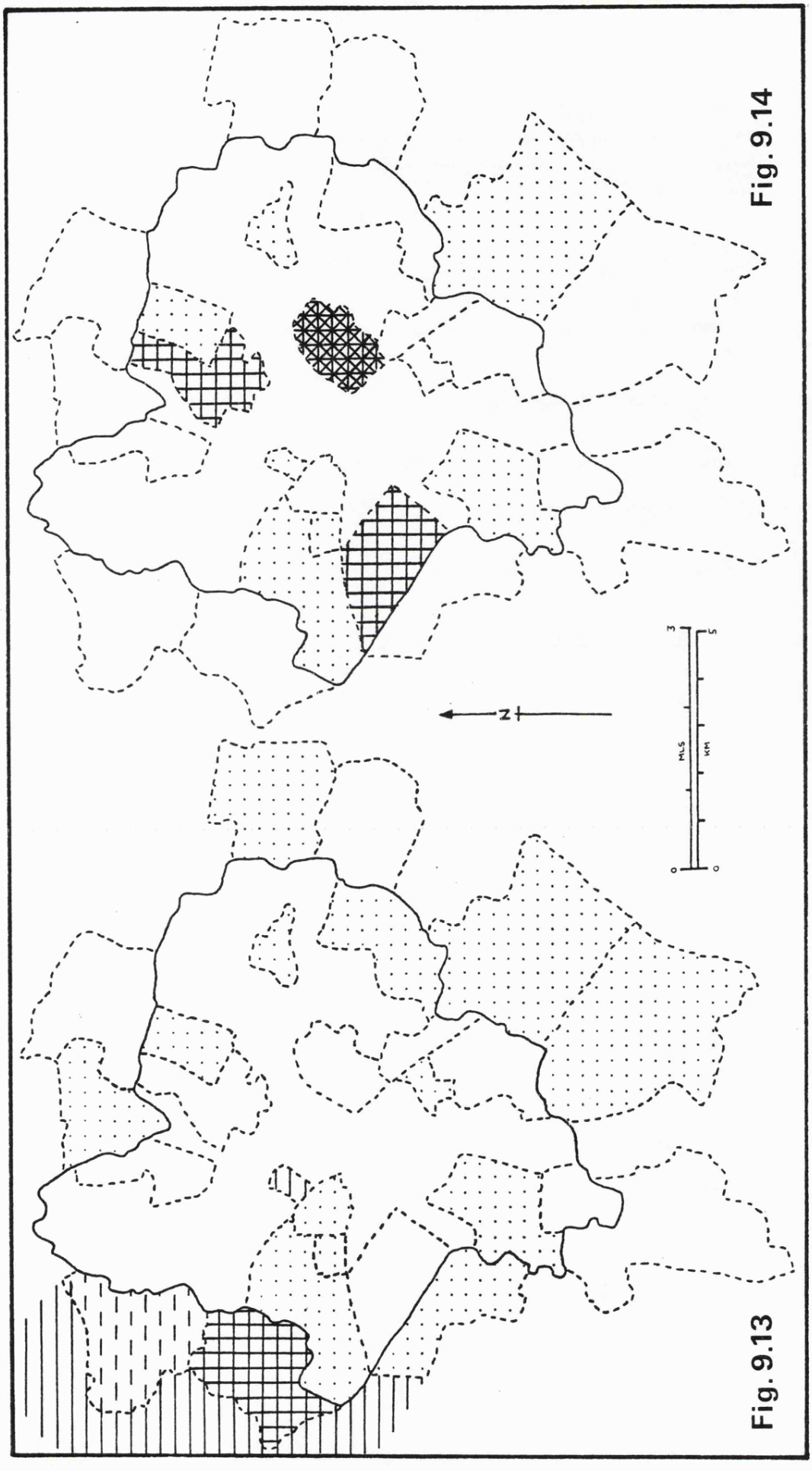
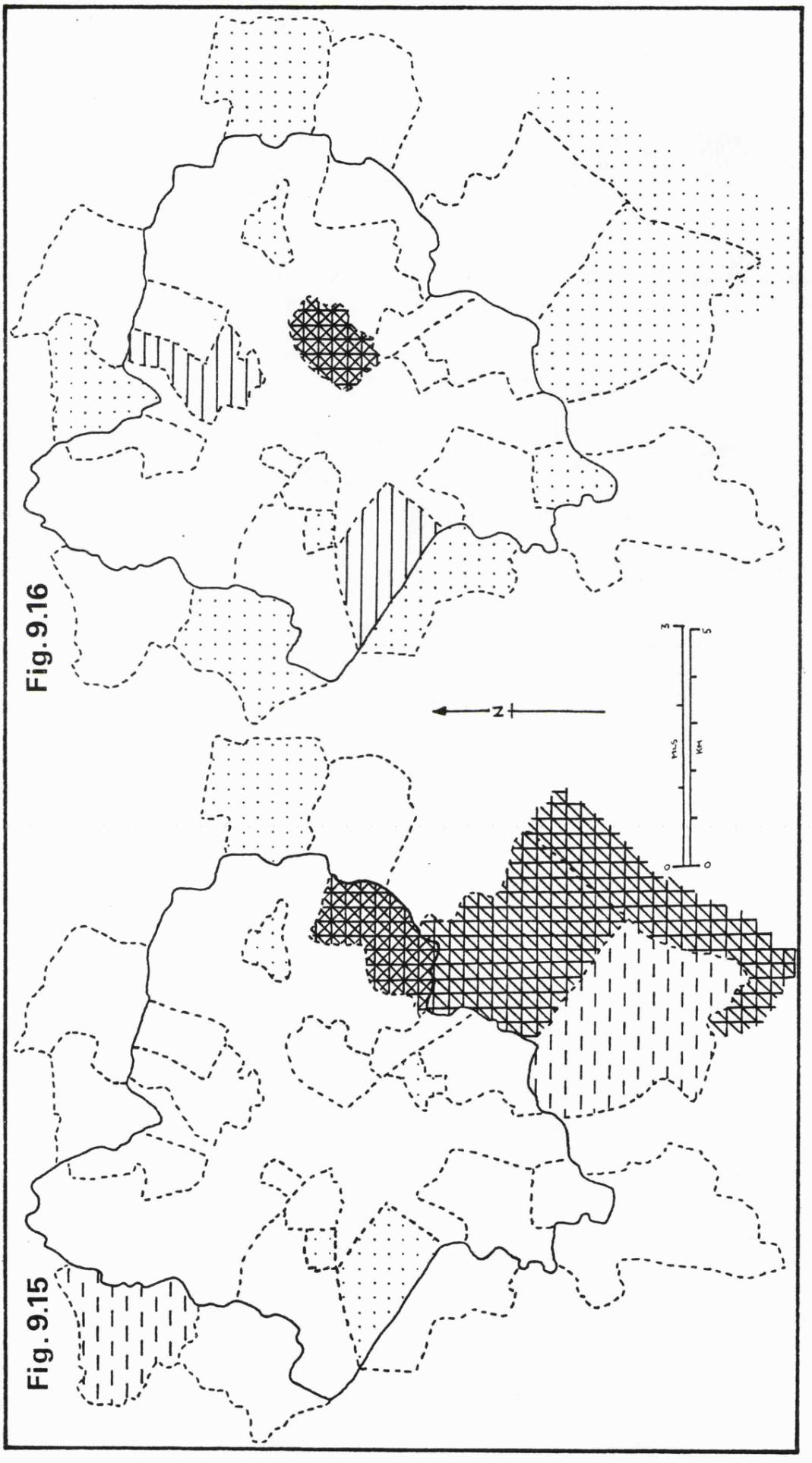


Fig. 9.10

Fig. 9.10 Oadby sample: Free choice alternative residential areas


Fig. 9.12
Fig. 9.11
N
MLS
KM
0
3
5


Fig.9.14
N
3
5
MLS
KM
0
0
Fig.9.13


Fig.9.16
N
3
5
MILES
KM
0
0
Fig.9.15

gained from the interviews conducted in the Woodgate area, and is to some extent supported by the larger number of areas suggested by the Woodgate sample as being preferable to their own in Table 9.24 than the number suggested by either Oadby or Humberstone respondents (Tables 9.25 or 9.23). If this were true, then positive choices concerning other, more desirable areas could be made by the Woodgate women. Humberstone and Oadby respondents on the other hand, considered their respective areas to be at the top of their preference structures, and so remaining in the same area in the event of an enforced move was much more acceptable to them.

vi) Which are the areas to which they do not wish to move ?

If the areas discussed so far may loosely be termed 'areas of positive intention', then the responses to Question 13b, 'Are there any areas to which you would definitely not consider moving ?' become 'areas of negative intention'. This question was asked of all respondents, and not just those expressing a desire to move. Table 9.26 and Figs. 9.12, 9.14 and 9.16 illustrate these areas of negative intention for the three sample areas, and then Humberstone, Woodgate and Oadby respectively.

The most frequently mentioned areas which the Humberstone respondents wish to avoid are Highfields, Belgrave, Braunstone and 'anywhere in the central city'. Woodgate respondents intend to avoid Highfields, Braunstone and Belgrave, as do the Oadby women, although they also mention 'anywhere in the city' a number of times. The 15% of the mentions made in this category

is curiously emphatic given that Evington, an area in which they have moderately strong family and friendship ties, and the area to which they would most like to move in the event of an enforced relocation decision lies within the city boundary.

The position of Questions 11 and 13a and 13b on the questionnaire schedule, well before any mention of the ten areas which were to be subsequently used in the analysis, ensured that the responses were accurate reflections of the individual's feelings towards these areas, and were not constrained in any way by the knowledge that some areas and not others were of particular interest to the study.

vii) How are these intentions related to their attitudes and preferences towards other areas ?

The three areas which consistently emerged as those which the vast majority of respondents wished to avoid were, of course, the same three which subsequently occurred at or near the bottom of the preference rankings discussed in Chapter 8. It was clear therefore that the ten areas selected for inclusion in the present study adequately tapped the most unpopular neighbourhoods in the city, but may have failed to incorporate a representative sample of the most preferred areas by the omission of Evington and, to a lesser extent, Glenfield.

Although the selection of other sample areas would undoubtedly have produced other 'preferred' and 'ideal' residential areas, the evidence from the overall preference surface maps of the city (Chapter 8) suggests that they would still have merged into a pattern of a trough of disliked areas

over the city centre, and a ridge of preferred districts to the south east.

Table 9.27 illustrates the area preference structure for those people within each sample area wishing to move. In the absence of Evington and Glenfield, Humberstone and Woodgate respondents selected Oadby and Stoneygate and Humberstone and, to a lesser extent, Wigston, as the most preferred areas in the list available.

There now remains the task of uncovering the nature of the respondents' attitudes towards these 'preferred' areas; are the areas near the top of the preference structures indeed evaluated more favourably along the attributes which are of importance to the individuals concerned than those areas occurring further down the list ? Is it a function of such favoured areas being perceived as exhibiting these important attributes which results in the areas themselves being preferred ?

Table 9.28 contains the weighted attitude scale scores for those respondents who stated a desire to move. Whilst the group of most favourably evaluated areas and the less favourably evaluated areas appear the same as in the preference ranking in Table 9.27, the order in which the first five areas occur in the attitude scale scores is not echoed exactly in the preference ranking.

We can draw several conclusions from this material. The fact that the area preference structures and the weighted attitude scale scores produce such similar results demonstrates that the nine attributes evaluated here in the measurement of overall attitudes of favourability towards areas, when weighted to take

Table 9.27 Area Preference Structure: Potential Movers

HUMBERSTONE n = 12		WOODGATE n = 38		OADBY n = 23	
Area	Mp scale value	Area	Mp scale value	Area	Mp scale value
Humberstone	0.896	Oadby	0.783	Oadby	0.932
Stoneygate	0.840	Wigston	0.721	Stoneygate	0.841
Oadby	0.817	Stoneygate	0.714	Wigston	0.760
Aylestone	0.594	Humberstone	0.621	Humberstone	0.585
Wigston	0.580	Aylestone	0.578	Aylestone	0.561
Braunstone	0.506	Woodgate	0.550	Braunstone	0.362
Eyres Monsell	0.361	Eyres Monsell	0.421	Woodgate	0.325
Belgrave	0.272	Belgrave	0.343	Eyres Monsell	0.319
Woodgate	0.172	Braunstone	0.326	Belgrave	0.288
Highfields	0.072	Highfields	0.078	Highfields	0.088

Table 9.28 Weighted Attitude Scale Scores for Respondents who wish to move

	Humberstone		Woodgate		Oadby	
Rank Posn.	Area	Wtd. Scale Score	Area	Wtd. Scale Score	Area	Wtd. Scale Score
1	Oadby	9.649	Wigston	9.274	Oadby	9.954
2	Humberstone	9.638	Aylestone	8.684	Wigston	9.377
3	Aylestone	8.700	Oadby	8.125	Stoneygate	9.317
4	Wigston	8.641	Stoneygate	8.066	Aylestone	7.377
5	Stoneygate	8.342	E.Monsell	7.900	Humberstone	5.788
6	Braunstone	7.478	Humberstone	7.281	Braunstone	5.465
7	E. Monsell	6.561	Braunstone	6.170	E. Monsell	4.538
8	Belgrave	4.537	Woodgate	6.117	Woodgate	1.650
9	Woodgate	3.594	Belgrave	3.774	Belgrave	1.378
10	Highfields	3.014	Highfields	1.434	Highfields	0.466

into account the relative importance of these attributes to individuals, do give a good indication of the preference structure of the three samples for residential areas within Leicester. That they do not mirror the preference structures exactly (particularly in the cases of the more preferred areas) suggests that there may be other attributes which were not measured here but which are also relevant to the operation of the attitude-preference part of the Perception - Behaviour process. It is quite probable too that it is not simply a question of identifying the missing dimensions; intangible considerations such as the reputation of areas, stereotyped impressions and other attitudes unrelated to residential decision behaviour, together with the personal characteristics of the individual, all of which may vary through time, are likely to exhibit varying degrees of influence.

viii) and ix) Conclusion

This chapter set out to examine the Behavioural Intention element of the proposed Perception - Behaviour process in the context of Images, Attitudes and Preferences previously analysed in Chapters 6 to 8. It began by considering the areas which were visited by members of the three samples to see family and friends or to go to work, to establish whether their knowledge and experience of the city were likely to be spatially biassed in any particular way. Information concerning how each respondent had found her present house suggested a higher reliance on interpersonal sources and personal experience in the Humberstone and Woodgate samples, and a greater use of car-based and institutional sources of information in Oadby.

Identification of those persons within each sample who wished to move elsewhere was set within the context of the age, family, residential mobility and occupational structure of the three samples, and the potential movers emerged as predominantly younger women with families.

In an attempt to link this stated desire to move, part of the Behavioural Intention element of the process, with the preceding elements, each individual's image of, and attitudes towards her own local neighbourhood was examined, together with her preferences for attributes of residential areas in general.

It was found that the intention to move could be matched with a more critical image of the local area and comparatively unfavourable evaluations of important attributes within it, to quite a close extent. The perceived absence or poor performance in the local area of an attribute occurring near the top of the preference structure is probably necessary, if not sufficient, to cause an individual to consider moving to an alternative residential location.

The image-attitude-preference sections of the process examined here, however, did not quite so closely explain the intentions concerning where such respondents wished to move. Preference rankings of desirable areas are similar to, though not entirely consonant with, positions suggested by attitude scale scores (particularly in the case of the most preferred areas). In the case of the more disliked areas, we can predict their positions in the preference structures with a fair amount of accuracy from the weighted attitude scale scores.

We have seen elsewhere that the reasons for liking an area are probably far more complex than those for disliking it, and

such a lack of congruence should not be surprising; the differences between Tables 9.27 and 9.28 are quite minor ones.

Part of our inability to examine the 'pull' factors of preferred areas adequately results from the choice of only ten areas for use throughout the questionnaire schedule. The areas which respondents were required to rank and evaluate along specific dimensions were not necessarily those which they had previously identified as 'areas of positive intention'. It is also very unlikely that the nine criteria used represented the totality of every individual's attitudes and preferences; they were meant to be a selection, and detailed analysis of attitudes and preferences for areas linked to behavioural intentions would thus have been a very misleading exercise. However, we have seen that, for the ten areas selected, there is a large amount of evidence supporting the links between the image, attitude and preference elements of the process.

There is sufficient evidence between these three elements and the behavioural intention element, however, to suggest that a much broader study of relevant attitudinal measures, together with a consideration of the full range of preferred areas relevant to and identified by individuals would have provided a great deal of clarification of the operation of the final stage of the Perception-Behaviour process, and of the nature of the feedback from Intention to Image illustrated in Fig. 1.1.

This study has been able to provide a simple framework by which an understanding of the residential Perception-Behaviour process can be approached, and has also been able to suggest the directions which future investigations of the type indicated above might take.

Conclusion

This research was begun with the conviction that cognition was a fundamental yet imperfectly understood element in the explanation of human spatial behaviour and that the nature of its form and operation could be approached through an application of the framework provided by the Perception - Behaviour process illustrated in Fig. 1.1 in a real world situation.

The study

i) Examined the entire process rather than one isolated part of it in one situation, the intra-urban residential context

ii) Explored alternative methods of data analysis hitherto largely absent from Behavioural Geography, with the purpose of demonstrating that cognitive components of the Perception - Behaviour process can be measured effectively

iii) Considered the extent to which an individual's location in social space as well as her location in physical space affect the operation of the process and the nature of apparent 'group' images, attitudes and preferences

iv) Assessed the evidence which emerged concerning the validity of regarding environmental images, attitudes, preferences and behavioural intentions as interrelated elements in an essentially sequential process.

This thesis will rightly be judged by how far and how well it achieved its aims. It has quite clearly established that cognition is neither too insubstantial to measure nor too 'obvious' to be unworthy of attention. The fact that humans are complex, unpredictable, thinking beings is Behavioural

Geography's greatest source of strength, not its downfall, and it is to be hoped that more concern will be paid to understanding 'real' people in their everyday environments rather than to strictly controlled laboratory samples in the future.

A major aim of the research was to examine the operation of the whole Perception - Behaviour process rather than one element such as images or preferences, and to consider the differential effects of an individual's location in physical and social space. Only in this way can cognition be seen as a process of coming to learn and know about one's environment, perhaps even to 'know the place for the first time' and to form attitudes and preferences with respect to it. Our evidence here is strong, both for the elements themselves and for the implicit links between them.

Group images were not difficult to identify. The chapter which examined images illustrated how the strongly positive and negative images produced by Oadby and Stoneygate or Highfields for example, in general varied little between the three samples. In detail, certain attributes in the images of other areas were consistently viewed with more criticism or favour from one sample, such as Oadby's positive images of the schools elsewhere, and some areas tended to evoke rather differing images in the minds of the respondents. Aylestone was thus seen both as an area of early twentieth century terraced housing and late nineteenth century terraces, and as an example of inter-war semi-detached suburbia, and Woodgate tended to be more well disposed towards Braunstone than the other samples.

Positive images of Oadby, Stoneygate, Wigston and Humberstone were counterbalanced by negative images of Highfields and Belgrave and, to some extent, Woodgate. Certain features of Braunstone and Eyres Monsell were perceived clearly yet others (every attribute in Aylestone for example) were hazy and almost completely undifferentiated.

Slight differences occurred between age groups yet, on the whole, the images displayed little variation. Those areas which produced strongly positive and well defined images (or negatively but well defined) were, apart from Humberstone, more accurately located than those areas for which respondents possessed no clear image, and Aylestone and Eyres Monsell were almost completely spatially undifferentiated. Humberstone respondents, however, were far less accurate in locating their area than the other two samples were in locating theirs.

Areas such as Aylestone and Eyres Monsell, images which evoked little meaning for respondents, were subsequently regarded only moderately favourably in the Attitude element of our process. Clear images of areas such as Stoneygate or Highfields appeared to result in very positive or negative evaluations of the majority of attributes contained within the areas.

When the attitude scale scores were weighted to take into account stated preferences for attributes, it emerged that the negatively evaluated areas received their lowest scores on attributes of maximum importance to the individuals concerned; in Highfields this was particularly so in the case of the perceived quality of the housing, appearance of the area, its suitability for children and the privacy/peace and quiet dimension.

Conversely, positively evaluated areas, such as Oadby and Stoneygate, received their high scores largely from high opinions of attributes of maximum importance. The only attributes evaluated positively in Highfields or Belgrave, such as accessibility or the quality of the shops, were of lesser importance to the majority of the sample.

Several techniques were adapted from Psychology at this point in the analysis to uncover the relationship between evaluations of different attributes as perceived to exist in specific residential environments by the three samples. Attitude profiles were constructed from the weighted attitude scores and were seen to form three distinct types depending on the combination of positively or negatively rated items. The existence of three mentally differentiated types of area, each exhibiting a characteristic pattern of attitudes towards attributes, were confirmed by the generalised distance scores, where areas possessing similar profiles were seen to possess low scores, implying overall similarity. Since the generalised distance scores were summed over all attributes for an area, different combinations of positive and negative evaluations in two areas could have produced a high overall measure of similarity between them; that this did not occur suggests that generalised distance scores can be a sensitive measure of attitudinal similarities and differences towards residential areas.

Attitudes specifically directed towards the home area were not a great deal more favourable than towards the same area when evaluated in the context of the other nine, and Woodgate residents in particular do not display the expected inflated degree of

positive evaluation of their home area.

Examination of the preference structures for areas and attributes within areas showed that while preferences for areas tended to vary with the spatial location of the respondent, preferences for attributes in areas varied according to social characteristics. Primary among these were the age of the respondent, and whether she had children living at home, together with car ownership. The younger women with families were shown to be far more concerned with attributes concerning schools and the suitability of the area for children, whereas the older respondents and those without cars were more concerned with the friendliness of the residents, local shopping facilities and accessibility. Humberstone respondents were consistently concerned for the quality of housing in an area and the privacy/peace and quiet dimension; privacy was also important to those in Woodgate, and the quality of the area for children a central concern to the younger women in Oadby.

Oadby, Stoneygate, Wigston and Humberstone were consistently the most preferred areas, largely irrespective of social variables, confirming the lack of a dome of preference and desirability over Woodgate from its own respondents.

Preference surfaces for the city of Leicester as seen from each of twenty areas were constructed using Trend Surface Analysis, another technique of considerable potential for Behavioural Geography which has not yet gained the recognition it deserves. It was evident that the location of the perceiver as suggested by other studies in the literature, was of considerable importance in determining the detail of the

perceptual preference surface of the city, while the overall patterns remained fairly consistent. A highly preferred zone in the south east of the city was part of a ridge of desirable areas surrounding a zone of strongly disliked areas over the central city. The psychological technique of paired comparisons, used to elicit the preference structures, was again used to prepare the data used in the Trend Surface Analysis and can be shown to have potential for studies of this type. The direction of the basic linear trends of preference varied according to the location of the group of respondents, but successive surfaces of higher order more closely approximated to the general surface, with only minor local variations.

Areas which had evoked images of little meaning, such as Aylestone or Eyres Monsell, and had been evaluated only moderately came to assume consistently average positions in the preference rankings. Accurately located areas of strongly defined images and negatively or positively evaluated attitudes were predictably at the top or bottom of the preference structures. Indeed, the preference structures were very similar to the weighted attitude scores - areas evaluated positively were the most preferred, especially when this evaluation was achieved on attributes of maximum importance. Poor evaluations of important attributes led to lower positions in the preference structures; Wigston and Aylestone were positively evaluated by the Woodgate sample in some instances, yet did not appear at the top of the respective preference structures largely as a result of their poorer performance on the dimension of greatest importance - privacy/peace and quiet.

The consideration of behavioural intentions is rather more difficult. Whilst not displaying a more critical image of their local areas than the others, those people expressing a wish to move, especially from Woodgate, did evaluate their local area far less positively on attributes which were of considerable importance to them; the quality of the schools, of the housing and particularly of privacy/peace and quiet.

Preferred areas were obviously not confined to the ten selected for this study, and so evaluations of only these ten on a group level compared with the home area of individuals wishing to move but maybe mentioning other preferred areas, would thus have been very misleading. Of the ten areas selected though, those appearing towards the top of the preference rankings for those people wishing to move were evaluated highly on attributes of maximum importance, as evidenced by the weighted attitude scores for these areas. The most disliked areas, Highfields, Belgrave and Braunstone, appeared at the bottom of the preference rankings quite consistently.

We have thus established a great deal of evidence in support of a cognition or Perception - Behaviour process in a form suggested in Fig. 1.1. Although this was conceived specifically for use in the present context, it is potentially applicable to other situations and other scales of human behaviour. It has certainly been able to show that the process underlying overt behavioural patterns is capable of precise measurement, and that the results have far from 'proved the obvious'.

Before expanding the field, however, it would certainly be interesting to repeat this study in Leicester, perhaps including Humberstone, Woodgate and Oadby in a larger number of samples to see how images, attitudes and preferences towards a wider selection of residential areas have altered since this study was begun. The rapidly changing character of some districts could be expected to produce very different patterns within the elements of the Perception - Behaviour process.

The application of the process to a larger urban area would also provide useful comparison; Birmingham or Merseyside would seem to offer possibilities here in which residential areas could be expanded to towns within a conurbation.

The conviction with which this study began, that cognition is a vitally important process in understanding and explaining the nature of human spatial behaviour and, implicitly, mobility, remains. It is hoped that this research has been able to offer some insight into the nature and operation of this process within the context of intra-urban residential perception and behaviour.

Having reached this stage, however, it is fitting to recall the words with which we opened the first chapter, and to add:

> 'What we call the beginning is often the end
> And to make an end is to make a beginning.
> The end is where we start from.'
>
> (Thomas Stearns Eliot, 1942)

Appendices

Appendix A Main Questionnaire

UNIVERSITY OF LEICESTER

Department of Geography

1 How long have you lived in Leicester ?

Under 1 year	1
1 - 5 years	2
6 - 10 years	3
Over 10 years	4
Born in Leicester	5

2 How long have you lived in your present house ?

Under 1 year	1
1 - 5 years	2
6 - 10 years	3
Over 10 years	4
Born in house	5

3 Have you any close relations living in Leicester ?

No 1

Yes 2

4 Where do they live, and how often do you visit them ?

	Once a week or more	Once a month or more	Every six months	Every year
	1	2	3	4
	1	2	3	4
	1	2	3	4
	1	2	3	4

5 Have you any close friends living in Leicester outside this local area ?

No 1

Yes 2

6 Where do they live, and how often do you visit them ?

	Once a week or more	Once a month or more	Every six months	Every year
	1	2	3	4
	1	2	3	4
	1	2	3	4
	1	2	3	4

7 Do you (or your husband) own a car ? No 1
Yes 2

8 Do you read the 'Leicester Mercury' ? No 1
Yes 2

9 How did you find your present house ?

Estate Agent 1
From a newspaper 2
Casual visit 3
Recommendation from a friend 4
Recommendation from family 5
Some other method 6

10 If you had the opportunity to move elsewhere in Leicester, and money were no problem to you, would you do so ?

No 1

Yes 2

11 Where would you like to go ?

12 Anywhere else ?

13a Suppose that you were forced to leave your present house now; in which area(s) would you start looking for a new one ?

13b Are there any areas which you would definitely not consider ?

14 Can you arrange these things in order of their importance to you in choosing a new place to live ?

a) The community facilities; churches, clinics, pubs etc.
b) The general appearance of the area
c) Privacy and 'peace and quiet'
d) The friendliness of the residents
e) The quality of the area for bringing up children
f) The type of housing; flats, terraces etc.
g) The quality of the local shops
h) The age of the residents
i) The quality of the housing
j) Accessibility to public transport and the city centre/regular bus services
k) The quality of the local schools
l) The age of the housing

15 Can you please arrange these areas of the city in order of where you would most like to live if you could do so ?

a)	Oadby	
b)	Braunstone	
c)	Eyres Monsell	
d)	Belgrave	
e)	Aylestone	
f)	Humberstone	
g)	Highfields	
h)	Wigston	
i)	Stoneygate	
j)	Woodgate	

16 Could you please mark where these areas are on this map of the city ?

17 On each page of this booklet is a different item. For each page, would you please mark the boxes in the table * which best describe the areas named ?

Areas: as Question 15 above

i) What is the main type of housing in the area ?

Flats	1
Terraces	2
Council	3
Semi-detached	4
Detached	5

ii) What is the quality of the local schools ?

Very poor	1
Poor	2
Average	3
Good	4
Very good	5

* see end of Question 17.

iii) How suitable is the area as one in which to bring up children ?

Very poor	1
Poor	2
Average	3
Good	4
Very good	5

iv) How friendly are the residents ?

Very unfriendly	1
Unfriendly	2
Average	3
Friendly	4
Very friendly	5

v) Accessibility to public transport and regular 'bus services into the city centre

Very poor	1
Poor	2
Average	3
Good	4
Very good	5

vi) Community facilities; clinics, churches etc.

Very poor	1
Poor	2
Average	3
Good	4
Very good	5

vii) What is the average age of the residents ?

Very old	1
Old	2
Middle aged	3
Young	4
Very young	5

viii) What is the quality of the housing like ?

Very poor	1
Poor	2
Average	3
Good	4
Very good	5

ix) What is the general appearance of the area ?

Very unattractive	1
Unattractive	2
Average	3
Attractive	4
Very attractive	5

x) What is the quality of the local shops ?

Very poor	1
Poor	2
Average	3
Good	4
Very good	5

xi) How quiet is the area ?

Very noisy	1
Noisy	2
Average	3
Quiet	4
Very quiet	5

xii) What is the age of the majority of the housing ?

Victorian	1
1900 - 1914	2
1918 - 1939	3
1945 - 1960	4
Post 1960	5

* The order of pages in the booklet was varied for each respondent; the codes 1 - 5 were not included, and the direction of the scales from very poor to very good, or very good to very poor was randomly altered.

18 Has this area around here a local name, and if so, what is it ?

19 Can you please mark on this map of part of Leicester, the extent of your local area ?

20 Will you please mark the box on each line of this table which you think best describes your own home area ?

Age of Residents	Very old	Old	Middle-aged	Young	Very young
How friendly are they ?	Very friendly	Friendly	Average	Not very friendly	Very un-friendly
Type of housing	Flats	Terraces	Council	Semi-detached	Detached
Age of housing	Victorian	1900-1914	1918-1939	1945-1960	Post 1960
Appearance and Quality	Very attractive	Attractive	Average	Not very attractive	Very un-attractive
- do -	Very noisy	Noisy	Average	Quiet	Very quiet
- do -	Very good for children	Good for children	Average	Not very good for children	Very un-desirable for children
Community Facilities	Very poor	Poor	Average	Good	Very good
Quality of schools	Very good	Good	Average	Poor	Very poor
Quality of shops	Very poor	Poor	Average	Good	Very good
Access-ibility	Very good	Good	Average	Poor	Very poor

21 What is the occupation of the person who is head of this household ?

22 What is your occupation ?

23 In which area of the city do you work ?

24 How do you travel to work ?

'Bus	1
Car	2
Walk	3
Some other method	4

25 Have you any children living at home ?

No	1
Yes	2

26 How many, and how old are they ?

	Ages
I	
2	
3	
4	
More	

27 How old were you when you received your last full-time education ?

14 or under	1
15 or 16	2
17 or 18	3
19 - 21	4
Over 21	5

28 Would you please indicate which of the following age groups you are in ?

Under 19	1
20 - 34	2
35 - 49	3
50 - 64	4
Over 65	5

Appendix B Supplementary Questionnaire

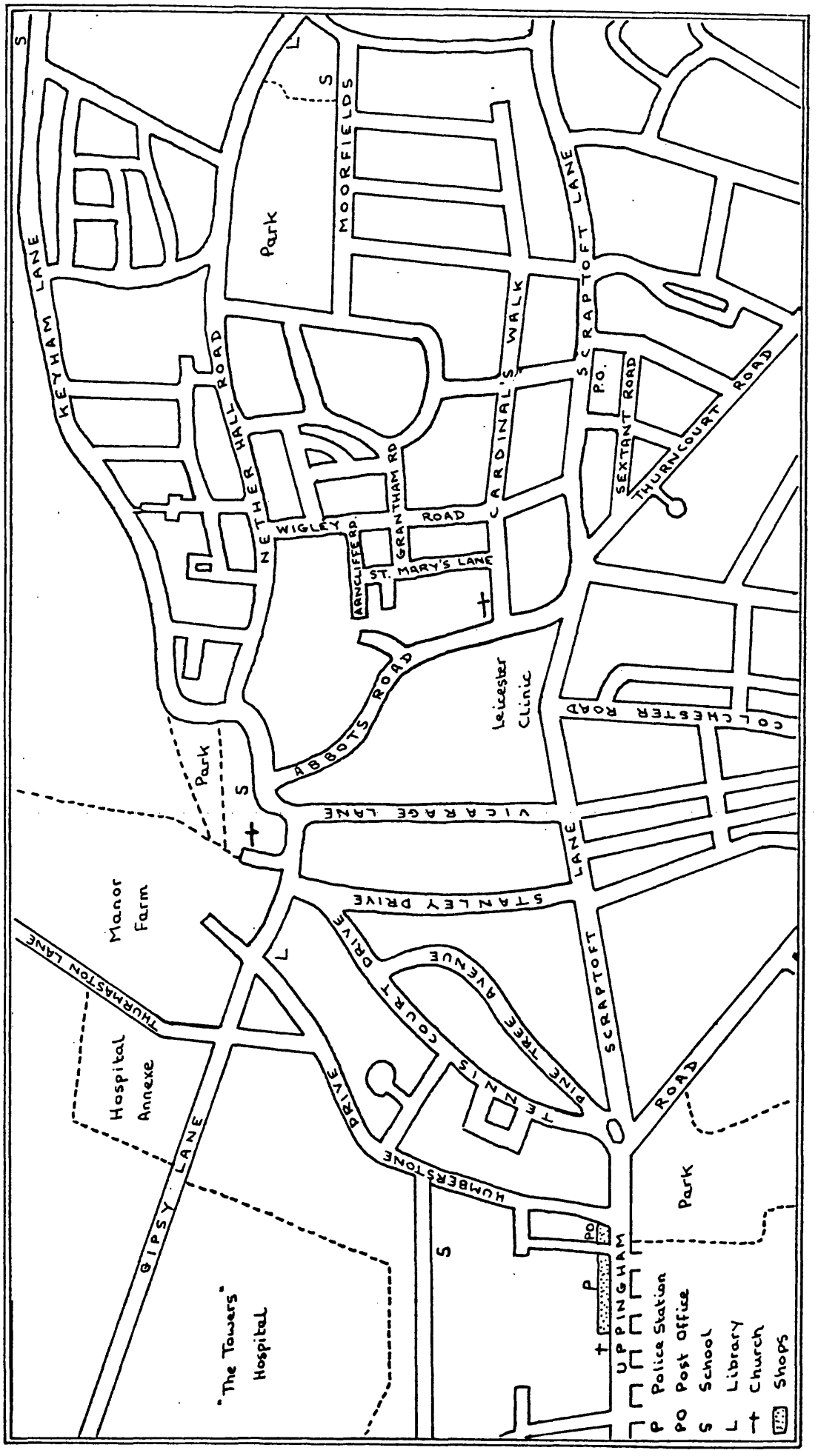
Location of Interview

Street of Residence of Respondent

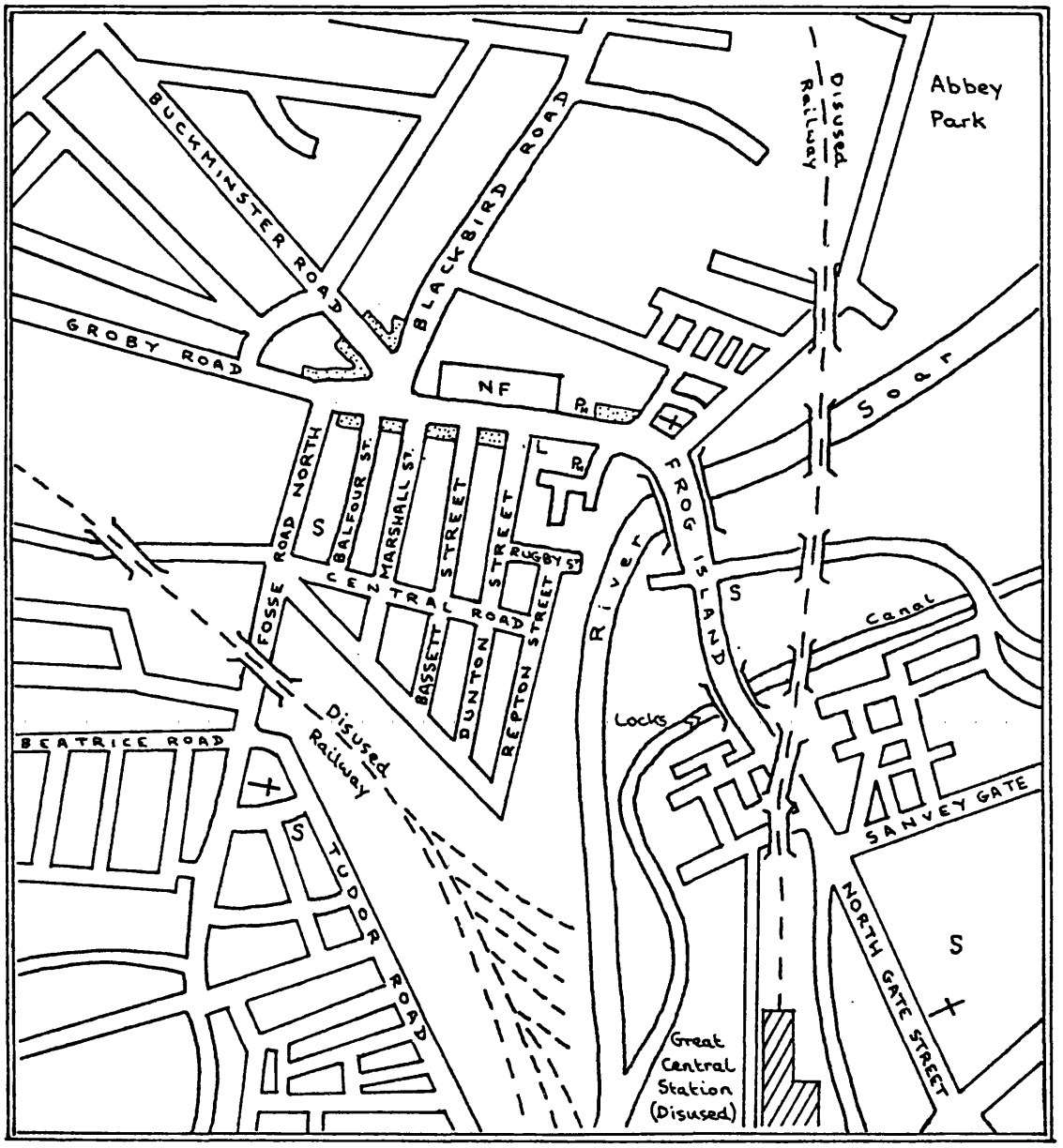
a) Would you please look at this list of areas in Leicester, and tell me which five, in order, you would most like to live in, if you were able to do so ? Please begin with the one which you would put in first place.

b) Could you also say which five you would least like to live in ? Please begin with the one which you would place at the bottom of your list.

	a	b
Aylestone		
Belgrave		
Birstall		
Braunstone		
Clarendon Park		
Evington		
Eyres Monsell		
Glenfield		
Highfields		
Humberstone		
Leicester Forest East		
Mowmacre Hill		
New Parks		
Oadby		
Stoneygate		
Thurmaston		
Thurnby		
Western Park		
Wigston		
Woodgate		


KEYHAM LANE
NETHER HALL ROAD
Park
MOORFIELDS
SCRAPTOFT LANE
CARDINAL'S WALK
P.O.
SEXTANT ROAD
THURNCOURT ROAD
WIGLEY RD.
GRANTHAM ROAD
ARNCLIFFE RD.
ST. MARY'S LANE
ABBOTS ROAD
Leicester Clinic
COLCHESTER ROAD
VICARAGE LANE
Park
STANLEY DRIVE
LANE
Manor Farm
THURMASTON LANE
PINE TREE AVENUE
COURT DRIVE
TENNIS
SCRAPTOFT
ROAD
Hospital Annexe
GIPSY LANE
HUMBERSTONE DRIVE
"The Towers" Hospital
PO
Park
UPPINGHAM
P Police Station
PO Post Office
S School
L Library
Church
Shops

Appendix D Woodgate

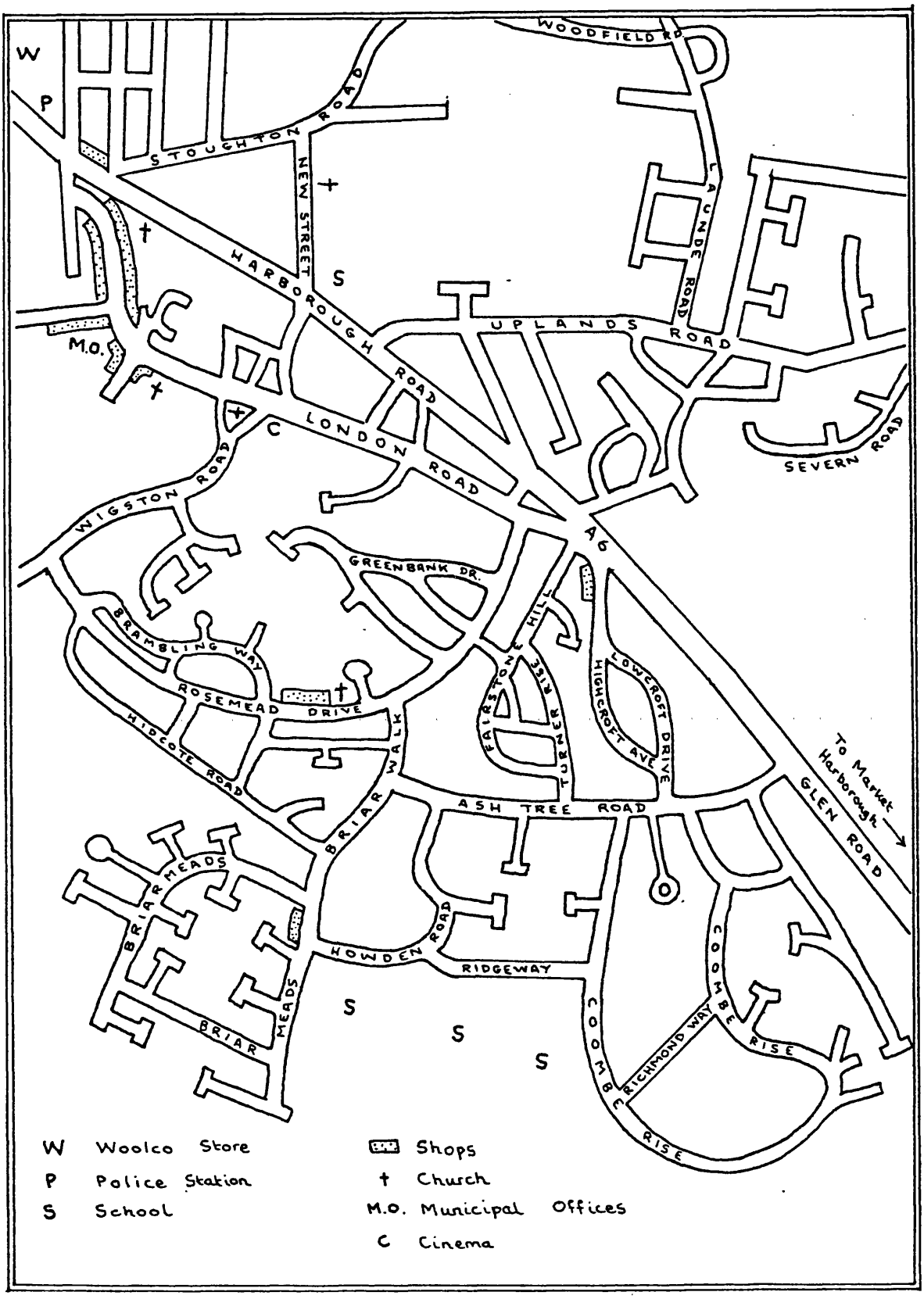


KEY:

+ Church L Library Ph Public House S School

NF Nabisco Frears Factory Bridge Shops

Appendix E Oadby - Brocks Hill



APPENDIX F

OCCUPATIONS IN EACH SOCIAL CLASS CATEGORY

I.P.A. Classification

1. NON MANUAL OCCUPATIONS

"A" UPPER MIDDLE CLASS

Doctor, Dentist, Physician, Surgeon, Specialist, Solicitor, Barrister, Headmaster of a large school, Senior Civil Servant (Principal and above), Senior Local Government Official (e.g. Town Clerk, Treasurer, County Planning Officer), University Professor, Architect, Editor, Senior Journalist, Chartered Accountant, Proprietor of large business, Senior Executive, Ordained Priest, Company Director, Manager of large factory, store or bank, Stock Broker and Jobber, Senior Industrial Scientist, Chemist, Physicist, Botanist, Senior Engineer with a Degree, Senior Qualified Engineer in large factory, Police Superintendent, Lieutenant Colonel and above (Army), Commander and above (Navy). People living in comfort on investments or private income. Retired people where the head of the household before retirement would have been Grade "A".

"B" MIDDLE CLASS

Headmaster/Headmistress of smaller school (primary or secondary), Senior Assistant Master or Mistress, Senior Secondary or Technical School Teachers in charge of a Department. Civil Servant in Executive or similar Grade. University Lecturer, Journalist, Matron of large hospital, Librarian (senior qualified), Curate. Owner of Medium sized business, Proprietor with 3 or more paid employees, Manager (office or business) with 6 or more under their management, Manager of small branch office of Bank or Insurance Company. Industrial Scientist, Qualified Engineer. Manager of small factory or business or of department in a larger factory or business. Police Inspector. Captain, Commandant (Army), Lieutenant, Lieutenant - Commander (Navy). People with private income living in a rather less luxurious way than Grade "A" and retired people where the head of the household before retirement would have been Grade "B".

"C1" LOWER MIDDLE CLASS

Primary, secondary or technical school teacher (younger or without special responsibility), Junior University Lecturer, Nurse, Nursing Sister, All State Registered Nurses (male and female), Midwife, Pharmacist, Dispenser, Radiographer, Physiotherapist,

Junior Civil Servant, Bank Clerk, Local Government Clerk, Junior Librarian, Proprietor with 1-2 paid employees. Manager (office or business) responsible for 1-5 employees, Manager of small retail shop. Lower Managerial and clerical supervisory grades (where these are not primarily manual workers). Dispatch Clerk, Clerk, Typist, Calculating Machine Operator, Telephonists, Telegraphist, Clerk-Receptionist, Shop Assistant with Special Responsibilities or training, Laboratory Assistant, Musicians, Entertainers, Actors (who are not of AB status), Commercial Travellers, Company Representatives.

2. MANUAL OCCUPATIONS

"C2" SKILLED WORKING CLASS

Ordinary Policeman, Foreman, Charge Hand, Overlocker, Overseer, whose work is mainly manual (these may be found in nearly all trades and industries), Post Office Sorter. Most adult male skilled workers or craftsmen including the following: Bricklayer, Carpenter, Plasterer, Glazier, Plumber, Painter. All adult underground workers including the following: Coal Cutter, filler, getter, hewer, miner, putter. Most adult male skilled workers including the following: Furnaceman, moulder, smelter, blacksmith, coppersmith plater, riveter, shipwright, setter, tool-maker, turner, vehicle builder, welder, electrical fitter, electrician, linesman, fitter, grinder, millwright. Skilled workers in rayon or nylon production, Skilled Knitters, (hosiery or other knitted goods). Most adult male skilled workers including the following: Carpenter, jointer, cabinet maker, machine man, finisher (paper and board manufacture), Compositor, Linotype Operator, Typesetter, Electrotyper. Stereotyper, Process Engraver. A few only of the better paid workers such as long distance lorry drivers, Engineer Driver, Bus Driver, Stevedore. Manager of a small shop who in fact does most of the work. Storeman (who are in charge of others), Housekeeper (in charge of others), Crane/excavator drivers, Senior shop assistants/ barmen/Storemen whose work is mainly manual but overseeing junior shop assistants/ barmen/storemen. Leading Firemen, Firemen. Retired people who, before retirement, would have been in C2 grade and have pensions other than state pensions or have private means.

"D" OTHER WORKING CLASS

Most unskilled workers. Labourers and mates of the occupations included in C2 grade. Most manual workers including the following: Woolsorter, blender, carder, comber, drawer, spinner, doubler, twister, weaver, dyer, textile printer, boot and shoe maker, cutter (clothing manufacture). Machinist assembler, pressers, barmen, van drivers, postmen, milkmen, sprayers, processors, hospital attendants/assistant without special training or responsibility. Housekeepers. Private or equivalent (Army), Ordinary Seaman (Navy). Retired people who before retirement would have been in D grade and have pensions other

than state pensions, or have other private means.

"E" THOSE AT LOWEST LEVELS OF SUBSISTENCE

Broadly Grade E consists of pensioners, widows and families, casual or lowest grades of workers, and those who through periods of sickness or lack of opportunity or unemployment are unable to take their place in the higher grades. Income of head of household - less than £15 per week and no other wage earner of higher grade.

Appendix G Trend Surface Analysis: Values and Residuals

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Aylestone						
AYL	3.67	28.33	0.49	31.51	10.26	21.74
BEL	- 3.94	-16.06	-10.01	- 9.99	-25.18	5.18
BIR	- 9.55	21.55	- 1.12	13.12	10.73	1.27
BRA	- 3.62	- 1.38	- 6.67	1.67	- 1.26	- 3.74
CP	3.77	- 5.77	- 4.13	2.13	8.55	-10.55
EVI	7.31	6.69	5.56	8.44	8.56	5.46
EM	6.33	-22.33	10.79	-26.79	- 2.26	-13.74
GLE	-10.64	10.64	- 1.16	1.16	- 1.70	1.70
HIG	1.34	-32.34	- 8.32	-22.68	-10.29	-20.71
HUM	2.08	- 4.08	- 3.03	1.03	-16.51	14.51
LFE	- 1.52	9.52	- 3.23	11.23	3.89	4.11
MH	- 8.55	0.55	- 6.42	- 1.58	-14.68	6.68
NP	- 8.21	- 9.79	- 5.54	-12.46	- 7.99	-10.00
OAD	12.10	15.90	20.41	7.59	29.26	- 1.26
STO	5.32	7.68	- 1.51	14.51	9.48	3.52
THM	- 6.53	7.53	- 0.80	1.80	7.84	- 6.84
THN	8.54	- 4.54	12.68	- 8.68	10.04	- 6.04
WP	- 5.05	5.05	- 9.22	9.22	-10.74	10.74
WIG	11.70	3.30	22.08	- 7.08	10.58	4.42
WOD	- 4.55	-20.46	-10.86	-14.14	-18.56	- 6.44
Belgrave						
AYL	- 1.77	4.77	- 8.67	11.67	0.37	2.63
BEL	2.11	-16.61	- 6.38	- 8.12	-19.26	4.76
BIR	3.12	23.38	12.84	13.66	21.04	5.46
BRA	- 1.99	- 6.01	- 6.47	- 1.53	- 4.86	- 3.12
CP	0.25	- 0.75	+10.25	9.75	1.47	- 1.97
EVI	3.29	6.21	2.64	6.86	4.76	4.74
EM	- 2.64	-11.36	- 1.80	-12.20	- 9.97	- 4.03
GLE	- 1.74	19.74	15.46	2.54	18.70	- 0.70
HIG	1.62	-46.62	-11.11	-33.89	-12.09	-32.91
HUM	3.87	- 3.37	- 4.54	5.04	-12.96	13.46
LFE	- 2.68	- 0.32	- 7.47	4.47	- 6.11	3.11
MH	1.62	- 5.62	5.60	- 9.60	- 0.93	- 3.07
NP	- 1.47	- 1.03	4.88	- 7.38	3.46	- 5.96
OAD	1.37	15.13	16.37	0.14	18.91	- 2.41
STO	1.32	15.18	- 6.85	23.35	2.94	13.56
THM	4.42	2.59	7.00	0.00	13.33	- 6.33
THN	4.56	- 0.06	11.67	- 7.17	10.01	- 5.51
WP	- 0.93	5.43	- 5.35	9.85	- 7.31	11.81
WIG	- 0.62	9.12	13.56	- 5.06	6.14	2.36
WOD	0.30	- 9.80	- 7.12	- 2.39	-13.60	4.10

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Birstall						
AYL	- 2.75	- 5.25	- 8.40	0.40	- 0.20	- 7.80
BEL	0.95	- 6.95	- 3.30	- 2.70	-16.28	10.28
BIR	0.39	29.61	6.82	23.18	16.78	13.22
BRA	- 6.21	-14.79	-10.33	-10.67	- 9.66	-11.34
CP	0.89	11.11	- 4.22	16.22	7.56	4.44
EVI	7.78	1.22	7.39	1.61	12.23	- 3.23
EM	- 3.17	-11.83	- 6.09	- 8.92	-13.17	- 1.83
GLE	- 8.72	16.72	3.01	4.99	8.86	- 0.86
HIG	2.31	-36.31	- 4.35	-29.65	- 4.02	-29.98
HUM	6.62	- 3.62	- 0.68	3.68	- 8.08	11.08
LFE	- 6.55	5.55	-12.92	11.92	- 9.62	8.62
MH	- 1.86	-17.14	2.88	-21.88	- 4.18	-14.82
NP	- 7.22	- 0.78	- 2.53	- 5.47	- 4.80	- 3.20
OAD	6.28	11.62	18.96	- 0.96	22.32	- 4.32
STO	3.43	24.57	0.08	27.92	12.24	15.76
THM	3.96	- 5.96	2.17	- 4.17	7.47	- 9.47
THN	10.57	- 3.57	12.33	- 5.33	7.48	- 0.48
WP	- 4.92	10.92	- 6.85	12.85	-11.94	17.94
WIG	2.67	5.34	13.39	- 5.39	3.72	4.28
WOD	- 2.53	-10.47	- 5.36	- 7.64	-14.72	1.72
Braunstone						
AYL	6.13	- 8.13	5.48	- 7.48	7.02	- 9.02
BEL	- 2.94	- 9.07	- 8.14	- 3.86	-11.53	- 0.47
BIR	- 4.06	3.06	- 1.54	0.54	- 3.48	2.48
BRA	9.31	9.69	10.06	8.94	16.08	2.92
CP	0.01	1.99	- 6.56	8.56	- 4.09	6.09
EVI	-10.36	-17.63	-10.23	-17.77	-14.03	-13.98
EM	7.83	- 9.83	13.36	-15.36	3.09	- 5.09
GLE	10.97	2.03	16.54	-.3.54	11.94	1.06
HIG	- 3.29	-26.71	-10.38	-19.62	-12.46	-17.54
HUM	-10.33	9.33	- 9.96	8.96	-13.89	12.89
LFE	10.66	16.33	14.62	12.38	17.38	9.62
MH	0.12	- 0.12	- 2.38	2.38	- 8.34	8.34
NP	9.33	- 8.33	10.97	- 9.97	12.22	-11.22
OAD	6.23	3.23	- 5.81	2.81	0.24	- 3.24
STO	- 3.74	8.74	- 9.81	14.81	-10.33	15.33
THM	- 9.00	9.00	- 2.85	2.85	6.64	- 6.64
THN	-14.64	10.64	- 6.63	2.63	- 7.18	3.18
WP	6.60	7.40	3.68	10.32	8.30	5.70
WIG	- 0.09	9.09	1.71	7.29	3.28	5.72
WOD	2.73	-10.73	- 3.13	- 4.87	- 1.89	- 6.12

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Clarendon Park						
AYL	- 0.11	0.11	- 3.67	3.67	7.99	- 7.99
BEL	- 2.26	- 4.74	- 2.98	- 4.02	-18.92	11.92
BIR	- 4.76	7.76	- 3.78	6.78	5.61	- 2.61
BRA	- 4.10	-12.90	- 6.05	-10.95	- 4.60	-12.40
CP	0.94	38.06	0.45	38.55	15.18	23.82
EVI	4.32	5.68	5.14	4.86	6.97	3.03
EM	0.89	- 9.89	4.41	- 4.60	-14.01	5.01
GLE	- 7.72	10.72	- 1.81	4.81	2.30	0.70
HIG	0.32	-42.32	0.58	-41.42	- 2.01	-39.99
HUM	1.82	- 4.82	- 1.95	- 1.05	-12.06	9.06
LFE	- 3.32	0.32	- 8.06	5.06	- 8.01	5.01
MH	- 4.96	- 7.04	- 1.97	-10.03	- 9.65	- 2.35
NP	- 6.30	1.30	- 3.24	- 1.76	- 4.66	- 0.34
OAD	5.94	14.06	12.89	7.11	14.60	5.40
STO	2.29	13.71	2.88	13.12	14.47	1.53
THM	- 2.51	2.51	- 7.49	7.49	0.21	- 0.21
THN	5.60	- 5.60	5.48	- 5.48	4.56	- 4.56
WP	- 4.35	4.35	- 3.78	3.78	- 5.52	5.52
WIG	4.74	-11.74	8.60	-15.60	0.45	- 7.45
WOD	3.47	0.47	- 2.69	- 0.31	- 9.91	6.91
Evington						
AYL	- 3.02	- 2.98	-11.30	5.30	- 5.72	- 0.28
BEL	0.15	-13.15	- 9.79	- 3.21	-18.43	5.43
BIR	- 3.03	6.53	- 5.24	8.74	4.96	- 1.46
BRA	-11.73	- 2.77	-10.37	- 4.13	- 8.02	- 6.48
CP	3.12	- 2.12	- 7.70	8.70	0.84	1.84
EVI	16.09	32.91	22.03	26.97	26.12	22.88
EM	- 2.66	-12.84	- 8.01	- 7.49	-13.26	- 2.24
GLE	-18.73	22.23	3.34	0.16	2.96	0.54
HIG	4.53	-45.53	- 6.48	-34.52	- 7.28	-33.72
HUM	12.06	- 9.56	9.73	- 7.23	0.61	1.89
LFE	-11.46	10.96	-10.25	9.75	- 4.27	3.77
MH	- 6.39	- 5.61	- 8.87	- 3.13	-11.52	0.48
NP	-15.25	- 0.25	- 4.37	-11.13	- 7.07	- 8.43
OAD	15.66	8.34	25.50	- 1.50	31.17	- 7.17
STO	8.01	6.49	0.52	13.98	7.85	6.65
THM	4.18	- 2.18	- 0.18	2.18	1.28	0.72
THN	21.26	9.24	41.17	-10.67	39.69	- 9.19
WP	-10.14	11.64	-11.39	12.89	-14.21	15.71
WIG	9.27	- 4.77	10.54	- 6.04	0.56	3.94
WOD	- 5.92	- 6.58	-12.88	0.39	-18.59	6.09

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Eyres Monsell						
AYL	4.88	24.12	2.42	26.58	10.68	18.32
BEL	- 4.01	- 4.99	-11.65	2.65	-22.20	13.20
BIR	- 9.07	19.57	1.67	8.83	10.17	0.33
BRA	- 0.45	-21.05	- 3.64	-17.86	- 3.94	-17.57
CP	3.32	- 1.82	- 6.81	8.31	2.84	- 1.34
EVI	3.53	6.47	0.88	9.12	3.35	6.65
EM	7.59	- 4.59	16.06	-13.06	12.32	- 9.32
GLE	- 5.95	15.45	3.64	5.86	6.53	2.98
HIG	0.37	-40.37	-11.91	-28.09	-12.76	-27.25
HUM	- 0.90	- 1.60	- 5.86	3.36	-13.40	10.90
LFE	1.69	7.31	1.59	7.41	1.62	7.38
MH	- 7.10	- 1.90	- 5.67	- 3.33	- 8.50	- 0.50
NP	- 4.34	- 6.66	- 2.35	- 8.65	- 4.12	- 6.88
OAD	8.63	9.87	15.92	2.58	16.38	2.12
STO	3.62	- 1.12	- 5.57	8.07	2.51	- 0.01
THM	- 7.84	7.34	2.11	- 2.61	3.96	- 4.46
THN	3.42	0.08	8.94	- 5.44	9.43	- 5.93
WP	- 2.39	7.89	- 8.21	13.71	10.49	15.99
WIG	10.01	3.99	22.14	- 8.14	14.49	- 0.49
WOD	- 3.00	-17.00	-11.71	- 2.29	-16.89	- 4.11
Glenfield						
AYL	2.41	-13.41	- 6.22	- 4.78	- 1.09	- 9.91
BEL	- 1.66	-24.34	- 8.59	-17.41	-16.62	- 9.38
BIR	- 4.82	9.82	1.68	3.32	11.42	- 6.42
BRA	- 1.82	-27.18	- 6.28	-22.72	-11.96	-17.04
CP	2.64	- 5.64	- 5.35	2.35	2.78	- 5.78
EVI	4.95	11.05	6.08	9.92	14.47	1.53
EM	3.88	6.12	- 1.55	11.55	2.04	7.96
GLE	- 5.86	39.86	12.87	21.13	24.42	9.58
HIG	1.35	-20.35	- 8.41	-10.59	- 5.37	-13.63
HUM	1.97	-10.97	- 7.06	- 1.94	- 8.04	- 0.96
LFE	- 0.67	0.67	- 8.12	8.12	- 7.99	7.99
MH	- 4.37	2.37	0.70	- 2.70	- 1.02	- 0.98
NP	- 4.43	-15.57	3.67	23.67	0.65	-20.65
OAD	7.56	17.44	24.58	0.42	21.48	3.52
STO	3.63	22.37	- 1.52	27.52	10.56	15.44
THM	- 2.96	- 0.04	- 6.91	3.91	-10.46	7.46
THN	5.77	- 1.77	12.20	- 8.20	6.45	- 2.45
WP	- 2.56	5.56	- 4.77	7.77	-14.74	17.74
WIG	7.15	- 3.15	19.59	-15.59	10.15	- 6.15
WOD	- 2.16	7.16	- 6.60	11.60	-17.12	22.12

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Highfields						
AYL	1.65	0.95	- 2.58	5.18	0.56	2.04
BEL	- 0.60	- 8.01	- 5.30	- 3.30	-11.57	2.97
BIR	- 3.36	8.66	0.62	4.68	5.46	- 0.16
BRA	- 2.87	- 8.13	- 4.87	- 6.13	- 4.39	- 6.61
CP	2.93	- 0.33	- 2.69	5.29	2.98	- 0.38
EVI	6.89	10.71	7.35	10.26	10.71	6.89
EM	2.73	- 5.73	1.84	- 4.84	- 2.21	- 0.79
GLE	- 6.94	14.94	3.38	4.62	7.56	0.44
HIG	2.29	-30.59	- 4.34	-23.96	- 3.46	-24.85
HUM	4.09	0.21	- 0.18	4.48	- 2.79	7.09
LFE	- 2.02	3.02	- 4.53	5.53	- 1.56	2.56
MH	- 3.66	- 3.64	- 1.86	- 5.44	- 6.63	- 0.67
NP	- 5.32	- 1.68	- 1.11	- 5.89	- 2.37	- 4.64
OAD	8.62	10.98	16.87	2.73	19.66	- 0.06
STO	4.50	11.10	0.35	15.25	7.38	8.23
THM	- 0.76	2.36	- 0.78	2.38	2.71	- 1.11
THN	8.40	- 5.10	13.46	-10.16	8.61	- 5.31
WP	- 3.09	4.09	- 5.01	6.01	- 8.81	9.81
WIG	7.17	0.43	13.78	- 6.18	8.62	- 1.02
WOD	- 2.05	- 4.25	- 5.80	- 0.50	-11.85	5.55
Humberstone						
AYL	- 4.77	- 2.23	- 9.01	2.01	- 7.58	0.58
BEL	1.81	-11.81	- 8.12	- 1.88	-10.82	0.82
BIR	1.92	12.58	6.80	7.70	9.14	5.36
BRA	- 8.57	-15.93	- 8.76	-15.74	- 8.87	-15.63
CP	0.46	- 5.46	-11.59	6.59	9.14	4.14
EVI	9.81	- 1.31	11.14	- 2.64	12.79	- 4.29
EM	- 5.82	1.32	- 0.68	- 3.82	- 1.92	- 2.58
GLE	-11.04	17.04	4.10	1.90	6.14	- 0.14
HIG	2.90	-44.40	-10.38	-31.12	- 9.93	-31.57
HUM	9.00	16.00	6.67	18.33	5.60	19.40
LFE	- 9.40	13.90	- 6.26	10.76	- 5.13	9.63
MH	- 1.48	- 6.52	- 3.60	- 4.40	- 5.35	- 2.65
NP	- 9.27	0.27	- 3.60	- 5.41	- 4.24	- 4.77
OAD	6.70	10.80	12.66	4.84	13.65	3.86
STO	3.88	3.12	- 6.29	13.29	- 3.15	10.15
THM	6.58	0.42	12.96	- 5.96	13.96	- 6.96
THN	13.64	8.36	28.39	- 6.39	26.40	- 4.40
WP	- 6.48	8.48	-11.10	13.10	-12.99	14.99
WIG	1.72	1.78	8.01	- 4.51	5.50	- 2.00
WOD	- 3.11	- 6.40	-12.84	3.34	-15.57	6.07

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Leicester Forest East						
AYL	1.25	0.75	- 0.82	2.82	0.85	1.15
BEL	- 1.06	- 9.94	- 4.93	- 6.07	-12.11	1.11
BIR	- 2.35	17.35	- 0.83	15.83	8.68	6.32
BRA	- 0.09	22.09	- 0.15	22.15	12.33	9.67
CP	0.82	- 3.82	- 3.81	0.81	- 0.57	- 2.43
EVI	0.81	- 0.81	1.58	- 1.58	3.76	- 3.76
EM	1.94	-22.94	3.02	-24.02	-13.93	- 7.08
GLE	- 1.47	4.47	5.09	- 2.09	- 5.68	8.68
HIG	0.05	-19.05	- 5.00	-14.00	- 7.75	-11.25
HUM	- 0.32	- 5.69	- 1.42	- 4.58	-15.70	9.70
LFE	0.47	21.53	1.34	20.66	19.28	2.72
MH	- 1.83	- 8.18	- 2.51	- 7.49	-10.09	0.09
NP	- 1.07	-24.93	1.59	-27.59	- 1.05	-24.95
OAD	2.14	19.86	5.22	16.79	25.45	- 3.45
STO	0.87	5.13	- 2.90	8.90	1.10	4.90
THM	- 2.07	4.07	- 0.48	2.48	9.36	- 7.36
THN	0.75	1.24	6.69	- 4.69	1.72	0.28
WP	- 0.59	7.59	- 2.14	9.14	- 0.69	7.69
WIG	2.51	- 2.51	4.76	- 4.76	- 6.44	6.44
WOD	- 0.77	- 6.23	- 4.32	- 2.68	- 8.53	1.53
Mowmacre Hill						
AYL	- 0.46	- 0.54	- 4.53	3.53	-10.99	9.99
BEL	0.20	21.80	- 5.78	27.78	0.67	21.33
BIR	- 0.67	12.67	13.00	- 1.00	16.34	- 4.34
BRA	- 2.71	-21.29	- 8.84	-15.16	- 5.13	-18.87
CP	1.05	- 8.05	- 7.18	0.18	-15.15	8.15
EVI	4.30	- 0.30	0.26	3.74	3.66	0.34
EM	- 0.33	- 1.67	4.70	- 6.70	5.83	- 7.83
GLE	- 4.54	11.54	5.58	1.42	- 1.53	8.53
HIG	1.36	-47.36	- 9.62	-36.38	- 9.38	-36.62
HUM	3.22	- 4.22	- 5.80	4.80	- 7.84	6.84
LFE	- 2.61	17.61	- 8.44	23.44	2.51	12.49
MH	- 1.48	11.48	4.31	5.69	8.11	1.89
NP	- 3.65	-16.35	- 1.50	-18.50	- 3.64	-16.36
OAD	4.27	23.73	17.42	10.58	26.55	1.45
STO	2.28	- 4.28	- 4.82	2.82	- 8.31	6.31
THM	1.15	- 0.15	7.90	- 6.90	3.05	- 2.05
THN	5.59	- 4.59	4.90	- 3.90	2.72	- 1.72
WP	- 2.35	8.35	- 7.67	13.67	- 8.97	14.97
WIG	2.69	11.31	19.81	- 5.81	14.89	- 0.89
WOD	- 1.30	- 9.70	- 7.71	- 3.29	- 7.38	- 3.62

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
New Parks						
AYL	3.73	3.27	- 2.32	9.32	3.46	3.54
BEL	0.16	-11.16	- 8.62	- 2.38	-17.09	6.09
BIR	- 0.30	4.30	2.40	1.60	6.07	- 2.07
BRA	4.95	-14.95	4.48	-14.48	6.10	-16.10
CP	1.34	- 1.34	- 8.89	8.89	- 1.04	1.04
EVI	- 2.71	10.71	- 0.14	8.14	0.15	7.85
EM	4.41	-14.41	4.01	-14.01	- 2.76	- 7.24
GLE	5.57	17.43	22.61	0.39	24.76	- 1.76
HIG	0.04	-19.04	-11.11	- 7.89	-11.86	- 7.14
HUM	- 2.71	-11.29	- 6.16	- 7.84	-10.97	- 3.03
LFE	5.48	12.52	5.90	12.10	6.22	11.78
MH	1.33	- 3.33	0.57	- 2.57	- 5.03	3.03
NP	4.94	9.06	12.34	1.66	12.03	1.97
OAD	- 1.08	4.08	8.03	- 5.03	9.81	- 6.81
STO	- 0.12	-0.88	- 7.97	6.97	- 1.97	0.97
THM	- 2.23	7.23	- 1.44	6.44	4.74	0.26
THN	- 4.38	11.38	9.46	- 2.46	7.98	- 0.98
WP	3.88	7.12	1.04	9.96	0.65	10.35
WIG	1.33	8.67	6.72	3.28	3.47	6.53
WOD	2.37	-19.37	- 4.94	-12.06	- 8.72	- 8.28
Oadby						
AYL	0.31	- 1.56	- 8.91	7.66	- 4.03	2.78
BEL	- 1.93	-15.32	-10.14	- 7.11	-20.62	3.37
BIR	- 6.06	11.81	- 1.53	7.28	8.80	- 3.05
BRA	- 7.12	- 3.88	-10.33	- 0.67	- 3.03	- 7.97
CP	3.13	- 3.88	- 6.16	5.41	1.52	- 2.27
EVI	10.66	7.09	13.22	4.53	17.07	0.68
EM	1.76	-18.26	- 4.22	-12.28	-17.26	0.76
GLE	-13.65	22.40	7.41	1.34	4.57	4.18
HIG	2.59	-39.84	- 8.15	-29.10	- 9.38	-27.87
HUM	6.33	-10.58	- 1.58	- 2.67	-13.08	8.83
LFE	- 5.98	8.98	-11.71	14.71	0.19	2.81
MH	- 7.09	- 3.16	- 3.66	- 6.59	-11.61	1.36
NP	-10.91	- 4.34	- 1.41	-13.84	- 4.06	-11.19
OAD	12.78	33.47	29.17	17.08	42.33	3.92
STO	6.07	15.68	- 0.01	21.76	8.50	13.25
THM	- 1.36	3.86	- 5.90	8.40	2.33	0.17
THN	13.58	0.67	24.11	- 9.86	18.48	- 4.23
WP	- 7.09	7.34	- 9.14	9.39	-11.14	11.39
WIG	9.71	- 5.71	20.00	-16.00	8.80	- 4.80
WOD	- 4.95	- 4.80	-10.32	0.57	-17.62	7.87

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Stoneygate						
AYL	- 0.63	- 2.68	- 5.65	2.35	1.55	- 4.85
BEL	- 1.24	-17.36	- 3.45	-15.15	-16.07	- 2.53
BIR	- 5.11	7.71	- 4.80	7.40	7.85	5.25
BRA	- 8.52	-14.79	-10.20	-13.10	- 7.26	-16.04
CP	3.23	- 1.63	1.18	0.42	11.69	-10.09
EVI	12.49	15.11	14.44	13.16	20.68	6.92
EM	0.50	-10.50	- 6.15	- 3.86	-14.76	4.76
GLE	-15.26	10.65	- 5.65	1.05	- 2.86	- 1.75
HIG	3.28	-27.58	0.84	-25.14	0.85	-25.15
HUM	8.21	-13.21	4.07	- 9.07	- 6.09	1.09
LFE	- 7.63	8.93	-12.32	13.62	- 4.09	5.39
MH	- 6.87	- 3.14	- 4.24	- 5.76	-10.96	0.96
NP	-12.26	0.26	- 7.30	- 4.70	-10.63	- 1.37
OAD	13.85	15.45	22.49	6.81	30.47	- 1.17
STO	6.79	36.51	6.40	36.90	18.49	24.81
THM	0.39	3.61	- 5.80	9.80	- 0.99	4.99
THN	16.12	- 7.52	19.23	-10.64	13.52	- 4.92
WP	- 8.01	13.61	- 7.46	13.06	-12.90	18.50
WIG	9.74	-12.04	13.58	-15.88	0.71	- 3.01
WOD	- 5.21	- 1.39	- 5.33	- 1.27	-15.31	8.71
Thurmaston						
AYL	- 1.19	6.19	- 3.89	8.89	1.95	3.05
BEL	0.50	-19.50	- 8.46	-10.54	-18.36	- 0.64
BIR	- 0.03	15.03	5.96	9.04	12.42	2.58
BRA	- 3.36	-14.64	- 3.68	-14.32	1.53	-19.53
CP	0.78	- 4.78	-10.49	6.49	- 2.39	- 1.61
EVI	4.65	4.35	4.57	4.43	5.58	3.42
EM	- 1.31	- 8.69	6.07	-16.07	- 5.06	- 4.94
GLE	- 4.99	11.99	6.77	0.23	5.34	1.66
HIG	1.45	-45.45	-11.12	-32.89	-12.67	-31.33
HUM	3.80	3.19	1.92	5.08	- 6.98	13.98
LFE	- 3.46	22.45	0.25	18.75	6.02	12.98
MH	- 1.21	-10.79	- 3.26	- 8.74	-10.41	- 1.59
NP	- 4.09	- 5.91	- 0.30	- 9.70	- 1.46	- 8.54
OAD	4.09	11.91	8.77	7.23	16.48	- 0.48
STO	2.22	8.78	- 7.79	18.79	- 1.13	12.13
THM	2.02	12.98	10.67	4.33	18.98	- 3.98
THN	6.20	3.80	18.26	- 8.26	15.61	- 5.61
WP	- 2.72	10.72	- 7.70	15.70	- 7.64	15.64
WIG	2.06	0.94	8.36	- 5.36	1.80	1.20
WOD	- 1.41	- 2.59	-10.93	6.93	-15.61	11.61

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Thurnby						
AYL	- 0.93	-14.07	-11.99	- 3.01	- 6.80	- 8.20
BEL	- 1.73	-15.27	-14.64	- 2.36	-19.50	2.50
BIR	- 5.59	7.59	- 3.48	5.48	8.85	- 6.85
BRA	- 8.67	-19.33	- 9.52	-18.48	- 6.02	-21.98
CP	2.76	- 9.76	-11.79	4.79	- 9.50	2.50
EVI	11.70	6.30	17.08	0.92	19.30	- 1.30
EM	0.22	- 3.22	- 5.10	2.10	- 6.55	3.55
GLE	-15.30	19.30	13.25	- 9.25	3.62	0.38
HIG	2.73	-47.73	-12.97	-32.03	-16.45	-28.55
HUM	7.46	-18.46	1.30	-12.30	-12.80	1.80
LFE	- 7.77	17.77	- 9.25	19.25	- 2.65	12.65
MH	- 7.24	7.24	- 7.50	7.50	- 2.03	2.03
NP	-12.37	8.37	0.82	- 4.82	- 2.61	- 1.39
OAD	13.13	22.87	29.46	6.54	35.34	0.66
STO	6.20	11.80	- 4.13	22.13	- 3.31	21.31
THM	- 0.25	- 4.75	- 3.88	- 1.12	- 9.60	4.60
THN	15.20	27.80	36.74	6.26	44.19	- 1.19
WP	- 8.23	9.23	-11.17	12.17	- 9.67	10.67
WIG	9.19	- 7.19	16.79	-14.79	5.70	- 3.70
WOD	- 5.54	1.54	-15.04	11.04	-14.50	10.50
Western Park						
AYL	2.38	-21.38	- 1.61	-17.39	- 0.65	-18.35
BEL	- 1.32	-10.68	- 6.72	- 5.28	- 9.31	- 2.69
BIR	- 1.28	0.28	- 7.38	6.38	- 4.48	3.48
BRA	4.73	- 1.73	8.14	- 5.14	14.00	-11.00
CP	- 0.67	- 2.33	- 6.10	3.10	- 5.17	2.17
EVI	- 6.19	7.19	- 0.74	1.74	- 1.49	2.49
EM	2.94	- 9.94	- 1.18	- 5.82	- 8.74	1.74
GLE	6.30	6.70	18.11	- 5.11	11.66	1.34
HIG	- 2.05	-23.95	- 6.67	-19.33	- 8.65	-17.35
HUM	- 5.62	- 2.37	- 3.59	- 4.40	-10.22	2.22
LFE	5.18	21.82	9.13	17.87	15.66	11.34
MH	0.68	- 8.68	- 3.73	- 4.27	- 6.29	- 1.71
NP	5.22	- 7.22	11.87	-13.87	11.25	-13.25
OAD	- 4.65	1.65	- 3.18	0.18	4.94	- 7.94
STO	- 2.69	13.69	- 6.28	17.28	- 6.36	17.36
THM	- 4.06	- 0.94	- 8.05	3.05	- 3.61	- 1.39
THN	- 8.45	14.45	6.68	- 0.68	6.69	- 0.69
WP	3.54	31.46	4.08	30.92	6.68	28.32
WIG	- 1.55	- 2.45	- 6.88	2.88	-10.21	6.21
WOD	1.56	- 5.56	- 1.89	- 2.11	- 1.70	- 2.30

	1st surface	1st residual	2nd surface	2nd residual	3rd surface	3rd residual
Wigston						
AYL	0.43	- 5.73	- 7.76	2.46	- 5.37	0.07
BEL	- 1.60	-15.40	- 8.88	- 8.12	-15.14	- 1.86
BIR	- 4.59	14.89	6.90	3.40	8.05	2.25
BRA	- 4.72	-16.28	-11.26	- 9.74	- 7.31	-13.69
CP	2.15	- 7.15	- 6.88	1.88	- 1.41	- 3.59
EVI	7.04	- 3.44	5.67	- 2.07	5.97	- 2.37
EM	1.54	-19.84	- 0.50	-17.80	-10.18	- 8.12
GLE	- 9.30	21.30	8.51	3.49	10.12	1.88
HIG	1.61	-31.21	-10.06	-19.55	-10.07	-19.53
HUM	3.95	- 4.25	- 7.32	7.02	- 9.97	9.67
LFE	- 3.85	10.45	-12.85	19.45	- 8.88	15.48
MH	- 5.13	1.53	1.94	- 5.54	- 6.50	2.90
NP	- 7.43	- 3.57	- 0.78	-10.22	- 0.65	-10.35
OAD	8.74	19.86	27.76	0.84	33.68	- 5.08
STO	4.07	13.23	- 2.41	19.71	2.83	14.47
THM	- 1.48	5.08	- 1.65	5.25	7.92	- 4.32
THN	8.92	- 3.62	11.86	- 6.56	6.11	- 0.81
WP	- 4.83	6.83	- 8.77	10.77	- 9.34	11.34
WIG	6.84	22.46	24.50	4.79	22.56	6.74
WOD	- 3.48	- 5.12	- 9.13	0.53	-13.51	4.91
Woodgate						
AYL	- 2.75	- 8.25	- 7.31	- 3.69	0.91	-11.91
BEL	1.58	-17.58	- 2.43	-13.57	-14.33	- 1.67
BIR	2.74	- 4.74	- 1.03	- 0.97	0.00	- 2.00
BRA	- 2.95	- 2.05	- 1.59	- 3.41	1.09	- 6.09
CP	- 0.52	11.52	- 4.41	15.41	7.14	3.86
EVI	2.81	0.19	6.99	- 3.99	4.64	- 1.64
EM	- 3.73	-12.27	- 9.36	- 6.64	-20.91	4.91
GLE	- 2.63	21.63	8.45	10.55	12.02	6.98
HIG	1.01	-34.01	- 2.52	-30.48	- 3.86	-29.14
HUM	3.49	2.51	2.97	3.03	- 1.76	7.76
LFE	- 3.72	3.72	- 3.47	3.47	- 5.86	5.86
MH	1.07	-11.07	- 0.42	- 9.58	-10.47	0.47
NP	- 2.34	-12.66	3.78	-18.78	4.90	-19.90
OAD	0.66	7.34	5.20	2.80	6.26	1.74
STO	0.65	22.35	- 1.43	24.43	5.83	17.17
THM	4.14	7.86	- 1.26	13.26	11.13	0.87
THN	4.21	5.79	14.47	- 4.47	12.51	- 2.51
WP	- 1.77	17.77	- 1.05	17.05	0.54	15.46
WIG	- 1.54	- 5.46	- 3.29	- 3.71	- 3.69	- 3.31
WOD	- 0.41	7.41	- 2.30	9.30	- 6.09	13.09

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