A SEARCH FOR ORDER IN THE SPATIAL ASPECTS OF RECREATIONAL TRIP MAKING

by

DEREK THOMPSON

B.Sc. (Honours), University of Wales, 1970

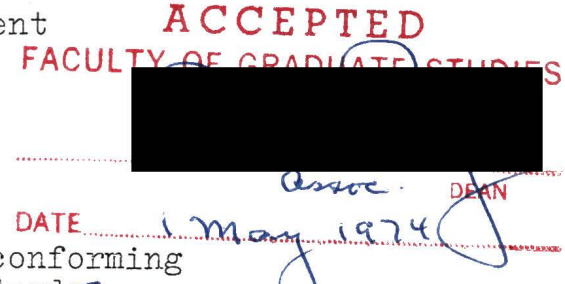
A THESIS SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in the Department

of

Geography



We accept this thesis as conforming
to the required standard

UNIVERSITY OF VICTORIA
December 1973

Supervisor: Dr. Colin Campbell

ABSTRACT

The home of the recreator and the site of the recreational experience are often separated in space. The physical characteristics of this spatial disassociation vary with the recreational pursuit such that, for most people, regional parks are much farther from their residence than municipal though closer than national parks. The theme which unifies recreation is movement and in particular the choice among spatial alternatives as expressed in observed behaviour.

In this thesis elementary theories, relating city structure and residential location to the locational behaviour of recreators, are examined, given the peculiar characteristics of Victoria, British Columbia. Using the inferential methods of previous research the study extended that research by consideration of the factors of previous behaviour, type of recreation, distance between home and recreation facilities and the spatial distribution of those opportunities. Simple hypotheses were set up and tested, using non parametric statistics, in an attempt to construct a detailed picture of the importance and interrelationships of the factors being studied.

It was shown that the factors of trip type and environmental configuration determined the pattern of behaviour.

The former factor determines the information used in decisions while the latter controls the extent and detail of that knowledge. The exact nature of the interplay between these and associated factors is, however, beyond the scope of the present study.

The results should not be interpreted as a rejection of the earlier work since in these studies the effect of only one set of conditions, environmental configuration, was studied, therefore it was not possible to show the interplay of the various factors.

In the course of the study a schema of the recreational decision making process was developed. This portrays the key variables and their interrelationships as established by studies completed to date. The results of the current study contribute to the understanding of that interplay. Further case studies, by geographers, psychologists and sociologists, are required in an effort to obtain more exact understanding of this process.

The choice among spatial locations is a part of the wider question relating to the choice of ways of spending free time. Not all the alternatives involve movement beyond the individual's residence. All do, however, require understanding if planning is not to waste the potential of the vast populations with which it will be dealing in the future. Great economic and social costs will be incurred

if future facilities are not of the type which, or in the location where, the population requires.

Dr. C. K. Campbell [redacted]

Dr. D. J. Porteous [redacted]

Dr. M. Bell [redacted]

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank all those people who aided me in the writing of this thesis. Of particular importance was my supervisor, Dr. Colin Campbell, who allowed me the freedom I required but gave the advice and guidance without which this work would not have been completed. Both he and Dr. Douglas Porteous gave freely and willingly of their time. In the final stages of typing my typist, Mrs. Lowther, has been a tower of strength and patience. To them all, and of course those people who made the survey possible, the interviewees, I extend a hearty thank you.

I feel justified in singling out two other persons for thanks since without the advice of one I would never have developed an interest in recreation, while the other has sustained that interest. Doctor John Lewin of the Geography Department, University College of Wales, Aberystwyth, gave me the confidence to undertake graduate work and first inclined my mind toward problems of a recreational nature. My wife, Carol, is my inspiration and at one time and another my support. She will never know, thank goodness, just how important she is in whatever I do.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The recent growth of participation in leisure activities and the consequent demands made upon recreational facilities has been well documented. This phenomenon has not as yet, however, been equally well understood. Two questions in particular loom large on the road to understanding. Why do people participate in certain activities and why do they participate at certain locations?

Traditionally both these questions have been largely ignored by the various governmental agencies concerned with providing recreational opportunities. Such provision is often inspired by altruistic ideals with which it is by no means certain that the majority of the population concur. Certainly those facilities, of all types, which are provided are heavily used, often hopelessly beyond their capacity. However, few studies have been made in an attempt to understand what it is that people require and how successful the present system is at satisfying those needs.

Understanding why a given recreationist selects a certain location to participate in his chosen pursuit constitutes a major field which, though fraught with equally large problems, has been given much greater attention. Knowledge of

this process also enhances insight into the motivational complexities of the recreationist's mind. It is an area of study associated with spatial distributions and the factors affecting selection between a variety of locations. As such, the questions to be answered and the approaches to be used in answering those questions are strongly geographical in character.

In this thesis emphasis is placed upon site selection and the factors contributing to that process. The scale of approach is geographic in that observable spatial behaviour is emphasised, as opposed to detailed study of the decision making of individuals. Inference is used to identify the key factors which control the spatial behaviour of individuals in the group being studied. This is a valid approach since by obtaining a more complete understanding of one part of the decision making process new light will be shed on other sections of that process.

Study Area

Ignoring for now the many commercial developments, outdoor recreation opportunity has largely been and continues to be provided for by the various levels of government. This has resulted in a view of recreation related more to the jurisdictional areas of these levels of government than to the observable behaviour patterns of recreationists. Obviously people frequently travel beyond the residential municipality, region or province and without an understanding

of the affect of one area upon another, little progress will be made on solving such problems as satisfying the demands for ice skating surfaces in the city of Vancouver.

Such spatial blinkering has been strongly fortified by the traditionally at-a-site nature of much research. This concentration on selected destinations, while valuable if site specific information is required, is not useful if an overview of recreation is sought since understanding of recreational behaviour cannot be derived from such a sample. For these reasons the approach adopted in this research is origin-based in an attempt to view the full impact of a variety of optional (recreation and social) pursuits on a wide range of spatial locations.

The sample selected for study was drawn from the residents of an urban transect within Victoria, the study approach developing upon previous research. Victoria's particular characteristics when combined with an approach as near compatible as possible with previous studies is expected to add insight into the veracity of the conclusions developed from those studies. Additional understanding will also be forthcoming from what will be an in-depth study of movement behaviour.

The specific questions to be investigated in the analysis stage of this work relate to the identification of the major factors contributing to the decision process, their interrelationship and relative importance. Particular emphasis

will be given to the role of previous lifetime experiences, trip type and the characteristics of the destination areas, in particular the accessibility of these areas.

Study Framework

Before undertaking any research it is necessary to consider previous work on the same topic and in related areas. This work is presented in Chapter two where previous research on recreational trip behaviour is reviewed and assessed in the light of a previously constructed schema of the recreational decision making process. This formal structuring is a necessary prerequisite to any study since it provides the framework into which the results may be placed, and summarises the writer's knowledge of the system being studied.

In Chapter three, the design and administration of the survey tool is reported. Chapters four, five and six constitute the main analytic body of the thesis. In Chapters four and five, hypotheses are set up from consideration of previous work and Victoria's known characteristics. These hypotheses are then tested against reality as represented by the data collected in the survey.

In Chapter four a wide range of trip type and spatial impact is considered in analysis of trips undertaken at the time that the survey was administered. Trips of a narrower spatial and typological range are studied in Chapter five where intra urban trips are analysed. The final stage of this analysis is the integration of the results obtained and

identification of their importance in the schema of decision making produced earlier. This is undertaken in Chapter six. In the concluding chapter, the implications of the findings are assessed and suggestions made for future work.

CHAPTER II

AN OVERVIEW OF THE STUDY OF RECREATIONAL TRIP BEHAVIOUR

It is quite apparent that movement to recreational sites has much in common with other forms of movement. Choice among alternative activities, locations and transport media is characteristic of all movement. However since recreation is an optional activity the factors considered and resultant behaviour have more in common with migration than the journey to work, and so should be investigated separately.

As yet, however, researchers have not fully come to terms with the distinctive nature of recreational trips. There has been a continual transposition to recreation, of models of movement developed from studies of other movement types. While such a practice was laudable when the recreation research field was in its infancy, its continuation shows a lack of perspective and the common use of only one form of one type of model shows a lack of understanding, in view of the observation that "there is no such entity as recreational travel" (Wolfe, 1966).

The continued adjustment of current models despite their limitations and the lack of a full consideration of the accumulating research results can only be regarded as a weakness in the subject. There have been few attempts to

bring together research findings to produce a formal summary of results. Fortunately, however, the few examples of these schemas of the recreational system that do exist have made major contributions to understanding. As yet the schema are imprecise, only general relationships may be identified since the factors involved are themselves not fully identified. A continued effort to produce these schema is, however, most important and so it is with consideration of these overviews that this chapter will begin.

1. Conceptual Schema of the Recreational System

One of the earliest conceptualisations of the recreational system was produced by Brown (1935). This schema remained largely unnoticed but is mirrored by Clawson's later model (Clawson, 1959). In this model Clawson identifies three categories of recreational sites (Figure 2.1) each of which, as Campbell has recognised (Campbell, 1967), serve different markets; that is, each of the three categories will be characterised by a distinctive set of activities at the site, a certain clientele exhibiting a distinctive pattern of use over time. However, only Campbell (1967), from whose work Figure 2.1 is derived, and Ross (1970) have shown any inclination to use this model as a basis for further research.

After his earlier model, Clawson (1963) postulated a five stage model of the experience (Figure 2.2). This

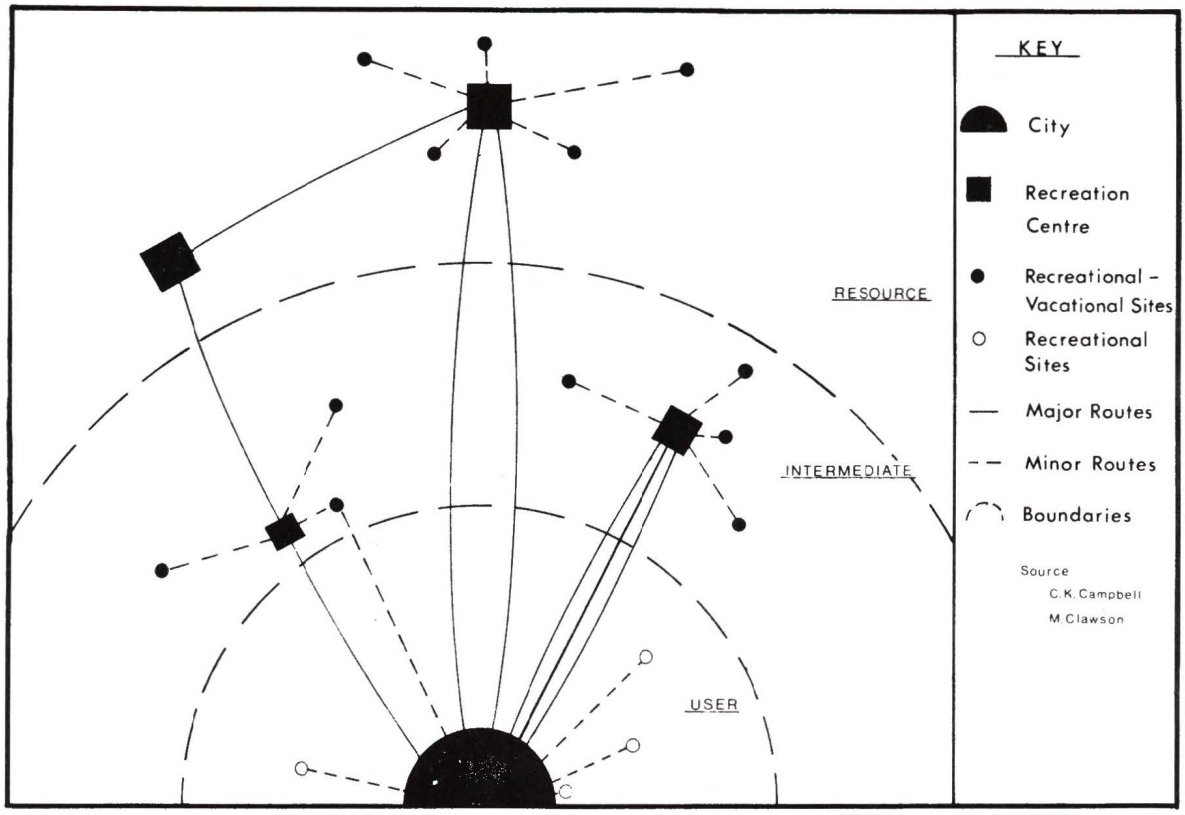


Figure 2.1 Clawson's Three Tier Classification of Recreational Sites

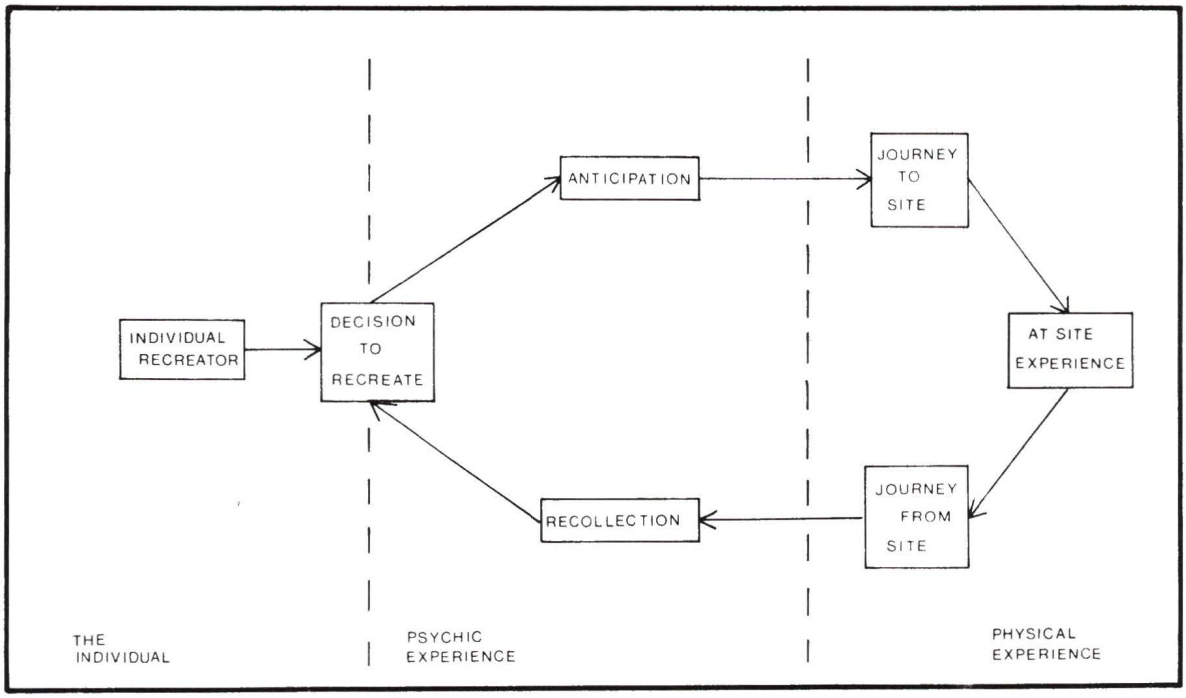


Figure 2.2 Clawson's Model of the Recreational Experience

simplistic description has formed the frame for several literature reviews (O'Riordan, 1972; Mercer, 1971) and is the basis of some more advanced schemas such as Law's (1971).

A culmination of much of the post-war research, with which Clawson and others were associated, came with the publication of reports of the Outdoor Recreation Resources Review Commission (ORRRC). Wolfe attempted to summarise much of the information derived from these, and his schema is presented in part in his article (Wolfe, 1964:213). This schema takes account of many of the factors which constitute the recreational system, for example, the socio-economic and demographic characteristics of the population. In fact, Wolfe's schema represents a state of knowledge beyond which researchers have only slowly been developing.

A recent advance is expressed in a model proposed by Maw (1969) and reproduced in Figure 2.3. This model is interesting both for its recognition of the importance of time budgets, and also because it is operational in character --as opposed to the more usual theoretical schema. Much work both within recreation (Burton, 1971) and in related studies (Meier, 1959; Sizalai, 1966; Chapin, 1966, 1968, 1971; Chapin & Brail, 1969; Chapin & Hightower, 1966) has recognised the importance of time as a control on activity patterns, but Maw's work is one of the few that incorporates such considerations into a formal structure.

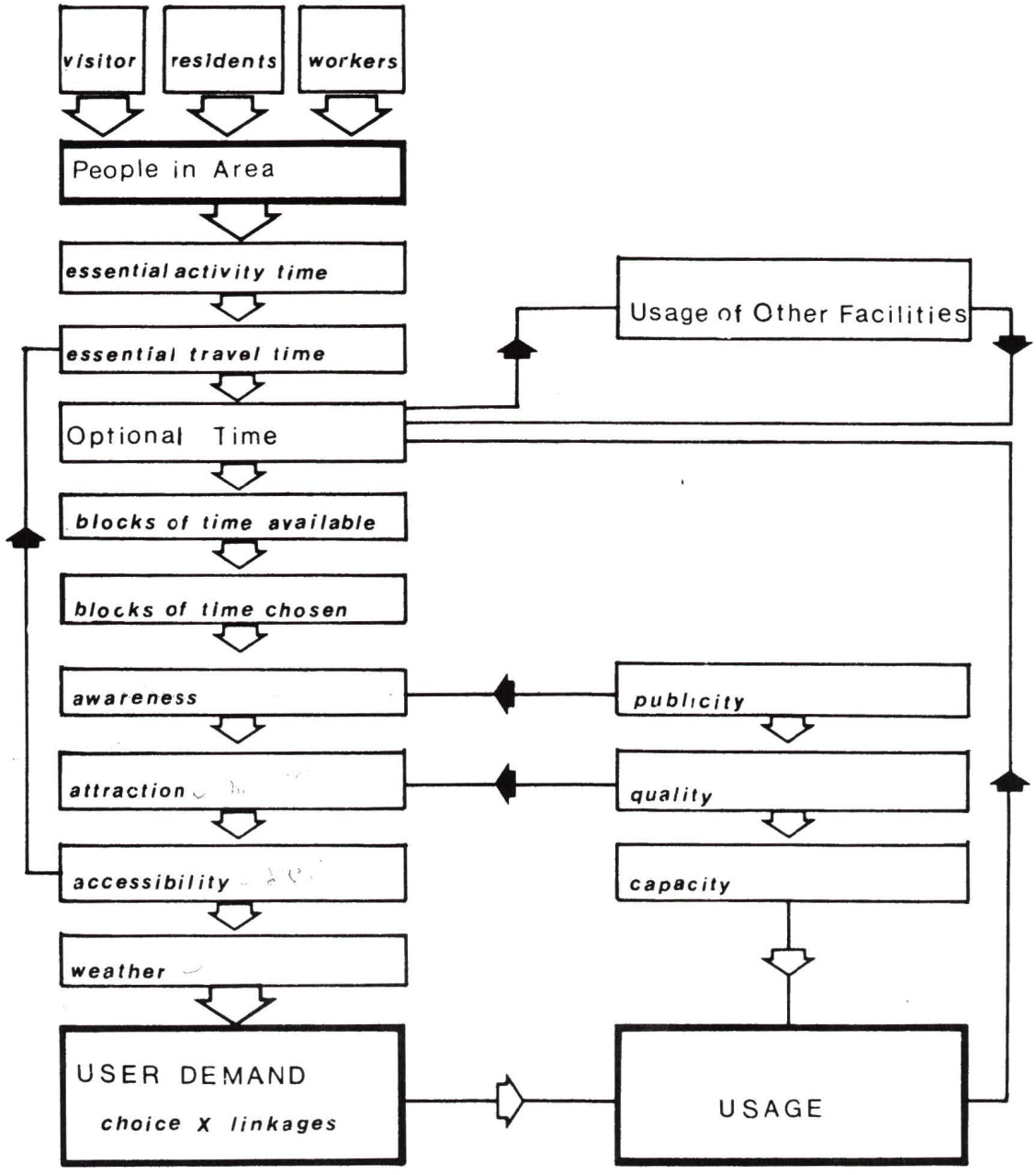


Figure 2.3 Maw's Model of the Recreation System

source

R Maw

This model is an advance in detailed structuring of the recreational system incorporating, as it does, factors such as awareness, public image, facility capacity, etc. It will serve as a basis for future schemas since its simplicity is matched only by the detailed understanding which it implies.

More recently Law (1972:10) produced a schema which is a derivative of those which have preceded it, in particular Maw (1969) and Clawson (1963). It is probably the most complete produced to date. As can be seen from Figure 4 (derived from Law), it considers three facets of recreational consumption: the individual, the decision and the actual recreation. The factors represented include those socio-economic and demographic variables considered by Wolfe (though somewhat modified here), while the distribution of time and factors of the environment, such as site factors and the weather, are also emphasised.

Though Law's schema is a general consideration of factors affecting recreational consumption, it may quite easily be made to apply to the short duration recreational trip. A further development in specificity is Hall's (1971:23) schema of the leisure motorist's journey: choice, impact and control. Hall develops on Law's work and his consideration of factors in the environment experienced during recreation and their effect on the eventual choice of destination or destinations, is a definite addition to the framework.

However, despite the considerable advances represented

by these two schemas, neither recognises the importance of the individual's perception of the real world and the factors which affect this, which is emphasised by Maw (1969) in his modeling of awareness of and attitude toward a particular facility (Figure 2.3).

An individual's knowledge of, and attitude towards, the environment is a function of his socio-economic status and demographic characteristics. Though these factors have a direct effect they are also influential in their structuring of an individual's action space,[1] though as Horton and Reynolds (1971:102) infer it is extremely difficult to isolate the various causative factors in action space formation. However, what does seem to be proven is the effect of action space on the alternatives considered and the final destination, for movements of many kinds (Horton & Reynolds, 1971: 102; Adams, 1969; Clark, 1971:5).

Consequently a schema of the factors affecting the short duration recreational trip was developed (Figure 2.4). In this, awareness and activity space constitute important, almost central, constraints. This schema is a derivative of those developed by Maw (1969), Law (1971), and Hall (1971) and is the frame to be used for both the literature review and in identifying the importance of the research section of this report.

---

[1] Action space is that space with which the individual has had personal contact during the course of his life.

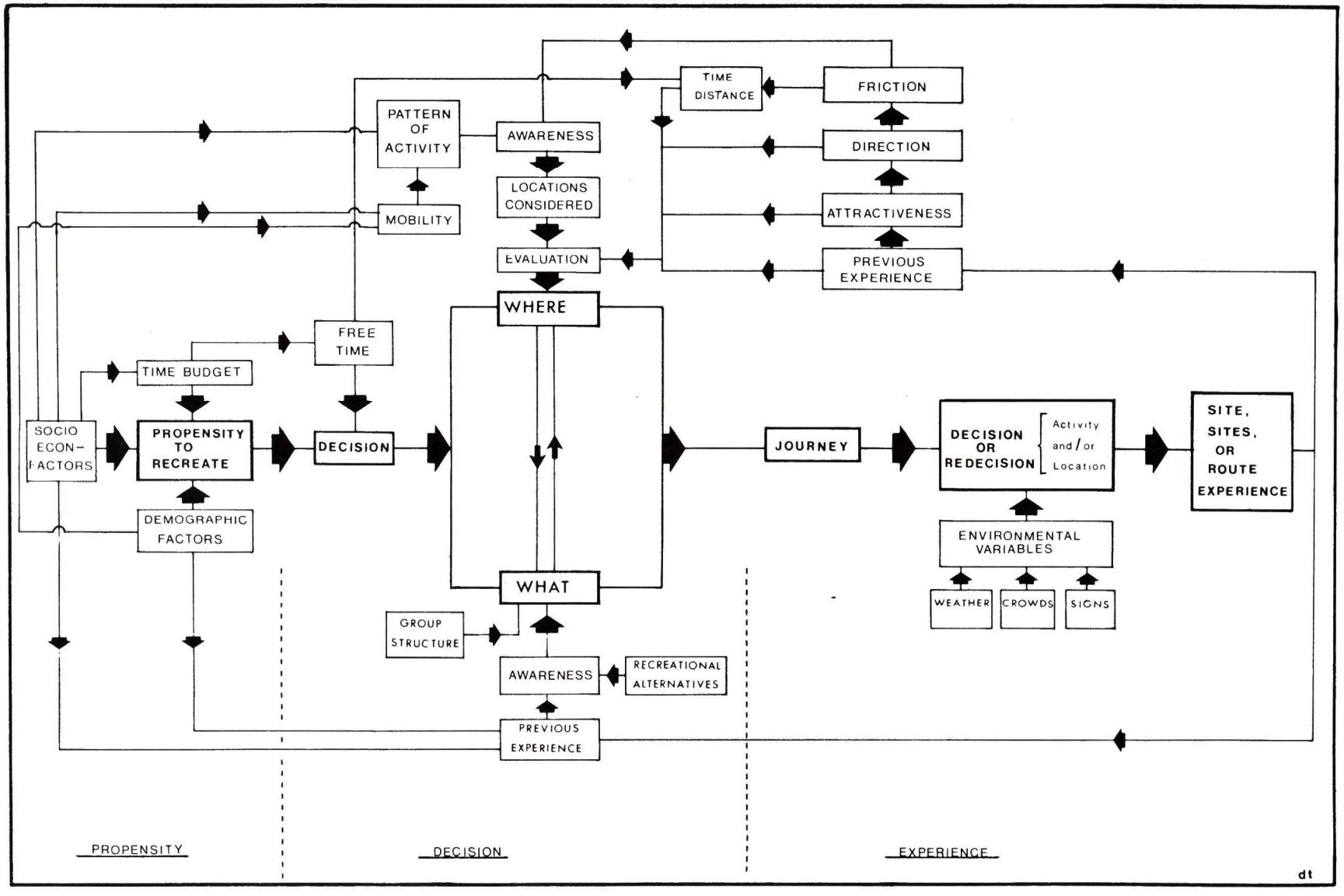


Figure 2.4 A Conceptual Schema of Relationship Between Critical Factors in the Recreational Decision Making Process

2. A Review of Research Related to the Study of Short Duration Recreational Trips

Propensity to Recreate

There have been a large number of nationwide surveys into the effect of socio-economic and demographic variables on recreational participation (ORRRC, 1962; Rodgers, 1967; Sillitoe, 1969; Crow, 1970) while many small scale studies have been specifically oriented towards understanding the effects of these variables in relation to specific recreational types or a particular location (Lindsay & Ogle, 1972; Pincombe, 1970; Sofranko & Nolan, 1972). Many of these surveys are well reviewed by Campbell (1971), Patmore (1971) and Lindsay and Ogle (1972). As a result, and because the major thrust of the review is a consideration of the decision making stage of the trip, it is intended to do no more than note the importance of these background variables.

The Decision Stage

The decision as to when to recreate is ultimately determined by the amount and distribution of free time available to the individual. For the majority the longest expanses of uncommitted time occur during the weekend (except for vacations, that is) and the natural conclusion from this is that this will be the period when most use is made of day-use facilities. In fact, this has been substantiated for such sites (Burton, 1966; Shulman & Greco, 1964), and for routeways (Wolfe, 1969).

It is difficult to assess the effect of the current trend to increased flexibility of working hours (Kuropatwa, 1971:107) but the effects of school hours, shopping hours and the cultural and religious aspects of the weekend will not quickly be changed. The effects of the shortening of the working week is again difficult to predict but some studies indicate that it may even cause an all round lessening of recreational activity (Pincombe, 1970).

The Choice of Activity and Site

The joint decisions of site and activity should be at the heart of recreational studies since the understanding of these decisions represents the most important part of any study of movement. Kofoed regards the choices as consisting of one of the following concepts:

> The first alternative is a modified version of the concept presented by Chapin and Hightower (1966). Using two stages they estimate first the choice of activity and then the choice of location. This concept has to be modified since activities occur at alternative locations given by the field of contacts. The second alternative is given by Wallden (1968) who regards the choice of activity and location as a single choice situation. A person has a set of choices between different activities in different locations. He then may choose, for example, between training in the forest or playing cards in the house of a friend (Kofoed, 1970:149).

A third alternative is that the choice of site may occur before the choice of activity. Logically one expects that which of these alternatives best describes the decision making process will depend upon the types of activity under

consideration and the characteristics of the decision making group.

Alternative one, that of Chapin and Hightower, will probably best describe the decision making involved in an activity such as tennis or some other sport. The individual decides to play tennis, as opposed to some other sport, and then selects among the alternative locations.

The second alternative, that of Wallden, may describe the choice made by an individual faced with a free Saturday afternoon. No particular activity or location stands out as being most favourable, rather alternative activities of various kinds and their associated locations are considered.

Finally, the third possibility is perhaps best described by the recreational leisure trip to a particular spot in the countryside. Little consideration is given to 'activity' at that spot, this is secondary to the importance of that particular location itself.

Obviously these three concepts do not necessarily occur in isolation. One of the few pieces of evidence on recreational decision making indicates that decisions are often made or modified en route (Colenutt, 1969:46; Burton, 1966: 379). As a result, a series of decisions may be made each of which may represent one or other of the concepts outlined above. Until further research has been completed, however, much of this must remain as pure conjecture.

One of the only direct pieces of evidence on the

recreationist's decision making process is Lime's (1971) classification of choice by information level and the degree of mental effort involved. He identifies four types, 1) Unconscious, 2) Inexperienced conscious, 3) Experienced conscious, 4) Habitual, which fit in well with earlier work on natural hazard perception (Kates, 1961:16).

Activity Choice

The choice of activity is a function of awareness. That is, if the individual does not know of the existence of an opportunity to participate in an activity or that activity is unfamiliar to him, then it is unlikely that he will decide to participate in that activity (Emmett, 1969). This awareness is conditioned by the same variables that are important in determining the propensity to recreate. Here their effect is both direct and indirect, through previous experiences (Sofranko & Nolan, 1972) and life style. The perceived time that is available may also be considered and balanced against that time which the activity would consume.[1]

Both within one culture and cross-culturally there are differences in the participation rates for various activities (Patmore, 1970:56). Each activity type may well have a distinctive clientele and much work has been done in an attempt to determine participant characteristics for various activities (Lucas, 1971; Hendee, 1971; Cole & Wilkins, 1971; Leaschner & Whittaker, 1971). Work has also been done in an

[1]However, Burton (1971) notes that research has indicated that there is, in fact, little or no conscious budgeting of optional time by individuals.

attempt to determine the characteristics of activities which are attractive to various segments of the community (Bishop, 1970) and also of groupings of activities (Procter, 1962; Burton, 1971; CORDS, 1973).

Factors such as group structure, the time of the year, the weather, etc., which are essentially unique to that time and place are poorly understood. Statements of a general nature can be made about their effect but little work has concentrated on the effect of these contributors to the individual's decisions. As models of behaviour are refined, the effects of these factors will either be better understood by direct study of their effect, or alternatively they will be modelled stochastically and their effects understood more by inference than direct study.

Activity Location

The recreationist's decision on where to recreate has traditionally been regarded as being an assessment of the attractivity of certain sites in relation to their distance from the trip's origin. Since Clawson's (1959) representation of distance as a cost to the recreationist, most work has regarded distance as the independent variable in predictions of site attendance. Implicit in this view is the assumption that the relationship, when plotted on a graph, would form a straight line function expressing a negative relationship between distance and some expression of site attendance; this has come to be known as the inverse distance law.

Distance as a Deterministic Variable

The inverse distance law (Harvey, 1969:110), constituting as it does an integral part of the gravity model, has been used extensively in predicting people's movements. This model, or an adapted regression form, has been used by many recreation researchers.[1] The basic model, its assumptions and implications, has been well outlined by Isard (1961), Olsson (1965) and Abler, Adams and Gould (1970), while the use of the model in recreation has been reviewed by Ellis and Van Doren (1965), Thompson (1967), Cesario (1971), and Ross (1972).

The gravity model simply expresses mathematically that the number of persons moving from one location to another is directly related to the population of those two centres and inversely related to the distance between them.

One of the most obvious problems associated with the gravity model as applied in recreation is that a recreational site does not have a population to attract a flow of visitors (Wolfe, 1970:352). Instead, some measure of attractivity is substituted. However, this measure is often derived from

---

[1] $Vij = G \frac{PiPj}{Dij}$

where Vij = the numbers moving from i to j
PiPj = the populations of i and j
Dij = the distance between i and j
G = a constant.

This equation is modified to give varying weights to the independent variables depending upon an increased friction of distance or the greater mobility of one part of the population when compared with another.

site attendance figures or capacity indicators. An example of this is Wolfe's (1966:9) model which uses capacity, itself a reflection of attendance, while even Cheung's (1972:144) use of an "attractiveness factor", derived from a combination of national participation rates and park facility inventory, cannot avoid the use of participation rates in a small number of parks. Such measures involve a circular argument and so it should be no surprise that gravity models thus formulated describe visitation rates with a fair degree of accuracy.

Some of the model's failings when linked with independent research findings provide an insight into the way that distance and attractivity work. Wolfe (1972) observed that the standard straight line function of distance plotted against attendance both over-predicts the numbers of short trips and under-predicts the number of long ones. Wolfe (1972:72) argues that the number of short trips may be smaller than expected because a great many people have no wish to make a trip of any length, no matter how short, "whilst at the other extreme are the minority who find lengthy trips so stimulating that the farther they go the farther they wish to go." Several other pieces of work also indicate that it is not correct to regard distance as a simple disutility.

Though it may be that for many short and long duration trips distance is regarded as a cost, both in terms of time

and money, this is not always so. For very short journeys of between fifteen and thirty minutes, it seems that the individual tends towards indifference to the relative times involved (Chapin & Hightower, 1965:229). Work in Britain on day trips also indicates that a large percentage of trip makers did not take the shortest route to a site (Colenutt, 1969:45; Countryside Commission, 1971) and though Keogh (1970) found that a large percentage of trippers returned by the same route as the outward journey--the shortest one--there was a large variation in this percentage depending upon trip type. Wolfe (1966:7) and Catton (1965:80) also point out the importance of circuit routes for multiple purpose long duration movement. In such cases the trip itself becomes part of the experience rather than a necessary evil to be endured in order that recreation may occur.

This means that the distance function is not linear but curvilinear. A partial operationalisation of this type of function within the confines of the gravity model is Cheung's (1972) use of a variable definition for distance"

$$g(Dij) = \begin{cases} \frac{Dij}{2} & \text{where } 0 < Dij < 20 \text{ miles} \\ Dij & \text{where } 20 < Dij < 55 \text{ miles} \\ Dij^{\frac{2}{3}} & \text{where } 55 < Dij \end{cases} \quad \text{(Cheung, 1972)}$$

In other words, a series of straight lines is fitted to the data which produces a statistically significant fit. Working on the related problem of accessibility, Ingram

(1971) attempted to explain variation in interaction over distance by fitting a probabilistic function to the data. His findings on the goodness of fit of such a function agrees with Wolfe's (1972) statement on the probabilistic nature of recreational movement.

Further problems involved in the use of the gravity model arise from the constraints of that model. The populations (Pi, Pj) should be large and homogeneous (Isard, 1961: 512) which quite obviously is not true for recreational movement. In such cases Isard (1961:512) suggests the use of the intervening opportunities model.[1] Such an interpretation of the distance effect seems to hold great promise provided that it can be demonstrated that people do think in terms of a set of alternatives.

The opportunities model has not, however, been well studied for recreational movement (Thompson, 1967:533) and that which has been done has produced some contradictory results. Adams (1966) and Volk (1965) note the importance of intervening opportunities in determining park visitation rates, while Catton (1965) quotes examples of a stepping stone effect for national park visitation.

The problem lies with defining complementary or opposing opportunities and then identifying which of those is

---

[1]The intervening opportunities model is a formulation of the gravity model in which a measure of the opportunities between i and j is substituted for distance.

known to the individual. Whether site A is weighed against site B, a case of conscious experienced choice (Lime, 1970) or no apparent decision is made, unconscious or habitual choice, is of major importance in defining an opportunity. Though the opportunities model takes into account freedom of choice (Wolfe, 1966:7) it represents an uneasy compromise between the gravity model and a stochastic model of movement, and one cannot help but feel that the model itself leads to a cul-de-sac, though the concept is valuable.

As Ross (1972:6) emphasises, the deterministically based models of behaviour are empirical constructs which disagree with many notions about individual spatial behaviour. They have, however, made major contributions to the understanding of recreational behaviour, though often only indirectly. If better understanding and prediction are to be achieved, researchers must increasingly concentrate on the individual and the constraints on his behaviour.

Behavioural Aspects of Distance and Site Evaluation

A basic assumption of deterministically based models is that the individual makes decisions between all sites of a given type which lie in a given hinterland around his residence. Work by Adams (1969), Johnston (1972), Wiseman and Curtis (1972), Clark (1971), and Lowrey (1970), among others, seems to refute such an assumption. These researchers note a directional bias in movement patterns which they relate to various factors. Wolfe (1951, 1966), Campbell (1967), Ross

(1970), Mercer (1971, 1972), Burton (1966), Duffell and Goodall (1968), all report biases in recreational movement patterns.

Spatial Bias in Movement Patterns

Evidently the effect of distance on interaction is not fully understood (Kofoed, 1970:146). Even the individual's comprehension of distance between his residence and various locations has been shown to vary according to direction and function of trip (Lee, 1970:49; Thompson, 1963:6; Golledge, Briggs & Demko, 1969:64), while the degree of that variation and its regularity has been investigated with only partial success (Lowrey, 1970:68). A field of growing importance is the study of spatial learning and the factors associated with and contributing to this spatial bias in movement patterns.

Activity Space and Spatial Bias in Movement

Since Lynch's (1960) systematising work on city images and the perceptions of people living within man-made environments, much work has been done on the acquisition of spatial information (Craik, 1970). The work by Adams represents the first and clearest statement on the effect of a person's daily movement pattern on his cognition of the city.

> For the familiar frequently traveled parts of the city, the paths, nodes and area included in the mental map are sharply in focus. For places less well known images are blurry or non existent (Adams, 1969:362).

This is substantiated by the statement that

> . . . as an individual moves around an urban area in the course of work, shopping, social and recrea-

> tional trips from a particular residential base, he learns and reinforces a more or less unique spatial pattern and consciously or unconsciously ranks places on a preference scale in terms of their utility for various activities (Mercer, 1971:133);

and Kofoed states that:

> Most knowledge is derived during journeys between already established contacts and the home, both of which are socially determined. The distribution of contacts in space thus involves more than geographical distance as a simple frictional force (Kofoed, 1970:149).

Adams (1969:305) hypothesised that because of the typically downtown orientation of his daily trips, the resident views the city as a narrow wedge focussing on the central area which will be reflected in intra urban migration patterns. In his subsequent research, Adams found spatial bias in movement directions along the lines which he predicted. Wiseman and Curtis (1972:120) also found biases in trip direction which they related to social class and residential location factors and, therefore, indirectly to activity space.

Mercer (1971:135) adapted Adams' theory to explain the observed biases in recreational trip distribution. He located the focus for the urban recreationist outside the city. From this he hypothesised that the population of the near downtown area would have a knowledge of the whole urban area through movements outwards in all directions. The population of the outer limits of the city, however, would have more wedge-shaped maps due to the proximity of a rural area and the perceived barrier of the downtown core, which

latter point is supported by Duffell and Goodall (1968:35). Mercer (1971:137) substantiated the existence of varied patterns of movement related to residential location in Melbourne. However, Mercer does not test the pattern against any measure of activity or activity space.[1] For this reason his work has not fully validated his hypothesis.

The acquisition of spatial information is a complex topic since,

> Even though an individual's action space is limited spatially a meaningful examination of its formation is likely to include consideration of a wide range of spatial behavior (Horton & Reynolds, 1969:71).

It is, however, a most important research area since the amount and bias of spatial information is a major input into the individual's decisions. When coupled with the direct effects of social class, age, etc., action space characteristics constitute an essential dimension of the awareness factor which determines those sites which are considered.

Site Evaluation: Attractiveness and Its Measurement

The recreationist is traditionally hypothesised as selecting among sites in terms of their individual attractivity as balanced by the inconvenience involved in reaching them. It has already been shown that the effect of distance is only now being unravelled; assessment of recreational sites is itself closely related to distance but embraces other

---

[1] Activity space is that space with which the individual presently has direct contact.

aspects of understanding.

Studies of attractiveness may be direct or indirect. Direct studies seek to relate observed behaviour at sites to various properties of those sites: examples of such work include Shafer and Moeller (1971) and Lime (1970), while Wolfe (1966) and Cheung (1972) include measures of attractiveness in their gravity models. As Ross (1972) points out the major problem encountered by such studies has been that of spatial bias in locations of sites vis-a-vis the locations of the decision makers. Ross attempts to use Rushton's (1969) technique of paired comparisons to overcome this problem and though the technique does have some problems, Ross succeeds in making a major contribution to understanding.

Indirect measures, in which landscape attributes are recorded and assessed independently of use, are becoming an important planning tool (Craik, 1972). Such studies, however, tend to be orientated toward assessing landscape for its value as scenery; that is, a visual resource. Indirect measures of recreational areas, which depend less on great scenic value and more on measuring proximity to urban centres or the mix of recreational opportunity, will only be the result of earlier direct studies.

The dual decisions as to what activity and where, and the understanding of these depend, therefore, on two things. First there is the whole aspect of the acquisition of spatial and recreational information. Both have been poorly under-

stood and research is only now focussing onto this set of problems. The second necessity is for an understanding of the decision process itself, the factors involved and the types of decisions made. This area is also being researched with increased intensity and in the future it is to be hoped that a more detailed appreciation of the factors and inter-relationships will result.

The Journey and Site Attendance Stage

It has commonly been assumed that by making a trip to a site, a conscious assessment has been made. However, as Lime (1971) shows, this is far from the truth since at least forty per cent of his campers were classified under his habitual category (see page 17 above). As Mercer (1971:140) points out, this may be due to long residence in a given place which results in a decreasing activity space and an increase in the percentage of habitual choices.

However, many trips are modified en route (Colenutt, 1969:46; Burton, 1966:379) as a result of factors experienced during the trip. Directional signs obviously make a major impact on behaviour. Studies such as Brown and Hunt (1969) are making an initial attempt at assessing the effect of these. However, the problem of tracing back just which advertisement or sign was influential is obviously great (Murphy, 1970; Deasy & Greiss, 1966).

The character of the route is related to the effect of artificial signs. The effect of the route, those elements

which are most impressive, in fact, the whole experience of movement through an environment is not solely a recreational problem. Studies, such as Carr and Schessler (1969), Appleyard, Lynch and Meyer (1967), are related to perception and urban planning while Brancher (1968, 1972) and Houghton-Evans and Miles (1970) tackle the problem from the user type and conflict standpoint for recreational routes. As yet, however, the two different approaches which these studies exemplify have not been brought together in recreational research.

Crowding, too, is an obvious factor on which little definitive work has been done. The various effects on different personalities in various activities is acknowledged but not understood. Colenutt (1969:47) suggests that the effects of crowding, the weather, etc., might be most profitably incorporated into a stochastic model as random shocks to the system.

Not all journeys necessarily end at a recreational site, but such trips are still modified by the above factors and others such as road congestion. Upon completion such journeys, as well as those to sites, will become a part of previous experience either adding to or substantiating the individual's action space.

3. Summary

At the outset of this chapter, the importance of conceptualisation of the recreational system was noted. Though such an approach, by the construction of conceptual schemas, is rare, it was possible to point to an increasing refinement of these schemas and finally to produce a schema of the short duration recreational trip which was a derivative of those produced previously.

In relation to this schema, studies of recreational behaviour can be seen to have reached the stage where some of the early models of explanation may now be reassessed in the light of research in recreation and related subject areas.

Overt recreational behaviour is the outcome of a series of decisions, conscious or unconscious, which are determined or modified by a mix of personal and environmental factors. These factors are themselves being continuously modified since they represent the sum of an individual's lifetime experiences. Future work must emphasise the acquisition of information and the way that this influences decisions. The decision making process itself requires more study, in terms of priorities established and types of decisions.

The research reported in the following chapters attempts to relate present models of behaviour to patterns observed in a case study of one urban area. From this analysis will come new understanding of the interplay between the factors

of personality and environment. This understanding will be utilised in the refinement of present models around the frame laid down in this chapter.

CHAPTER III

THE SURVEY: ITS RATIONALE AND IMPLEMENTATION

1. Rationale

A survey was developed to obtain data relating to recreational trip behaviour. The trips to be studied were those of short duration, varying in length from a few hours to a weekend, which had been undertaken during both the previous twelve months and the survey period. Data collected were to be used in testing hypotheses derived from the work of Adams (1969) and Mercer (1971). These hypotheses related specifically to the directional orientation of trips and the influence upon this of aspects of the individual's activity space and the supply of recreational opportunities.

2. The Survey

Type and Location

The information sought determined that the survey would be based upon a questionnaire administered to a sample of urban households. It was necessary that interviewing should take place at the trip origin rather than the recreational site. This approach may also be justified on the grounds that the traditional destination based recreation surveys do not of course sample non recreationists, while those recreation sites sampled are usually a small number of

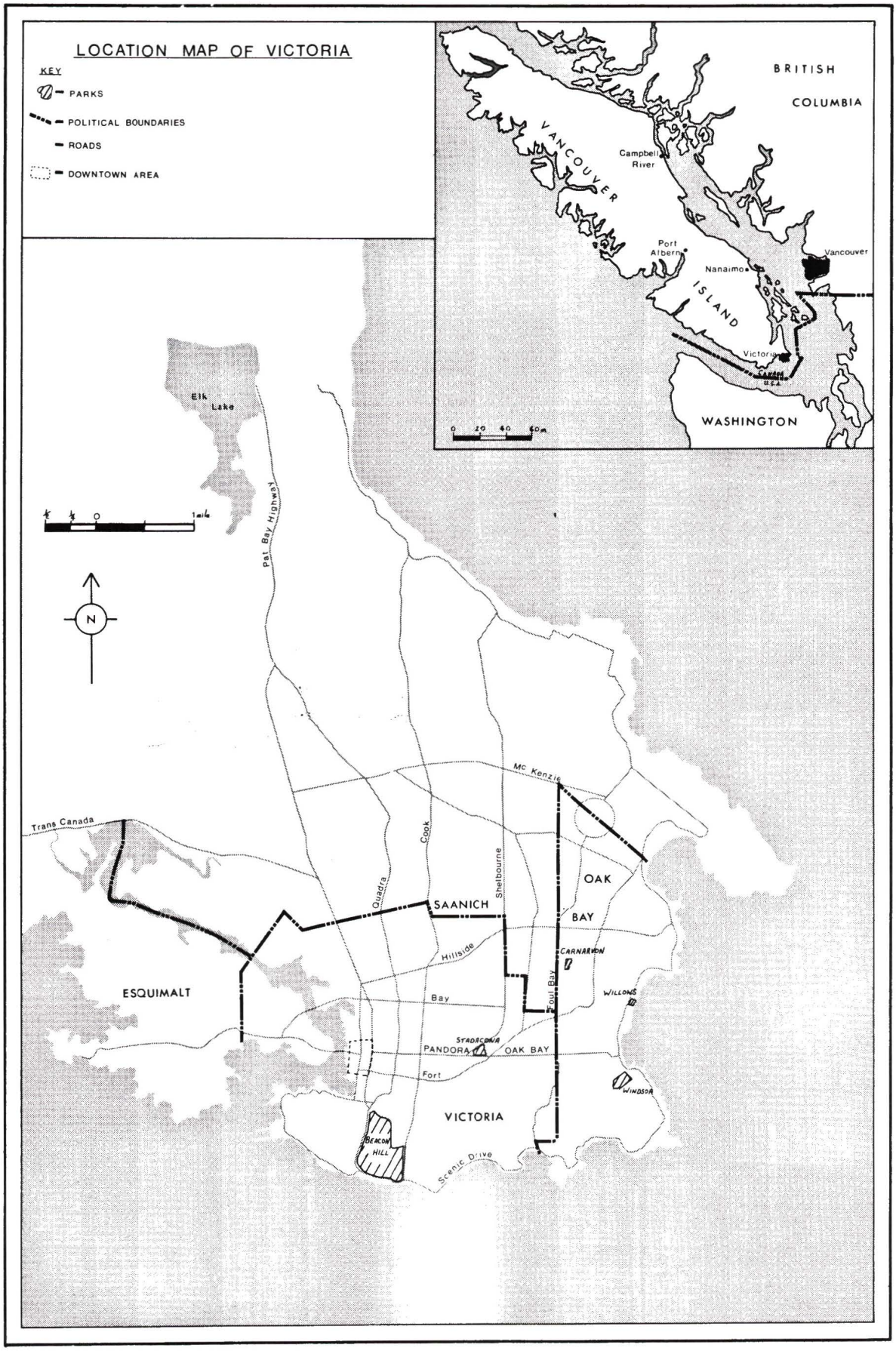


Figure 3.1 Locational Map

locations which can hardly be regarded as typical of the whole system.

Campbell (1967) and Mitchell (1967) were among the first to advocate an urban or origin based perspective to recreation research. They argue that this is the only logical manner by which a more complete understanding of the system will be achieved. Studies of many aspects of recreation have substantiated these claims (Ross, 1969, 1972; Coomber, 1970; Burton, 1971; Duffell & Goodall, 1970; Mercer, 1971, 1972b) and future work will probably exhibit an increased emphasis towards this approach to recreation research.

Victoria was selected as the urban area to be studied primarily for reasons of expedience and the researcher's degree of knowledge of the available recreational opportunity in the city.

Questionnaire Design

The survey was developed as two distinct stages. Section 1 focussed on past activities, specifically visits to parks, beaches and campsites in an area delimited by a map on which information was recorded by the respondent. During this stage standard socio-economic data were collected. Section 2 focussed on those trips made during specific weekends concurrent with the survey administration, when additional information was also obtained on the location of specific indicators of the activity space of each respondent.

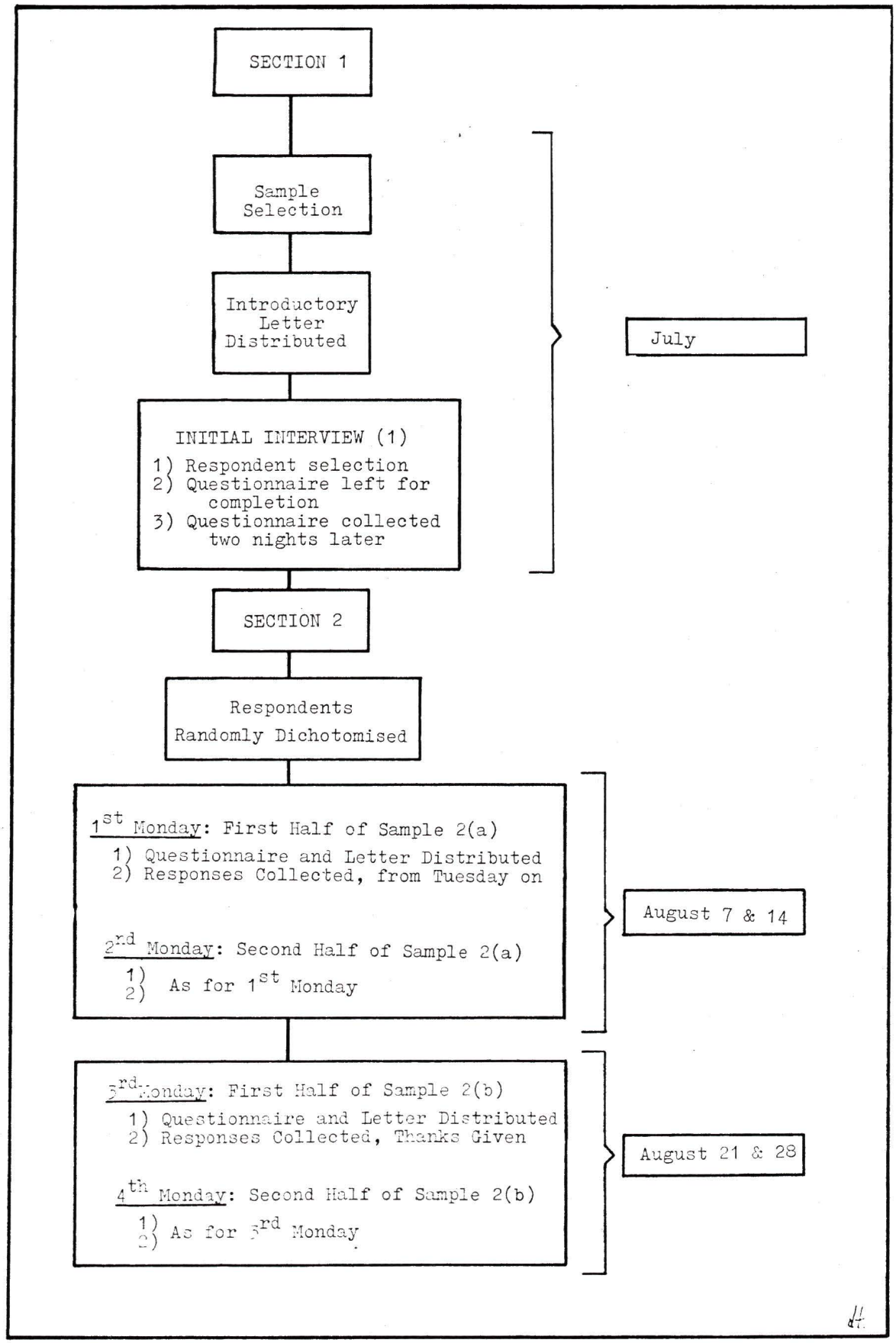


Figure 3.2 Survey Organisation and Administration

Section 1: Survey Familiarisation and Antecedent Behaviour

Since the whole survey involved questioning respondents on three occasions, it was visualised that the first part of the survey was crucial in gaining the interest and aid of potential respondents. Consequently some time was expended on personally introducing the questionnaires, explaining their intent and the respondent's role within the selected procedure for distribution and collection.

In Section 1 respondents were requested to record the location of all parks, beaches and campsites visited during the preceding twelve months (using questionnaire 1a, Figure 3.2; Appendix E). Parks and beaches were used since they constituted a supply of known quality and quantity of urban recreational opportunity thus allowing full analysis of hypotheses on intra urban recreational movement. Campsites were to be used as an example of extra urban travel, using the Canadian Outdoor Recreation Demand Study (CORDS) inventory for British Columbia as a data source. In practice, however, so few camping trips were noted that further analysis was impossible.

Given the spatial nature of the information required it was decided to use a map as the recording medium since it was felt that this offered the simplest method of detailing spatial information for a specific area, and indeed of specifying the extent of that area. A pilot study was run to gain insight into the amount and type of information

required to enable accurate use of the map. This study also indicated the form of instructions which would best aid full understanding of the respondent's role. As a result, the wording of the instructions was altered and additions were made to the map in the form of labeling specific coastal landmarks and marking in all parks in the area (see Appendix E).

Though the assumption that all respondents were able to locate their activities accurately on the maps may be regarded as a potential weakness in the study, in the light of work on mental maps and city images (Gould & White, 1969; Lynch, 1961) it may be argued that any other method of obtaining such information is open to problems of the same dimension if not the same type. The pilot study showed that given certain spatial cues respondents were able to locate their activities reasonably accurately and that even the problem of recalling all parks and beaches visited was aided by working with the maps. Previous examples of the use of this form of questionnaire in recreation research include Lucas (1967), Bentryn (1972) and National Parks Canada (1972).

A second objective of this part of the survey was to obtain data on the socio economic characteristics of the sample. This was obtained at this time to ensure that the respondents work-load decreased as they progressed through the survey. The data were collected in accordance with the categories set up in recent national parks surveys (Kovacs,

1971). It was felt that in view of the lack of continuity in such recreation research (Burton, 1971:41), the problems associated with using categories set up in another study were far outweighed by the possible benefits. In consequence wherever possible attempts were made to match the data collected with that obtained by the National and Historic Parks Branch.

Section 2: Activity Space and Weekend Trip Making

The objective of the second part of the survey was to obtain data on extant recreational behaviour, specifically weekend trips using a modified time budget technique. Data were also to be collected on the locations of past and present activity locations to be used in testing hypotheses relating to both antecedent and extant recreational behaviour.

By collecting data over four weekends it was hoped that this, in combination with data obtained in Section 1 of the survey, would constitute a simple time sample. Much, of course, depended on the success of the survey technique itself and the feasibility of using the same respondents as many as three times.

Since data were required on many aspects of the trips in addition to the location of any stops, information was gathered by use of a modified time budget diary technique (Appendix F). Respondents were required to record details of any recreational trips made on the weekend to which the survey applied. A map was not used to record spatial

aspects of the trips since great variations in geographic scale were expected in the movements recorded.

The trip record was presented in such a way that in completing the sections the respondent was led as naturally as possible through the trip itself, thus aiding the memory while obtaining a standard set of responses (see Appendix F). The structured approach was also adopted to lessen the greatest of the problems facing users of time budget diaries --coding unstructured responses (Burton, 1971:164). At the same time the standardised approach assured a uniform data set.

The route of the trip was at once the most important yet difficult information to obtain. An instruction to "detail the route taken" would have induced responses varying greatly in quality while too detailed a set of instructions ran the risk of false channelling of responses. Finally it was decided to infer the route taken from the location of any stops reported which is at best a compromise but it can be argued that compass orientation of the trip at least was still discernible. This trip information was collected in both questionnaires a and b of Section 2 (Figure 3.2). The second objective, to obtain data on past and present activity locations required decisions as to the types of activity to be included. Adams (1969:303) suggests that work place is of greatest importance in determining spatial patterns of behaviour. Kofoed's (1970:148) comments on social factors and

the development of behaviour over time, encompass many more locations including both past and present school place and residential location. In the present study, both past and present work place, residential location and school place, and present shopping and club meeting places, were recorded (see Appendix F).

Each questionnaire sheet was printed on differently coloured paper to improve their visual impact (Coomber, 1971) and also to ease the task of instructing the respondents. Layout and general presentation was also carefully studied in relation to literature on questionnaire design (Oppenheim, 1969; Davidson, 1970; Burton, 1971).

3. Survey Operationalisation

The sample was necessarily small, given the complexity of the survey and limited available resources, this also constrained the size of the population from which the sample could be drawn. Thus the city of Victoria or even its constituent census tracts were precluded by their sheer size. However, testing of both Mercer's (1971) and Adams' (1969) theories required that the sample should have a wide spatial distribution. Eventually it was decided to draw the sample from the population of Pandora and Oak Bay Avenues, which constituted an east-west transect of the city, the total population of which was easily definable.

The transect approach gained preference over a represen-

tative block approach since the latter was considered to spread the sample over too wide an area thus possibly involving large variations in recreational opportunity, population characteristics, etc. The transect related to a known population, the characteristics of which were easily definable, dispersed in space yet unified by the road running from the urban core to its periphery.

An east-west transect gained preference over others because of the residential structure of the city. Only in this direction did housing penetrate nearly to the core of the city. Pandora Avenue/Oak Bay Avenue (Figure 3.1) was selected because of its near central location within the city area and the recreational supply.

An initial sample of one hundred and fifty was drawn randomly from listings of all households along the two roads. The technique of multi questionnairing, as demonstrated by Burton (1971), was used in an effort to maximise the use made of respondents and thus the sample was necessarily small.

Survey Administration

As can be seen from the diagram (Figure 3.2) the survey was administered in July and August. Each household to be sampled was contacted personally at the commencement of Section 1 and household respondents selected using Kish's method (Appendix G) at which time the whole survey was explained.

On completion of Section 1, the list of respondent households was randomly dichotomised, each household being questioned on two set occasions, thus giving a set of data related to four weekends and constituting Section 2 of the survey. Interviewing took place between the hours of five and seven in the evening to minimise disturbance and maximise the contact rate. A standardised introduction and explanation was used at each household.

4. Survey Response

Representativeness of Sample

From Table 3.1 it can be seen that the overall response rate to Section 1 of the survey was sixty per cent. Examination of Table 3.2 shows that the majority (57%) of refusals came from old single females living in apartments while most (77%) of those households that could not be contacted fall within the apartment category also. This reflects not only the great problem of eliciting responses in such buildings but also the attitudes of the people who live there.

However, several tests run on the data do not indicate any significant, systematic deviation from the population characteristics of the sample area. A chi square test was run to compare the sex and marital status characteristics of the respondents to Section 1 to those to be found in the census enumeration areas from which the sample was drawn (using 1966 figures). This test failed to show any significant

TABLE 3.1

SUMMARY OF RESPONSE TO SECTION ONE OF THE SURVEY

Original Sample	150
Total Contacted	125
Total Refusals	28
Total Not Recontacted	6
Total Respondents	89
Response Rate	60 %

TABLE 3.2

SUMMARY OF HOUSEHOLD CHARACTERISTICS

a) Respondent Households

Age/Sex Characteristics

Young* Single Male	Young Married Male	Young Single Female	Young Married Female	Old Single Male	Old Married Male	Old Single Female	Old Married Female
5	10	13	17	0	10	25	8

House Type

Single Family House	Apartment	Duplex	Purpose Built Apartment
27	11	19	31

b) Refusals

Age/Sex Characteristics

Young Single Male	Young Married Male	Young Single Female	Young Married Female	Old Single Male	Old Married Male	Old Single Female	Old Married Female
0	1	0	0	2	8	16	0

House Type

Single Family House	Apartment	Duplex	Purpose Built Apartment
4	7	5	14

*For the purpose of this study the split between young and old was made at age 40.

TABLE 3.2 (contd.)

c) Non Re-Contacts

Age/Sex Characteristics

Young Single Male	Young Married Male	Young Single Female	Young Married Female	Old Single Male	Old Married Male	Old Single Female	Old Married Female
1	0	4	1	1	0	0	0

House Type

Single Family House	Apartment	Duplex	Purpose Built Apartment
2	3	1	1

d) Non Contacts

House Type

Single Family House	Apartment	Duplex	Purpose Built Apartment
3	2	3	19

systematic difference between the two distributions. A Kolmogorov Smirnov test run on total household populations showed no significant differences between the distributions.

Since the census enumeration areas might not have been comparable to the survey area, while the 1966 census was itself only a sample, it was decided to test occupation groupings from the sample with groupings derived from the 1972 provincial electoral rolls which were compiled at the time of the survey. Once again no significant differences between the two distributions were found using a chi square test (see Appendix H for comparison of sample and real world distributions).

These results, combined with the acceptably low values for the standard error estimates of the sample (Appendix H), indicate that by use of simple random sample coupled with Kish's respondent selection method the first section of the survey gained a representative sample of both households as a whole and persons within the households. However, it would seem that residents of modern, purpose built apartments are underrepresented in the survey.

The attempt to use the same respondents on three successive occasions required much effort. However, this approach appears to have been relatively successful. The response to questionnaire 2a was eighty per cent of the response to Section 1. No systematic differences between the two samples could be detected. For questionnaire 2b the response rate

was ninety-six per cent of that for the second questionnaire. However, it should be noted here that the number of people recording no trips increased from fifteen per cent in the first part of Section 2, to thirty-six per cent in the second part.

Thus the overall response rate to the survey was forty-six per cent, a proportion which compares favourably with many single questionnaire surveys which entail much effort in making three times as many original contacts while probably not gleaning as much information as was gained in this survey.

5. Summary

The data yielded by the various survey tools cannot be effectively evaluated for reliability since no standards exist against which these data may be checked. However, only two questionnaires from Section 1 and one from Section 2 were found to be unusable while answers to individual parts were almost universally usable. This is a reflection not only of the questionnaires but also of the amount of aid given by the interviewer.

Both the use of the map and the time budget diary approach proved successful though the map required considerable guidance in some instances. Both relied to some extent on respondent recall, the incompleteness of which is inevitable, especially for the antecedent park and beach visits.

None the less, the data appear to be both accurate and reliable.

The goals of the survey may be regarded as having been successfully completed. A sample, representative of the area under study, yielded data relevant to the hypotheses to be studied and of sufficient quality to permit such analysis. Each survey section functioned well allowing the collection of a large amount of detailed information with far less effort than would have been required by the single use of a sample three times as large.

The sample population proved to be representative of the larger area from which it was drawn. This area not only allowed efficient surveying, for example multiple call backs, but also fitted well with the hypotheses to be tested.

In Chapters four and five the analysis of the data yielded by the survey is reported. The main emphasis will be upon the spatial orientation of behaviour of both intra urban and extra urban trips. Particular emphasis will be given to the importance of present residential location, activity space measures, supply of opportunities, and distance as determinants of the behavioural patterns. In Chapter six the results will be incorporated into a modified model of behaviour based on observations made in Chapter two.

CHAPTER IV

THE SPATIAL IMPACT OF CURRENT RECREATIONAL TRIPS

An essential element in the decision making process is the quality of information (Figure 2.4). Over time an individual participates in activities at a range of locations, developing an information field or mental map of the environment complemented by information gained from the media and social contacts. This information is drawn upon when making activity choices. Understanding the acquisition and use of this information is at the core of the study of movement and as such it has recently been given much research attention. One line of enquiry has been to infer from the observed patterns of trip making the spatial extent, informational characteristics and role in decision making of the field.

1. Spatial Information and Behaviour

Current theories on information fields are exemplified by two extremes, one of which may be termed the spatial bias or sector theory. In his work, Adams (1969) proposed a behavioural equivalent of Hoyt's sector theory of urban land use. From observation and reported intra urban migrations, Adams infers that urban residents build up a spatially constrained, wedge-like, image of the city focussing on the

centre. Mercer (1971:135) noted many reports of spatial bias in recreational trip making, e.g., Campbell (1967), Burton (1966), Duffell and Goodall (1969), Wolfe (1966), and he extended Adams' wedge out into the urban hinterland.

The alternative theory, reflected in the extensive use of the gravity model in the prediction of recreational site attendance, is that of the "circular information field declining isotropically away from the individual's residential location" (Clark, 1971:5). Such a regular pattern does not appear to agree with reality as reflected in behaviour. However, Moore and Brown (1969, quoted in Clark, 1971:5) suggest that contact fields are more regular than biased. They envisage an elliptical field in which the individual's residence lies at one limit of the ellipse.

Empirical studies, largely conducted in major urban centres, have therefore noted a biased pattern of movement from which like variations have been inferred in both information fields and mental maps. In most cases it appears that trips of central city residents tend towards an even distribution while residents successively distant from the centre exhibit an increasingly biased pattern of behaviour, as found by Clarke (1971), Moore and Brown (1969), Wiseman and Curtis (1972) and Mercer (1971, 1972). These workers have hypothesised, along with Adams, that the city centre though it is a focus for many activities, is also a barrier to the flow of people and information. This results in a wedge

shaped activity space and a mental map for those extra core urban residents.

The work on intra urban trips has concentrated almost exclusively on migratory flows. Though migration and recreation are both free choice activities, and therefore essentially similar, migration is distinct from recreation in that the distribution of opportunities is sociologically and culturally determined and have to be purchased. In addition it may not be justified to assume that the recreator selects from identical information when considering alternatives for recreation or migration. Previous studies, including Mercer's (1971), have also taken little account of the distribution of opportunities, processes of information collection or city structure, in their effects on behaviour.

The present thesis attempts to study in detail the spatial aspects of the recreational behaviour of a small sample of urban residents. In so doing the factors of city structure, distribution of opportunities, residential location, build up of information over time and variation in the types of activities pursued are studied fully as in the contrast between individual and aggregated patterns of behaviour. The results give additional insight into the workings of the decision making process of recreators and the veracity of much of the theories of Mercer and Adams.

Mercer's (1971) theory on the spatial aspects of recreational behaviour deals specifically with extra urban trips.

These trips were reported in the second part of the survey (Figure 3.2) and were undertaken during the study. It is with this theory and these trips that the analysis begins.

2. The Assumptions and Implications of Mercer's Theory of Recreational Movement

Mercer emphasises the extra urban orientation of much recreational movement. He theorises that the urban resident will be characterised by a behavioural pattern similar to that described by Adams (1969), though extended into the city hinterland. In so doing, Mercer considers only those cities which are large and centralised enough that cross-town movement is time consuming. The centre therefore constitutes a barrier, both physical and mental to recreational movement. Further to this, Mercer assumes that the distribution of opportunities throughout the hinterland is even while access to these opportunities is largely by routes radiating out of the town centre, cross-town travel being poorly developed.

Victoria as a Special Case

Victoria, on the other hand, is a relatively small city (180,000 for the entire metropolitan area) in which the problems of city size and ease of access are barely felt as yet. The location of the city at the tip of a peninsula results in there being only two major corridors leading out of the town. Only to the north and west of the city can the resident travel for any distance by land alone since to the east

and south lies the ocean. Even the routes to the north and west are tightly constrained by the physical environment, especially that to the west. Consequently opportunities to recreate cannot be regarded as being distributed regularly around the city.

The cost, in both money and time, excludes the mainland of Canada and the United States from the realms of most day trips. Consequently these trips must be expected to be directed almost entirely to the north and west on the Island. Accessibility is also a major determinant of the destination of many other recreational trips. Studies have shown that three hours travel time represents a realistic travel horizon for much short duration recreational movement (Byers, 1969). In the summer it often requires this amount of time merely to board a ferry leaving Vancouver Island. It is unlikely that many residents even consider travelling to the Lower Mainland for outdoor recreation since not only is the cost great but also their lack of familiarity with opportunities for outdoor recreation in the area precludes if from any consideration.

Trips of a longer duration than those specifically dealt with in the questionnaire, that is longer than a weekend, may be expected to penetrate far from the Island.[1] Given the increased mobility of Canadians, it is to be expected that these trips will rarely be confined to the Island and many

---

[1] In fact, a large number of such trips were recorded by many respondents.

may penetrate into Washington and other parts of the United States. Here to the south of Victoria is an example of both a physical and political barrier to movement. Trips to the United States can be expected to be so infrequent for Victoria residents as to be something special, part of a long vacation for example. Although a major national park lies less than one hundred miles away, access is limited by these joint barriers and visitation rates from Victoria will probably be as low as those from Victoria to Banff or Jasper, five times the linear distance.

It is hypothesised, therefore, that the structure of the hinterland itself rather than the city structure, the resident's home base or his daily activity pattern, is the major determinant of extra urban activity patterns. Victoria represents an extreme case where various locations are totally precluded from consideration but findings here can be extended into other situations. When the urban resident travels beyond the city he is moving out of his daily activity space. Though he may habitually use one site his initial choice of that site will be a function of factors such as childhood experience, accessibility, advertising, etc. Only in large cities will information and access be limited by city size in which case the role of the hinterland as a determinant of behaviour will be confined to a smaller area, a large scale version of Mercer's sectors.

3. Analysis of Current Recreation Trips

Before dealing with specific hypotheses related to the theory enunciated above, attention must first be given to the mechanics of the analysis. In the coding of information only two major conceptual problems presented themselves, the coding of at-site activities and trip direction and distance.

At-site activities were coded using an adaptation of Burton's (1971) system developed for time budget diaries and the CORDS (1971) system for outdoor recreation (see Figure 4.1). Activity locations were recorded using the Civilian Mercator Grid system by which a unique location can be derived for any position on the earth's surface. Calculation of distances travelled, angles of movement and computer plotting is thus simplified.

However, many trips have a series of destinations which required a special procedure for the calculation of distances and angles. After inspection of computer print-outs of stop locations it was decided to take the average of the angle between origin and destination (the angles were computed by taking due east as zero). This average angle was located in the same ninety degree sector as its contributory angles in all but three instances, in fact the standard deviation of this value was less than ten degrees in the majority of cases.

Distance also constitutes something of a problem with both multiple and single destination trips. The desire

Recreational Activities		Social Leisure Activities			
Swimming	010	Social	080	Miscellaneous	090
Boating	020	Visiting friends & relatives	081	Photography	091
Camping	030	Party	082	Relaxing	094
Picnicking	040	Pub visit	083	Shopping	096
Walking & Hiking	050	Eating out	084	Viewing	097
Bicycling	060	Staying at hotel	085	Car riding	098
Outdoor Games	070			Driving for Pleasure	100
Organised	071			Mode Change	110
Unorganised	072				

Figure 4.1 Activity Codes

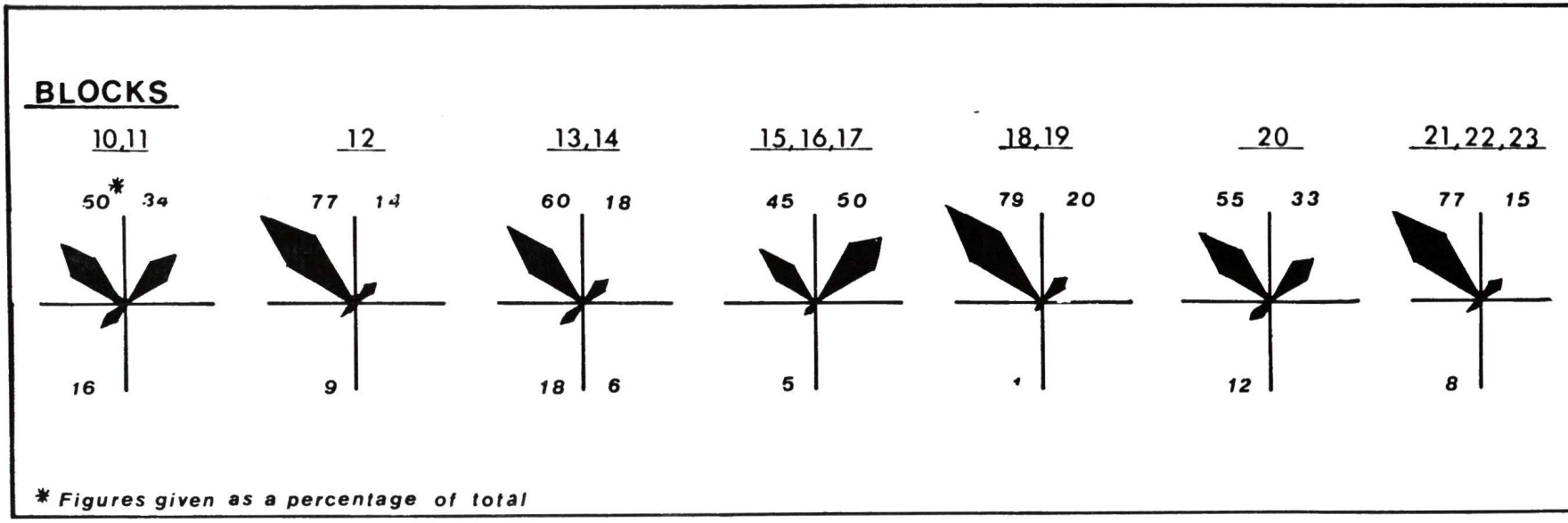


Figure 4.2 Trip Orientation by Block

line distance between origin and destination was used as opposed to the sum of the contributory sides of the triangle since though both will only be generally related to real distance in terms of longer trips, it was felt that desire line was the most representative measure. It must be recognised however that this measure is not a direct measure of real distance.

The basic unit for analysis was the respondent's residential block. However, since trip numbers for combined weekends was low, even for aggregated blocks, ninety degree sectors were compiled to describe the angles of movement instead of the ten and thirty degree sectors used in Chapter five.

Trip Orientation and Residential Location

From the foregoing discussion it is apparent that a basic tenet of Mercer's theory is that trips from various locations within an urban area will exhibit a variation in pattern. Consideration of Victoria's characteristics result in the hypothesis that there will be no such pattern of behaviour. This hypothesis is confirmed by analysis of the pattern shown in Figure 4.2. Kolmogorov Smirnov two-sample tests failed to show a significant difference between any of the distributions and a one-sample test confirmed that all were significantly biased from a proportionate distribution (Table 4.1).

This simple analysis confirms that residential location

TABLE 4.1

KOLMOGOROV SMIRNOV VALUES OF THE DIFFERENCE BETWEEN THEORY AND ACTUAL VISITATION PATTERNS

Block	10/11	12	13/14	15/16/17	18/19	20	21/22/23
	.334**	.41**	.27**	.45**	.48**	.38**	.43**

** significant at the .1% level

* significant at the .5% level

is not a determinant of extra urban recreational trip patterns for the sample being studied. Consequently, in all subsequent analysis the trips will be disaggregated according to other criteria. Trip distance was earlier identified as being a probable discriminatory factor in combination with trip type. It is expected that longer, off island trips will be different in character to shorter off and on island trips since the effects of accessibility and political boundaries will constrain the trip patterns.

Trip Orientation and Distance Travelled

It is hypothesised that extra urban recreational trips will fall naturally into two general distance zones. In one of these, the shorter distances, most trips should be oriented in the up-island direction. Trips off the island in this zone will be almost non existent. Longer trips will be off the island with destinations some distance from Vancouver and the Lower Mainland, with very few destinations in the United States.

On inspection of a plot of distance travelled against trip numbers for current trips (Figure 4.3) it emerges that aside from intra urban trips which are demarcated at a distance of twenty kilometres, there are indeed two extra urban zones. One zone shows two clusterings, one around one hundred kilometres and another around three hundred, while the second zone clusters at fifteen hundred kilometres (all these figures are round trip distances). This confirms the

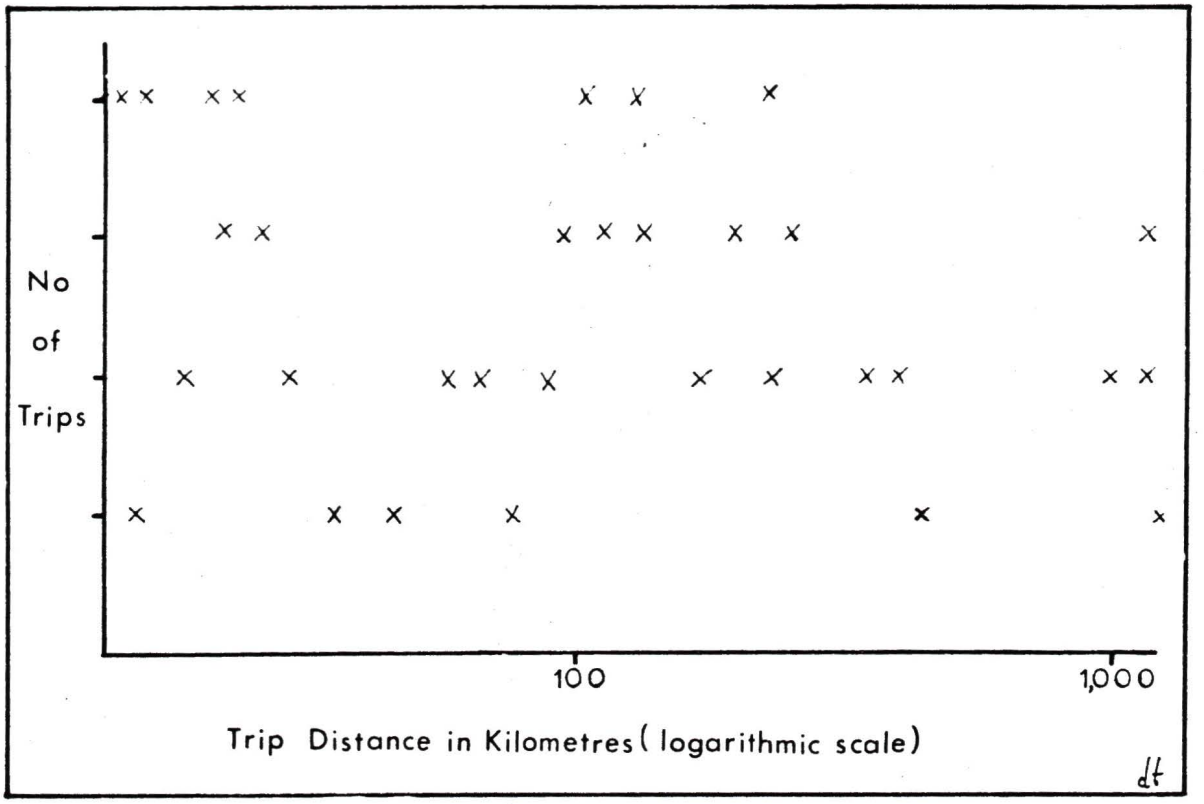


Figure 4.3 Graph of Trip Distance Plotted Against Number of Trips

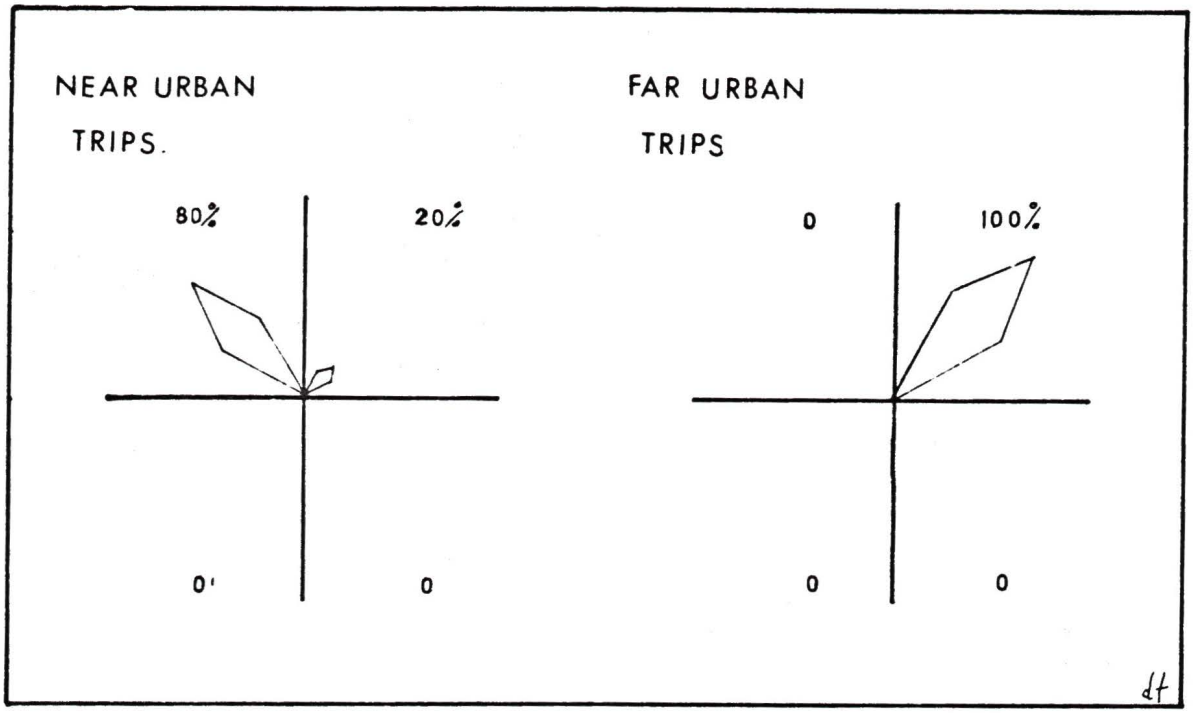


Figure 4.4 Extra Urban Trips Dichotomised by Distance Travelled

existence of two distinct impact zones for weekend recreation trips emanating from Victoria.

A plot of the spatial patterns of trips in these two zones (hereinafter termed near-urban and far-urban) further confirms the expected pattern (Figure 4.4). Far-urban trips are all in a easterly direction, angles ranging from zero to ten degrees with little travel to the United States and none to northern British Columbia. Accessibility appears to be a major determinant of the orientation of such trips. In the north of British Columbia, though there are many outdoor recreation areas they are not always easily accessible and so their use constitutes a part of a longer recreational trip or circuit for people from both Victoria and the Lower Mainland. In southern British Columbia, the Okanagan and, to a lesser extent, Shuswap areas offer an easily accessible resource while still further along the same route are the Rocky Mountains and their associated parks which have a considerable drawing power, even in Victoria.

Near-urban trips, however, do not exhibit quite the pattern which was to be expected. There are few trips in a westerly direction, the majority of the trips in the northwestern sector focussing to the north and northwest. Here accessibility may be a key for though there is much open land, with thousands of miles of logging roads to the west of Victoria , most people tend to focus on the highway and the opportunities along this western route are extremely

limited. To the north and west, however, lies the rest of the Island with population centres such as Nanaimo, Port Alberni, Courtney and Campbell River, many Provincial Parks, much open land and finally the Pacific Rim National Park.

However, the number of trips in the northeastern sector, though not enough to prevent a Kolmogorov Smirnov test reaching significance in a test for a proportionate distribution in the three sectors, does tend to refute this simplistic notion of the trips being totally on the Island. In fact, many of these northwesterly trips are directed off the Island to the Lower Mainland. Variation in trip type may well be an important element in this pattern.

The trips recorded in the survey were both outdoor recreational and social-leisure in nature. Since each of these relate to a distinct supply of opportunities and factors of demand it is to be expected that behaviour will vary between the two trip types. Social-leisure trips will naturally orient towards centres of population concentration, especially those which are close to Victoria, simply because of the greater chance of friendship and family ties concentrating there. This supposition is supported by the figures on town of origin for the sample population. Of those individuals originating in British Columbia, almost all are from the Lower Mainland and Vancouver Island.

Whereas outdoor-recreational trips in the near-urban range are oriented to places, social-leisure trips are

oriented, in part, to people. To know and visit people in Vancouver does not require persons to have visited the city before or know anything of the recreational opportunities offered. It seems likely therefore that the circular relationship between cost of journey to the mainland, infrequent visits and resulting lack of knowledge of the opportunities offered (Figure 4.5) is penetrated by family and friendship ties. The very knowledge that Vancouver is a major city is in itself an attraction to many since they relate many social opportunities to large downtown areas while major events such as the Pacific National Exhibition are well known for their drawing power.

The Lower Mainland offers opportunities of a social nature not found on the Island. The supply of outdoor recreational facilities does not however approach in quality or extent that afforded on the Island and so cannot offset the costs of using the ferry. The barrier of the United States border is evident even for social-leisure trips since none of the respondents had formerly resided in that country and so there are no strong forces drawing people in that direction. It was expected that some outdoor recreational trips would be orientated towards the Olympic Mountains, but the lack of southerly trips indicates that this is not the case.

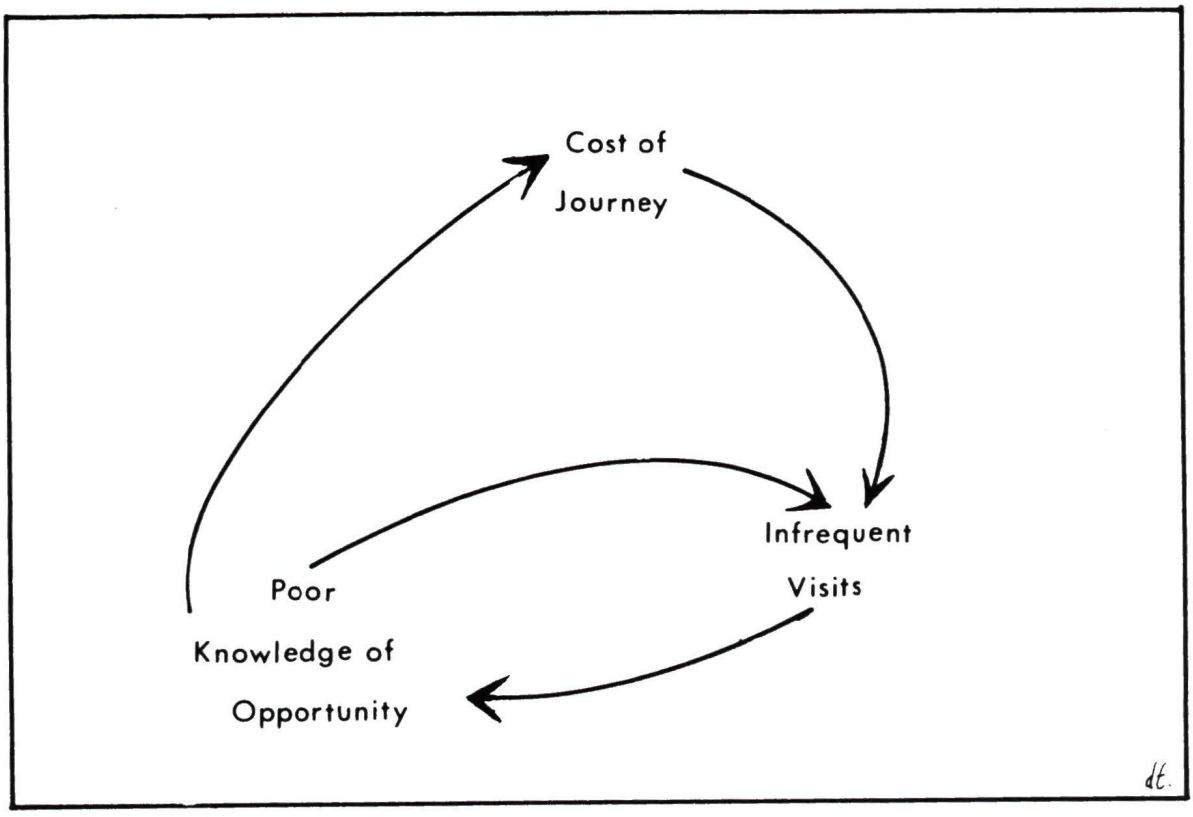


Figure 4.5 Circularity in the Relationship Between Aspects of Behaviour

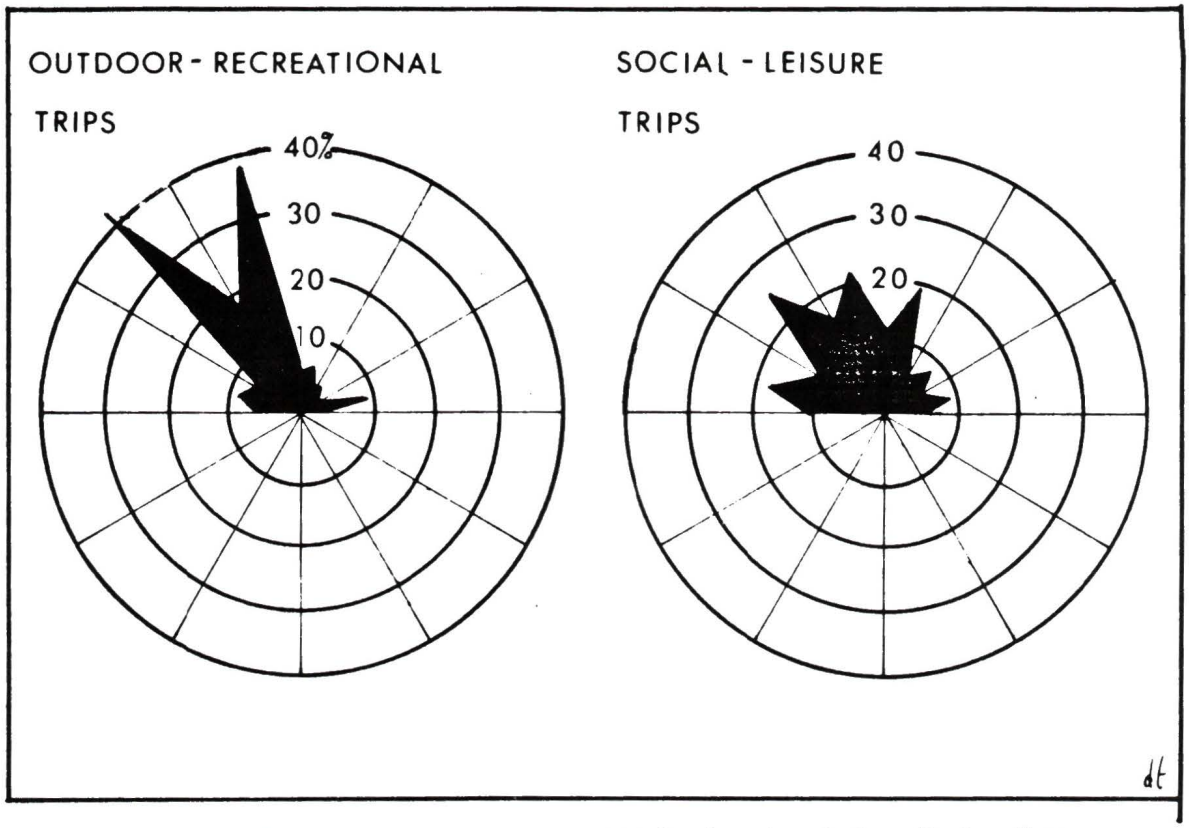


Figure 4.6 Extra Urban Trips Dichotomised by Trip Type

Trip Orientation and Trip Type[1]

From the plots of trip orientation for the two types of activity (Figure 4.6) a distinction is apparent which barely reaches the .05 level of significance in a Kolmogorov Smirnov two-sample test. There is a tendency for more social-leisure trips to be orientated in a northeasterly direction, particularly towards Vancouver, than there are outdoor-recreational trips in this direction. If distance is also taken into account it is apparent that only in the far-urban zone do recreational trips leave the Island. This confirms the earlier hypothesis that few recreational trips in the near-urban zone will leave the Island.

It is very difficult to accurately determine the purpose of most of the trips in the far-urban zone since they are often to the homes of friends and relatives but associated with outdoor recreational activities in resort areas such as Osoyoos, Salmon Arm, etc. It should be emphasised here that the trips in this zone are associated with long weekends or exceptional mobility, that is the use of an aircraft. The attraction of the areas seems to be in the combination of high quality social and recreational opportunity which draws people much farther than they would usually be willing to travel.

---

[1]The simplistic dichotomy between social and recreational was necessitated by the small sample size.

4. Summary

Victoria has emerged as a distinctive entity much different in terms of trip behaviour from the relationships postulated by Mercer. The urban hinterland rather than city structure appears to be a strong determinant of behaviour, the perceptions and attitudes of the recreators being the medium by which the hinterland exerts this effect. Keogh's (1969:19) thesis that people will seek to travel to recreational sites by the least expensive method, and Byers' (1969) findings on distances travelled to recreational sites in Washington are supported here by findings that practically all recreational trips in the shorter distance zone remain on the Island. Information levels and level of supply must also be important here since it is expected that people living on the Lower Mainland will show a much greater propensity to recreate on Vancouver Island. They are pushed by the shortage of recreational opportunities on the mainland and the abundance of such facilities on the Island.

The findings on the two distinct distance zones is in itself an important one. It is obviously associated with the low level of supply in the near coastal zone and the distribution in the interior of easily accessible, high quality recreational opportunities associated with social contacts. High mobility and longer weekends are also an obvious factor making this zone more accessible to people living on the Island. The distinct break in the graph of

distance travelled, plotted against trip numbers also supports Wolfe's (9171) thesis that once a certain momentum has been acquired recreators will tend to go on for a great distance. The combination of social and recreational reasons for trip making exerts a stronger pull than either factor separately.

Distinct patterns of behaviour are apparent for both trip types in the near-urban zone. In the far-urban zone accessibility and opportunity combine to produce the same pattern but in the shorter zone accessibility seems to be a primary concern only of the recreators. For social trips in this zone the distribution of population centres, on and off the Island, is a major determinant of the patterns. In all cases visitation to the United States is almost non existent, the barrier of foreign nation status and associated lack of knowledge deflects all short distance/duration trips, though it is known to be an important destination for longer, vacational trips.

In the following chapter intra urban trip behaviour will be examined and compared with the distribution theorised by Adams. Chapter six will bring all the findings together in the derivation of a model of recreational trip behaviour. This model will reflect the distinctive nature of Victoria, its structure, situation and hinterland, and the distinctiveness of recreational movement itself.

CHAPTER V

INTRA URBAN RECREATIONAL TRIP BEHAVIOUR

Analysis in this chapter emphasises antecedent visitation patterns as reflected by the responses to the first questionnaire of the survey. Current intra urban trips are analysed separately since the insights that can be gleaned from such detailed information are quite distinct from the information on park and beach visitations over the twelve months prior to interviewing. Urban parks included in the study extend beyond the densely settled part of the Saanich Peninsula but the proximity of locations such as Elk and Beaver Lakes, Thetis Lake and other areas make them part of the intra urban pattern of trip making. This observation is validated by the distribution noted in the previous chapter on extra urban recreational trips (Figure 4.4) in which trips to locations on the urban periphery appear to fall within the intra urban class.

1. Theories of Intra Urban Trip Behaviour

The specific hypotheses to be tested with these data relate to Adams' (1969) theory of behaviour both in the context of Victoria and with regard to recreational as opposed to migrational movement. The results of the investigation may throw new light on the processes involved in site selection for recreation. Since Mercer's theory is based on

Adams' earlier work the relationship between behaviour and residential location is essentially similar except that the sectors identified by Adams are much narrower than those recognised by Mercer.

The two explanations of these patterns are also basically similar. Day to day movement from the city periphery to the centre contribute to knowledge of the city which is used in the selection of new residences. The city centre constitutes an informational and behavioural block for suburbanites. There are, however, certain relationships which distinguish recreation from migration. As noted in Chapter four, the selection of new residential locations is as much a function of social class and city structure as it is the individual's mental map. Most recreation is sociologically selective only in determining who will or will not participate in given activities, while it is by no means certain that an individual selects locations to participate from a mental map acquired during daily behaviour. Obviously extra urban recreational behaviour is not so determined and it seems probable that in all but the larger cities this relationship also holds true for much intra urban behaviour. Considerations of purchase cost, ease of access to work, etc. are also not characteristic of recreation.

Victoria is a much smaller city than others in which directionality in trip behaviour has been studied and its location has resulted in a distinctive city structure. It

is to be expected therefore that even if Adams' hypothesis is true the pattern of behaviour will be different. However it will still be possible to examine the veracity of this hypothesis in the case of smaller cities and behaviour in general. By examining patterns in detail and relating them to supply, recorded daily activity locations and residential location a much more complete picture of the relationships will emerge.

2. Analysis of Antecedent Intra Urban Trips

Data Set

As outlined in Chapter three, information was collected on the location of parks and beaches visited by the respondents in the twelve months preceding the survey, and it is this information which forms the basic data set for analysis in this chapter. Park and beach visits were selected since they represent a known supply which is fairly well distributed throughout the urban area.

Angles of movement were computed for each recorded visit, locations being recorded to the nearest fifty yards, once again using the Civilian Mercator Grid. Residential location was taken as the centre of the residential block, as in the Geodoc System of Statistics Canada (Fellegi & Vander Noot, 1970). It was decided to use the centre of a park as that park's location while beaches were located in terms of the point of access.

Since the initial hypothesis to be tested related to the importance of residential location, respondents were grouped by residential block. The angles of the desire lines for each recorded visit were computed and grouped by ten, twenty and thirty degree sectors, due east again being zero degrees. Parks and beaches were analysed separately since both their distribution and recreational characteristics were regarded as distinctive.

In the early stages of analysis it was found that certain blocks (10, 14, 15, 17, 19, 21, 23) were represented in insufficient numbers to warrant further separate analysis and so they were grouped with other blocks on the grounds of locational proximity and similarity of trip patterns. Analysis then proceeded with the following grouping of the blocks (10 and 11; 12, 13 and 14; 15, 16 and 17; 18 and 19; 20; 21, 22 and 23).

Residential Location and Directionality in Trip Behaviour

The first hypothesis is structured around Adams' basic thesis that the pattern of movement will become increasingly biased in one direction with increasing distance of residence from the city centre. The first distribution to be tested was that of parks visitation.

The distribution patterns are represented graphically in Figure 5.1(a). Only thirty degree sectors were used since analysis showed little difference between the significance levels achieved in Kolmogorov Smirnov testing of ten

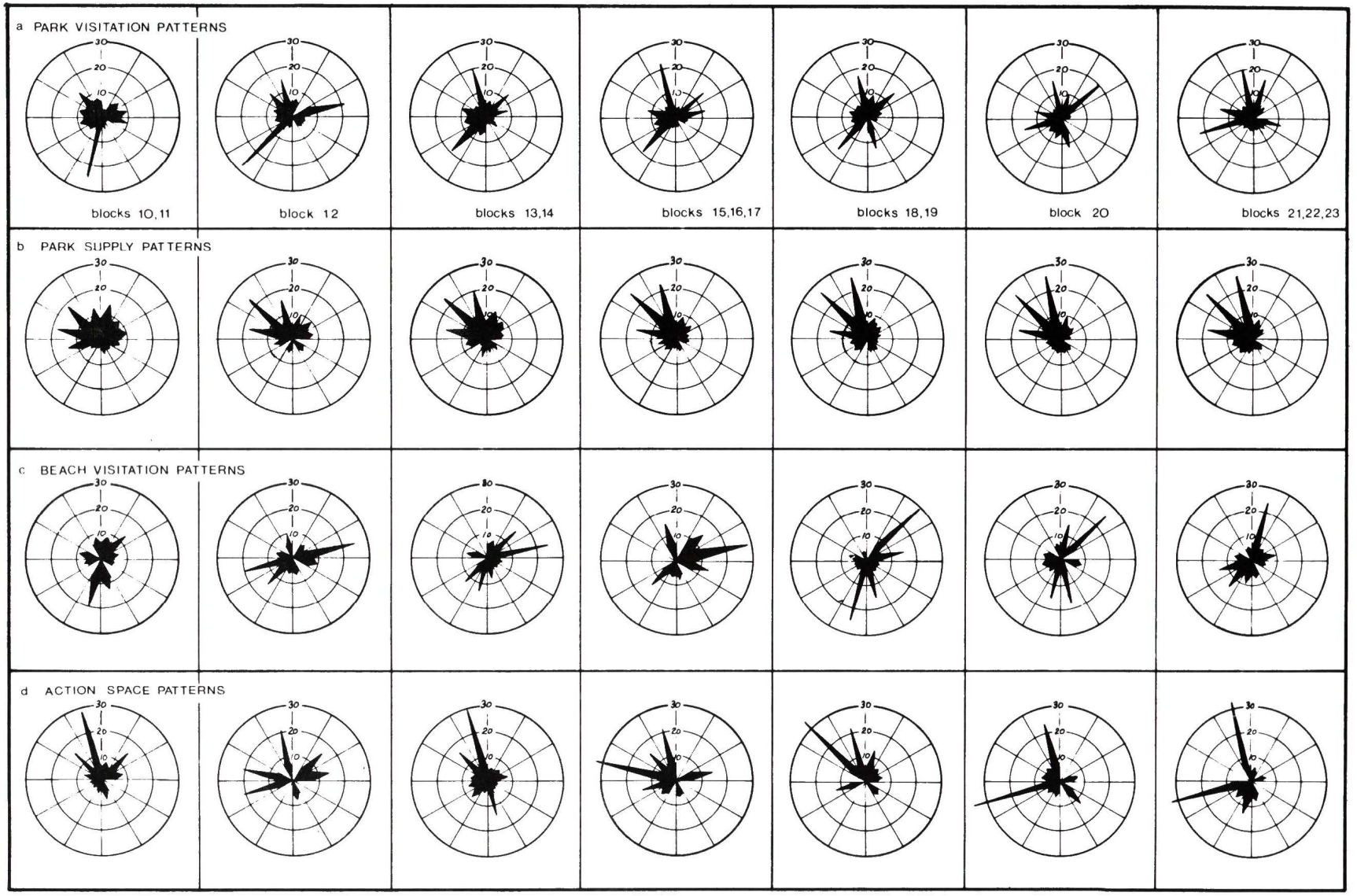


Figure 5.1 Spatial Patterns of Intra Urban Behaviour

and thirty degree sectors. This technique conforms in essence to that used by Clarke (1971) who used both ten and thirty degree sectors. From Figure 5.1(a) it is apparent that for all blocks certain sectors dominate and inspection of Table 5.1(a) reveals a pattern to these deviations.

The blocks closest to the downtown area appear to confirm Adam's hypothesis. From eleven hundred block, which exhibits no significant bias, to eighteen hundred block, which exhibits a bias significant at the .01 level, there is an increasingly biased pattern of behaviour. However, blocks successively distant from eighteen hundred exhibit a decrease in bias, reflected in the lower significance level. Thus the hypothesis cannot be fully accepted.

Detailed inspection of Figure 5.1 also reveals that for those distributions which are significantly biased, the bias may be in any one of the twelve sectors. In other words, the spatial bias is not explained in terms of one or several sectors orientated away from the downtown core in the same general direction, but rather by a series of sectors orientated in various directions with no tendency towards the dominance of one sector. Thus there is little indication of the bi-modal distribution noted by Adams (1969:316) or dominant sectors (Mercer, 1971:136; Clarke, 1971:17). This further invalidates Adams' hypothesis in relation to park visitation within Victoria.

Analysis of beach visitations further substantiates the

TABLE 5.1

KOLMOGOROV SMIRNOV VALUES OF THE DIFFERENCE BETWEEN THEORETICAL AND ACTUAL VISITATION PATTERNS

a) Parks

Block	10/11	12	13/14	15/16/17	18/19	20	21/22/23
	.14	.21*	.24**	.25**	.21**	.16*	.15*

b) Beaches

Block	10/11	12	13/14	15/16/17	18/19	20	21/22/23
	.17	.23	.12	.21	.23*	.2	.26*

** significant at .1% level

* significant at .5% level

conclusion reached above (Table 5.1(b)). Only the eighteen and twenty-two hundred blocks exhibit a pattern which is significantly biased, the bias only being significant at the .05 level. This pattern adds a new dimension to understanding since it neither agrees with Adams theory nor the observed pattern of park visitation.

As a result of this analysis three possibilities are immediately apparent. Firstly, Adams based his theory on assumed activity space and mental map characteristics of his sample. It may be that in Victoria the activity spaces of residents do not conform to that expected by Adams and therefore their trip behaviour is also different. Secondly, it is possible that a situation of perfect knowledge exists and that the sample population is merely reflecting that knowledge in its observable behaviour. Lastly it may be that, as Adams (1969:308) suggests, distance is the crucial factor in determining the direction of recreational behaviour. People appear to be willing to travel a certain distance to obtain a given experience. At the same time their knowledge of opportunities at certain distances may be limited by infrequent visits, the pattern of daily behaviour or the structuring of transportation routes.

In the light of these observations, a series of hypotheses will be examined. The first will relate to a measure of activity space and its influence on recreational behaviour.

Activity Space Variables and Directionality of Recreational Behaviour

The respondents recorded both present and previous locations of residence, work, school, shopping and club meetings (see Chapter three), to be used as a surrogate for the complex character of action space. There are, however, too few such locations to allow valid statistical analysis of block-by-block characteristics. This is unfortunate but even simple, descriptive analysis of the data, as represented in Figure 5.1(d), reveals much information.

First it is apparent that Adams' notions on directionality in day-to-day movements and intra urban migration are not necessarily valid for Victoria. There is a distinct west and northwest bias in the directions of activity locations, due probably to the pull of both the downtown area and various out of town shopping plazas situated to the north and west of Pandora Avenue. The pattern is much more scattered than Adams would expect. However, Adams also hypothesises that movement patterns will reflect activity space patterns.

Comparison of Figure 5.1(a) with 5.1(d) would seem to indicate that this is not the case. An extreme condition is exhibited by the example of blocks 10 and 11. Here the activity space variables are distributed in almost completely the opposite direction to the pattern of park visitation, while the pattern of beach visitation (Figure 5.1(c))

exhibits yet another contrast since there are no beaches in the direction of greatest bias in activity space.

Victoria is a relatively small city in which access to most parts of the city is easy despite the radial pattern of routes entering the downtown area. (Only Esquimalt and Victoria West are relatively inaccessible because of their position and the historic character of Esquimalt as a Canadian Services Base.) In addition, the peninsular location greatly emphasises the importance of northward routes such as the Patricia Bay Highway (Figure 3.1) and the Westerly Trans-Canada Highway. Expansion of the downtown has leapfrogged out to shopping plazas in the area of the junction of the Trans-Canada and Patricia Bay Highways, Hillside and Shelbourne, and Fort and Foul Bay. These centres and the sprawl of suburban development around them help explain the observed north and west emphasis of activity space characteristics.

This does not, however, explain the difference between activity space and recreational behaviour. It is possible that the measures of activity space employed do not fully reflect those factors which most influence the acquisition of information on recreational supply. As surrogates the measures may only reflect an average condition whereas the real influential factor may have been a single occurrence which has affected behaviour since. It is reasonable to regard much behaviour as being determined by such occurrences

but it should be possible to predict, from normal behavioral patterns, the general location in which such occurrences are most likely to occur. Routes used are a major determinant of detailed information on opportunities. The use of desire lines rather than details of routes results in the loss of much detailed but important information, but again this is related more to actual location rather than the general direction in which this location is situated.

Another obvious explanation of the lack of a relationship between activity space variables and recreational behaviour may be that not all those who completed the first questionnaire also completed this later one. However, a detailed investigation of the total activity pattern of individuals yielded no improvement in the explanatory powers of these variables.

It seems therefore that analysis must look beyond these activity patterns in search of an explanation of behaviour. It is possible that information on supply is indeed not spatially biased and that the visitation patterns reflect the location of the highest quality opportunities. In short, that there is a state of perfect information and that the quality of opportunity is a primary determinant of behaviour.

Recreational Supply and Directionality in Trip Behaviour

The first problem associated with consideration of this relationship is that of assessing supply. Accessibility and quality constitute the two keys to this assessment. In this

section, the supply of park and beach accesses was considered while distance as a surrogate for accessibility will be considered later. Quality or attractivity, however, is a factor which in itself has occupied much research effort (Ross, 1972). Despite the apparent standardisation of the word park there are many variations in both major and minor aspects of these facilities. Mitchel (1967) notes that park area is a poor predictor of attractivity while many pieces of research show how important facilities are in such predictions (Lime, 1971; Shafer & Moeller, 1971; Cheung, 1972). These facilities usually reflect capacity values and so it is not surprising that the number of picnic tables, or beach frontage accurately predicts site attendance. Consequently such measures are of little relevance to this analysis.

In the light of these problems and after consideration of various classificatory schemes it was decided to work merely in terms of the number of parks per sector as a measure of supply. From this it will be apparent whether or not certain parks are disproportionately attractive, while it also provides for uniform assessment across the whole range of park supply. For beaches the approach adopted was to weight all sectors in which accesses occurred, evenly. No attempt was made to differentiate this distribution by either amount or quality because of the problems related to the great range in types of beach access and the poor relationship between the number of accesses and actual opportun-

ity to recreate. From analysis of the patterns and contrasts exhibited by the distributions of both supply and behaviour, much pertinent information will be derived.

As can be seen from Figure 5.1(a), (b), although in some cases there is an apparent concurrence between park visits and park supply, certain dominant sectors of park visitation stand out, e.g., block 10-11, block 21-22-23. In fact, comparison of the distributions using a Kolmogorov Smirnov one-sample test shows a confused pattern. For all blocks, except 16, there is a significant difference between the two distributions, though the level of significance for the central blocks is generally lower than for those at the extremities of the transect (Table 5.2).

The pattern exhibited by beach visitation and supply (Figure 5.1(c)) is somewhat different. As can be seen from Table 5.1(b), most blocks show no significant differences between the two distributions, though there does appear to be a slight tendency for the higher order blocks to have a more constrained pattern. This is probably a function of the greater ease of access to one section of the coast from these blocks, which are located close to the sea.

In general, supply and expressed demand do tend toward a general agreement which is broken by a few sectors of movement which are far more important than their supply would appear to warrant. This is quite different to the comparison between activity space measures and site visitation

TABLE 5.2

KOLMOGOROV SMIRNOV VALUES OF THE DIFFERENCE BETWEEN THE DISTRIBUTION OF RECREATIONAL OPPORTUNITY AND PARK VISITATION

Block	10/11	12	13/14	15/16/17	18/19	20	21/22/23
	.36**	.31**	.23**	.17	.20*	.34**	.25**

** significant at the .1% level

* significant at the .5% level

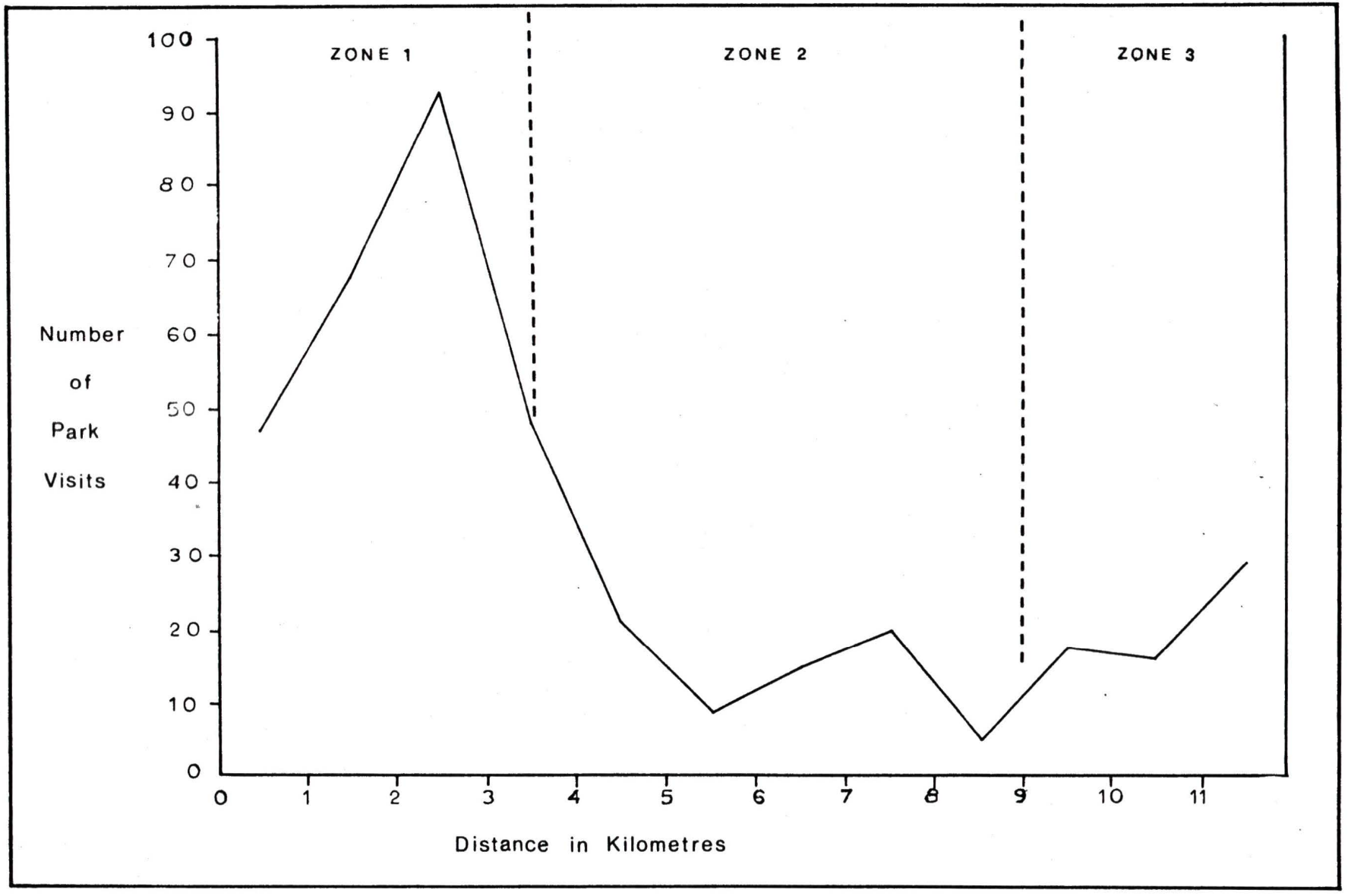


Figure 5.2 Graph of Park Visits Plotted Against Distance

where the general trends were in opposite directions (Figure 5.1(a), (c), (d)). As yet no account has been taken of the effect of distance. This factor is important for two reasons. First it is well established that recreators are prepared to travel only a certain distance to recreate. This distance will vary with the type of activity to be undertaken as shown by Campbell (1972). Secondly, as noted in Chapter four, information levels are inversely related to distance, though this decline may be regular or biased. Distance has already been shown to be an important variable for extra urban trips in Chapter four, while analysis of beach visitation indicates its possible importance for intra urban movement. It is possible that park visitation is constituted of not one but a series of recreational demands, each of which exhibits a distinctive relationship with distance.

Distance Travelled and Directionality of Trip Behaviour

Inspection of the plots of individual patterns of park visitation led to the belief that there were two distinct zones of impact exhibited by the data. Inspection of Figure 5.2 confirms this belief and identifies the 2.5 to 3 thousand metre mark as a critical distance for site attendance with lesser emphasis on the 8 to 11 thousand metre mark, visitation in the area between being quite limited in intensity.

Figure 5.3(a), (b) reveals that there are, in fact, differences between the patterns of trips for the two classes adopted. The longer trips are much more evenly dispersed

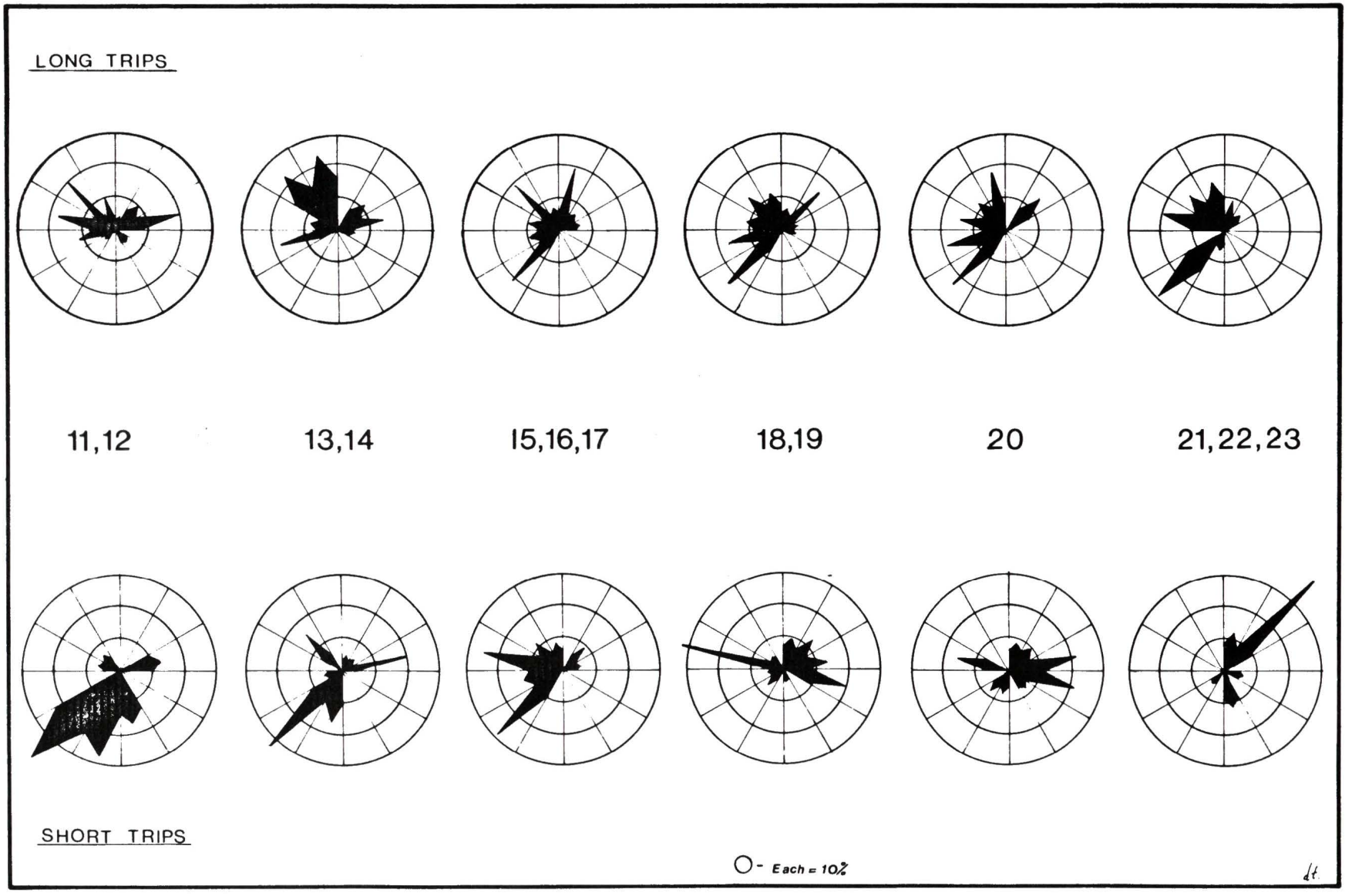


Figure 5.3 Trips to Parks Dichotomised by Distance Travelled

than the shorter ones which have a tendency to be concentrated into one or two sectors. The dominant sectors of the shorter trips are often in a completely opposite direction to those of the longer trips.

Inspection of the relationship between the two different distance zones and total supply distributions also yields informative results. The longer trips relate closely with supply while the shorter ones are, in general, significantly different (Table 5.3). It should be noted here that absolute supply and activity space distributions are well related making it extremely difficult, on this evidence alone, to establish which factor is exerting the strongest influence on site visitation. Again, however, beach visitation patterns add insight to the argument since beach visitation is away from activity space locations and relates well with supply in all cases except those places close to one supply location at which point visitation is strongly biased in that direction.

For shorter trips, therefore, it would seem that the attractivity of one or two proximal locations far outweighs the influence of other possible locations. It is significant that parks such as Beacon Hill, Stadacona, Windsor and Willows park and beach (Figure 3.1) are all located on major routes which the respondents can be expected to use in daily behaviour. Although a park such as Beacon Hill is of more regional than local significance, the parks in this group

TABLE 5.3

KOLMOGOROV SMIRNOV VALUES OF THE DIFFERENCE BETWEEN THE DISTRIBUTION OF RECREATIONAL OPPORTUNITY AND PARK VISITATION IN TWO DISTANCE ZONES

a) Short

Block	10/11/12	13/14	15/16/17	18/19	20	21/22/23
	.745**	.41**	.25*	.34**	.34**	.45**

b) Long

Block	10/11/12	13/14	15/16/17	18/19	20	21/22/23
	.11	.11	.15	.25*	.25	.145

** significant at the .1% level

* significant at the .5% level

may be typified as being highly attractive and accessible local parks which the respondents can be expected to have encountered in the course of daily behaviour.

At greater distances the demand appears to be for a different recreational opportunity. In the buffer zone lie many 'local' parks which have no significance to the residents of Oak Bay and Pandora Avenues. The exceptions to this may be sportsmen who frequent a variety of locations in the course of home and away matches, or shoppers who use parks like Stadacona in the course of a shopping expedition. These relationships show up well in the case of many individuals though they are not necessarily statistically verifiable. Obviously parks serve a variety of purposes, to one group they are the neighbourhood park, to another the location of this week's football game and to yet another the park next to the food store. Each role is typified by a different catchment area and different demand on facilities.

Park visitation at the extremities of the distance range appears to relate to what may be termed regional facilities. The demand here is for quite a different experience and therefore facility. The greater spatial impact, both in terms of distance and direction, emphasises the importance of facility quality rather than accessibility, within a certain range. Visitation to these facilities is much less affected by the factor of daily activity patterns than are visitation patterns for 'local' parks. These parks have a

wide catchment area, information about them not appearing to be spatially biased.

In many respects these findings compliment those of Chapin and Hightower (1965:229) who suggest that people are "indifferent to time-distance below some value of the order of magnitude of a quarter to a half hour, though this value probably varies with city size and perhaps other factors," among which must be included trip type. The critical zone of three thousand metres, desire line distance, or ten minutes (approximately) travel time appears to be a critical factor in the visitation to 'local' parks in Victoria. Visitation to 'regional' parks reflects a critical distance zone at a much greater distance.

3. Intra Urban Trips Undertaken During the Survey

The measurement of trips made during the survey relates to round trip distance and so these distances were simply halved for consideration here. As Figure 4.4 shows, almost all of these trips penetrated beyond the three kilometre zone. Few trips were oriented toward parks and beaches, those that were being located within the intermediate and regional zones. The characteristics of such trips reflect the pattern of antecedent trips. In the intermediate zone parks were visited as part of a shopping trip or to participate in sports while regional facility visitation was widely scattered and unrelated to individual activity space charac-

teristics.

However, most of the journeys undertaken within this zone at this time were of a social-leisure nature (85%). These trips show no significant departure from a proportionate distribution (the maximum value of the difference equals 0.147, not reaching either the .01 or .05 levels of significance in a Kolmogorov Smirnov Test). The destinations of these trips were a wide variety of family residences, shopping plazas, eating places, etc., the location of many of which may have been learnt by experience gained during daily behaviour and so it is not surprising that the two distributions are very closely related (maximum value of the difference equals 0.061 therefore not reaching either the .01 or .05 levels in a Kolmogorov Smirnov Test).

4. Summary and Conclusions

In this chapter specific hypotheses have been set up to test the veracity of Adams' theory of intra urban migration in relation to recreational trips in Victoria. The results indicate that recreational trips do not conform to Adams' expectations. Far from daily behavioural patterns influencing site selection across the whole spatial spectrum, it emerges that various factors play a contrasting role, depending on trip type. Three distance, or impact, zones were identified. In the shortest zone, trip destination appears to be strongly related to park location and the routes of

daily movement, that is to parks which are easily visible to the commuter or shopper. The most distant zone is characterized by a greater spatial range of destinations on the urban periphery, well related to supply, and is probably a function of specific trip purpose and site attractivity. In the intermediate zone association with recreational facilities for sports or with, for example, facilities close to shopping centres results in a wide range of destinations within the urban area.

Trips of a social-leisure nature, on the other hand, conform much more closely to the pattern predicted by application of Adams' theory. These trips are more similar in type to migrational behaviour since they are strongly dependent upon the distribution of previous residences and the attractivity of the downtown area. Though the activity patterns of Victoria residents does not conform to the predictions of Adams, these social trips do.

Recreational behaviour, therefore, may be regarded as a distinctive form of free choice behaviour. The implications for theory and model development will be discussed in Chapter six. Study of the factors of trip type, supply of opportunities and activity locations has added to the understanding of behaviour, while the distinctive nature of Victoria, its structure and location also contribute to understanding of both the accumulation of information and the patterns of recreational behaviour.

CHAPTER VI

TOWARD AN ALTERNATIVE MODEL OF TRIP BEHAVIOUR

The analysis reported in this thesis has emphasised the models of movement behaviour proposed by Adams (1969) and Mercer (1971) since they appeared to offer the best possibility of furthering understanding of this behaviour. In Chapter two a schema of decision making was proposed (Figure 2.4) which emphasised the individual and his background. It was expected that further analysis of Adams' and Mercer's models would add further insight into the workings of this decision making process. In the two chapters preceding this, much insight has in fact been gained which it is the purpose of this chapter to collate and fit into that schema.

1. The Role of the Factors Studied in Determining Recreational Behaviour

The Individual's Perceptions and Motivations

Quite obviously the individual decision maker is central to this study and so it is important to understand the decision making process, especially the information which is used in that process. Apparently the degree of spatial information and its importance vary with scale and trip type. For short distance recreational trips previous experience of the area is most important in selecting a destination. This

association is apparent for recreational trips even into the near urban range, though in the far urban range the decision process appears to become much more like that of social trips.

Though it was known previously that variations existed in the effect of distance on behaviour little work had been done on the character of those variations. Five zones were recognised for recreational trips, each reflecting a distinctive trip type, in all of which accessibility played an important role. In terms of social trips four zones may be recognised (Figure 6.1).

Within the city the three zones of the recreational trips are in fact two for social trips. This finding is supported by Adams (1969) who recognises the existence of a random pattern of very short distance trips, to neighbours, etc. Beyond this it is probable that only one social impact zone exists in a small city such as Victoria. In the city hinterland though, the zones are essentially similar, especially since the distinction between the trip types is hard to draw in the far urban zone.

For recreational trips, access, in terms of proximity to major highways, is a major factor controlling visitation. The attractivity of the destinations, in terms of the expected benefits to be derived from each experience, is the factor against which time-distance is balanced, in terms of specific trip type.

← SOCIAL TRIP IMPACT ZONES →					← RECREATIONAL TRIP IMPACT ZONES →				
FAR URBAN	NEAR URBAN	INTRA URBAN	PROXIMAL	THE INDIVIDUAL	PROXIMAL	INTERMEDIATE	PERIPHERAL	NEAR URBAN	FAR URBAN
				FACTORS INFLUENCING BEHAVIOUR					
spatial / aspatial	spatial	spatial / aspatial	aspatial	INFORMATION TYPE	spatial	aspatial	spatial	spatial	spatial / aspatial
biased	random	random	n.a.	INFORMATION BIAS	random	n.a.	random	biased	biased
little importance	little importance	little importance	very important	TIME - DISTANCE OF JOURNEY	very important	no importance	little importance	very important	little importance
very important	little importance	no importance	no importance	HIGHWAY NETWORK	very important	no importance	very important	very important	very important
very important	very important	very important	very important	SOCIAL TIES	no importance	little importance	no importance	little importance	very important
very important	no importance	little importance	no importance	SITE CHARACTER	very important	little importance	very important	very important	very important
no importance	no importance	very important	no importance	LOCATION OF SHOPS, BUSINESSES, etc	no importance	very important	no importance	no importance	no importance
little importance	very important	no importance	no importance	LOCATION OF POPULATION CENTRES	no importance	no importance	no importance	no importance	little importance
very important	little importance	little importance	no importance	PREVIOUS EXPERIENCE	little importance	no importance	very important	very important	very important
little importance	little importance	little importance	no importance	LOCATION OF DEVELOPED FACILITIES	very important	little importance	very important	very important	little importance
biased to east	related to opportunity	related to opportunity	biased	SPATIAL PATTERN OF TRIPS	biased	related to opportunity	related to opportunity	biased to north	biased to east

Figure 6.1 A Matrix Summary of Understanding of Factors Affecting Behaviour

In this analysis it has only been possible to distinguish between social and recreational trips. Such generalisations leave the researcher open to much justifiable criticism and so it should be emphasised here that even within these trip types there will be great variation in the decision process, factors considered and, therefore, the visible pattern of behaviour.

Within the context of this study, at least two types of intra urban social trips may be recognised. Trips to relatives and friends respond to a quite different set of information, largely spatial and associated with previous experience, than trips to a cinema which respond to media induced information. The expected experience, cost and even timing of such visits are distinctively different and so can be expected to result in quite different patterns of behaviour within this zone.

Information and environment factors are as closely linked as are those of the individual and trip type, consequently they will also be considered together. It must be emphasised however that these two groups of factors are themselves closely related.

The Environment and Information

The hypothesised effect of the central city does not emerge in Victoria where it is the extra urban area's configuration which constitutes the block on information flow and behaviour. The island location and international

boundary predicate against frequent travel to the east or south of Victoria.

Even when daily behaviour was analysed, through the use of surrogates, little relationship was found between those locations and recreational trips, though social leisure trips were more closely related to such locations. This later relationship is often related to the attractive character of the downtown area and not directly to the individual's working place in that area. Extra urban trips are not likely to be related to these activity locations given the easily accessible nature of all extra urban routes.

Recreational trips within the city are guided by the orientation of routeways and the relationship of these with the distribution of opportunities. Proximity to routes is even important for visitation on the urban periphery though the pattern of visitation to these sites is not biased as is the pattern for those sites visited in the zone of shortest trips since time-distance is of less relative importance.

Individuals who have recently moved within the city provide an insight into the greater relative importance of access as opposed to information. These persons often exhibit a highly dichotomised pattern of recreational behaviour. Many visits focus on facilities in the immediate residential area, in agreement with other residents of the same area. In strong contrast are those trips oriented toward locations which are obviously a part of the respon-

dent's previous residential behavioural complex. Though it is not possible to accurately predict when opportunities offered by the new residential location come to dominate, this example does show how important the environment is in determining behaviour.

Information on the city structure is derived as much from recreational trips as from any other trip types. Scenic routeways are frequented by locals as well as visitors and they expand the breadth and detail of the mental map. Thus information on access is not biased by residential location but rather in terms of a given individual's experience of the city and his mobility constraints.

Beyond the city, information is by no means evenly distributed. Infrequent trips off the Island tend to limit the information about the Lower Mainland opportunities. Not only distance but also the configuration of space strongly influence information levels since both are important determinants of visitation frequency.

Even social-leisure trips are strongly related to physical characteristics of the environment, that is centres of population. Quite plainly these attract persons proportionately with their size. Though previous attendance at such places is not as important as for recreational trips, a tendency towards repeat visits is quite apparent.

It is possible, in fact, to ignore information when predicting behaviour. If the trip type is known it is

perfectly valid to use simple environmental factors such as accessibility as predictors. In another situation, for example a larger city, the role of the factors would be quite different, perhaps resulting in patterns such as those found by Adams (1969) and Mercer (1971).

The purpose of this thesis was not to set up a model of behaviour but rather to further understanding of the factors controlling that behaviour. It is believed that though this study relates to a small sample of the residents of Victoria this goal has been achieved. The function of the next section is to formalise that advance.

2. Formalising Understanding of Trip Behaviour

Selecting an Appropriate Frame

Of the three elements of decision making recognised in Figure 2.4 (Propensity, Decision, and Experience), the current work has emphasised the decision stage, in particular the decision as to where to recreate. Little attention was paid to the actual decision process since this was admirably dealt with by Lime (1971) and it seemed to be largely irrelevant in the context of the present study, though obviously of great importance to understanding as a whole. However the schema does appear to have great utility as a frame for future studies.

The Interrelationships

It is not possible, from the results of this work, pre-

sented in Figure 6.1, to describe the exact interplay of these factors since this is an extremely complex process. It is only possible to identify the role and relative importance of the factors. This in itself is a major advance on Mercer's and Adams' consideration of only one factor. Though in the instance of these latter studies the structure of the city of residence was the dominant influence on the decision, the process of that decision may be hypothesised to have been the same as in Victoria.

The present work has successfully expanded understanding of recreational trips by studying a wide range of trip type and influential factors. By fitting the understanding into a framework of decision making and attempting to formalise the interrelationships further advances have been achieved. Yet this is no more than a few steps up the ladder of knowledge. More investigations of the individual must be made to gain further insight into the decision making process and so formalise still further the interrelationships identified. In the final chapter the successes and failures of this work are assessed and future prospects mapped out in greater detail.

CHAPTER VII

STUDY IMPLICATIONS AND ASSESSMENT

At the outset of this study the objectives were outlined as being to add to the understanding of the individual's recreational decision making process through in-depth study of the veracity of recent theories on movement behavior. The extreme character of Victoria's location was also expected to add insight into this process through the accentuation of the importance of one or two variables. The attainment of this objective involved the construction and administration of a survey designed to elicit information required to test the hypotheses related to the major objectives of the study. In this chapter the implications of the findings reported in the previous chapters will be reviewed and an attempt made to assess the study as a whole.

1. Study Implications

The contribution of this work and its prospective impact on future work can be split into three sections. The first section is the implication for theory; second, and derived from the first, are the implications for future research. Third, and perhaps most important of all, are the practical implications of the work.

The Implications for Theory

Though analysis showed no pattern of behaviour similar to those postulated by Adams (1969) and Mercer (1970) this should not be regarded as grounds for rejecting this earlier work. These studies were undertaken in cities with a large area, cross-town travel being difficult. In consequence optional behavior of peripheral dwellers naturally exhibited a strong avoidance of the central areas. In Victoria, on the other hand, access to all parts of the city is easy while its very situation predicates that extra urban behaviour will be guided in certain directions.

However, the processes acting on the behaviour patterns are essentially the same. Beyond Victoria though the physical environment of the urban hinterland, not that of the city, determines the pattern of extra urban behaviour. Within the city, it is doubtful whether recreational behaviour would conform to Adams' (1969) hypothesised distribution since for trips such as sports participation, distance and direction may be irrelevant while for others routeways in the local area are of greatest importance.

It is now apparent that spatial behaviour of recreationists cannot be modelled as simply as Mercer would suggest. Many factors must be considered, the primary among which is that of trip type.

Though it is doubtful whether any one theory or model can be used to summarise these trips, it must be recognised

that there is a need for an organisational framework. Since the decision making process for all these trips is essentially similar, with regard to the factors considered and the priority of consideration, the model of decision making (Figure 2.4) is one such construct which might be used as a base for a formal mathematical form.

One of the most useful aspects of this research, therefore, was not what it proved, which in itself was quite substantial, but rather the areas of research and the techniques which were highlighted as requiring further work. These areas relate both to factors and relationships identified and investigated in the present work and also to areas not specifically covered here.

Implications for Future Research

Certain areas of study have been emphasised in the present study at the expense of others. The actual decision making process has not been studied, rather the observable behaviour of recreators has been related to other observable phenomena. It is possible that the resulting conclusions are quite erroneous. More importantly, it is impossible to fully understand the decision making process without studying that process.

The individual has been given scant attention in both the present and previous studies. In the future a detailed psychological study of a few individuals is required to gain an in-depth understanding of the information used in decision

making and the way that information is used. In particular, confirmation of the ordering or importance of the various factors is necessary to validate or disprove the conclusions reached in the present study.

However, such a study will not be possible in the near future since learning behaviour and other important factors are not fully understood as yet. At present more studies are required at contrasting locations. In this way the puzzle may be put together. By balancing the assumed effect of one variable in one location against its effect in another it may be possible to more fully comprehend the decision making complex of the individual.

Information on previous recreational behaviour and the factors associated with this is required. Without this it is impossible to fully investigate the effect of previous activities on present behaviour. In relation to this, more knowledge on the individual's perception of alternatives is also required. In the present study only those sites which were actually attended were recorded. There is no information on the stock of information from which this selection was made. It is probable that this information is quite distinct from the locations of actual behaviour. This is just one specific area of enquiry where more information is required, others include the role of site characteristics and routeways.

One final area of enquiry has already been mentioned--

the use of modelling. The model offers social scientists a unique opportunity similar to the laboratory of the physical sciences. All too frequently these constructs are used simply as the outcome of research, as predictors of behaviour. However, models may also be used to promote understanding through experimentation. Using the framework outlined in the present work, applying loadings to the factors and running the model under varying circumstances may at least indicate areas where more research is required and even result in major contributions to understanding. Nevertheless full understanding can only result from direct study of the process. Obviously observation and inference is important in initial stages of understanding. In the field of trip behaviour the time is ripe for the study of process.

Practical Implications

Provision of opportunity greatly affects behaviour. However, the facilities which have the greatest utility are those which best relate to the latent behavioural traits of the population. Commercial enterprises expend a great deal of money on decisions as to where to site a new facility and with what other opportunities it is to be associated. Public agencies, though, have no such monies to spend and consequently the analytical tools at their disposal are much less refined. The literature abounds with various recommended ratios of park acres or swimming pools per thousand people.

Quite clearly such ratios are meaningless without some knowledge of the quality and use of the opportunities provided.

This study has emphasised the importance, to various elements of the population, of factors associated with location. For example, the role of one major factor, accessibility, varies with facility function. If a park is to be local it must be accessible and highly visible while a sports field might be sited almost anywhere within a community. However, the acquisition of tracts of land for such facilities is usually haphazard, recreation often being allocated to land which suits no other purpose. Full appreciation of the importance of recreation to society will help to offset this tendency. Understanding of behaviour is required to facilitate sensible allocation of use to the available recreational land and for judicious acquisition of future lands. This work provides some of the information necessary for this planning process to become reality.

The study findings relating to zones of impact are also highly relevant to planning decisions. It is quite apparent that behaviour is not related to jurisdictional boundaries. The existence of regional parks and their attendance by persons from both the municipalities under study is an example where behaviour relates to political boundaries. Even the essentially local parks, however, are characterised by hinterlands which extend well beyond the municipality in which they are sited. Attendance at sports facilities and

associated parks exhibits an even wider hinterland.

The implications of such findings in terms of the financing by one municipality of a facility used by residents of another municipality are obvious. Yet the implications for planning are equally important. The four municipalities presently providing recreational opportunities within the city cooperate on only the broadest scale of information sharing which is bound to result in unnecessary duplication of provision. Production of a rational plan for recreation within the city is impossible when no one body is responsible to the whole area. One of the major practical implications of this study is that such a cooperative effort is necessitated by the growth in the sheer size of demand and the pattern of that demand.

Beyond the urban area the impact of Victoria is widespread. If trips of a longer duration had been included in the study, the impact in this zone would probably have been great. Obviously planning for recreation on Vancouver Island without consideration of the demand produced by Victoria would be fallacious. Even in the context of British Columbia as a whole, the impact of the region is marked. The city region does indeed extend far beyond its immediate administrative boundaries.

2. Assessment

Much of the value of the present study depends upon the

success of the survey and the analysis carried out on the data obtained by that survey. Though it is difficult to objectively assess these two sections of the work, it is important to attempt such an assessment if the thesis is to have any influence on future research.

Assessment of the Survey

The method of obtaining information was necessarily a questionnaire survey which, as has already been shown (p.44), produced a valid sample of the population from which the individuals were drawn. However, the adoption of an urban transect cannot realistically be viewed as yielding a sample of the whole population of Victoria; indeed it was never meant to. The small sample was a compromise between the information required and the time available to obtain that information. In future studies a larger sample drawn from a wider range of spatial locations is required.

The use of three questionnaires was surprisingly successful, though it is possible that two would have sufficed. Still, even with two questionnaires it would not have been possible to contact very many more people since it is the initial contact which requires the greatest amount of effort. Although the questionnaires yielded much information on recreational trip making certain other areas were not sufficiently

covered. In particular there was a lack of information on previous recreation experiences which might have been important in determining present behaviour. However, obtaining such information would in itself constitute the topic of a whole thesis.

The actual questionnaires appeared to be easily answered yielding data of a high quality. Though the validity of the map as a questionnaire tool has been questioned it seems that given the right visual cues it does constitute a very valuable tool. In fact, it is recommended that in future research of this kind this tool be used even more extensively. Information on routes taken was particularly important in this study and the method adopted to collect this information was not really satisfactory. Though a conscious decision was made not to use a map for collection of that information, it is now apparent that this was a mistake.

The lack of site specific information, that is information collected by interviewing users of specific parks, beaches, etc. is an additional weakness of the method. Without this information the researcher is dealing with something less than the whole system. To fully understand the catchment area of a local park it is necessary to question all users, not just those from one location. It was the original intent of this study to obtain such information during the fieldwork schedule. Unfortunately, however, lack of time and manpower precluded such an approach.

The survey tool has therefore yielded valuable information which may easily be improved by enlarging the survey scope and replacing a few questions. To obtain full understanding of the system, the recreational sites must also be included in the study. Recent work in Victoria, undertaken by Campbell (1973), has shown the validity of such an approach.

Assessment of the Analysis

The small sample and spatial nature of the hypotheses to be tested necessitated that simple non parametric tests were to be used in the analysis. Though more refined statistical models have been applied to spatial distributions, the results produced are not easily interpreted. However the statistics used in the present study were most powerful and the results obtained were conclusive. Future work on the interplay of the factors identified in this analysis will require the application of a components or factor analysis using a much larger sample of individuals and their behaviour.

The major problem with all geographical analysis is the lack of well developed spatial statistics. It is not possible as yet to assess the degree of variation between two distributions, except in a very general way. With improved understanding of behaviour may come improved statistical models which will better enable comparisons of results produced by a multiplicity of stochastic models.

3. Summary

Future research on this topic is important if full understanding of recreational behaviour is to be attained. While there are obvious benefits of continuity to be derived from continuing the present lines of investigation into the future, it is also true to say that new paths must be followed. The expertise of the psychologist and sociologist are required if understanding is to be developed very far beyond the present level. The methodology employed must also be further developed. The system can only be understood by studying it from all angles, at the origins, destinations, and linkages. In the future greater demands will be placed on the system necessitating application of knowledge gained in this and similar studies in planning decisions.

UNIVERSITY OF VICTORIA
P.O. BOX 1700, VICTORIA, B.C., CANADA

Department of Geography

APPENDIX A

Dear Sir or Madam:

As part of this department's studies of recreation in Victoria a limited number of interviews are being made in your area. I would be grateful if you would cooperate in this study by allowing yourself to be interviewed.

In a few days I will be calling to explain to you what will be required. In the meantime, I would like to assure you that no attempt will be made to encroach on your privacy.

This research may be of use in planning recreation in the future and so your help will be greatly appreciated.

Yours sincerely,

Derek Thompson
Department of Geography

UNIVERSITY OF VICTORIA
P.O. BOX 1700, VICTORIA, B.C., CANADA

Department of Geography

APPENDIX B

Dear Sir or Madam:

This letter is a follow up to the questions that you were kind enough to answer when I called previously. As was explained at that time the survey is in two parts and this letter introduces part two.

The information required is on recreation movements and related factors. This information will be invaluable for future planning of recreational provision. The first section of the first sheet (WHITE) is to be completed by all persons in the household age 12 and over. If these persons have been on a recreational trip of any kind over the weekend immediately before the arrival of this letter they should complete the questions under TRIP I. on the sheet. In the event of only one trip having been undertaken the Blue and Yellow sheets should be ignored. But if two, three, four or five trips have been made then the Blue and Yellow sheets should be completed.

Should you encounter any problems whilst filling out the forms I can be contacted at 388-7163.

Once again I can assure you that the information which you give will be strictly confidential.

Thank you for your help. Your replies will be collected during the week so please complete the forms at your earliest convenience.

Yours sincerely,

Derek Thompson
Department of Geography

UNIVERSITY OF VICTORIA
P.O. BOX 1700, VICTORIA, B.C., CANADA

Department of Geography

APPENDIX C

Dear Sir or Madam:

This letter introduces the last questionnaire of the study that you have been kind enough to become involved in and so I would like to take this opportunity to thank you for your invaluable assistance so far.

The information required on the accompanying sheets only concerns your trips during the weekend prior to the arrival of this letter. I would remind you that a trip is any movement that you made outside your household at least a partial reason for which should have been personal enjoyment.

Please complete the form at your earliest convenience as I will be round to collect your replies during the week.

Once again thank you very much for your help in a piece of research that will be of value in planning future provisions for recreation.

Yours sincerely

Derek Thompson
Department of Geography

APPENDIX D

First Questionnaire

(All questionnaires reduced from original [8½x14 inches])

UNIVERSITY OF VICTORIA: GEOGRAPHY DEPT.

Hse. No..... Derek Thompson

PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE MARKING ANYTHING ON THE MAPS.

MAP I - PARKS AND BEACHES

Parks.

All the PARKS in the Victoria area are shown on the map opposite(Map I) by an X .

Circle any parks that you visited at least once during the last 12 months. Shade in those circles representing the 3 parks thatyou visited most frequently.

Beaches.

Locate and mark any BEACHES in the area that you visited at least once during the last 12 months. Circle the 3 beaches that you visited most frequently.

Use the symbol B, FOR BEACHES when marking those visited

NOW A FEW QUESTIONS ABOUT WHAT YOU HAVE MARKED

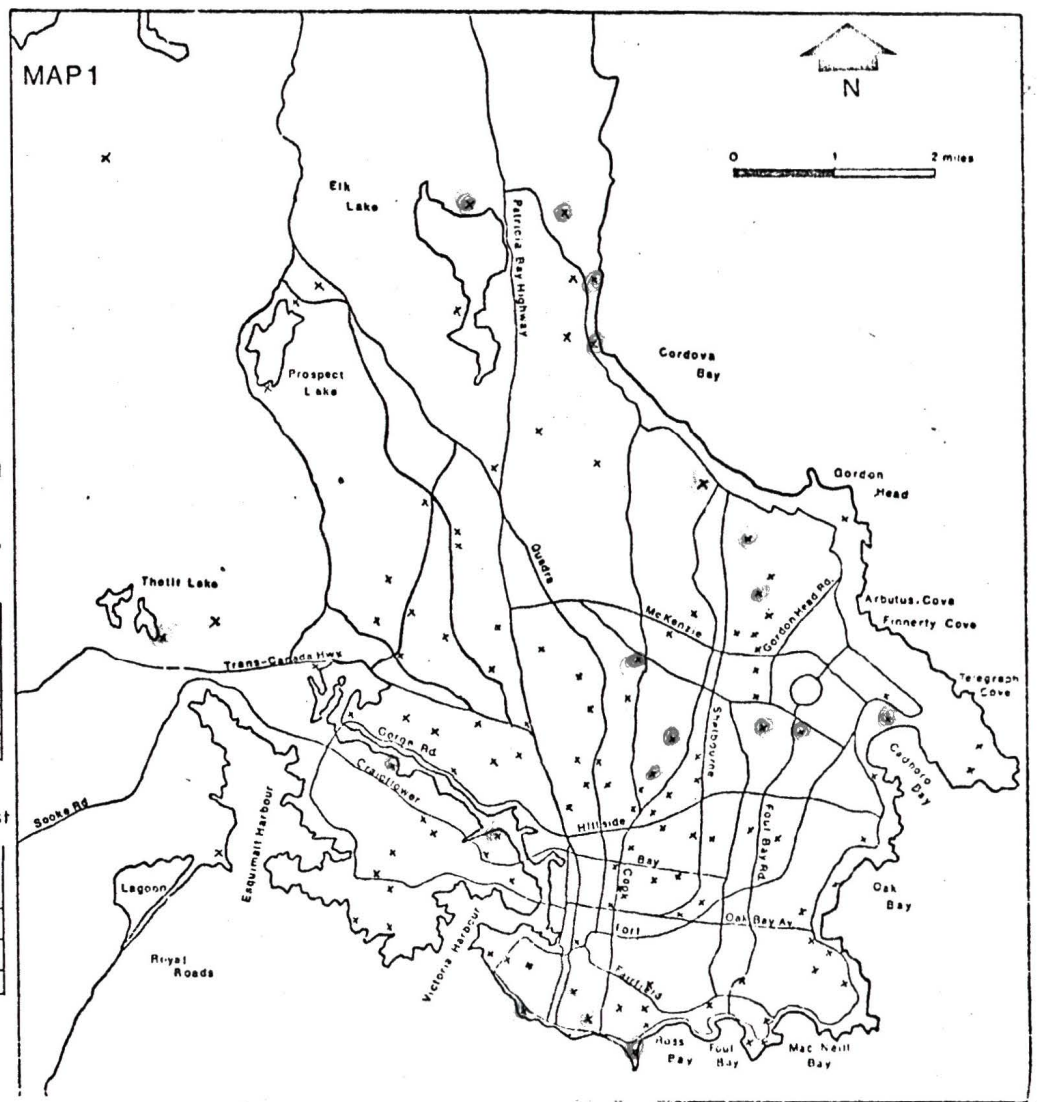
1. For each of the segments of the year marked below please mark the number of visits(if any)made to each of the 3 PARKS you visited most frequently.

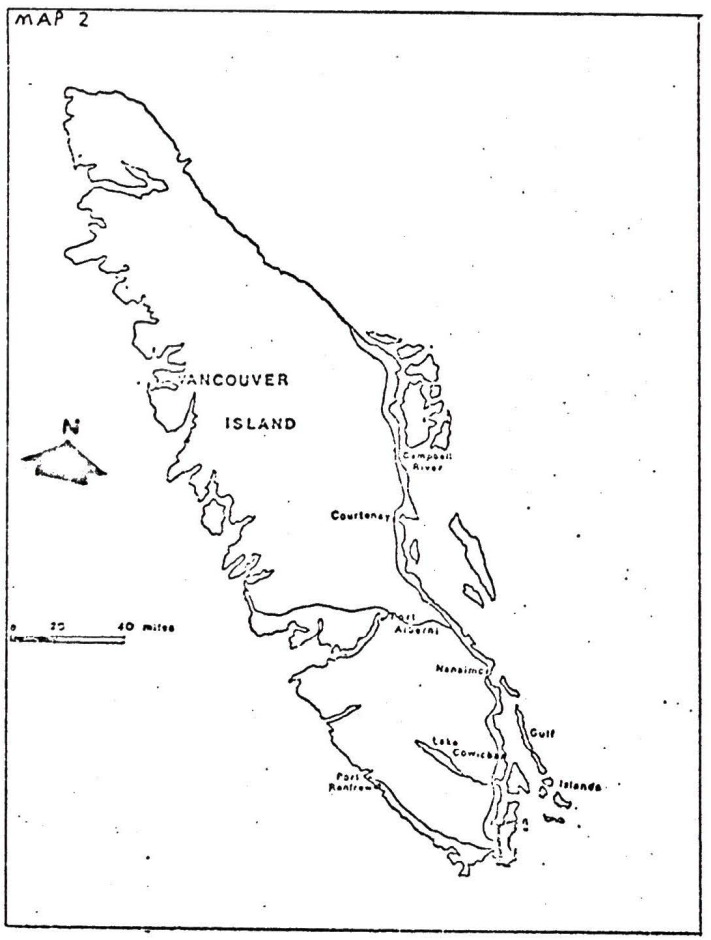
	December-Febuary	March-May	June-August	September-November
a, Most Frequent				
b, 2nd Most Frequent				
c, 3rd Most Frequent				

2. For each of the segments of the year marked below please mark the number of visits(if any)made to each of the 3 BEACHES you visited most frequently.

	December-February	March-May	June-August	September-November
a, Most Frequent				
b, 2nd Most frequent				
c, 3rd Most Frequent				

NOW TURN OVER





MAP 2 - CAMPSITES

Locate and mark all CAMPSITES in which you spent at least one night during the last 12 months. Circle the 3 Campsites that you visited most frequently.
Use the symbol C, FOR CAMPSITES

4. For each of the segments of the year marked below please mark the number of visits(if any) made to each of the 3 CAMPSITES you visited most frequently.

	December-Febuary	March-May	June-August	September-November
a, Most Frequent				
b, 2nd Most Frequent				
c,3rd Most Frequent				

Lastly a few questions about yourself so that the information which you have given maybe of even greater use in the study.

1. Which of the following categories best describes the level of education completed by the head of the household?
   1) Grade School . . . . . ☐
   2) Part High School. . . . . ☐
   3) High School Graduate . . ☐
   4) Part University . . . . . ☐
   5) University Graduate.. . . . ☐
   6) Technical-Vocational School ☐

2. Which of the folowing categories best approximates the age of the head of the household?
   12 or under ☐ between 12 and 20 ☐ between 20 and 36 ☐ between 36 and 45 ☐ over 45 ☐

3. What is the occupation of the head of the household? _____

_____

4. What work is done in this occupation? _____

_____

5. Lastly - a completely optional question. Which of the following categories best describes the income of the head of the household?
   Less than $4,000 ☐ $4,000- $7,500 ☐ $7,500- $10,000 ☐ Over $10,000 ☐

APPENDIX E

SHEET A. Second Questionnaire

THIS FORM IS TO BE COMPLETED BY ALL PERSONS IN THE HOUSEHOLD AGED 12 AND OVER.

NAME (surname first)		AGE.	SEX. M

1) PLEASE COMPLETE SECTIONS A, B, C and D (WHERE APPLICABLE) BELOW.

a) Give the addresses of places in which you have previously lived in Victoria

Most previous [illegible]
Earlier addresses

b) Give the addresses of schools that you do, or did attend if they are in VICTORIA

Present school [illegible]
Previous schools [illegible]

c) Give the names and addresses of any clubs (social, youth etc) which you attend in VICTORIA.

Club	Address
[illegible]	
YCC	

d) Give the address of the place where you do, or did work in VICTORIA.

Present workplace [illegible]
Previous workplaces [illegible]

2) WHERE DO YOU GO TO DO MOST OF YOUR SHOPPING? (complete where applicable, give an address)

	Food Shopping	Other Shopping
Local store	SE MC	SE KM HM
Shopping Plaza	SE	
Downtown	- LB. GS.	B E
Other (specify)	GM	W

3) HOW LONG HAVE YOU LIVED IN VICTORIA? too long

4) IF YOU HAVE NOT ALWAYS LIVED IN VICTORIA WHERE DID YOU LIVE IMMEDIATELY BEFORE COMING HERE? Vanc

5) DO YOU HAVE THE USE OF A VACATION HOME. IF SO WHERE IS IT SITUATED?

UP Island (2)

6) DO YOU OWN A CAR? (check one) Yes ☑ No ☐

ENTER BELOW (AND ON THE NEXT PAGE) DETAILS OF ALL RECREATIONAL TRIPS (THOSE TRIPS WHICH WERE MADE AT LEAST PARTIALLY FOR PERSONAL ENJOYMENT)THAT WERE STARTED AND ENDED ON THE SATURDAY AND SUNDAY BEFORE THE ARRIVAL OF THIS LETTER.

TRIP 1.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Acquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	AND ENDED AT
Home	Home
School	School
Work	Work
Holiday Home	Holiday Home
Shops	Shops
Other(specify)	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am / pm	am / pm
SECOND STOP			am / pm	am / pm
THIRD STOP			am / pm	am / pm
FOURTH STOP			am / pm	am / pm

TRIP 2.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	AND ENDED AT
Home	Home
School	School
Work	Work
Holiday Home	Holiday Home
Shops	Shops
Other(specify)	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

TRIP 3.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	AND ENDED AT
Home	Home
School	School
Work	Work
Holiday Home	Holiday Home
Shops	Shops
Other(specify)	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
			am	am
			pm	pm

TRIP 4.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	AND ENDED AT
Home	Home
School	School
Work	Work
Holiday Home	Holiday Home
Shops	Shops
Other(specify)	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

TRIP 5.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	AND ENDED AT
Home	Home
School	School
Work	Work
Holiday Home	Holiday Home
Shops	Shops
Other(specify)	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

APPENDIX F

Third Questionnaire

ENTER BELOW (AND ON THE NEXT PAGE) DETAILS OF ALL RECREATIONAL TRIPS (THOSE TRIPS WHICH WERE MADE AT LEAST PARTIALLY FOR PERSONAL ENJOYMENT) THAT WERE STARTED AND ENDED ON THE SATURDAY AND SUNDAY BEFORE THE ARRIVAL OF THIS LETTER.

TRIP 1.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	Home
	School
	Work
	Holiday Home
	Shops
	Other (specify)

AND ENDED AT

	Home
	School
	Work
	Holiday Home
	Shops
	Other (specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

TRIP 2.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	Home
	School
	Work
	Holiday Home
	Shops
	Other (specify)

AND ENDED AT

	Home
	School
	Work
	Holiday Home
	Shops
	Other (specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

TRIP 3.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	Home
	School
	Work
	Holiday Home
	Shops
	Other(specify)

AND ENDED AT

	Home
	School
	Work
	Holiday Home
	Shops
	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

TRIP 4.

a) THIS TRIP BEGAN ON Saturday / Sunday (circle where correct) AT .....am/pm. AND ENDED ON Saturday / Sunday AT .....am/pm.

b) THE OTHER MEMBERS OF YOUR PARTY, IF ANY, WERE.....

give numbers in each category	
	Friends
	Business Aquaintances
	Family
	Other (give details)

c) WHAT WAS YOUR MAIN FORM OF TRANSPORT DURING THIS TRIP? .....
LIST ANY OTHER FORMS OF TRANSPORT USED ON THE TRIP .....
.....

d) THE TRIP BEGAN FROM (check where appropriate)

	Home
	School
	Work
	Holiday Home
	Shops
	Other(specify)

AND ENDED AT

	Home
	School
	Work
	Holiday Home
	Shops
	Other(specify)

e) IF YOU MADE ANY STOPS OR CALLS DURING YOUR TRIP COMPLETE THE TABLE BELOW

	LOCATION OF STOP street address, name of park etc.	ACTIVITY AT STOP eg. admiring view, walking etc.	TIME AT STOP From	To
FIRST STOP			am	am
			pm	pm
SECOND STOP			am	am
			pm	pm
THIRD STOP			am	am
			am	pm
FOURTH STOP			am	am
			pm	pm

APPENDIX G

Kish's Respondent Selection Technique

To obtain a random sample of the population from an initial household sample, Kish's respondent selection technique was used (Kish, 1949). After explaining the survey, the interviewer asked two questions: 1) How many persons, aged twelve and over, live in this house? 2) How many are male?

These people are then ordered from oldest male to youngest female; e.g. in a four person household with two males, 1) oldest male, 2) youngest male, 3) oldest female, 4) youngest female.

Prior to the interview a six figure combination was allocated to each household to be sampled. A total of eight possible combinations were randomly consigned among the households in assigned proportions according to Kish's calculations of the actual number of each type of household combination. The complete set of alternatives is shown below. From the previous example household of four persons, if the combination allocated were C = 1, 2, 3, 4, 5, 6 then the interviewer would select the fourth person; the youngest female.

In practice the technique is extremely easy to use and appears to have produced a sample population essentially similar to that of the real world.

Proportion of Assigned Tables		If number of adults in household is					
		1	2	3	4	5	6
		Select adult numbered					
1/6	A	1	1	1	1	1	1
1/12	B_1	1	1	1	1	2	2
1/12	B_2	1	1	1	2	2	2
1/6	C	1	1	2	2	3	3
1/6	D	1	2	2	3	4	4
1/12	E_1	1	2	3	3	3	5
1/12	E_2	1	2	3	4	5	5
1/6	F	1	2	3	4	5	6

APPENDIX H

The Relationship Between the Sample & Real World Populations

	Standard Error	Sample Proportion	Real World Proportion*
Male	4.78 %	28.9 %	44.00 %
Female	3.41	71.1	56.00
Married	5.27	50.0	57.00
1 / household	5.14	38.8	23.05
2-5 / household	5.20	58.0	68.85
6+ / household	1.48	2.2	8.10

Occupation	Sample	Real World**
Professional	16.85 %	13.38 %
Managers	2.25	7.74
Clerical	12.35	11.44
Sales	3.37	2.28
Craftsmen	7.86	4.22
Operatives	2.24	2.81
Labourers	5.61	2.64
Private Service	0	.52
Other Service	5.11	4.75
Students	5.00	3.52
Housewives	8.98	15.84
Retiree	23.59	26.40
Military	2.24	1.58
Unemployed	0	.27
Other	0	.88

* Source 1966 Census (Capital Region District 1966)

** Source 1972 Polling numeration Lists

Value of chi^2 for difference between the distributions = 17.1631

Less than .01 chance that differences caused by anything but chance.

REFERENCES

Adams, J. S. (1969). Directional Bias in Intra-Urban Migration. Economic Geography, 45, 302-323.

Beaman, J. (1972). Distance and the Reaction to Distance as a Function of Distance. CORD Technical Note 14, National & Historic Parks, Ottawa.

Bo langer, H. E. (1971). Research into the Urban Traveller's Behaviour. Transportation Research, 5, 113-125.

Boyce, D. E. (1965). The Effect of Direction and Length of Person Trips on Urban Travel Patterns. Journal of the Regional Science Association, 6(1), 65-80.

Brail, R. K. (1969). Activity System Investigations: Strategy for Model Design. Doctoral Dissertation, University of North Carolina.

Brancher, D. (1968). Traffic in Scenic Areas. Town Planning Institute, 6, 271-274.

_____. (1972). The Minor Road in Devon: A Study of Visitors' Attitudes. Regional Studies, 6, 49-58.

Brown, P. J. and Hunt, J. D. (1969). The Influence of Information Signs on Visitor Distribution and Use. Journal of Leisure Research, 1(1), 79-83.

Brown, R. E. (1935). The Business of Recreation. The Geographical Review, 25, 467-475.

Bunker, R. (1971). Town and Country or City and Region. Melbourne University Press.

Burdge, R. J. and Field, D. R. (1972). Methodological Perspectives for the Study of Ourdoor Recreation. Journal of Leisure Research, 4(1), 63-72.

Bureau of Municipal Research. (1971). Urban Open Space: Parks, People and Planning. Civic Affairs Bureau of Municipal Research, Toronto.

Burton, T. L. (1966). A Day in the Country: A Survey of Leisure Activity at Box Hill in Surrey. The Chartered Surveyer, 98(7), 378-380.

_____. (1967). Windsor Great Park: A Recreational Study. New York College Department of Economic Studies in Rural Land Use, 8.

Burton, T. L. (1971). Experiments in Recreation Research. George Allen & Unwin, London.

Burton, T. L. and Noad, P. A. (1968). Recreation Research Methods: A Review of Recent Studies. University of Birmingham, Centre for Urban and Regional Studies.

Byers, W. B. (1970). Distance Travelled and Propensity to Recreate. Report to the Interagency Committee for Outdoor Recreation, Olympia, Washington.

Campbell, C. K. (1967). An Urban Skiing Hinterland. M.A. Thesis, University of British Columbia.

_____. (1971). A Location Analysis of Urban Recreation in Bristol. Doctoral Dissertation, University of Bristol.

_____. (1973). Greater Victoria Leisure System Study, Vol. I, An Overview.

Capital Region Planning Board. (1968) Social Characteristics: 1966 Victoria Census Metropolitan Area. Victoria, 38.

Carr, S. and Schissler, L. (1969). The City as a Trip. Environment and Behaviour, 1, 7-35.

Catton, W. R. (1965). Intervening Opportunities: Barriers or Stepping Stones. Pacific Sociology Review, 8, 75-88.

Cesario, F. J. (1969). Operations Research in Recreation. Journal of Leisure Research, 1, 33-51.

Chapin, F. S. (1966). The Use of Time-Budgets in the Study of Urban Living Patterns. Research Previews, Institute for Research in Social Science, University of North Carolina, Chapel Hill, 13, 1-6.

_____. (1968). Activity Systems and Urban Structure: A Working Schema. Journal of American Institute of Planners, 35, 11-18.

_____. (1971). Free Time Activities and Quality of Urban Life. Journal of American Institute of Planners, 37, 411-417.

Chapin, F. S. and Brail, R. K. (1969). Human Activity Systems in the Metropolitan United States. Environment and Behaviour, 1, 107-130.

Chapin, F. S. and Hightower, H. C. (1966). Household Activity Systems: A Pilot Investigation. Center for Urban Studies, Chapel Hill, North Carolina.

Chapin, F. S. and Logan, T. H. (1969). Patterns of Time and Space Use. In H. S. Perloff (Ed.), The Quality of the Urban Environment. Johns Hopkins Press, Baltimore.

Cheung, H. K. (1972). A Day-Use Park Visitation Model. Journal of Leisure Research, 4(2), 139-156.

Clark, W. A. V. (1971). A Test of Directional Bias in Residential Mobility. In H. McConnell and D. Yassen (Eds.), Models of Spatial Variation. North Illinois University Press.

Clawson, M. (1966). Economics and Environmental Impacts of Increasing Leisure Activities. In F. F. Darling and J. D. Milton (Eds.), Future Environments of North America. Natural History Press, Garden City, N.Y.

_____. (1959). Methods of Measuring the Demand For and Value of Outdoor Recreation. Reprint 10, R.F.F., Washington, D.C.

Cole, G. L. and Wilkins, B. T. (1971). The Camper. Recreation Symposium Proceedings, N.E. Forest Experimental Station, U.S. Dept. of Agriculture, Upper Darby, Pa., 105-113.

Colenutt, R. J. (1969). Modelling Travel Patterns of Day Visitors to the Countryside. Area, 2, 43-47.

Coomber, N. J. (1970). Recreational Day Trips from Ottawa and Hull. M.A. Thesis, Carleton University.

CORDS. (1973). A Search for Structure in the Patterns of Participation of Canadians in Outdoor Recreation Using Cluster Analysis Methods: The Windsor Work. Parks Canada, Ottawa.

Cracknell, B. (1967). Accessibility to the Countryside as a Factor in Planning for Leisure. Regional Studies, 1, 147-161.

Craik, K. H. (1970). Environmental Psychology. In New Directions in Psychology 4. Rinehart & Winston Inc.

Crevo, C. C. (1963). Characteristics of Summer Weekend Recreational Travel. Highway Research Record, 44, 51-60.

Deasy, G. F. and Greiss, P. (1966). Impact of a Tourist Facility on its Hinterland. AAAG, 5b.

Duffell, J. R. and Goodall, G. R. (1968). Leisure in Town and Country. The Surveyor and Municipal Engineer, 131, 32-37.

_____. (1969). Worcestershire and Staffordshire Recreational Survey, 1966. Journal of Town Planning Institute, 55, 398-403.

Ellis, J. B. (1967). A Systems Model for Recreation Travel in Ontario: A Progress Report. D.H.O. Report RR126, Downsview, Ontario.

Ellis, J. B. and Van Doren, C. (1965). Comparative Evaluation of Gravity and Systems Theory Models for Statewide Recreation Flows. Journal of Regional Science, 57-70.

Emmett, I. (1970). Sociological Research in Recreation. In Burton, T. L. (Ed.), Recreation Research and Planning. Allen & Unwin, London.

Fellegi, I. P. and Vander Noot, T. J. (1970). Automated Data Storage and Retrieval Systems. Canadian Statistical Review, 45(10), 4-112.

Golledge, R. G., Briggs, R. and Demko, D. (1969). The Configuration of Distances in Intra-Urban Space. AAAG, 1, 60-65.

Hall, J. M. (1971). The Journey to Leisure: A Framework for Study. Recreation News Supplement, Countryside Commission.

Haythorn, W. H. (1970). A Needs by Sources of Satisfaction Analysis of Environmental Habitability. Ekistics 178, 200-202.

Harvey, D. (1970). Explanation In Geography. Edward Arnold, London.

Hightower, H. C. (1965). Recreational Activity Analysis: Toward A Spatial and Aspatial Methodology for Urban Planning. Doctoral Dissertation, Dept. of City and Regional Planning, University of North Carolina.

Horton, F. E. and Reynolds, D. R. (1971). Effects of Urban Spatial Structure on Individual Behaviour. Economic Geography, 47, 36-48.

Horton, F. E. and Reynolds, D. R. (1969). An Investigation of Individual Action Spaces: A Progress Report. AAAG, 1, 70-75.

Houghton-Evans, W. and Miles, J. C. (1970). Environmental Capacity in Rural Recreation Areas. T.P.I., 5b(10), 423-427.

_____. (1970). Weekend Recreational Motoring in the Countryside. T.P.I., 56(9), 392-397.

Hoyt, H. (1939). The Structure and Growth of Residential Neighborhoods in American Cities. Federal Housing Administration, Washington, D.C.

Ingram, D. R. (1971). The Concept of Accessibility: A Search for an Operational Form. Regional Studies, 5, 101-107.

Isard, W. (1960). Methods of Regional Analysis: An Introduction to Regional Science. Technology Press of M.I.T. & John Wiley, New York.

Johnston, R. J. (1972). Activity Spaces and Residential Preferences: Some Tests of the Hypothesis of Sectoral Mental Maps. Economic Geography, 48(2), 199-211.

_____. (1971). Mental Maps of the City: Suburban Preference Patterns. Environment and Planning, 3.

Kamsky, K. (1967). Travel Patterns of Urban Residents. Transportation Science, 1, 261-285.

Keogh, B. M. (1969). The Role of Travel in the Recreational Day Trip. M.A. Thesis, University of Western Ontario.

Kish, L. (1949). Procedure for Objective Respondent Selection Within a Household. Journal of American Statistics Association, 44, 380-387.

Kofoed, J. (1970). Persons Movement Research: A Discussion of Concepts. Regional Science Association, XXIV, 141-157.

Kovacs, J. (1971). A Self Administered Park Visitor Survey Technique. Technical Paper 1, National and Historic Parks Branch, Ottawa.

Law, S. (1970). Introduction to Demand Studies. In The Demand for Outdoor Recreation in the Countryside. Countryside Commission, London.

Ledrut, R. (1971). The Social Space of a Town. Society and Leisure, 1, 21-31.

Lee, T. R. (1970). Perceived Distance as a Function of Direction in the City. Environment and Behaviour, 2, 40-51.

Leuschner, W. A. and Herrington, R. B. (1971). The Skier: His Characteristics and Preferences. In Recreation Symposium Proceedings, N.E. Forest Experimental Station, U.S. Dept. of Agriculture, Upper Darby, Pa.

Lime, D. W. (1971). A Spatial Analysis of Auto Camping in the Superior National Forest of Minnesota: Models of Campground Selection Behaviour. M.A. Thesis, University of Pittsburgh.

Lindsay, J. J. and Ogle, R. A. (1972). Socioeconomic Patterns of Outdoor Recreation Use Near Urban Areas. Journal of Leisure Research, 4(1), 19-24.

Lowrey, R. A. (1970). Distance Concepts of Urban Residents. Environment and Behaviour, 2, 52-73.

Lucas, R. (1971). Hikers and Other Trail Users. In Recreation Symposium Proceedings, N.E. Forest Experimental Station, U.S. Dept. of Agriculture, Upper Darby, Pa.

Mansfield, N. W. (1968). Traffic Policy in the Lake District National Park: Some General Considerations. T.P.I., 54(6), 263-270.

_____. (1969). Recreational Trip Generation. Journal of Transport Economics and Policy, 3(2), 152-164.

Masser, I. (1966). The User of Outdoor Recreation Facilities. Town Planning Review, 37, 40-54.

Maw, R. (1969). Construction of A Leisure Model. Official Architecture and Planning, 924-935.

Meier, R. L. (1959). Human Time Allocation: A Basis for Social Accounts. Journal of the American Institute of Planners, 15(1), 27-35.

Mercer, D. C. (1968). Urban Recreational Hinterland: A Review and Example. Professional Geographer, 22, 74-78.

Mercer, D. C. (1970). The Role of Perception in the Recreation Experience: A Review and Discussion. Monash University.

_____. (1971). Discretionary Travel Behaviour and the Urban Mental Map. Australian Geographical Studies, 9, 133-143.

_____. (1972). Beach Usage in the Melbourne Region: The Results of a Survey. Australian Geographer.

Mitchell, L. S. (1968). The Facility Index as a Measure of Attendance at Recreation Sites. Professional Geographer, 20, 276-278.

_____. (1969). Towards a Theory of Public Urban Recreation. AAAG, 1.

Mitchel and Ratkin, (1954). Urban Traffic, A Function of Land Use. Columbia University Press.

Murphy, P. E. (1970). A Study of the Influence of Attitude, as a Behavioural Parameter, on the Spatial Choice Patterns of Consumers. Doctoral Dissertation, Ohio State University.

Netherton, H. H., Cesario, F. J. and Macdonald, H. A. (1973). Work Plan for the Development of a Mathematical Model to Predict and Explain Overnight Use of Parks. Unpublished, National and Historic Parks, Ottawa.

Nystuen, J. (1967). A Theory and Simulation of Intraurban Travel. In W. L. Garrison and D. F. Marble (Eds.), Quantitative Geography Part 1, North West University Studies in Geography 13, Evanston, Illinois.

Oi, W. Y. and Shuldiner, P. W. (1962). Analysis of Urban Traffic Demands. Transportation Center, Northwestern University Press.

Olsson, G. (1965). Distance and Human Interaction. Regional Science Research Institute.

Pincombe, P. G. (1970). An Analysis of the Recreational Activities of Urban Adults: A Case Study, London, Ontario. M.A. Thesis, University of Western Ontario.

Proctor, C. (1962). Dependence of Recreation Participation on Background Characteristics of Sample Persons in the September 1960 National Recreation Survey. Appendix A, ORRRC Report 19, Washington, D.C.

Ross, J. H. (1972). A Measure of Site Attraction. Doctoral Dissertation, University of Western Ontario.

Rushton, G. (1969). Analysis of Spatial Behaviour by Revealed Space Preference. AAAG, 59, 391-400.

Shafer, E. L. and Moeller, G. H. (1971). Predicting Quantitative and Qualitative Values of Recreation Experiences. In Recreation Symposium Proceedings, N.E. Forest Experimental Station, U.S. Dept. of Agriculture, Upper Darby, Pa.

Sofranko, A. J. and Nolan, M. F. (1972). Early Life Experiences and Adult Sports Participation. Journal of Leisure Research, 4(1), 6-18.

Stokols, D. (1972). A Social-Psychological Model of Human Crowding Phenomena. Journal of the American Institute of Planners, 38, 72-80.

Szalai, A. (1966). Multi-National Comparative Time-Budget Research. American Behavioural Scientist, 10(4), 1-78.

Thompson, B. (1967). Recreational Travel: A Review and Pilot Study. Traffic Quarterly, 527-542.

Thompson, D. (1963). New Concept: Subjective Distance. Journal of Retailing, 39, 1-6.

Traffic Research Corporation. (1965). Capital Region of British Columbia Transportation Study. T.R.C., Ontario.

Ullman, E. L. and Volk, D. J. (1961). An Operational Model for Predicting Reservoir Attendance and Benefits: Implications of a Location Approach to Water Recreation. Papers of Michigan Academy of Arts and Letters, 47.

Wall, G. (1971). Some Comments on Patterns of Recreation of Hull Car-Owners. Recreation News Supplement, 25-76.

Wheeler, J. D. and Statz, F. P. (1971). Spatial Dimensions of Urban Social Travel. AAAG, 371-387.

Wiseman, R. F. and Curtis, C. R. (1972). Urban Socio-Economic Structure and Biases in Travel Behaviour. AAAG, 119-122.

Wolfe, R. I. (1951). Summer Cottagers in Ontario. Economic Geography, 27, 10-32.

_____. (1964). Perspective on Outdoor Recreation: A Bibliographical Survey. Geographical Review, 54, 203-238.

_____. (1966). Parameters of Recreational Travel in Ontario: A Progress Report. D.H.O. Report RB111, Downsview, Ontario.

_____. (1969). A Tentative Procedure for Estimating Recreational Highway Traffic. Traffic Quarterly, 23(1), 105-122.

_____. (1970). Vacation Homes and the Gravity Model. Ekistics, 174, 252-253.

_____. (1972). The Inertia Model. Journal of Leisure Research, 4(1), 73-78.

VITA

Surname: THOMPSON Given Names: DEREK

Place of Birth: NEWPORT, WALES

Date of Birth: MAY 7, 1949

Educational Institutions Attended,
with Dates of Entering and Leaving:

UNIVERSITY COLLEGE OF WALES, ABERYSTWYTH	1967	to	1970
UNIVERSITY OF LEICESTER	1970	to	1971
	____	to	____
	____	to	____

Degrees, Diplomas, Etc., Awarded,
with Dates and Names of Institutions:

B.Sc. (Honours)	1970	UNIVERSITY OF WALES
Certificate of Education	1971	UNIVERSITY OF LEICESTER
	____	
	____	

Honours and Awards:

COUNTY OF GLOUCESTERSHIRE MAJOR AWARD	1967-70
DEPARTMENT OF EDUCATION GRANT	1970-71
UNIVERSITY OF VICTORIA SCHOLARSHIP	1971-73

Publications:

PARTIAL COPYRIGHT LICENSE

I hereby grant the right to lend my thesis or dissertation (the title of which is shown below) to users of the University of Victoria Library, and to make single copies only for such users or in response to a request from the library of any other university, or similar institution, on its behalf or for one of its users. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by me or a member of the University designated by me. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission

Title of Thesis/Dissertation

A SEARCH FOR ORDER IN THE SPATIAL ASPECTS OF RECREATIONAL TRIP MAKING

Author [redacted]

Signature

DEREK THOMPSON

Name

March 1 1974

Date