

**SUBCULTURAL VARIATIONS IN  
RESPONSES TO THE  
URBAN ENVIRONMENT**

SUBCULTURAL VARIATIONS IN RESPONSES TO  
THE URBAN ENVIRONMENT

by

IAN THOMAS JOYCE

B.Sc., University of Glasgow, 1966

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS

in the department  
of  
Geography

© IAN THOMAS JOYCE, 1969

SIMON FRASER UNIVERSITY

May, 1969

APPROVAL

Name: Ian Thomas Joyce  
Degree: Master of Arts  
Title of Thesis: Subcultural Variations in Responses to the  
Urban Environment  
Examining  
Committee:

---

P.L. Wagner  
Senior Supervisor

---

E.M. Gibson  
Examining Committee

---

M.E. Eliot Hurst  
Examining Committee

---

B.R. D'Aoust  
External Examiner  
Professor  
Behavioural Sciences Foundation  
Simon Fraser University

Date Approved:

1 October 1969

## ABSTRACT

This research examines variations in man-environment relationships within contemporary industrial cities through a case study conducted in the city of Vancouver, British Columbia, with the two major aims of adding to cultural geographical knowledge of human behaviour and of aiding in the achievement of good environmental quality for all city residents. Specifically, it attempts to explain, in terms of cultural background the differences in the responses of a group of social welfare clients and a group of company directors to their environment.

Some past and current geographical postulates are examined and found to be derivative of cognitive theory. This type of psychological theory is in turn reviewed and rejected in favour of a "mediation model" developed by C.E. Osgood and based upon stimulus-response principles.

From this model and a consideration of the relations between the concepts of social class and culture, two hypotheses are advanced for testing: that the study groups will have significantly different perceptions of the City of Vancouver and; that the connotative meanings of those landscape objects which are perceived by both groups will be significantly different.

The testing of these hypotheses involved conducting two interviews with each of 30 subjects. The first, to

discover their perceptions, used a questionnaire modified from one used by planner K. Lynch. It was found that the first hypothesis was valid, although a zone of overlap including five landscape objects occurred.

To test whether the connotative meanings of these five objects were different for the study groups, a semantic differential test developed by C.E. Osgood was employed and it was discovered that the second hypothesis was true only for two of these objects.

In the conclusion, the limitations of the study are discussed and its implications for both cultural geography and landscape change in the city are examined. It is suggested that Osgood's model of human behaviour is worthy of further study by geographers, that the semantic differential test is a useful addition to the repertory of techniques available to those studying man-environment relations and that human perception and meaning be considered as major variables, along with economics, in decisions on planned landscape change in the city.

## TABLE OF CONTENTS

CHAPTER	PAGE
I	INTRODUCTION . . . . . 1
	Empirical Research on the Problem . . . . . 3
	The Study Groups . . . . . 8
II	REVIEW OF THE LITERATURE . . . . . 13
	Explicit Analyses of Human Behaviour
	in Geography . . . . . 16
	Psychological Theories of Behaviour . . . . . 25
	Osgood's Model . . . . . 29
	The Basic Principles of S-R Theory . . . . . 32
	The Projection Level . . . . . 33
	The Integration Level . . . . . 34
	The Representation Level . . . . . 37
	Hierarchies of Alternatives . . . . . 41
	Mediated Generalization and Transfer . . . . . 45
	Primary and Secondary Learning . . . . . 45
	Culture, Subculture and Behaviour . . . . . 47
	Hypotheses . . . . . 51
III	THE METHOD . . . . . 53
	General Approach to the Problem . . . . . 53
	The Measurement of Group Perceptions . . . . . 54
	The Measurement of Meaning . . . . . 57
	Questionnaire Construction . . . . . 60

CHAPTER	PAGE
Sampling Procedures . . . . .	63
Characteristics of the Study Groups . . . . .	65
Interview Procedures . . . . .	68
IV ANALYSIS AND RESULTS . . . . .	69
Group Perceptions of the City of Vancouver . . . . .	69
The Meanings of Perceived Objects . . . . .	75
Factor Analysis of Scales . . . . .	75
Inter-Group Comparison of Factors . . . . .	75
Semantic Structures of the Study Groups . . . . .	77
Factor Scores . . . . .	82
Testing the Second Hypothesis . . . . .	83
V CONCLUSIONS . . . . .	88
Limitations of the Study . . . . .	89
Conclusions . . . . .	90
Implications of the Study . . . . .	91
Cultural Geography . . . . .	91
Landscape Change . . . . .	93
BIBLIOGRAPHY . . . . .	97
APPENDIX A . . . . .	102
APPENDIX B . . . . .	104
APPENDIX C . . . . .	108

LIST OF TABLES

TABLE		PAGE
1	Abjective Scales . . . . .	62
2	Some Characteristics of the Study Groups . . . .	66
3	Rotated Factor Loadings . . . . .	76
4	Cosines Among Factor Axes . . . . .	77
5	Factor Scores and $\chi^2$ Significance Test . . . . .	84



LIST OF FIGURES AND ILLUSTRATIONS

FIGURE		PAGE
1	Selected Socio-Economic Characteristics of the Study Areas . . . . .	between 8 and 9
ILLUSTRATION		
I	Shaughnessy . . . . .	between 10 and 11
II	Fairview . . . . .	between 10 and 11

LIST OF MAPS

MAP		PAGE
1	Locations of Shaughnessy and Fairview . . between and	8 9
2	Lower-Class Perceptions of Vancouver . . between and	70 71
3	Upper-Class Perceptions of Vancouver . . between and	70 71
4	Commonly Perceived City Elements . . . . between and	70 71

## ACKNOWLEDGEMENTS

I would like to express my appreciation of all the help given to me by my advisors and, in particular, the encouragement received from Professor E.M.W. Gibson. Also my thanks are due to the subjects who gave me their full cooperation and to Central Mortgage and Housing Corporation who made this study possible by granting me an Urban Fellowship.

## CHAPTER I

### INTRODUCTION

The amelioration of human living conditions and the relief of human misery and material want cannot fail to count among the important, if implicit, goals of cultural geography. <sup>1</sup>

Deterioration of structures and redundancy of form, reflected in the persistence of slums and in increasing congestion, have been among the most pressing problems of contemporary industrial cities in the present century. The responses to these problems in Western industrial societies have involved the abandonment of the pure 'laissez-faire' principles of the nineteenth century in favour of increasing governmental control of landscape change operating through the tool of urban or city planning.

A characteristic of urban planning since its inception, especially in the field of re-housing of low income populations, has been a preponderance of failures over successes. This has resulted partly from external factors such as insufficient appropriations from government and the divorce, until recently, of 'physical' planning from its concomitants, social and economic planning. Some failures, however, can be accounted for by the erroneous assumptions upon which this type of planning has been based and especially those concerning the nature of man-environ-

---

<sup>1</sup>P.L. Wagner and M.W. Mikesell, Readings in Cultural Geography (Chicago: University of Chicago Press, 1962), p. 22.

ment relationships in the city.

The belief that change in the physical environment will bring about social change has been a cornerstone of urban planning in the twentieth century. It has provided the rationale for many of the slum-clearance projects undertaken in most large industrial cities. As a result of the recent incorporation of the findings of researchers in many disciplines, however, this assumption has come under attack as one which presents a simplistic picture of a complex reality.

This, then, is the problem which generated this research --what is the nature of man-environment relationships in the city? Further, recognizing the diversity of backgrounds of city residents, are these relationships constant for all or do they vary amongst the numerous groups which comprise the city population?

The study of man-environment relationships, generally denoted by the term "cultural ecology", has always been a central concern of cultural geography. Its emphasis in the recent past, however, has been overwhelmingly upon studies of man as an agent of landscape change of which the 1956 symposium, entitled "Man's Role in Changing The Face of The Earth," probably constitutes the most comprehensive statement.<sup>2</sup> Since the early part of the century, studies of the other side of the coin--the influence of the environment upon man--have, in general, been conspicuous

---

<sup>2</sup>W.L. Thomas (ed.), Man's Role in Changing the Face of the Earth (Chicago: University of Chicago Press, 1956).

by their absence, for to investigate this problem often led to being branded a "determinist", a fate which few modern geographers would relish. It can be said, however, that the emphasis in cultural ecological studies has been either upon man or upon environment as causative agent, a practice which, while efficacious, often results in losing sight of the fact that interaction between the two is a subtle and complex two-way process. This realization has not, to date, been greatly in evidence in cultural ecology so that this research may aid in redressing an imbalance of knowledge in the field.

Finally, it is hoped that this research will aid in hastening the achievement of environmental quality for all members of society in keeping with the humanitarian goals of cultural geography.

#### Empirical Research on the Problem

While much of the empirical research on the problem of man-environment relationships in the city has been planning-oriented, it has also been noticeably multi-disciplinary in nature. Sociologists and psychiatrists as well as planners and architects have addressed themselves to its various aspects. This review, at the expense of comprehensiveness, will lay stress upon a few studies which have been instrumental in calling into question the assumptions about man-environment relationships held, until recently, by both social scientists and planners.

In his study of Boston published in 1945, Walter Firey presented empirical evidence which raised doubts about the valid-

ity of two basic premises of ecological theory.<sup>3</sup> The premises in question postulated, firstly, "...that the sole relation of space to locational activities is an impeditive and cost-imposing one,"<sup>4</sup> and secondly, "...that locational activities are primarily economizing 'fiscal' agents."<sup>5</sup> Firey points out that, "on the basis of these two premises the only possible relationship that locational activities may bear to space is an economic one."<sup>6</sup> However, by taking three examples of spatial patterns which have persisted in Boston despite competition from other, more economic, land uses, Firey was able to show that economic factors alone are not always sufficient for the explanation of spatial patterns in the city. Other factors, such as group values and sentiments, must always be taken into consideration and may often be the most important variables.

The empirical research undertaken in Boston, then, supported Firey's initial hypotheses: that space, as well as having an impeditive quality, has also an additional one, "...of being at times a symbol for certain cultural values..."<sup>7</sup>; and, "...that locational activities are not only economizing agents but may also bear sentiments which can significantly influence the locational process."<sup>8</sup> This study was among the first to suggest that urban

---

<sup>3</sup>W. Firey, "Sentiment and Symbolism as Ecological Variables," American Sociological Review, Vol. 10 (1945), pp. 140-148.

<sup>4</sup>Ibid., p. 141.

<sup>5</sup>Ibid.

<sup>6</sup>Ibid.

<sup>7</sup>Ibid.

<sup>8</sup>Ibid.

space is often put to other than economic uses, that it can have symbolic meaning which is rooted in the culture of the groups using it.

In 1961, psychiatrists M. Fried and P. Gleicher published the results of a study which investigated the significance of a Boston working-class slum for its inhabitants.<sup>9</sup> They discovered, amongst this group, a distinctive "subjective organization of space," one which differed from that of middle class groups.

As a result of their close associations with local people and their strong sense of identity with local places, the slum dwellers exhibited an organization of space which was "territorial" in nature. Physical space was largely defined in terms of regions surrounded by psychological boundaries of varying permeability. The most permeable was that around the dwelling, the windows, walls and doors of which were used as a bridge between inside and outside. The boundary around the immediately local area of a few blocks surrounding the home, was less permeable but could still be penetrated by other residents of the slum. The last boundary, widely experienced, surrounded the slum itself, dividing "us" from "them" and was highly impermeable.

In contrast to the "localism" of these slum-dwellers, the middle class organization of space is "selective": a boundary which is minimally permeable exists between the dwelling and the immediate environs; the street, rather than being an exten-

---

<sup>9</sup>M. Fried and P. Gleicher, "Some Sources of Residential Satisfaction in an Urban Slum," Journal of the American Institute of Planners, Vol. 27 (1961), pp. 305-316.



sion of the home, is a channel of movement which, along with other spaces outside the home, is conceived of as wholly public. Beyond the street, there are few physical areas which have widespread common usage and meaning, for the locations of friends and other preferred places are widely dispersed.

Fried and Gleicher's study has interesting implications for cultural ecological studies. It presents empirical evidence of the importance of the human psychological factor as an intervening variable between the urban physical environment and the activities of residents. Also, while no empirical evidence is presented in support of conclusions drawn concerning middle-class organization of space, these at least hint that perception and use of the urban environment varies among different groups of residents.

Sociologist H. Gans acted as a participant-observer to study the same inner-city neighbourhood of Boston investigated by Fried and Gleicher.<sup>10</sup> His object was,

...to study the way of life of a low income population because planners and caretakers act on the assumption that the way of life is simply a deviant form of the dominant American middle-class one, that is born partly of deprivation and lack of access to the improved living conditions and other services provided by these professions. 11

Of direct relevance to this research are Gans' findings that there existed differences in the perceptions of this area,

---

<sup>10</sup>H. Gans, The Urban Villagers (New York: The Free Press, 1962).

<sup>11</sup>Ibid, p. x.

the West End, by the middle-class planners and by its working-class residents. The former, along with the average Bostonian, considered the area a slum and designated it for renewal. The residents, on the other hand, gained considerable cultural, social and personal, as well as economic, satisfaction from living there, and were, "...content to live in the West End, and were willing to overlook some of its physical defects in comparison with its many social advantages."<sup>12</sup>

In conclusion, Gans' study provides further evidence to suggest that human psychology and culture are variables which must be included in the study of the relationships between man and the urban environment.

In the last few years, the importance of human psychology in ecological problems, indicated by the above early studies, has gained widespread recognition within human geography and planning.<sup>13</sup> However, although a great deal of research has been generated, the focus, in general, has been upon the development of theory and procedures for testing it at the expense of actual testing itself.<sup>14</sup>

Empirical studies on the problem of man-environment relationships in the city, then, are fragmentary at best and, indeed, suffice only to show that a problem exists which is worthy

---

<sup>12</sup>Ibid., p. 289.

<sup>13</sup>At the theoretical, rather than practical, level.

<sup>14</sup>The danger of excessive claims made by environmental designers and planners working on this problem has been noted by J.B. Jackson in Landscape, (Winter 1967-68), pp. 1-3.

of investigation. This research, it is hoped, will provide a means for testing popular assumptions and procedures. It attempts to explain, in terms of cultural background, the differences in the responses of two obviously dissimilar groups of city residents to their environment.

### The Study Groups

In choosing Study groups, the prime objectives were to maximize subcultural differences while at the same time minimizing differences in environment. In other words, the aim was to find two dissimilar groups located in close proximity to each other. In the absence of studies of sub-cultural groups in Vancouver, it was found that the simplest method of attaining these objectives was to attempt to isolate, by established indices, high status and low status areas of the city which could subsequently be sampled.

In this effort, the work of B. Mayhew, a researcher for United Community Services, was invaluable.<sup>15</sup> Using selected socio-economic and other criteria, he "regionalized" the city into twenty-one local areas which were then assigned a socio-economic rank computed from the three variables of income, occupation and educational achievement. While it was realized that socio-economic criteria are not particularly sensitive indicators of sub-culture, it was felt that the result of this study

---

<sup>15</sup> B.H. Mayhew, Local Areas of Vancouver, Research Department, United Community Services of the Greater Vancouver Area, 1967.

would aid in narrowing the range of choice to two areas within which, it was hoped, sub-cultural groups could be isolated.

The first area chosen was that with the highest socio-economic ranking (8.4) of any in the city. This area, Shaughnessy, had the added attraction, for this study, of being located relatively close to the downtown area of the city.<sup>16</sup> Having chosen a high status area, an inspection of the local areas in the vicinity isolated Fairview as that with the lowest socio-economic rank (71.2), being thirteenth out of the total twenty-one for the city. Some socio-economic characteristics of the two areas are compared in Figure 1.<sup>17</sup>

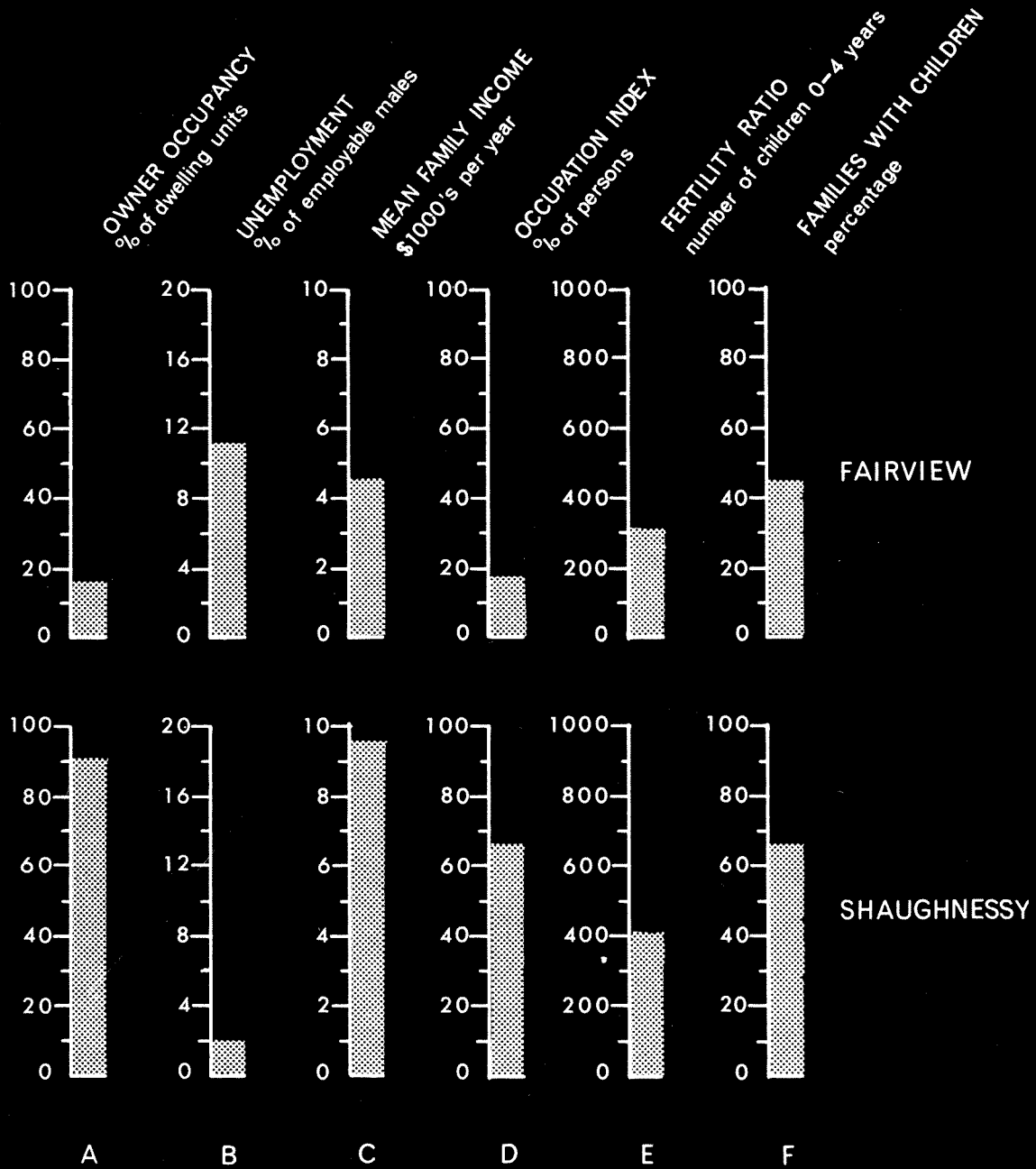
---

<sup>16</sup>See Map 1.

<sup>17</sup>The definitions of each variable are as follows:

- a) Owner Occupancy is expressed as the percentage of dwelling units which are owned or are being purchased by the family currently occupying the unit.
- b) Unemployment is defined as the percentage of the employable male labour force who, when contacted by the census taker, stated that they were "looking for work."
- c) Mean Family Income is derived by dividing the total earnings of all wage earners in a census tract by the number of wage earners with stated earnings in that tract. This is shown in thousands of dollars per year.
- d) Occupation Index is defined as the percentage of persons in the labour force who are engaged in professional or managerial type occupations.
- e) Fertility Ratio is defined as the number of children 0-4 years of age, per 1,000 females in the 20-44 year age group.
- f) Families with Children is expressed as a simple percentage.

Ibid., p. 10.



Data from: B. Mayhew, Local Areas of Vancouver

Fig.1. Selected socio-economic characteristics of study areas



Map 1. Locations of Shaughnessy and Fairview

The physical appearance of the two areas, shown in Illustrations I and II, emphasises the contrasts in their socio-economic conditions. Shaughnessy is an area of curved, treelined avenues and streets along which are set large houses in manicured, hedged gardens. It is "recognized" in Vancouver as the most-established high-status area. Fairview, on the other hand, presents a picture of deterioration, neglect and industrial encroachment. The streets are aligned on the grid-pattern and are badly paved; houses are generally set very closely together and, with very few exceptions, are in extremely poor physical condition. In the daytime the streets are crowded with parked cars of workers in nearby offices and industries and noise levels are high.

The task of isolating study groups within the two selected areas was not an easy one. Regionalization on the basis of socio-economic criteria is not, in itself, sufficient so that there was no guarantee that random sampling of the areas would yield the desired results. Accordingly, it was decided that some more sensitive and reliable indicator was required.

Sociologist J.A. Kahl maintains that occupation is the variable which is most highly correlated with "prestige rank" or social class.<sup>18</sup> Amongst other things, it is the source of income which in turn provides for the style of life by which other people make evaluations; it indicates education; it suggests the type of associates a person comes into contact with through his

---

<sup>18</sup>J.A. Kahl, The American Class Structure (New York: Holt, Rinehart and Winston, 1962).

ILLUSTRATION I

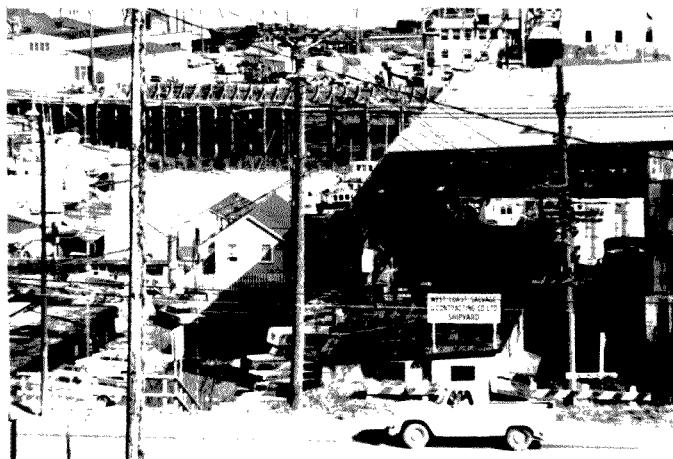
SHAUGHNESSY





ILLUSTRATION II

FAIRVIEW



job; and it "hints" at the degree of authority held over other people. Occupation, then, appeared to be a convenient, as well as reliable, basis upon which to isolate study groups within the two areas. However, while this might have been satisfactory, it was felt that if one or more additional variables could also be employed, the populations isolated would be more likely to be sub-cultures.

With respect to the Fairview area, a further indicator was indeed found as a result of the existence within it of a number of Social Welfare clients. With the help of social workers in the local branch of the Welfare Agency (located in Fairview) a list of names and addresses of male clients was obtained. This population consisted almost entirely of former labourers and craftsmen who, mainly for medical reasons, had been unable to work for varying lengths of time. The fact of being clients of a Welfare Agency was considered to be a factor which would further reinforce the homogeneity of the population so that it would tend more closely to be a sub-cultural group.

It was not possible, unfortunately, to find an additional indicator for Shaughnessy so that, in this case, occupation was the sole criterion employed. However, the risk of error was minimized as much as possible by choosing a relatively narrow occupational group, namely, that of company directors. Accordingly, a list was compiled, from polling lists for the 1967 federal election, of all male company directors residing in Shaughnessy. The population was further restricted to those

directors whose names were entered in The Financial Post Directory of Directors, a publication which lists the names of executives of nationally important companies.<sup>19</sup>

The populations from which the subjects for study were selected, then, were on the one hand, a group of social welfare clients residing in Fairview and, on the other hand, a selected group of company directors residing in Shaughnessy. It can be seen that in this choice, the objectives, enunciated earlier, of maximizing sub-cultural differences and minimizing environmental differences, have been achieved relatively successfully.

The following chapter will digress somewhat from the specific problem in order to consider some of the past and current geographical assumptions about the nature of man-environment relationships and to assess these in the light of psychological theory.

---

<sup>19</sup>The Directory of Directors, 1967 (Toronto, The Financial Post, 1968).

## CHAPTER II

### REVIEW OF THE LITERATURE

In the last decade or so, and especially since the publication of Bunge's "Theoretical Geography," the desirability and, indeed, necessity of developing a theoretically-based geographic science has become widely acknowledged amongst geographers.<sup>1</sup> However, as D. Harvey has pointed out in a recent paper, although human geographers have often turned to theory, it has rarely been the subject of explicit discussion.<sup>2</sup> Further,

An explicit development of scientific theory in geography automatically entails, among other things, an explicit analysis of the behavioural postulates on which that theory can be based. 3

It is the purpose of this chapter, then, to examine some of the behavioural postulates of geography and, recognizing their deficiencies, to present alternatives which may function more usefully as a base for a theory of man-environment relationships. It should be noted that the emphasis will be upon that part of human geography designated "cultural" although many of the statements made apply also to economic geography.

---

<sup>1</sup>W. Bunge, Theoretical Geography (Sweden: Lund Studies in Geography, Series C, No. 1, 1962.)

<sup>2</sup>D. Harvey, "Behavioural Postulates and the Construction of Theory in Human Geography," Seminar Paper Series, Series A: Number 6, Department of Geography, Bristol University.

<sup>3</sup>Ibid., p. 1.

Sprout and Sprout have classified the assumptions about human behaviour employed by geographers as: environmental determinism; environmentalism; possibilism; probabilism; and cognitive behaviouralism.<sup>4</sup> A brief review of these assumptions will serve to illustrate the various ways in which geographers have conceived of human behaviour and its relationships with the physical environment.

Environmental determinism was essentially an outgrowth of the apparent demonstration of conclusive laws in the Physical Sciences in the nineteenth century. Briefly, man was seen as a product of nature, dependent upon laws operating through nature and, as a result, having no capacity for choice. Environmentalism was essentially a modified form of determinism in which the idea of environmental "control" was replaced by "influence". Nature, in this view, still gives man instructions but he is capable of choosing to disregard them.

The doctrine of possibilism was first postulated by Vidal de la Blache and represented a reaction to the notion of environmental control, or even influence, on human behaviour. Initially, the environment was seen as a set of opportunities which man, with unlimited ability, could exploit and modify. Subsequently, however, it was recognized that the environment did, in fact, present certain limitations as well as opportunities but human free-will remained the major determinant of behaviour. Human

---

<sup>4</sup>H. and M. Sprout, The Ecological Perspective on Human Affairs (Princeton, New Jersey: Princeton University Press, 1965).

motivations and criteria of choice were ignored in the possibilist approach and what was investigated were the relationships between environmental factors and the operational results of human choices for,

To admit that choices as well as the operational results of choices may be limited by the milieu is to reintroduce the most repugnant feature of strict determinism. 5

In order to incorporate consideration of motivations and criteria of choice, probabilistic models of behaviour may be employed. Using this approach involves,

...the explanation or prediction of the typical person's reaction to a given milieu on the basis of a generalized model whose reliability depends upon the analyst's own knowledge and insight. 6

The reliability of conclusions drawn from models of this type varies widely as a result, mainly, of the lack of factual data concerning what constitutes "normally expectable" behaviour.

The assumptions about human behaviour upon which the foregoing positions were based were rarely explicitly stated and the above classification is the result of careful analyses of many geographical writings by Sprout and Sprout. However, within the last two decades many geographers have, like Harvey, realized that for human geography to take its place amongst the

---

<sup>5</sup>Ibid., p. 94.

<sup>6</sup>Ibid., p. 26.

social sciences it must define behavioural postulates upon which geographic theory can be based. This has led them to follow their close relations in anthropology and, to a lesser extent, economics in turning to a consideration of the most basic behavioural unit--the individual--and to psychology, the discipline which has been traditionally concerned with the study of individual behaviour.

#### Explicit Analyses of Human Behaviour in Cultural Geography

Stress upon human psychological factors as important variables in man-environment relationships is not a recent development in human geography: "The classical regional geographers of France consistently emphasized the 'psychological substratum' implicit in all their studies".<sup>7</sup> For instance, in 1912 Jean Brunhes wrote,

...the psychological influence of geographical causes upon the human being, in proportion to his own appetites, needs, or whims--this is the subtle and complex factor that must prevail in every study of human geography. 8

The significance of this "substratum" was not lost upon later French geographers. Its role and importance were further investigated by Max Sorre, a second generation Vidalian, who

---

<sup>7</sup>A. Buttner, (Sister Mary Annette, O.P.), "Some Historical Precedents and Contemporary Interpretations of Social Geography: With Particular Emphasis on Some French Contributions to the Field," Unpublished Ph.D. Dissertation, Department of Geography, University of Washington, 1964, p. 105.

<sup>8</sup>J. Brunhes, Human Geography. Translated by I.C. Le Comte (New York: Rand McNally and Co., 1920), p. 605.

concluded that the concept of space in human geography must include not only geographic space but also the image men have of geographic space. Together, these constitute social space which,

As with space in general...has the three fundamental characteristics of configuration, localization and division. Its unique feature, however, arises from its psychic component--the fact that its actual nature and contours are determined solely by the perception of space held by particular social groups. 9

The distinction, implicit in this definition, between geographic space and the image of geographic space, was formalized by P. Chombard de Lauwe when he distinguished between objective social space,

...the spatial framework in which an individual, group or larger mass of humanity evolves and whose structures are governed by ecological and cultural factors, 10

and subjective social space, space as perceived by an individual or group.

Objective social space does not consist of the entire geographic space surrounding a group. It is defined by a network of relationships with some "privileged points." The network is made up of such relations as those with family and friends, and those of work and leisure. These relations generate activities which focus upon the nodes or "privileged points" of home,

---

<sup>9</sup>A. Buttimer, op. cit., p. 231.

<sup>10</sup>M. Sorre, Rencontres De La Géographie Et De La Sociologie, (Paris: Librairie Marcel Rivière Et Cie., 1957) p. 109.



the residences of friends and relatives, the place of work, the cinema, the church, and many more. In the course of these activities, the individual acquires his most basic knowledge of geographic space which, in turn, provides most of the stimulus information upon which his perceptions are based. Thus, subjective social space, while conceptually distinct, is intimately connected to objective social space.

Social space can be mapped but any attempt to do so must take account of variations in density deriving from the variable intensity of relationships. Thus, if contours were to be employed, the first, "highest", contour representing the strongest relations, would encompass the nodes of the individual's daily activities. A second, "lower," contour would enclose his weekly activities and so on to the most diffuse and spatially extensive social space based upon his relations with all other men to whom he feels tied by similarity of beliefs--religious, class, national or other. Social space, therefore, can be conceptualized as a hierarchy of varying intensity and spatial extent ranging from the local neighbourhood to include the entire world for, as Sorre points out, "...one cannot exhaust the extent of...social space."<sup>11</sup>

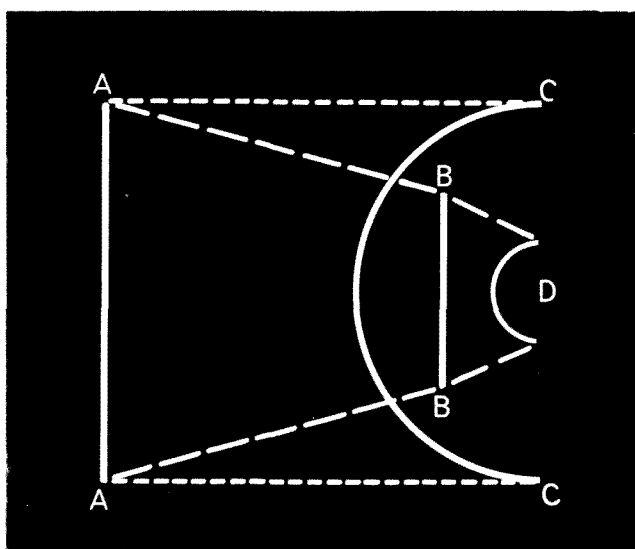
One further quality of social space remains to be mentioned. Subjective and objective social space as described so far, appear to be connected by a one-to-one relationship. This is not the case. A "distorting" factor enters into this relationship

---

<sup>11</sup>Ibid., p. 113.

for, as Chombard de Lauwe points out, a person's perceptions of space are affected by his hopes, desires and motives.

Amongst English-speaking geographers, the work of W. Kirk was probably the first significant attempt at explicit analysis of human behaviour and its relations with the geographic environment.<sup>12</sup> Kirk, in searching for an alternative to the dualistic approach of possibilism which conceptualized man and nature as entirely separate entities, turned to Gestalt psychology. From the work of K. Koffka, he obtained the concept of the behavioural environment which he explained in the following way:



<sup>12</sup>W. Kirk, "Historical Geography and the Behavioral Environment," Indian Geographical Journal: Silver Jubilee Volume, (1951), pp. 152-160.

W. Kirk, "Problems of Geography," Geography, Vol. XLVII (1963), pp. 357-371.

If 'A' represents the physical environment including both the physical and cultural landscapes, and 'C' represents the human group or individual present in this environment, the physical state of 'C' will depend in part on the character of 'A', but any action of 'C' in this environment will commence in the relief of stresses in an internal environment 'B' which are as much a product of the group culture 'D' as the act of observation of the physical environment. This internal environment we may call the 'Behavioural Environment' and in this environment the gap is closed between Mind and Nature. ...it is in this behavioural environment that physical features acquire values and potentialities which attract or repel human action. 13

The behavioural environment, then, is an "image" of the external environment produced by the interaction of that same environment and the group culture. It is, therefore, similar in certain respects to Sorre's social space. Both concepts refer to the fact that human action is guided not by the external environment but by a "distorted" psychological representation of it.

In the last part of Kirk's explanation it should be noted, he derives conceptually a conclusion which Firey has verified empirically, namely, that by the process of this psychological interaction, landscape features may acquire properties or "values" in addition to their inherent ones. In other words, they may be symbols.

Harold and Margaret Sprout, working in the field of international politics, found it necessary to incorporate human psychological processes into their assumptions about human behaviour. Their thesis of cognitive behavioralism states that,

---

<sup>13</sup>W. Kirk, op. cit., p. 159.

"...a person consciously responds to his milieu as he apperceives it (that is, as he perceives and reacts to it)."<sup>14</sup> Thus, a distinction is made between the psycho-milieu, "...the milieu as it is perceived and reacted to by a particular individual," and the operational or geographical environment.<sup>15</sup> Not all of the external environment is perceived because perception is a selective process which is guided by a person's "values and other psychological predispositions."<sup>16</sup> The similarity between the Sprout's conception of human behaviour and those of Sorre and Kirk is obvious.

Cognitive behavioralism was the conceptual approach employed by T.F. Saarinen in his study of the role of perception in resource use on the Great Plains for,

Since a person's actions vis-a vis the environment are assumed to depend on his perception of the environment it becomes important to find out just how it is perceived. 17

Another geographer who has addressed himself to the problem is D. Lowenthal who, drawing information from many disciplines, set out to examine the nature of the "...pictures in our heads," the images and ideas about the world that are possessed by all human beings.<sup>18</sup> These, he concludes, are "...compounded...of

---

<sup>14</sup> Sprout and Sprout, op. cit., p. 118.

<sup>15</sup> Ibid., p. 28.      <sup>16</sup> Ibid., p. 118.

<sup>17</sup> T.F. Saarinen, Perception of the Drought Hazard on the Great Plains (Chicago, Illinois: University of Chicago, Department of Geography, Research Paper No. 106, 1966), p. 26.

<sup>18</sup> D. Lowenthal, "Geography, Experience and Imagination: Towards A Geographical Epistemology," Annals, Association of American Geographers, Vol. 51 (1961), p. 241.

personal experience, imagination and memory,"<sup>19</sup> with the result that, "The surface of the earth is shaped for each person through cultural and personal lenses of custom and fancy."<sup>20</sup>

P. Gould, in a recent work has stated that,

...many of the decisions that men make seem to be related, at least in part, to the way in which they perceive the space around them and to differential evaluations they place upon various portions of it. 21

They possess, in this author's view, representations or views of geographic space called "Mental Maps."

The statements in this review, while by no means exhaustive of those on the topic, are representative of the radical change which has taken place in cultural geographical thinking in the last twenty years.<sup>22</sup> However, before a critical analysis of them can be undertaken, it will be necessary to attempt to extract their common elements and to reconcile differences which may appear to be fundamental but are, in fact, largely of terminology.

In general terms, the collective position of these authors is that, for cultural geography, the study of the external or

---

<sup>19</sup>Ibid., p. 260.

<sup>20</sup>Ibid., p. 260.

<sup>21</sup>P. Gould, "On Mental Maps," University of Michigan, Michigan Inter-University Community of Mathematical Geographers, Discussion Paper No. 9, September, 1966, p. 2.

<sup>22</sup>Other theories have been employed. See, for example, J. Sonnenfeld, "Variable Values in Space and Landscape: An Inquiry Into the Nature of Environmental Necessity," Social Issues, Vol. 22 (1966), pp. 71-82.

'real' world has declined in importance. The rationale behind it is well rendered by Lowenthal when he says,

...in daily practice we all subordinate reality to the world we perceive, experience and react in. We respond to and affect the environment not directly, but through the medium of a personally apprehended milieu. 23

It is a contention of this researcher that Lowenthal's "personally apprehended milieu" is more or less equivalent in meaning to the behavioural environment, social space, psycho-milieu and mental map. All of these terms appear to refer, explicitly or implicitly, to the fact that, through the operation of some process, interaction takes place between the environment and the individual's psychological state (his needs, attitudes, values and the like) to produce an "image" which constitutes his personal representation of reality.

Much, if not all, of human behaviour, according to this view, is made up of responses to the image and, to the extent that the image varies from person to person, so does behaviour. Variation in the image results from two factors: the act of observation is guided by "values and other psychological predispositions" and is, therefore, selective, and observed objects are symbols, that is, they have acquired significance or meaning in previous experience so that, to the extent that each individual's experience is different, so is his interpretation

---

<sup>23</sup>D. Lowenthal (ed.), Environmental Perception and Behaviour (Chicago: University of Chicago, Department of Geography, Research Paper No. 109, 1967), p. 1.

of the meaning of objects.<sup>24</sup>

However, as values, other psychological predispositions and symbols are often considered to constitute part of the culture of a group and insofar as the members of a cultural group inhabit the same environment, their images show a certain degree of similarity. In other words, a cultural group possesses a collective image of the environment which guides its behaviour in it and serves to distinguish it from other cultural groups.

One item has been omitted from the above discussion, namely, consideration of the process or processes underlying image formation. This has been left until last because difficulties arise over the terminology used by the various geographers. However, in spite of the fact that they are not defined, a close examination reveals that terms such as perception, apperception and apprehension, different but related psychological concepts, are essentially similar in usage in the works cited above.

Sprout and Sprout state that,

A person's values and other psychological predispositions direct his attention selectively to certain features of his milieu; and he interprets what he selectively perceives in the light of conscious memories and unconscious stored experience. 25

---

<sup>24</sup>Sprout and Sprout, op. cit., p. 118.

<sup>25</sup>Loc. cit.

Gould and Kirk also note that objects are not only perceived but also evaluated and Lowenthal refers to the "personally apprehended milieu." According to these authors, then, image formation depends upon both perception of the environment and upon the interpretation or evaluation of what is perceived, that is, upon his cognition of the situation in which he is placed.<sup>26</sup>

In conclusion, the geographical statements reviewed above exhibit many of the characteristics of what is known in psychology as cognitive theory. An assessment of them must, therefore, commence with an examination of this theory. However, as will become apparent, it is impossible to do this in isolation so that other theories of behaviour must inevitably be included in the discussion.

### Psychological Theories of Behaviour

Theories of human behaviour must, to a great extent, be theories of learning for, as Dollard and Miller point out,

Human behavior is learned; precisely that behavior which is widely felt to characterize man as a rational being, or as a member of a particular nation or social class is acquired rather than innate. To understand thoroughly any item of human behavior...one must know the psychological principles involved in learning and the social conditions under which the learning took place. 27

---

<sup>26</sup>Cognition has been defined as, "a general concept embracing all forms of knowing. It includes perceiving, imagining, reasoning, and judging." J.P. Chaplin, Dictionary of Psychology (New York: Dell Publishing Company, 1968), p. 87.

<sup>27</sup>N.E. Miller and J. Dollard, Social Learning and Imitation (New Haven: Yale University Press, 1941), p. 1.



At the least, learning enters into all higher behavior, so that we must understand it thoroughly before we will understand human beings. 28

The crucial test of a theory of human behaviour, then, is its success in dealing with the problem of learning.

There are two main families of learning theory in psychology; stimulus response and cognitive. Stimulus response theorists believe, basically, that learning takes place through the linking of a stimulus with a response, the connection so formed being strengthened through repetitions accompanied by reinforcement.<sup>29</sup> In contrast to this "gradualness," cognitive theory is generally based upon the notion that, "the acquisition of whatever is learned will be a fairly sudden, discontinuous process."<sup>30</sup>

In more detail, there are, according to Hilgard, and Bower, three major differences between S-R and cognitive theories in the interpretation of accepted "facts" of human behaviour.<sup>31</sup> The first concerns whether the integratory mechanisms of behaviour are peripheral (referring to receptor surfaces) or central (involving brain processes or thought). S-R theorists

---

<sup>28</sup>D.O. Hebb, A Textbook of Psychology (Philadelphia: W.B. Saunders Company, 1966) p. 6.

<sup>29</sup>Reinforcement is defined as, ". . . any event following a response that increases the probability that the response will be made again when the same situation occurs." D.O. Hebb, op. cit., p. 337.

<sup>30</sup>F.H. Allport, Theories of Perception and the Concept of Structure (New York: John Wiley and Sons, 1955), p.443.

<sup>31</sup>E.R. Hilgard and G.H. Bower, Theories of Learning, (New York: Century-Appleton-Crofts, 1966).

favour the former and envisage behaviour as consisting of some type of chained muscular responses, while cognitive theorists infer central brain processes such as memories and expectations as integrators.

The second major difference stems from different positions about what is learned. According to S-R theory, learning involves the acquisition of "habits", that is, responses while the cognitivists believe that it involves the acquisition of cognitive structures or facts.

The last point of controversy concerns how, when presented with a new problem, the learner reaches a solution. In this situation, S-R theory holds that the learner brings his past experience to bear upon the problem and,

...responds either according to elements that the new problem has in common with familiar ones, or according to aspects of the new situation which are similar to situations met before. 32

If this is not successful, trial and error are brought into play and the individual tries successive responses in his behavioral repertory until the problem is solved. In contrast, the cognitive theorists maintain that there is a possibility that the learner may not recognize the problem in the presented form and, therefore, may not be able to bring his past experiences to bear upon it. However, the presentation of the problem in another form could, "...permit a perceptual structuring leading

---

<sup>32</sup>Ibid., p. 10.

to 'insight', that is, to understanding of the essential relationships involved."<sup>33</sup>

Based upon these differences in interpretation there arose in psychology two extreme positions on the problem of learning, one of which held that all human learning involved thought processes, the other that it could be accounted for by the simple S-R formula. These positions, however, are no longer held and according to Hebb, "...this question is no longer a matter for debate. Some learning is cognitive, some is not"<sup>34</sup>. If this is the case, a theory of behaviour should attempt to account for both types of learning. Theories of this type exist but they have been exclusively framed according to the principles of S-R theory and employing one of them involves, therefore, an implicit rejection of cognitive theory. This choice should not be taken as an indication that the researcher believes cognitive theory to be totally "wrong" for, as Hilgard and Bower point out, much of the interpretation involved in the study of learning depends upon inferences from observed behaviour which are not directly verifiable.

There is, however, one criticism of cognitive theory which is valid. It relates to its use in social psychology and social disciplines like human geography as a theory of behaviour rather than of learning. In the discussion on geographical statements on the topic it was seen that the rationale was that

---

<sup>33</sup>Ibid., p. 10.

<sup>34</sup>D.O. Hebb, op. cit., p. 102.

cognitive structures (the image) determine or guide human behaviour. This, however, is an assumption which is not supported by any postulations about how it could occur. In other words, cognitive theory has been relatively unconcerned about the physiological mechanisms by which perception and cognition could conceivably operate through motor channels to affect overt behaviour. This criticism, on the other hand, does not apply to S-R theory for this has always been concerned with learning, not in itself, but as a determinant of behaviour.

The assumptions held by geographers concerning human behaviour are, for the reasons described above, rejected. In the following section an alternative, consistent with the principles of S-R theory, will be described in the belief that it provides a more complete account of human behaviour.

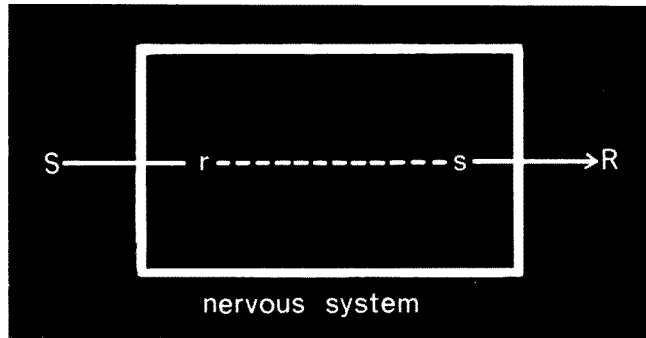
#### Osgood's Model

In its original form, S-R theory emphasized the accurate measurement of stimuli and responses in an attempt to establish empirical laws relating input and output events. In so doing, it renounced all mentalistic concepts such as "mind" and "thought". In other words, no assumptions were made as to how the nervous system operated, and this type of psychology became known as "empty organism psychology." However, several psychologists have realized that all human behaviour cannot be framed in simple S-R terms. These "mediation psychologists" have attempted to incorporate cognitive processes into their

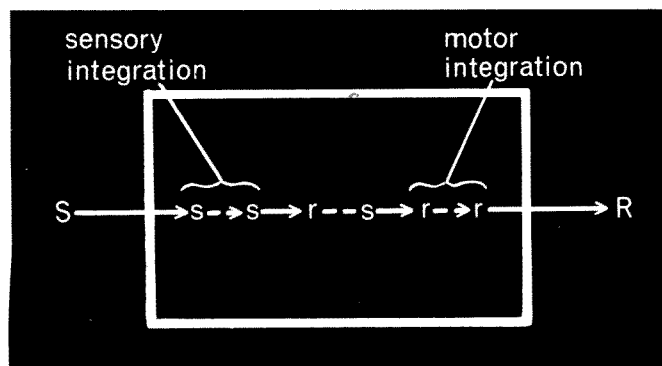
theories by postulating intervening, mediating processes in the nervous system between stimulus and response.

There are several variants of this type of psychology by such authors as Hull, Hebb and C.E. Osgood, but this researcher is not in a position to discuss relative advantages and disadvantages because he has not undertaken an exhaustive examination of them. The theory which will be employed in this research was constructed by C.E. Osgood. It is one with which the researcher became acquainted in the course of a seminar on the topic of social conflict at Simon Fraser University where it was discussed with participants from other disciplines, notably psychology and education. This choice, therefore, is a subjective one, for while it is believed that Osgood's theory can be usefully employed in this research, there is no guarantee that it is "better" than some other theory of the same type.

From his work on linguistics C.E. Osgood has developed a model which attempts to overcome what he considers to be three major insufficiencies of the single stage S-R model, namely the inability to account for perception, motor skills, and symbolic processes. Briefly, symbolic processes are explained by postulating a two-stage mediating process which, it is assumed, is governed by the same laws as single stage S-R processes. This situation can be represented diagrammatically in the following way:



Perception and motor skills are accounted for by postulating "central integration" of neural events on both input (perception) and output (motor skills) sides of the S-R formula as follows:



Clearly, the model not only covers the same behavioural "ground" as those described by the geographers mentioned previously but also, in taking account of motor skills, overcomes one of their major deficiencies. It will be discussed in more detail but first it is probably advisable to review the basic principles of S-R theory as stated by Osgood.

The Basic Principles of S-R Theory. In the interests of parsimony the seven basic principles will be reiterated here without comment. It is hoped that their meaning will become clear in the following discussion.

Contiguity: "In general, the closer in time the occurrence of a stimulus event and a response event, the greater the increment in their association."

Summation: "...successive increments in the association of a stimulus event with a response event summate to yield habit strength."

Generalization: "...the habit strength generated between a stimulus event and a response event generalizes to other stimulus and other response events, the amount of such generalized habit strength being a function of a) the similarity between directly associated events and b) the strength of the original association."

Motivation: "...motivation combines multiplicatively with habit strength to yield performance."

Reinforcement: "...the size of the increment in association between a stimulus event and a response event varies inversely with the time interval between association and a reinforcing state of affairs and directly with the amount of reinforcement."

Inhibition: "...the execution of any response produces an increment of inhibition toward making that response, such in-

hibition increasing with the effortfulness of the response and dissipating spontaneously with rest."

Selection: "...in general, whenever two or more responses have been associated with a common stimulus, the reaction having the momentarily strongest habit strength will occur." A divergent hierarchy exists where, "...a number of incompatible reactions are associated with a common stimulus," a convergent hierarchy, "when a number of stimuli are associated with a common reaction."<sup>35</sup>

In broad outline, the model consists of two stages and three levels of organization. The two stages are: decoding, "...the total process whereby physical energies in the environment are interpreted by the organism,"<sup>36</sup> and encoding, "the total process whereby the intentions of the organism are expressed and hence turned again into environmental facts."<sup>37</sup> Decoding and encoding occur at all three levels of organization, termed respectively, projection, integration and representation.

The Projection Level. In the projection system, the peripheral apparatus of the organism<sup>38</sup> is connected isomorphically<sup>39</sup> by a "neural relay mechanism" to the central nervous system. These

---

<sup>35</sup>These principles are enunciated more fully by C.E. Osgood, "Behaviour Theory and the Social Sciences," Behavioural Sciences, Vol. 1 (1956), pp. 167-185.

<sup>36</sup>C.E. Osgood, "A Behaviouristic Analysis of Perception and Language as Cognitive Phenomena," in R.J.C. Harper, et al. (eds.) The Cognitive Process: Readings (Englewood Cliffs: Prentice Hall Inc., 1964), p. 185.

<sup>37</sup>Ibid., p. 185.



connections, between receptors and sensory cortex and between muscle cortex and effectors are "wired in" and are, therefore, unmodifiable by learning. Also at this level, stimulus events are associated with specific response events and these connections can be either innate or acquired, the former being known as unconditioned reflexes, the latter as conditioned reflexes. Behaviourally, then, the projection system is of little interest because it is not a source of variation. It does, however, remain important by providing a biological basis for the other two levels.

The Integration Level. Beyond the projection system, isomorphism breaks down and learning rather than "wired in" connections form the basis of organization. Perception and motor skills are accounted for at the integration level as integrations between, respectively, sensory events (S-S associations) and response events (R-R associations). Sensory integration occurs according to the following principle:

---

<sup>38</sup>There are two groups of peripheral apparatus: receptors or sensory cells and; effectors or muscle cells or cells in glands of external secretion. D.O. Hebb, op. cit., pp. 337-338 respectively.

<sup>39</sup>That is, "...the peripheral apparatus of the organism is 'mapped' rather precisely onto the cortex," C.E. Osgood, "The Motivational Dynamics of Language Behavior," in M.R. Jones (ed.) Nebraska Symposium on Motivation (Lincoln, Nebraska: University of Nebraska Press, 1957), p. 350.

...the greater the frequency with which stimulus events A and B have been paired in input experience the greater will be the tendency for the central neural correlates of one, a, to activate the central neural correlates of the other, b. 40

The equivalent principle of motor integration would refer to, "motor events A and B in output experience."

The strengths of alternative sensory or motor integrations, then, depend primarily upon the frequency of pairing of stimulus or response events in the past experience of the organism. Osgood recognizes two orders of frequency. Firstly, he suggests that,

...with high frequency of stimulus or response pairing, occurrence of the central correlates of one will become a sufficient condition for the occurrence of the central correlates of the other. 41

The behavioural significance of this evocative integration is that when, as is usually the case, the environment is scanned rapidly and incompletely, the perceived sub-set of sensory signals, "...will be sufficient to produce, at the integration level, the complete pattern."<sup>42</sup> For example, although only parts of a long city street, such as important intersections and distinctive buildings, are perceived, they form the basis for the integration of the complete pattern of the street.

---

<sup>40</sup>C.E. Osgood, "Behaviour Theory and the Social Sciences," p. 176.

<sup>41</sup>C.E. Osgood, "Motivational Dynamics of Language Behaviour," p. 352.

<sup>42</sup>Ibid., p. 352.

This phenomenon is well known to psychologists under the name "closure". In encoding, evocative integrations explain such features as the finger coordinations employed in typing.

Predictive integrations, on the other hand, occur under the following circumstances:

With a lower frequency of stimulus or response pairing, occurrence of the central correlate of one will merely 'tune up' or facilitate occurrence of the central correlate of the other. 43

As a result, stability is provided in encoding or decoding so that, "Perception of certain cues increases the probability of also perceiving other cues in competition with many simultaneous stimulating events."<sup>44</sup> For instance, seeing a falling object is predictive of hearing a noise when it hits the ground. Also, "Initiating certain reactions increases the probability of initiating other reactions again in competition with many simultaneous reaction tendencies."<sup>45</sup> Lighting a cigarette, for example, is predictive of blowing out the match.

Two further factors, temporal contiguity and spatial propinquity, affect the strengths of integrations. However, since these are of minor importance in comparison with frequency of pairing, they will not be discussed here. Suffice it to say that their operation tends to result in predictive rather than evocative integrations.

---

<sup>43</sup> Ibid., p. 352.

<sup>44</sup> Ibid., p. 353.

<sup>45</sup> Ibid., p. 353.

In summary, the major function of mechanisms operating at the integration level is to provide a means of integrating, respectively, input and output events. This is not all, however, for at this level, as at the projection level, stimulus events are associated with response events. Again, these associations may be either innate, as in the case of sex behaviour, or acquired, as in the case of "sensory-motor skills" such as typing which, "...initially organized on the 'voluntary level' will, if repeated sufficiently, become autonomous integrations.<sup>46</sup>

The Representation Level. The most important mechanism for associating stimulus and response events is via the two-stage mediating process mentioned previously.

The essential notion here is that in the course of associating external stimuli with overt behaviour some representation of this overt behaviour becomes anticipatory, producing self-stimulation that has a symbolic function. 47

Osgood regards this as the usual form of S-R learning and, as we have seen before, employs it as a basis for a theory of what is variously known as symbolic behaviour, sign behaviour or cognition.

A succinct definition of symbolic behaviour is presented by E.L. Hartley:

---

<sup>46</sup>Ibid., p. 353.

<sup>47</sup>C.E. Osgood, "A Behaviouristic Analysis of Perception and Language as Cognitive Phenomena," p. 194.

symbolic behaviour is possible because stimuli can be responded to for the significances they have acquired in previous experience so that it is possible to speak of the representational nature of stimuli and response patterns. 48

Osgood's explanation of how this significance is acquired is based upon a conditioning principle explained as follows. A significate is defined as, "...any stimulus that, in a given situation, reliably elicits a predictable pattern of behaviour."<sup>49</sup> Stimuli having this characteristic can be either unconditioned or conditioned. The conditions under which a pattern of stimulation can become a sign, then, are the following:

Whenever a non-significate stimulus is associated with a significate, and this event is accompanied by a reinforcing state of affairs, the non-significate will acquire an increment of association with some fraction of the total behaviour elicited by the significate. 50

Such fractional behaviour is called a "representational mediation process; representational, "...because although now elicited by another stimulus it is part of the behaviour produced by the significate itself,"<sup>51</sup> and mediational, "...because the self-stimulation it produces can become associated with various overt responses appropriate to the object signified."<sup>52</sup> Osgood offers

---

<sup>48</sup>J. Gould and W.L. Kolb, op. cit., p. 711.

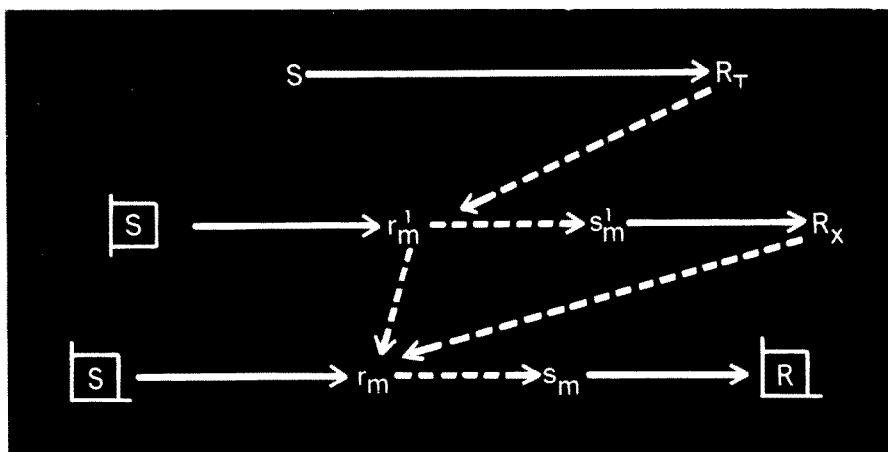
<sup>49</sup>C.E. Osgood, op. cit., p. 194.

<sup>50</sup>Ibid., p. 194.

<sup>51</sup>Ibid., p. 195.

<sup>52</sup>Ibid., p. 195.

an example of the development of a sign for a child with respect to the object BALL, which helps to clarify the position.



In the above diagram, S represents those stimulus characteristics of the ball, such as resilience, shape and weight, which reliably produce certain behaviour such as grasping, bouncing and squeezing represented by  $R_T$ . According to Osgood's hypothesis, the sight of the ball as a visual sensory integration, initially meaningless, will come to elicit some distinctive portion of the total behaviour to the object as a representational mediation process ( $r'_m \text{ --- } s'_m$ ) and the visual pattern, therefore, becomes a perceptual sign ( S ), signifying the object BALL.

Thus,

Long before the child begins to use language, most of the sensory signals from its familiar environment have been lifted from their original Jamesian chaos, have become perceptual signs of objects by virtue of association with representational portions of the same behaviour the objects themselves produce. 53.

<sup>53</sup> Ibid., p. 196.

Perceptual signs, Osgood points out, bear a necessary physical relation to the objects they signify. Linguistic signs, on the other hand, bear an arbitrary relation. Their development is a result of the fact that parents, when interacting with the child, "...vocalize those lexical items in their language code which refer to the objects being used and the activities underway."<sup>54</sup> The child, therefore, is likely to hear the noise "ball", a linguistic sign  $S$ , in frequent and close contiguity with the visual perceptual sign of the object." From the diagram it can be seen that the linguistic sign acquires as its own mediation process ( $r_m \text{ --- } s_m$ ), some part of the total behaviour elicited by the perceptual sign. "Thus a socially arbitrary noise becomes associated with a representational process and acquires meaning."<sup>55</sup> In the interests of brevity, the development of instrumental and linguistic encoding will not be discussed here but it should be remembered that this is as important to behaviour as occurrences on the decoding side of the model.<sup>56</sup>

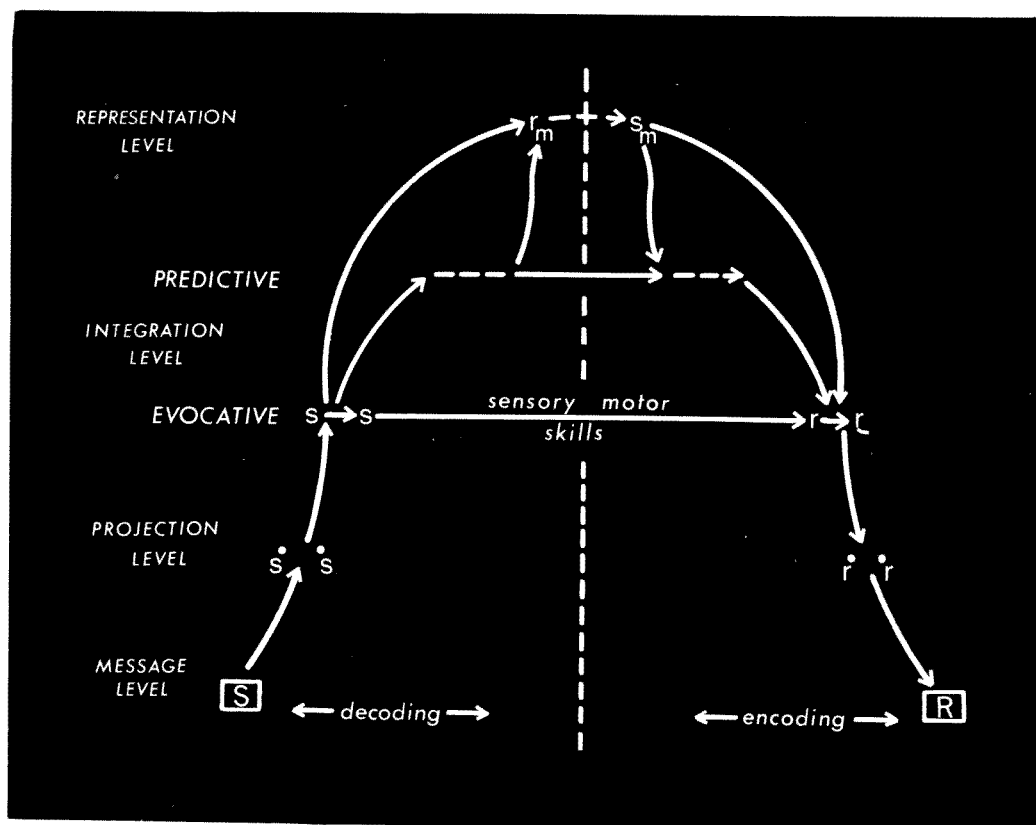
This description of the basic mechanisms and functions of the three levels and two-stages of the model allows a summary of the total model which is represented below in diagrammatic form.

---

<sup>54</sup> Ibid., p. 196.

<sup>55</sup> Ibid., p. 196.

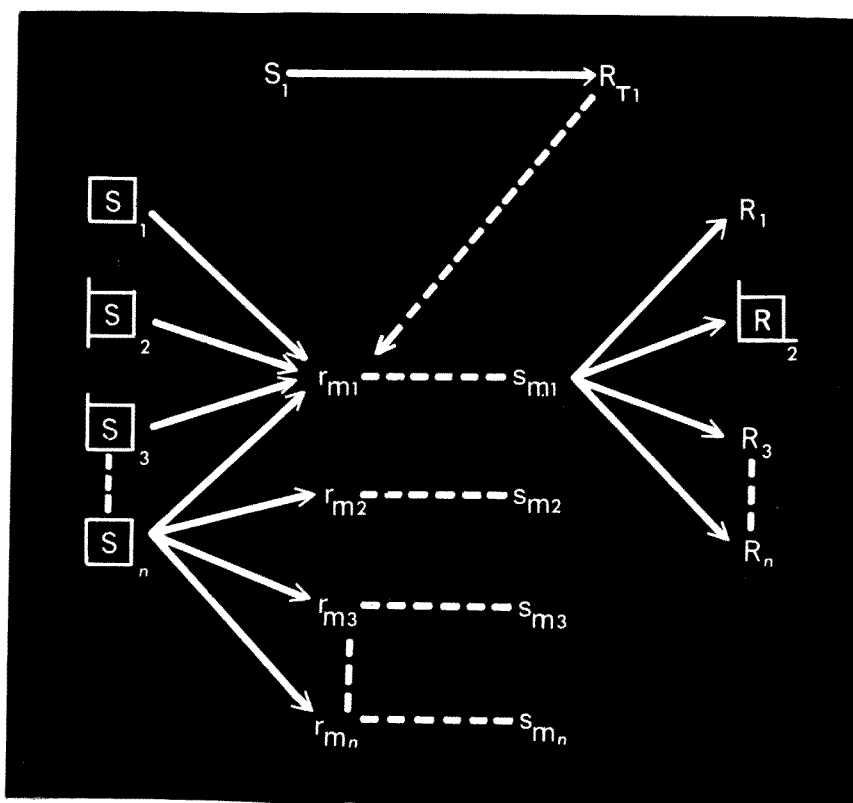
<sup>56</sup> A description of the development of instrumental and linguistic encoding can be found in Ibid., pp. 196-97.



The model, however, is actually more complex than indicated above for there exist, at the integration and representation levels, behavioural alternatives of varying probabilities.

Hierarchies of Alternatives. The situation at the representation level is shown in the diagram below.





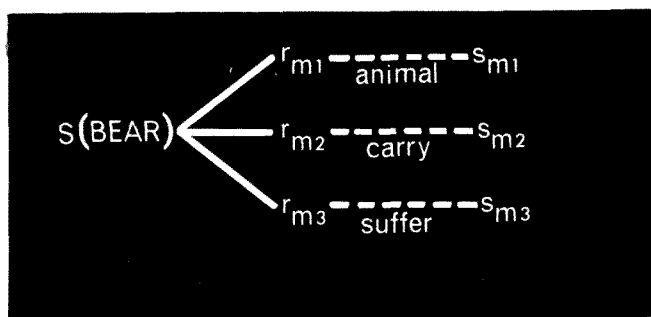
...whenever various stimuli ( $\bar{S}_1, \bar{S}_2, \bar{S}_3 \dots \bar{S}_M$ ) accompany the same significate ( $S_1$ ), they must become associated with a common mediation process ( $r_{m1} \dots s_{m1}$ ) and hence acquire a significance. 57

Thus, a certain part of a street, an adjoining building, even a characteristic smell, can all become signs of a particular building in the city. This is a convergent hierarchy of signs

<sup>57</sup> Ibid., p. 197. Brackets added.

with the same significance but, to the extent that they have varied in frequency of pairing with the common significate they have varying strengths or probabilities. On the right hand side of the diagram, there is a divergent hierarchy of instrumental acts associated with the same mediator and arising from a situation where a number of different overt responses are reinforced in association with a particular sign or class of signs. These acts also vary in their habit strengths or probabilities and selection amongst them depends particularly upon contextual cues.

A third situation may arise when, as shown on the lower left of the diagram, a sign becomes associated with a divergent hierarchy of mediators. An extreme example, from language, is a word like "bear".



Selection amongst the various alternatives, it can be seen, again depends upon context for, as the remainder of the sentence is revealed, the meaning of the sign will become apparent.

Both divergent and convergent hierarchies occur also at the integration level. If, for example, an incomplete pattern of sensory stimulation is presented to the visual system, it, "...might tend to be integrated toward perception of (more than

one object) in proportion to the frequencies with which these alternatives have occurred in past experience!"<sup>58</sup> There exists, therefore, a divergent and competitive hierarchy from which the most probable integration, based upon past experience of pairing, will be "chosen" and the choice will extinguish all other alternatives. However, if more information is given, "...the probabilities of some alternatives are lowered and those of others raised."<sup>59</sup> In other words, context has been widened, ambiguity reduced, and a convergent hierarchy exists. Thus, "choice" is facilitated.

The effects of habit strength and context, it should be noted, can be overcome by a further group of variables, including motives, known as antecedent conditions. Take, for example, a shy person who rarely initiates conversations with strangers and who, as a result, normally sits by himself in a bar. A situation may arise where he feels extremely lonely and the drive<sup>60</sup> to overcome this condition may be sufficiently strong to upset his "normal" behaviour with the result that he may attempt to make contact with other persons. As this research is not concerned with individual variations in behaviour,

---

<sup>58</sup>C.E. Osgood, "Motivational Dynamics of Language Behaviour," p. 359.

<sup>59</sup>Ibid., p. 361.

<sup>60</sup>Drives are defined as "...stimuli which have their origins within the organism and which, as they vary in intensity with conditions of 'need', are responsible for variations in primary motivations," Ibid., p. 369.

however, the effects of antecedent conditions will not be considered.

Mediated Generalization and Transfer. The availability of behavioural hierarchies permits two extremely important aspects of behaviour called mediated generalization and transfer.

Mediated generalization occurs,

If to a particular sign having a certain significance, the subject learns a new instrumental adjustment (it) immediately becomes available to any other sign having the same significance. <sup>61</sup>

Thus, if a person has a fear of, for instance, automobiles, his response will be consistent to all automobiles, regardless of size, shape or color. On the other hand, if a novel set of sensory signals acquires a certain significance, "...all the previously learned instrumental acts associated with this significance immediately become available to this new sign".<sup>62</sup> This is mediated transfer and it would come into operation when, for instance, a person moves from one city to another. Once he had established the significance of new buildings and streets, the responses made to the environment of his previous home would be brought to bear.

Primary and Secondary Learning. On the basis of this model of human behaviour, Osgood draws a distinction between primary and

---

<sup>61</sup>C.E. Osgood, "A Behaviouristic Analysis of Perception and Language as Cognitive Phenomena," p. 198.

<sup>62</sup>Ibid., p. 198.

secondary learning.

Primary learning would involve the original formation of sensory integrations (perceptions), motor integrations (skills), and representational processes (meanings); such learning is the daily work and play of the growing child. 63

Secondary learning, on the other hand, is characteristic of adults and involves, "...nothing more than the associative re-shuffling of signs with mediators and of mediators with instrumental acts".<sup>64</sup> It can involve a change in the meaning of a symbol, that is "in the significance of a sign" or a change in the response made toward that symbol, that is, in "instrumentation."

What is suggested, in other words, is that the average mature individual (human or animal) engages in very little 'new' learning, very little in the way of forming new perceptual integrations, new skills or even new meanings--he has the familiar physical and social world pretty well organized with respect to himself. 65

As a result of primary learning, then, the mature individual has at his disposal a number of relatively unchanging hierarchies of alternatives of decoding and encoding at integration and representating levels which constitute his behavioral repertory.

---

<sup>63</sup>C.E. Osgood, "Behaviour Theory and the Social Sciences," p. 181.

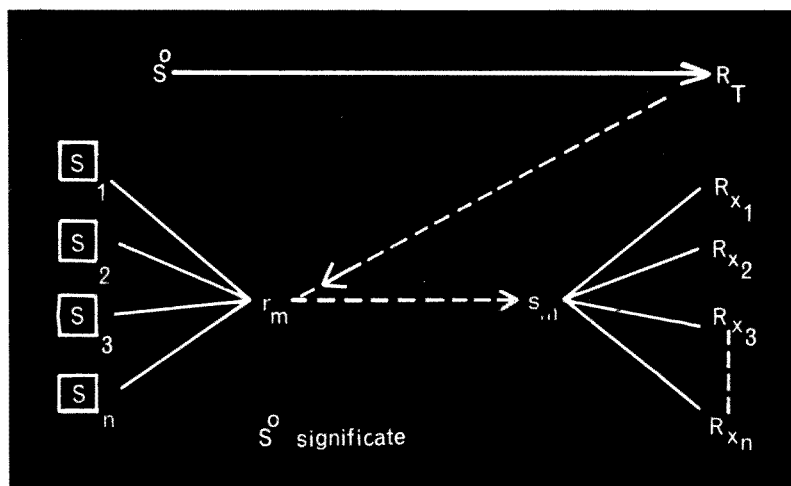
<sup>64</sup>Ibid., p. 180.

<sup>65</sup>Ibid., p. 181.

Before concluding discussion of Osgood's model, the question of variation and consensus in behaviour must be discussed for this research is concerned with the human being, not as a unique personality, but as a member of a group inhabiting a specific geographic environment.

Culture, Subculture and Behaviour. Osgood deals briefly with the question of similarity in behaviour amongst the members of a culture:

...when the members of a society share as a result of common experience and training, a mediational mechanism as shown (below), I think we may speak of a culture trait. 66



In the diagram,  $r_m \text{ --- } s_m$  represents a significance which "...renders equivalent a class of stimulus situations and a

<sup>66</sup> Ibid., p. 185.

class of behaviours...." and, when this is shared by the members of a society, a culture trait exists.<sup>67</sup>

An example of such a culture trait with respect to the geographical environment has been noted by D. Lowenthal. In North America, one aspect of environmental perception is that the landscape is perceived, not only as it is today but also as it will be tomorrow.<sup>68</sup> This "shared significance" gives rise to a collective response which is characterized by the endurance of, for instance, unsightly vacant lots in the central areas of many North American cities, in the anticipation of future development. Osgood also offers an example of a culture trait with respect to landscape which occurs in societies in which the members,

...agree in perceiving spirits in natural objects like trees and lakes and agree in behaving appropriately towards those objects by ceremonial avoidance of some, giving offerings to others, talking about them with animistic terms and so on....<sup>69</sup>

Osgood has developed, then, an acceptable psychological definition of culture trait but the question arises as to how it can be applied to the study groups of this research which are essentially social class groups.

The anthropologists Kroeber and Kluckhohn give an indication as to how this problem may be solved:

---

<sup>67</sup>Ibid., p. 185.

<sup>68</sup>D. Lowenthal, Lecture delivered at Simon Fraser University, Burnaby, B.C., November 7th, 1967.

<sup>69</sup>C.E. Osgood, op. cit., p. 185.

The lines of demarcation of any cultural unit chosen for description and analysis are in large part a matter of levels of abstraction and of convenience for the problem at hand. Occidental culture, Graeco-Roman culture, nineteenth century European culture... - these are all legitimate abstractions if carefully defined. 70

The study "units" of this research are social-class groups. Are these cultural units? If they are, at what level of abstraction can they be most usefully studied?

Sociologist J.A. Kahl has written that,

To the extent that different classes live separately, they develop recognizable subcultures with values that give a special and unique flavour to life. 71

Similarly, H. Gans has stated that,

(Other sociologists) see classes...as strata in larger society each of which consists of somewhat--but not entirely--distinctive social relationships, behaviour patterns and attitudes. The strata thus are composed of subcultures and sub-social structures. 72

Anthropologist J. Steward in a study of "national culture" notes that the individual member's,

---

<sup>70</sup>A.L. Kroeber and C. Kluckhohn, Culture, A Critical Review of Concepts and Definitions (New York: Vintage Books, 1963), p. 367.

<sup>71</sup>J.A. Kahl, The American Class Structure (New York: Holt, Rinehart and Winston, 1962), p. 186.

<sup>72</sup>H. Gans, op. cit., p. 243.



...non-economic daily activities are normally carried out within the context of a fairly small segment of society that consists of people substantially like himself and who therefore may be said to have a subculture. 73

It may also be pointed out that such activities are also restricted to "a fairly small segment" of the geographical environment so that subcultures are, to some extent, "segregated" in space.

The national culture, Steward maintains, is partly made up of these sub-cultures or socio-cultural segments<sup>74</sup> which he groups into two types: vertical cleavages which are "...locally distinctive segments such as communities, rural neighbourhoods and ethnic minorities,"<sup>75</sup> and; horizontal cleavages "which separate segments following occupational or class lines and, in some cultures, caste lines."<sup>76</sup> The latter, he points out, may cross-cut the former with the result that similarities and loyalties may be stronger between members of the same horizontal segment in different communities than between members of different segments in the same community. Further, horizontal segments are arranged in a hierarchical order in accordance with

---

<sup>73</sup>J. Steward, Theory of Culture Change (Urbana: University of Illinois Press, 1963), p. 66.

<sup>74</sup>Ibid., p. 66.

<sup>75</sup>J. Steward, op. cit., p. 66.

<sup>76</sup>The national culture is not, however, simply an amalgam of its constituent segments for part of it consists of 'national patterns', those behaviour patterns, common to all members of a national culture, which are made up of formalized and stereotyped responses to national institutions such as the monetary, governmental and educational systems.

a system of differential social status and are, therefore, social classes in the sociological sense.

Clearly, a similar type of relationship as that between society and culture exists between social class and subculture. To return to Osgood's model, there exists a lower order or level of abstraction of common experience and training than that which results in culture traits. It is perhaps possible to say, therefore, that the members of a social class share mediation mechanisms and behaviour which differ from that of the members of other social classes or, in other words, they exhibit "subculture traits". The level of abstraction at which this research operates has thus been defined.

This, then, is Osgood's conception of human behaviour, one of the most developed of the mediation group which, in turn, includes the most comprehensive models of behaviour in psychology. Using it, certain hypotheses pertaining to subcultural differences in behaviour may be advanced and this will be done next. As a point of clarification, it should be noted that the following hypotheses are offered as predictions for subsequent testing.

#### Hypotheses.

From the statement of the problem and Osgood's theoretical statements about human behaviour, the following hypotheses may be advanced for testing:

1. The study groups will have significantly different perceptions of the city of Vancouver.
2. There will be significant differences in the connotative meanings of those objects which are perceived by both groups.

In the following chapter, the method by which these hypotheses were tested is described.

## CHAPTER III

### THE METHOD

#### General Approach to the Problem

Procedures were required by which the subjects' perceptions and the meaning of perceived landscape objects could be determined. The most likely discipline within which such procedures could be found appeared to be psychology but a problem arose for, as psychologist K.H. Craik has observed,

...scientific psychology...often has been willing to forfeit immediate attacks upon a whole range of significant and compelling human behavior. It has tended to concentrate its energies upon the study of basic, if apparently simple and inconsequential, processes and, perhaps more importantly, upon the development of a repertory of quantitative methods and techniques appropriate to the phenomena it ultimately seeks to investigate or understand. <sup>1</sup>

Thus, although the discipline of psychology possesses an immense and varied repertory of measurement techniques, none could be found which had been developed specifically with what Craik has termed the "everyday physical environment" in mind.

Perception studies have generally taken place in "controlled" situations where the choice of stimuli is determined by the researcher. As a result, the technique which was employed in testing the first hypothesis was one developed,

---

<sup>1</sup>K.H. Craik, "The Comprehension of the Everyday Physical Environment," Jour. Amer. Inst. of Planners, Vol. 34, 1968, p. 30.

not in psychology, but by a planner, K. Lynch.<sup>2</sup>

Discovering the meaning of perceived objects was less problematical, for Osgood and several of his associates have developed a relevant technique, the Semantic Differential (S.D.) which is theoretically consistent with his model.<sup>3</sup> To this researcher's knowledge this technique has not, with one exception, been applied to landscape objects, but it was believed that it could be successfully adapted.<sup>4</sup>

### The Measurement of Group Perceptions

The technique to be employed to discover the subjects' perceptions of Vancouver City was adapted from that used by K. Lynch in a study the object of which was to,

...consider the visual quality of the American city by studying the mental image of that city which is held by its inhabitants. 5

---

<sup>2</sup>K. Lynch, The Image of the City (Cambridge, Mass.: The M.I.T. Press, 1960).

<sup>3</sup>C.E. Osgood, G.J. Suci and P.H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957).

<sup>4</sup>K.H. Craik, op. cit., mentions a study in which the S.D. was employed to examine people's responses to a particular building: J.W. Lamm :Wurster Hall: A Case Study of People's Reactions to Buildings," B. Arch. thesis, College of Environmental Design, University of California, Berkley, 1965. Unfortunately this researcher was unable to obtain a copy.

<sup>5</sup>Lynch, op.cit., p. 2.

This image, Lynch suggests, can be analyzed into three components: identity, the recognition of the individuality of objects; structure, the relation of objects, in spatial or other patterns, with the observer and other objects and; meaning, of objects for the observer. In the study, however, the emphasis is upon the first two components of city images, meaning being omitted due to its complexity. Lynch's problem of examining the identity and structure of city images was felt to be very similar to that involved in testing the first hypothesis of this research and, consequently, part of his method was employed.

Lynch's method can be divided into two major parts. Firstly, subjective pictures of the city were collected by means of a basic interview conducted with all subjects. Secondly, the information obtained by the above interview was compared with a picture of the city derived from field analysis by several trained observers.<sup>6</sup> As this research is concerned only with "subjective pictures" of the city, only the first part of the method was considered to be useful.

The interview consisted essentially of a number of open-ended questions which allowed the interviewer to probe further where necessary. It is made up of: a request for a sketch map of the city; a detailed description of regular or standard trips made within the city, and; a list and brief descriptions of the

---

<sup>6</sup>A third part of the method involved the manipulation of photographs of the city but this was completed by only some of the subjects and the information so obtained was not used extensively in the subsequent analysis.

city elements felt to be distinctive.<sup>7</sup> These basic elements of Lynch's questionnaire were retained but several minor changes were made. In the interests of keeping the interview as brief as possible, subjects were asked for the description of only one regular trip rather than several. Also, with the social welfare clients in mind, the language was simplified. For instance, the word "symbolize" was omitted from the first question as being one which might cause difficulty. Other changes of this type can be seen by comparing the questionnaire to Lynch's.<sup>8</sup> Lastly, those questions eliciting descriptions of, and feelings towards, elements mentioned, although essentially unnecessary, were retained to obtain information on adjectives commonly used by subjects. This information was subsequently employed to provide clues for the selection of scales in the S.D. test.

Certain sources of error could be predicted as a result of using this technique. Firstly, as a result of different personalities, the subjects were expected to react differently in the interview situation. Secondly, a problem was anticipated from the differences in the powers of articulation of subjects and, thirdly, subjects were being asked to describe and discuss behaviour which, although cognized at some time in the past, was largely made up of habits.

---

<sup>7</sup>Also included were several questions on "orientation". These were omitted as being of limited relevance to this research.

<sup>8</sup>The Questionnaire employed in this research can be found in Appendix A, Lynch's in op. cit., pp. 141-142.

As a result of these three potential sources of error, no illusions are held concerning the completeness of the perceptions discovered. This method can only be expected to sample the hierarchies of integrations available to each subject. However, as mentioned previously, Lynch's technique appeared to be the only one available and, in spite of the above sources of error, his own results are "good" enough to justify its use.

Incorporated into this questionnaire was a further set of questions employed to obtain information upon the subject's membership in formal organizations, the areas of the city most visited and such personal information as age, marital status, education, family background and past residential environments.

### The Measurement of Meaning

Osgood and his associates have developed and extensively tested a technique, the Semantic Differential (S.D.) which affords a quantitative measure of meaning as defined in the model described in the last chapter. The technique which has been widely used in psychology, involves the judging, by a group of subjects, of a number of concepts (often nouns such as Mother or Father) on a series of seven-point bipolar adjective scales (such as good - bad). To determine the dimensions of "semantic space," a factor analysis of the intercorrelations among the adjective scales, computed against subjects and concepts is performed.<sup>9</sup> Evidence from a large number of different factor analyses of

---

<sup>9</sup>Osgood, et al., op. cit., Chapter 2.



S.D. data suggests that there are three major factors in meaning: evaluation (E), the most important, characterized by scales such as good - bad and pleasant - unpleasant; potency (P) characterized by scales such as strong - weak and heavy - light and; activity, characterized by scales such as active - passive and fast - slow. These three factors have generally accounted for most of the reliable variance in S.D. data.

In the last chapter it was seen that meaning in Osgood's model is identified with representational mediation processes. The S.D. is assumed to measure these processes and the logic behind this assumption will now be briefly described.<sup>10</sup>

Osgood, et al. begin by,

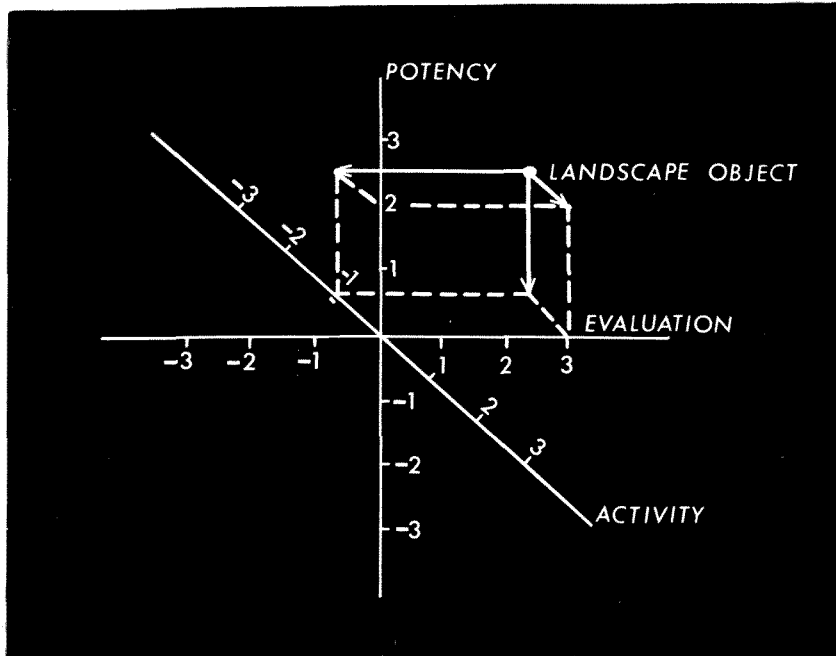
...postulating a semantic space, a region of some unknown dimensionality and Euclidian in character. Each semantic scale, defined by a pair of polar (opposite in meaning) adjectives, is assumed to represent a straight-line function that passes through the origin of this space, and a sample of such scales then represents a multi-dimensional space. <sup>10</sup>

For example, if a concept was judged against three scales representing evaluation, potency and activity in the following way,

	<u>LANDSCAPE OBJECT</u>								
	3.	2.	1.	0.	-1.	-2.	-3.		Score
beautiful	<u>X</u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	ugly.	3.
usual	<u>   </u> :	<u>X</u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	unusual.	2.
simple	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>   </u> :	<u>X</u> :	<u>   </u> :	<u>   </u> :	complex.	-1.

That concept would be located in semantic space as shown below.

<sup>10</sup>For a complete discussion, see Ibid., pp. 25-30



It can be seen that this point in space has two properties: direction from the origin which depends on the alternative polar term selected and; distance from the origin which depends on the extremeness of the scale position checked. The "logic of semantic differentiation" rests on the assumption that these two properties correspond with, respectively, quality of meaning, or what reactions are elicited by the sign, and intensity of meaning and, therefore, of reaction. To clarify this assumed isomorphism, Osgood, et al. state that,

Corresponding to each major dimension of the semantic space defined by a pair of polar terms, is a pair of reciprocally antagonistic mediating reactions, which we may symbolize as  $r_{m1}$  and  $\bar{r}_{m1}$  for the first dimension,  $r_{m11}$  for the second and so forth. Each successive act of judgement by the subject using the semantic differential, in which a sign is allocated to one or the other direction of a scale, corresponds to the acquired capacity of that sign to elicit either  $r_m$  or  $\bar{r}_m$ , and the extremeness of the subject's judgement corresponds to the intensity of reaction associating the sign with either  $r_m$  or  $\bar{r}_m$ .<sup>11</sup>

To summarize, it can be seen that, according to this rationale, the location of a concept in semantic space through the operation of checking scales is a measure of the mediating reactions evoked by that concept as a sign.

- Questionnaire Construction. The choice of concepts to be judged was determined by the results of the first interview which will be presented in the next chapter. The use of photographs rather than words to represent landscape objects was contemplated but rejected primarily because of the difficulty of photographing a district or street. Further, it was felt that as the first interview was overwhelmingly verbal, consistency could be maintained by employing linguistic signs.

Osgood, et al. enunciate four criteria for the selection of adjective scales: factorial composition - three scales are usually selected to represent each factor, these being maximally loaded on that factor and minimally on others; relevance - a

---

<sup>11</sup>Ibid., p. 27.

scale such as fair - unfair is unlikely to be applicable to landscape objects; semantic stability for the concepts in the study - a scale like large - small is likely to be denotative in usage in judging landscape objects; lastly, scales should be linear between polar opposites and should pass through the origin. Two further criteria were used in choosing adjective scales. Firstly familiarity to the subjects was determined by examining adjectives used in the first interview and, where this was not applicable, only frequently used words were employed. Secondly, the relation of scales to factors previously found by other researchers was established. Finally, on this topic, Osgood, et al. point out that scales of unknown factorial composition may be particularly relevant to the concepts being studied and may, therefore, be employed. The list of scales employed is given in Table 1 along with their expected factor loading.

The form of the questionnaire sheet followed Osgood's Form II<sup>12</sup> in which the concept to be judged appears at the top of the page with all judgements elicited successively.<sup>13</sup> The order of scales and concepts was randomly assigned and the polarity of each successive scale was reversed. A seven-point scale was employed and was differentiated, from the centre outwards, into "neither", "slightly", "quite" and "very". Each concept was printed at the top of a separate answer sheet and a booklet was

---

<sup>12</sup>Ibid., p. 81.

<sup>13</sup>See Appendix B for instructions to subjects and sample test sheet.

TABLE 1

## ADJECTIVE SCALES

Order	Scale	Major Factor Loading
1	usual-unusual	potency
2	colourful-colourless	receptivity
3	steady-changing	stability
4	rich-poor	potency
5	planned-unplanned	activity
6	pleasant-unpleasant	evaluation
7	beautiful-ugly	evaluation
8	new-old	novelty
9	good-bad	evaluation
10	clean-dirty	evaluation
11	regular-not regular	stability
12	simple-complex	activity
13	spacious-crowded	potency
14	interesting-boring	receptivity

then compiled for each subject who was then asked to judge concepts against 14 scales.

### Sampling Procedures.

The populations to be sampled consisted of, respectively, 1400 social welfare clients residing in the Fairview area and 35 directors of nationally-important companies, residing in Shaughnessy.

As a result of this size difference, the sizes of the samples to be drawn from the two populations were not established on a percentage basis for a 10 per cent sample would have required only four interviews from Group II, a number far below the minimum necessary for reliable results, as will be shown below. Rather, it was decided that the maximum number of subjects which could be handled was 30, involving a potential total of 60 interviews. Each population was, therefore, sampled randomly to extract 15 names. Thus, 30 subjects completed the first interview and only two persons, one in each group, refused a second interview so that a total of 58 interviews were completed.

Before discussing the characteristics of the samples two questions remain to be dealt with, namely, the reliability of results and the representativeness of the samples.

As a result of the qualitative nature of the first interview, it is difficult, and, perhaps, impossible to determine the number of subjects required to obtain reliable results. Lynch interviewed 30 persons in Boston, and 15 each in New Jersey and Los Angeles but admits that these sample were too small and

biased towards one class. All that can be said, therefore, is that, as this study concentrates upon two small groups and not the city population as a whole, a sample size the same as Lynch's will be proportionately more reliable.

The situation is simpler with the S.D. test. A.E. Edwards has considered the question of reliability with respect to attitude scales which use the method of "equal-appearing intervals."<sup>14</sup> This method is very similar to the S.D. in that the subject is asked to make judgements along a bipolar scale which is differentiated into degrees of "unfavourable-favourable," the centre representing neutral. Edwards reports that, "Correlations as high as .99 have been reported by Rosander for scale values obtained independently from two groups with as few as 15 judges in each group,"<sup>15</sup> and concludes that, "The evidence thus points to the conclusion that a relatively small number of judges can be used to obtain reliable scale values for statements using the method of equal-appearing intervals."<sup>16</sup> It was assumed, therefore, that judgements by 14 persons in each sample of this study would yield reliable results.

With respect to the representativeness of the samples, the results obtain only to the populations from which the samples were drawn. That these populations were defined so narrowly is unfortunate but was, as previously mentioned, necessary to achieve the maximum possible difference in subcul-

---

<sup>14</sup>A.E. Edwards, Techniques of Attitude Scale Construction (New York: Appleton-Century-Crofts, Inc., 1957) p. 94.

<sup>15</sup>Ibid., p. 95.

<sup>16</sup>Ibid., p. 95.

ture between the two groups. It cannot be said, that these populations are representative of upper and lower-class groups in the city of Vancouver but, if the hypothesized differences obtain, it would be an indication to this researcher that further study on this specific topic would not be fruitless.

### Characteristics of the Study Groups

In almost every personal characteristic, except age, the study groups show striking differences, some of which can be seen in Table 2.

With respect to educational levels, the two groups are almost complementary, none of the Group 1 subjects having completed high school while only one in Group 2 did not do so. The difference is further emphasized when it is considered that over 50 per cent of Group 2 graduated from University.

Differences in educational levels are reflected in occupations (former occupations in the case of Group 1). Thus, whereas Group 1 subjects had been craftsmen and labourers, the Group 2 subjects held an average of 6.4 directorships each in nationally-important companies.<sup>17</sup>

In an attempt to discover if the present social class of the subjects resulted from mobility in their own lifetimes, they were asked to state the occupation of their fathers. The figures

---

<sup>17</sup>The Group I subjects were not asked why, or how long, they had been welfare recipients as this was considered to be too great a violation of their privacy. However, from conversation, it appeared that most were unable to work for health reasons.



TABLE 2

## SOME CHARACTERISTICS OF THE STUDY GROUPS

Characteristics	Group 1		Group 2	
1. Average age (yrs.)	53.60		57.13	
2. Marital status (%)	Single	Married	Single	Married
	39.97	60.03	-	100
3. Average family size (No. of children)	3.67		2.53	
4. Education (%)				
i) None	6.67		-	
ii) Grade school	6.67		-	
iii) Partial high school	86.66		6.67	
iv) Completed high school	-		33.35	
v) Partial univer- sity	-		6.67	
vi) Completed university	-		53.36	
5. Average Length of residence in local area (yrs.)	4.7		21.67	

are as follows. Group 1: 10 craftsmen and labourers; 2 small farmers; and the remainder did not know or would not answer. Group 2: 11 businessmen; 1 lawyer; 1 farmer; 1 police chief; and 1 "gentleman of leisure." The present social status for most subjects, therefore, is not a new one so that the sub-culture of each group should be relatively stable.

The social class of the study groups is reflected in the amount and type of social interaction which they exhibit. Group 2 subjects are, with one exception, members of private clubs which are the loci of much of their leisure and, perhaps, business activities. Group 1 subjects, on the other hand, have little or no membership in formal organizations of any sort and their leisure activities consisted overwhelmingly of watching television and an occasional visit to a beer-parlour.

In terms of residence, Group 2, as would be expected, exhibits much more stability and has lived in the Shaughnessy area for an average of 21.67 years. Group 1 subjects, on the other hand, often found it impossible to name all the places they had lived in over the last 5 years. The average length of residence in Fairview was 4.7 years. However, for both groups the average length of stay in Vancouver was over 40 years so that all subjects could be said to be closely acquainted with the city.

From this information, it can be seen that the samples clearly exhibit those differences which were intended when the populations were chosen and, in terms of social class and, therefore, subculture, they are polar groups.

## Interview Procedures

Group I (Social Welfare clients) interviews were conducted in the subjects' homes while those of Group II took place, with two exceptions, in the subjects' offices. The first interview was conducted by means of a tape-recorder and transcribed at a later date. It was preceded, not by any formal preamble, but by informal conversation with the aim of informing the subject of the purpose of the study and to attempt to overcome initial reticence. At the completion of this interview, which lasted from 30 to 45 minutes, a request was made for a second appointment which was, in all cases, granted. Instructions for the second interview were essentially similar to those of Osgood, et al. which included one or more worked examples. Group II subjects took approximately 15 minutes to complete this interview, Group I usually 45 minutes. An unexpected difficulty arose with respect to two subjects in the latter group who were illiterate. For these subjects, it was necessary for the interviewer to read out the gradations on each scale, a rather laborious process.

## CHAPTER IV

### ANALYSIS AND RESULTS

#### Group Perceptions of the City of Vancouver

For ease of analysis perceived city elements (landscape objects) were organized according to Lynch's basic classification which consists of: paths, channels of movement along which the observer travels and with reference to which other elements are arranged and related; edges, linear elements which close off one region from another (barriers) or along which two regions are related and joined together (seams); districts, sections of the city having two-dimensional extent which can be entered into and which have some common identifying character, and; landmarks, external points of reference being usually simply-defined physical objects. To take account of the differences in scale between Lynch's study and this one, one modification was necessary. Whereas Lynch was interested only in the centre of the city, this study focussed upon the entire city and, inescapably, surrounding municipalities which are functionally, if not politically, part of Vancouver entered into the results. Districts were, therefore, divided into two types: A, which included municipalities and, B, which consisted of smaller districts.

Using this modified classification each interview was scored simply by noting and classifying all mentions of city elements. The frequency of occurrence of each element mentioned

for each group were then calculated. Initially, three frequency classes were employed: 25 - 50% (mentioned by 4 to 7 subjects); 51 - 75% (mentioned by 8 to 11 subjects) and; over 75% (mentioned by 12 to 15 subjects). However, since an object could enter this classification on the basis of being mentioned by only 25% of each sample, this lowest class was omitted from further consideration.

Finally, those elements with over 50% frequency for each group were mapped and the first hypothesis of this study was then tested by map inspection.

Before discussing the results of the first interview, some comments will be made on its use. In general terms, most of the subjects in Group 2 showed a concern for the condition of the city and, as a result, little difficulty was experienced with the interview which was often, in fact, almost a free-association test with little prompting from the interviewer required. More difficulty was encountered with Group 1 who required a great deal of prompting. The reasons for this are difficult to pin-point but suspicion of the interviewer and lack of interest can perhaps be included.

A further difficulty arose from the request for a map of the city. This generally disturbed the subjects in Group 1 and, in one case, resulted in the abrupt termination of the interview. Again, the explanation of this behaviour is difficult to ascertain but certainly unfamiliarity, if not with maps themselves, then with the drawing of maps, is a factor which would have to

be taken into account. This was indicated by the fact that many of the subjects considered map-drawing to be a childish task inappropriate for adults. In addition, those maps which were obtained were not such that they could be employed, as in Lynch's study, as a completely separate source of information, and data collected from them was incorporated without differentiation.

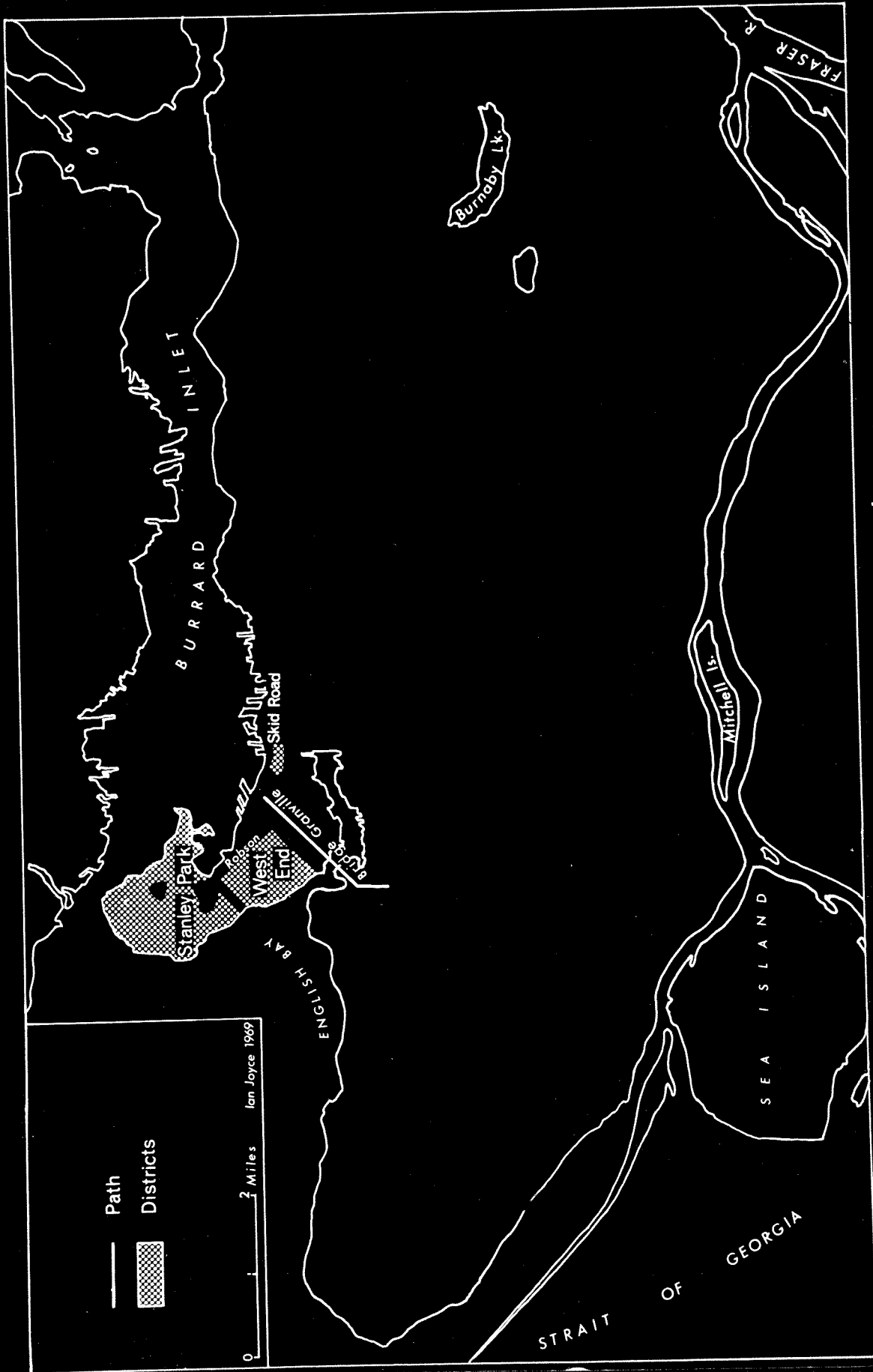
The city elements perceived by Groups 1 and 2 are shown in Maps 2 and 3 respectively while Map 4 shows elements perceived by both groups. Photographs of these elements can be seen in Appendix C. Before comparing the group perceptions, certain general similarities between them will be discussed.

Firstly, and not surprisingly to one who has seen Vancouver, the subjects' perceptions of the city in its totality were dominated by physical environmental features such as the climate, the sea and especially the mountains which bound the metropolitan area on the north. Thus, the following are typical responses to the first question in the interview from Group 1 and Group 2 subjects respectively:

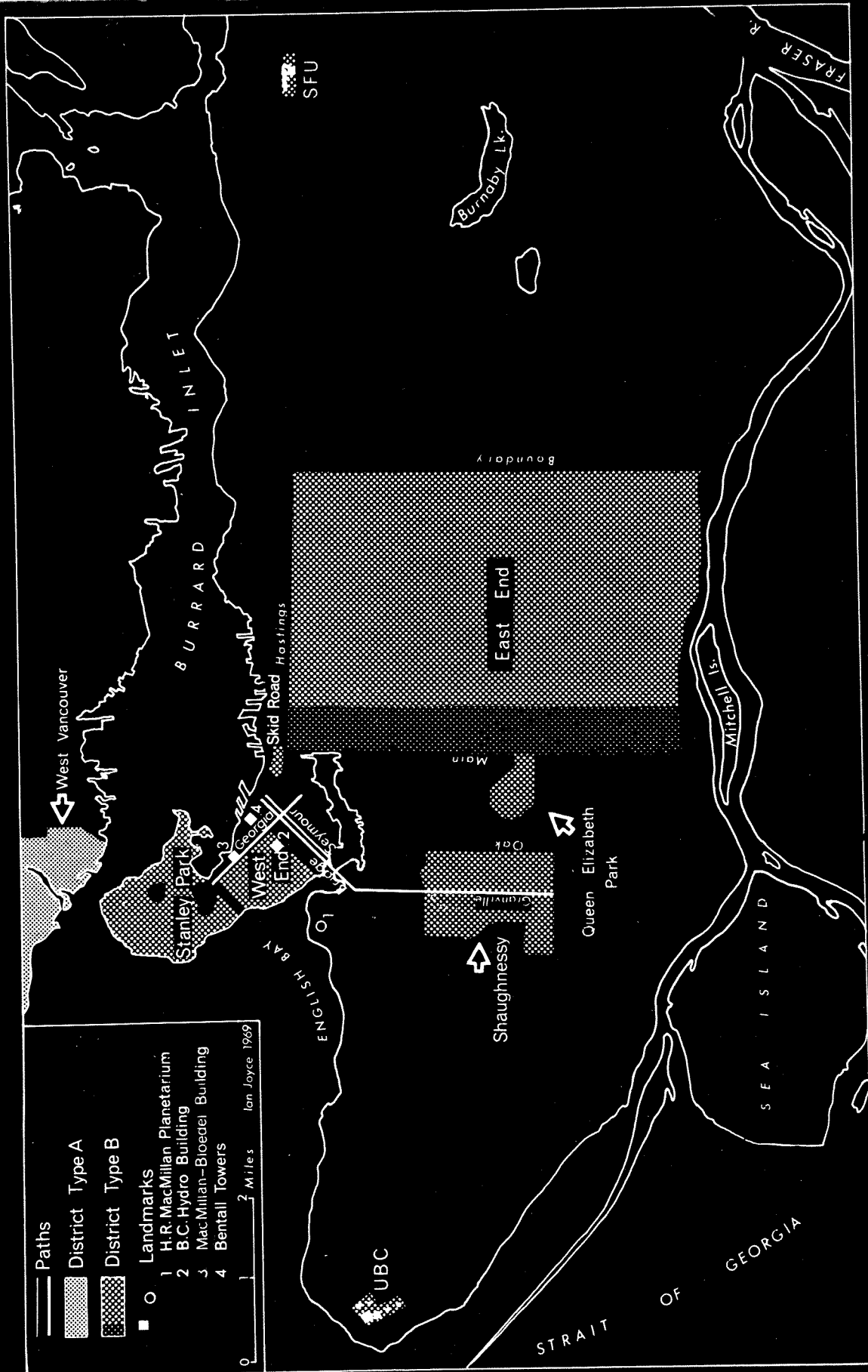
The city sort of appeals to me - the scenery is pretty hard to beat.

I think it's a very beautiful city.....the setting of Vancouver is certainly unique. Sitting here every day looking at the mountains across the harbour and the ships coming and going, I think I'm impressed most of all by Vancouver's beauty and potentiality.

Secondly, it would appear that, for these subjects, Vancouver is a city without nodes and almost without edges. The

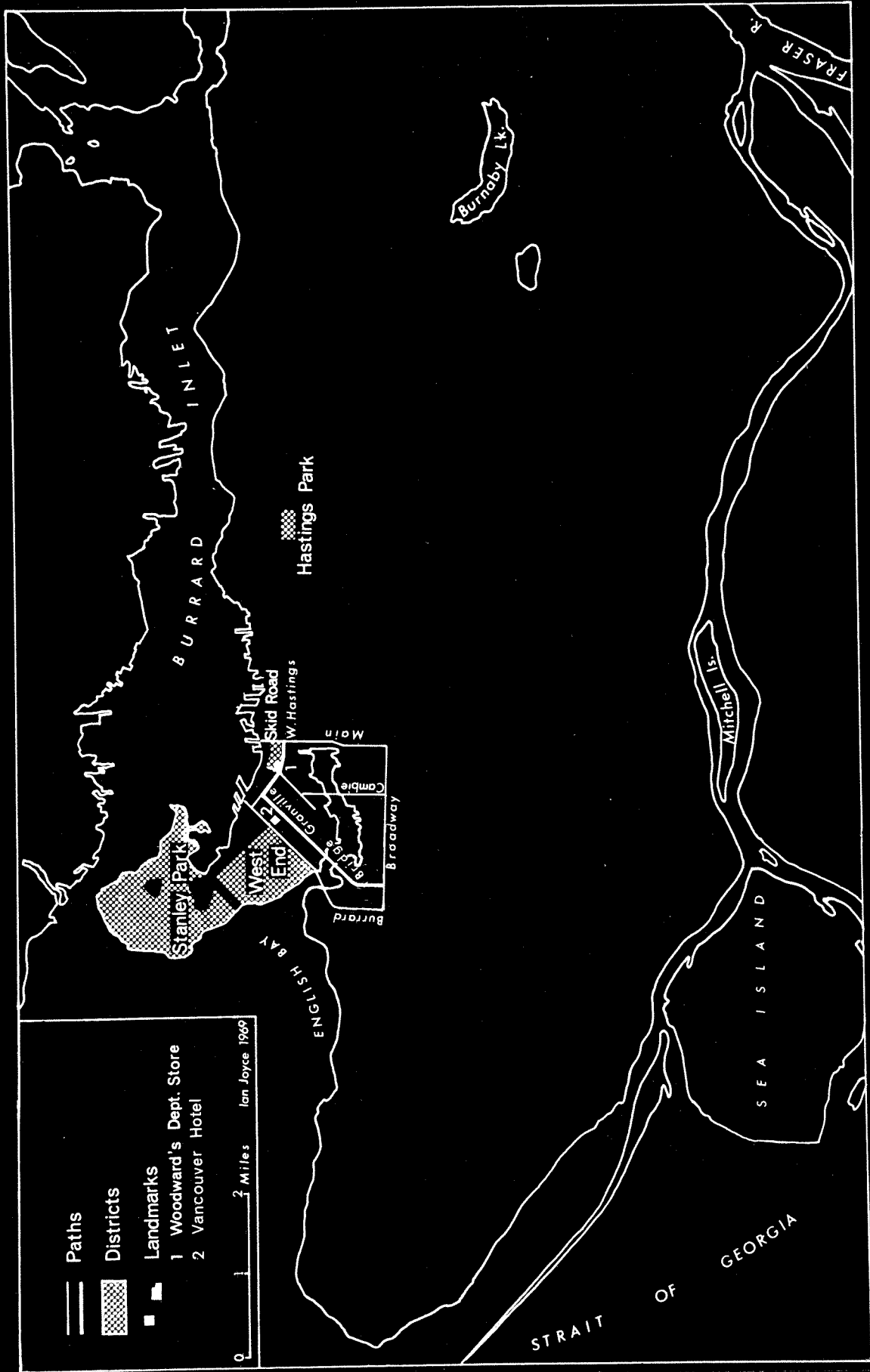


Map 4. Commonly perceived city elements



Map 3. Upper-class perceptions of Vancouver





Map 2. Lower-class perceptions of Vancouver

explanation of these absences may lie in the nature of the physical nature of the city. For instance, the Peak Value Intersection in the city might be expected to be a widely-perceived node but in Vancouver one corner of this has been occupied by a blacktop parking lot and has been awaiting development for several years. Also, in a city surrounded on three sides by water, strong edges would be expected to exist. That they do not, for these subjects, is perhaps attributable to the fact that the waterfront is often physically obscured, especially in the downtown area, by zones of industry, railroads and high-rise office buildings.

With respect to edges within the city, it is noticeable that Vancouver, being of relatively recent growth, does not exhibit the striking differences in building types which are characteristic of older cities. This is perhaps substantiated by the fact that, although Group 2 subjects perceived that the city was divided into broad areas, there was little agreement amongst them as to the exact location of the western boundary of the East End with the result that, for the group as a whole, it is more in the nature of a transition zone than an edge as defined by Lynch.

Comparing Maps 2 and 3, the most striking feature is the difference in the dispersion of perceived elements. For Group 1, all perceived elements, with the exception of Hastings Park, are within, or close to, the downtown area. This may support one of the findings of Fried and Gleicher mentioned

earlier <sup>1</sup> in that Group 1 appear to exhibit the "localism" which was found to be characteristic of working-class Italian-Americans in Boston. However, whereas the "localism" of the Boston group was to a great extent a voluntary one deriving from the satisfaction of most physical, psychological and social needs within the local area, this cannot be said for the Vancouver group which does not appear to exhibit the stability, either of residence or social relationships, of the Boston group. Rather, the reason probably lies in a restricted stimulus environment as a result of their low income level.

The anomaly of Hastings Park can be dealt with by examining its nature. The term park is probably erroneous for the major features are hockey and football stadiums, exhibition halls and a funfair, features which perhaps explain its attractiveness to the subjects and its appearance as a strong perception for the group.

The perceptions of Group 2, on the other hand, reflect a much more extensive base of stimulus information which is not surprising when their high income level, the generally high level of social and business interaction and the extensive travelling involved in these is taken into account.<sup>2</sup>

It is not intended here, to enter a discussion of the characteristics of the various classes of elements and their

---

<sup>1</sup>See introduction, pp. 4-5.

<sup>2</sup>With respect to this characteristic Group 2 subjects are similar to the intellectual elites discussed by M. Webber in "Culture, Territoriality and the Elastic Mile," Regional Science Assoc., Papers and Proceedings, Vol. 13, 1964, pp. 59-69.

interrelations like that undertaken by Lynch, for this is only peripherally relevant to the study.

Testing a hypothesis on the basis of qualitative data such as that provided by this interview is not simple. However, from inspection of Maps 3 and 4 and from the above discussion, it can be said that the first hypothesis has been tested and proven and it can, therefore be said that there are significant differences in the perceptions of the city of Vancouver by the study groups.

As expected, some overlap, shown in Map 4, occurred. Not surprisingly, those elements which were perceived by both groups are located within, or adjacent to, the downtown area and are with one exception, in addition, those which, according to the media and tourist brochures are the most distinctive elements in the city: Stanley Park, "a piece of wilderness adjacent to the heart of the city," something unique in North American cities; Granville Street, the major downtown street, of which Granville Bridge is an extension and the West End, due to its striking visual appearance. The exception, Skid Road, was mentioned by Group 2 subjects when asked to name an area distinctive for other reasons than beauty while for Group 1 it is an area of frequent contact, if not for its more notable attractions, then for the inexpensive shopping area adjacent to it.

Thus, for Groups 1 and 2, five commonly-perceived city elements provided the concepts to be judged in the S.D. test.

## The Meanings of Perceived Objects

The S.D. test was applied using the five commonly-perceived city elements as "concepts."

The seven categories on each scale were assigned the values 1 to 7 from left to right so that the middle or "neutral" category had a value of 4. Each subject's responses were then scored and the data entered onto punch cards suitable for the IBM 350/40 computer.

The first step in the analysis of this data was to discover, for each group, the major dimensions of semantic space. This necessitated an examination of the interaction between scales, across concepts, and was carried out by factor analysis.

Factor Analysis of Scales. Three steps were involved in the factor analysis of scales: the correlation matrix of scales for each subject was calculated;<sup>3</sup> these were averaged and; the 14 x 14 average correlation matrix for each group was factored using a principal axis technique and rotated by the varimax method.<sup>4</sup> In each case, the analysis was halted at four factors since most of the common variance had been extracted. The results of the two analyses are shown in Table 3.

Inter-group Comparison of Factors. The inter-group equivalence of factors was determined by applying a "factor similarity test"

---

<sup>3</sup>A "Distat" programme was used. D.J. Veldman, Fortran Programming for the Behavioural Sciences (New York: Holt, Rinehart and Winston, 1967).

<sup>4</sup>The University of Alberta "Fact 04" program was used.

TABLE 3  
ROTATED FACTOR LOADINGS

SCALES		GROUP 1					GROUP 2				
		Commun- alities	I	II	III	IV	Commun- alities	I	II	III	IV
1	Usual-Unusual	0.561	-0.085	0.003	0.575	-0.472	0.731	0.496	0.691	0.067	0.051
2	Colourless-Colourful	0.597	0.756	0.100	0.027	0.122	0.720	0.562	0.525	0.354	0.060
3	Steady-Changing	0.671	0.327	0.745	0.084	0.042	0.825	-0.028	0.152	0.886	-0.124
4	Poor-Rich	0.613	0.770	0.039	-0.129	0.042	0.704	0.782	0.105	0.243	0.150
5	Planned-Unplanned	0.562	-0.732	0.139	0.023	0.085	0.691	-0.770	0.030	0.285	0.126
6	Unpleasant-Pleasant	0.757	0.833	0.023	-0.173	0.180	0.828	0.830	0.190	0.309	0.089
7	Beautiful-Ugly	0.867	-0.854	0.049	0.366	0.024	0.790	-0.836	-0.209	-0.134	0.170
8	Old-New	0.663	0.480	-0.453	0.273	-0.391	0.584	0.643	0.320	-0.094	0.244
9	Good-Bad	0.739	-0.850	0.051	0.119	0.020	0.853	-0.918	-0.075	-0.034	0.060
10	Dirty-Clean	0.685	0.816	-0.136	-0.012	0.017	0.784	0.831	0.204	-0.010	0.227
11	Regular-Not Regular	0.790	-0.227	0.097	0.834	0.184	0.779	-0.094	0.861	0.072	-0.154
12	Complex-Simple	0.776	0.154	-0.102	0.090	0.857	0.888	-0.019	-0.093	-0.097	0.933
13	Spacious-Crowded	0.614	-0.263	0.713	0.057	-0.183	0.559	-0.688	-0.076	0.228	0.169
14	Boring-Interesting	0.724	0.840	0.024	-0.043	0.127	0.687	0.567	0.523	0.303	0.008
%	Common Variance	9.619	5.706	1.343	1.317	1.252	10.424	5.906	2.047	1.337	1.134

to the rotated factor scores.<sup>5</sup> This test determines the degree of rotation of the factor axes of one of the structures required to give maximum overlap between corresponding test vectors in both of them. This results in a 4 x 4 matrix of cosines of the angles between all pairs of factor axes in the two structures (Table 4) and may be interpreted as correlations between the factors derived from the two analyses.

TABLE 4  
COSINES AMONG FACTOR AXES  
GROUP 1 BY GROUP 2

	I	II	III	IV
I	.92	-.32	-.24	-.06
II	.25	.05	.95	-.19
III	.30	.94	-.11	.14
IV	.07	-.14	.18	.97

Semantic Structures of the Study Groups. There are four very high correlations in the matrix of Table 3 indicating good correspondence between factors: 1 I and 2 I; 1 II and 2 III; 1 III and 2 II and ; 1 IV and 2 IV. That factors II and III do not correspond across the groups means simply that there are

---

<sup>5</sup>Veldman, op. cit., pp. 236-245.

differences in the total variance accounted for but as this is relatively small (See Table 3) it raises no problems.

In both cases Factor I accounted for more of the total variance (57% for Group 1; 59% for Group 2) than all other factors combined and clearly represents a strong evaluative dimension. The correspondence of this dimension between the groups is not quite perfect but those scales (pleasant-unpleasant, beautiful-ugly, good-bad, clean-dirty, planned-unplanned, rich-poor) which are common to both, make up over 60% of all scales with their highest loading on this factor indicating, at the very least, good correspondence.

Secondly, the scales, planned-unplanned and rich-poor were expected, from other studies, to be representative of activity and potency dimensions respectively. It is therefore, interesting to note that they were employed by both groups evaluatively so that planned and rich were associated with beautiful, good, pleasant and clean.

Lastly, as indicated above, there are certain differences between the two groups with respect to this dimension. It can be seen that while new-old is clearly employed evaluatively by Group 2, in the Group 1 analysis it is not highly or even moderately loaded on any single factor indicating, perhaps, that it is employed denotatively rather than connotatively by this group. Also, whereas interesting-boring and colourful-colourless have high loadings for this dimension for Group 1, they are almost equally loaded on factors I and II for Group 2. However, only one factor, spacious-crowded, shows a sharp contrast between



the groups, having a high loading for Group 1 and a low loading for Group 2.

The second factor to be extracted in the Group 1 analysis is equivalent not to the second but to the third extracted for Group 2. However, this merely means that this factor accounted for more of the total variance in the Group 1 analysis and, since the difference is relatively slight, the comparability is not seriously affected. Factor II, then, appears to be a stability factor characterized in both analyses by high loadings on the steady-changing scale. There is a difference, however, in that, for Group 1 this is associated with spacious-crowded. This could perhaps result from the fact that the local area of Group 1 is, as has been seen, a relatively congested one which is subject to encroachment by industrial and other uses. Having observed a great deal of change in the physical nature of the area over the past several years, then, it is possible that for this Group, crowded areas of the city are associated with change. This, however, can be classed only as speculation and further study into semantic structures would be required to provide a more satisfactory explanation.

The fourth factor in each case, is very well defined as a complexity dimension which may be related to Osgood's activity dimension. It is relatively pure except for a moderate loading on usual-unusual for Group 1 which associates complex with unusual.

The third dimension has been left to last because, in spite of the high correlation between factors 1 II and 2 III

some interesting differences occur which, it is felt, are too significant to be ignored. For both groups, this dimension is represented by usual-unusual and regular-not regular. However in the Group 2 analysis, these scales are associated with moderately high loadings on colourful-colourless (.525) and interesting-boring (.523) such that unusual, not regular, interesting and colourful are associated. This appears, then, to be an aesthetic dimension involving denotative rather than connotative judgements and its appearance is not altogether surprising given the relatively high educational level of the group and the fact that they were judging physical objects.

For Group 1, on the other hand, this dimension was not associated with even moderate loadings on scales other than the two already mentioned. This may indicate that, in the operation of checking these two scales, (usual-unusual and regular-not regular) the subjects were making observations rather than judgements. In other words, the processes involved were perceptual rather than representational.

These results show some interesting differences from those in other S.D. studies. It will be remembered that Osgood, et al. found that semantic space could be defined by the three dimensions of evaluation, potency and activity. Also, in other S.D. studies, although slight variations often occur, these dimensions have been found to be the most important ones. However, this is not the case in this study.

An evaluative factor was, indeed, the most important, accounting for just over half of the extractable variance, a

result consistent with Osgood's: "A pervasive evaluative factor in human judgement regularly appears first and accounts for approximately half to three-quarters of the extractable variance."<sup>6</sup> However, relative to the other factors, evaluation in this study is much more important than Osgood, et al. report for, whereas they found that the sum of the total variance of the second and third factors was equal to that of the first, in this study it equals only half.

Activity and potency dimensions, on the other hand, did not appear in spite of the fact that scales whose expected loading was on these dimensions were employed. Instead, a stability dimension, which Osgood, et al. have found to be of relatively low importance, and a complexity dimension, appeared for both groups.

It is unlikely that the appearance of these dimensions is a chance occurrence when it is considered that they are very similar for two very different groups of subjects. There are two potential sources from which the difference might have arisen. The first, the nature of the scales employed, can be discounted for they were chosen, on the basis of other studies, to represent all three of Osgood's primary dimensions. It is likely, then, that the differences in semantic structure are a result of the nature of the concepts judged. No other S.D.

---

<sup>6</sup>Osgood, et al., op. cit., p. 72.

studies could be found which employed landscape objects as concepts so that it is possible that the primary dimensions are not constant across all classes of concepts.

To summarize, the factor analysis of scales yielded three dimensions, evaluation, stability and complexity which were similar for both groups and one which although good correspondence was indicated by the factor similarity test, was judged to be different. Consequently, in testing the second hypothesis of this study, only the scores on three factors were employed.

Factor Scores. Before the second hypothesis could be tested, a preliminary step had to be taken. Factor scores for each concept in an S.D. analysis are normally obtained by assigning each scale to one of the various factors extracted according to its highest loading, then summing and averaging the raw scores over each factor. This procedure assumes that the factors involved are completely independent of one another, that is, that scales have high loadings on one factor and negligible loadings on all others. However, since this was not the case in the present study, nor is it in most others, the raw scores obtained from the test were transformed to yield factor scores.

This was done by taking the group average score for each concept on each scale to yield a matrix of average scores; standardizing each column by subtracting its mean and dividing by its standard deviation to obtain a standard scores matrix and; applying the appropriate transformation matrix to obtain the factor scores expressed in standard deviations from the

mean, of each concept implied by the rotated factor loadings. The results for the five commonly-perceived objects can be seen in Table 5 differences in the values of factor scores indicating differences in intensity of meaning and differences in sign being indicative of differences in quality of meaning.

An inspection of Table 4 reveals several differences in the quality of meaning of city elements. Thus, whereas Group I considers Stanley Park to be good, stable and simple, Group II considers it to be good, stable and complex. Similarly, Granville Street is, to Group I, good, changing and simple, but to Group II it is bad, stable and complex. Lastly, Skid road is bad, changing and simple to Group I, bad, stable and complex to Group II.

With respect to intensity of meaning, it can be seen that the West End is much more positively evaluated by Group I than by Group II and that the position is reversed in the complexity dimension for the same element.

In the next section, the question of whether these differences can be considered to be significant will be discussed.

#### Testing The Second Hypothesis.

To test the second hypothesis, a  $\chi^2$  - test of significance was applied to the null hypothesis ( $H_0$ ) which states that there are no significant differences in the connotative meanings of objects which are perceived by both groups, according to the formula:

TABLE 5

FACTOR SCORES AND  $\chi^2$  SIGNIFICANCE TEST

COMMON CITY ELEMENTS	GROUP I			GROUP II			$\chi^2$	p
	Evaluation I	Stability II	Complexity III	Evaluation I	Stability II	Complexity III		
Stanley Park	.855	.479	-.071	1.048	.048	.238	.317	.98 < p < .95
Granville Bridge	.659	1.715	-.948	.941	1.298	-1.044	.263	.98 < p < .95
Skid Road	-1.873	-.125	-1.178	-1.613	.667	1.657	8.780	.05 < p < .02
West End	1.689	-.314	.201	.022	-1.876	1.792	7.851	.05 < p < .02
Granville Street	.214	-.920	-.953	-.083	.349	-.891	1.707	.70 < p < .50

$$\chi^2 = \sum (O_a - O_b)^2$$

where  $O_a$  = observed scores for Group 1 on each factor.

$O_b$  = observed scores for Group 2 on each factor.

summing across all factors.

The significance level was set at  $\alpha = .05$  and  $H_0$  was, then, to be rejected if the value of  $\chi^2$  was such that the probability associated with its occurrence for three degrees of freedom ( $df = 3$ ) was equal to or less than  $\alpha = .05$ . The results of this test can be seen in Table 5.

From these results, the null hypothesis ( $H_0$ ) cannot be rejected with respect to Stanley Park, Granville Street and Granville Bridge but can be rejected in the cases of Skid Road and the West End. Thus, with the available data, it is not possible to either conclusively reject or accept the general hypothesis that there are significant differences in the connotative meanings of those objects which are perceived by both of the study groups.

When a hypothesis cannot be accepted or rejected, it is perhaps incumbent upon the researcher to offer an explanation or, at the very least, some speculations as to why this situation has arisen.<sup>7</sup>

That the hypothesis was upheld for some city elements, suggests to this researcher that the problem lies, not with the

---

<sup>7</sup>In this discussion Granville Bridge will be treated, not as a separate city element, but as an extension of Granville Street.

theory from which it was advanced but in the nature of the elements themselves. Thus, the explanation as to why the null hypothesis could not be rejected in the cases of Stanley Park and Granville Street may lie in the fact that both of these elements are part of the common cultural heritage of all residents of Vancouver; that they are true public spaces characterized by what S.N. Brower has termed "societal occupancy."<sup>8</sup> Territories occupied by society, according to Brower, "...are valued and access is open as a right to all members of the public."<sup>9</sup> It is suggested, then, that such public spaces, as well as being perceived by the various groups of city residents, also evoke in them a common representational mediation process and, therefore, similar responses.

There is evidence other than that of common meaning between the two study groups to suggest that Stanley Park and Granville Street are indeed public spaces as described above. Firstly, Granville Street is the major street in the downtown area and, like similar streets in other cities often serves as a symbol for the city, for residents and others. Stanley Park, as indicated previously,<sup>10</sup> is a stronger and more persistent symbol as indicated by, amongst other things, the general uproar in the city when it was announced in 1968 that the approach roads for a new crossing of Burrard Inlet would cut through it.

---

<sup>8</sup>S.N. Brower, "(Territoriality, the Exterior Spaces.) The Signs We Learn to Read." Landscape, Vol. 15, 1965, pp. 9-12.

<sup>9</sup>Ibid., p. 9.

<sup>10</sup>This thesis, p. 74.



This reaction has been a major factor in the promotion of study into alternative routes.

Skid Road and the West End, on the other hand, would be classified in Brower's terminology as districts of "community occupancy" which are the "property" of only specific groups of city residents and this would account for the differences in their meanings for the study groups.

## CHAPTER V

### CONCLUSION

This study set out to investigate the nature of the responses of two widely different subcultural groups, one of company directors and one of social welfare clients, to their urban environment, in the city of Vancouver. Some past and current geographical statements on the nature of man-environment relationships were discussed and the latter were shown to be derivative of cognitive theory. This type of psychological theory was examined in turn and rejected in favour of a "mediation model" developed by C.E. Osgood and based upon stimulus-response principles. From this model and a consideration of the relations between social class and culture two hypotheses were advanced for testing. Data were collected by two interviews and subsequent testing indicated that the first hypothesis, that the perceptions of the city by the two groups will be significantly different, was accepted. The second hypothesis, that there will be significant differences in the connotative meanings of objects perceived by both groups, on the other hand, could not be conclusively accepted or rejected on the basis of the available data. It remains now to present the major conclusions of the study but before this is done, some limitations of the study will be examined.

### Limitations of the Study

The first limitation of the study arises from the method used to determine the subjects' perceptions of the city. Lynch's interview, it was pointed out previously, is for several reasons by no means ideal. However, it does have one unique characteristic in that it does not depend upon manipulation of the environment by the researcher so that the perceptions by the subject of the total city in which he resides can, albeit imperfectly, be discovered. All other methods in contrast, appear to depend upon either "artificial" stimuli such as photographs, films and models or placing the subject in part of the environment previously selected by the researcher.

However, although the only method which attempts to solve this problem, Lynch's remains imperfect and future research could be fruitfully concerned with discovering an alternative.

The second major limitation results from the fact that "within-group" differences were not considered. This was almost impossible with respect to the results of the first interview because of the qualitative nature of the data. In contrast, the results of the S.D. test are amenable to such treatment but to carry out the required tests would have been impossible in the time available.<sup>1</sup> However, this difficulty was foreseen and it was partly to overcome it that study groups which were "polar"

---

<sup>1</sup>Osgood, et al., op. cit., pp. 98-101.

in terms of social rank were chosen, it being felt that even if "within-group" differences existed, they would tend to be less significant than "between-group" differences.

### Conclusions.

The conclusions of this study, being tied as they are to the results of the testing of the two hypotheses advanced earlier, can be simply stated. Firstly, the perceptions of the city of Vancouver by the study groups consisting of social welfare clients and company directors, are significantly different. However, an "overlap" in perception occurred and several landscape objects, located in, or near, the downtown area, were perceived by both groups.

Secondly, there are, between the two groups, significant differences in the connotative meanings of those commonly-perceived landscape objects which are characterized by "community occupancy." On the other hand, those landscape objects which exhibit "societal occupancy" do not have significantly different connotative meanings for the groups.

In the introduction to this study, two general aims were stated, that of adding to geographical knowledge and that of helping to achieve good environmental quality for all members of society. The following discussion will assess the success of these.

### Implications of the Study.

The implications of the study for cultural geography and for planned landscape change in the urban environment will be considered separately, a division which is, to some extent, artificial but convenient.

Cultural Geography. The study has implications for at least two general aspects of cultural geography. Firstly, with respect to theory-construction, "mediation models" like Osgood's appear to offer certain advantages over the cognitive-type models which have been seen to predominate in cultural-ecological studies. This should not be taken as a dogmatic statement implying that the organizing principles of cognitive theory are "wrong" for it is realized that, for instance, the concept of trial and error learning is, like that of insight, based upon "guesses", however informed, about how the nervous system operates. Rather cognitive theories are not preferred because, especially as employed in geography, they have certain internal deficiencies. The most important of these are that the process of perception is not clearly defined or distinguished from those of apprehension, apperception or cognition and that no mechanisms are suggested whereby the "image" might be connected to overt behaviour.

In the Osgood model, on the other hand, such terms as sensation, perception, and meaning and the connections between them and with behaviour are based upon a consideration of physiological mechanisms by which they might be effected. Also, it

is a "total" model in that equal consideration is given to decoding and encoding and to habits and cognition and it does not, therefore, exhibit the imbalance of the cognitive theories described above nor that of strictly behavioural or "empty organism" models. For these reasons, Osgood's conception of human behaviour is preferred to cognitive ones and it is felt that further examination of it or others of its kind by geographers might be fruitful.

Secondly, the Semantic Differential test offers promise as a potentially useful addition to the repertory of techniques available to those interested in man-environment relationships. For instance, many geographical studies have measured attitudes towards landscapes, natural hazards,<sup>2</sup> pollution and wilderness on the assumption that they guide or direct human responses towards these environment features. However, if Osgood is correct, and there is an impressive list of empirical evidence to suggest that he is, attitude is equivalent to only one dimension of meaning, evaluation. Attitude studies, therefore, gain access to only part of the controls upon behaviour.

Further, the use of the test to discover the meanings, as defined herein, of landscape objects, will provide information on the extent to which semantic structures are constant for all types of concepts, that is, whether evaluation, potency and activity are always the primary dimensions of meaning.

---

<sup>2</sup>See for instance the series of studies published by the Department of Geography of the University of Chicago.

The implications of the conclusions will be examined in the context of landscape changes in the city but this should not be taken to imply that they are of no relevance to cultural geography for it is felt that this topic is of major concern to the discipline.

Landscape Change. The concern in the following discussion is with the impact, in the light of the conclusions of this study, of landscape changes upon urban residents. Although the study was carried out in Vancouver, it is felt that these comments are relevant, to a greater or lesser extent, to other cities of comparable size at least in North America and perhaps elsewhere.

The ultimate goal of urban planning is well stated by sociologist A Boskoff: "...the emphasis is on providing urban regions designed for comfort and convenience for most urbanites, rather than a favoured few."<sup>3</sup> However, the achievement of this ideal appears to be still a long way off and one of the major reasons for this is a deficiency in basic research by professional planners.

Decisions upon planned landscape changes seem to be based upon such factors as cost, engineering feasibility, access and topography, in other words, upon non-human considerations. Admittedly, human factors are often taken into account too but only in relation to the potential physical and economic discomfort of those affected directly.

---

<sup>3</sup>A. Boskoff, The Sociology of Urban Regions, (New York: Appleton-Century-Crofts, 1962).

However, the results of this research indicate that psychological factors are important in determining the relationship of the city resident to his environment and that this relationship varies amongst different subcultural groups. Thus, although each subculture inhabits the same physical city, they live, as a result of differences in perception and meaning, in significantly different "psychological cities."

A major factor to be considered in decision on landscape change, therefore, must be the significance in psychological terms of the change for not only those directly affected but also for all others for, as has been shown, some landscape objects have a meaning which is shared by more than one subcultural group.

The case for consideration of these variables is even stronger in relation to low-income groups of city residents such as the group of social welfare clients in this study. Living as they do in the transitional zone of the city, this group is affected by unplanned change in the form of industrial encroachment. Also, the most important planned landscape changes are generally within the fields of urban renewal and transportation improvements. The former by definition and the latter by tendency, affect areas inhabited by low-income populations more than others.

In the absence of information on the psychological variables described above, such groups are likely to be subject to upsetting landscape change out of proportion to their numbers and the only recourse they have is to attempt to influence or



reverse a decision by making use of the democratic procedures built into the city planning structure. Two avenues are open to them: to attempt to bring pressure upon their elected representatives on City Council, an almost impossible operation for such groups especially in Vancouver where there is no area representation on Council; and to appear at a public hearing, if one is called. The latter presents no better hopes than the former for, to be successful in such a situation, demands powers of organization and articulation generally beyond the powers of low-income groups.

An example of such a situation occurred when, under urban renewal legislation, part of the Fairview area was re-zoned for industry without provision being made for the re-housing of more than a few of the population. The others, in the meantime must live in an environment which, as has been seen, is anything but pleasant. Several of the subjects mentioned this situation and there is no doubt that they were upset by it. This is illustrated in one subject's reply to a question asking what he thought of the local area:

It's pretty run-down and its been re-zoned years ago for industrial. You can see these warehouses. People can't get houses or even a place to live and yet they're buying up these lots and sticking up warehouses. It's a shame. There's such a housing shortage--that's what worries me.... If you take a walk down 7th or 8th (Avenues) you'll see some houses that have been closed up and some of them are a darn sight better than this  
.....

In conclusion, it is urged that a basic necessity for truly democratic city planning, one which benefits all citizens,

is sound and extensive research into their perceptions of the city and into the meanings of perceived objects and for the inclusion of these factors into consideration of planned landscape changes. This should not, however, be taken as advocacy of a "correct" city design imposed from above by a professional elite for the author agrees with Jackson that ultimately the hope for a city which satisfies its inhabitants will result from,

...encouraging people to look at their surroundings themselves, and giving them the intellectual and physical tools to do their own shaping.... If large scale planning would (therefore) remain the field of the professional, small scale development could largely be returned to the people living in it every day. 3

---

<sup>3</sup>J.B. Jackson, "Pretensions and Delusions," Landscape, Vol. , Winter 1967-68, pp. 1-3. My brackets.

## BIBLIOGRAPHY

- Allport, F.H. Theories of Perception and the Concept of Structure. New York: John Wiley and Sons, 1955.
- Boskoff, A. The Sociology of Urban Regions. New York: Appleton-Century-Crofts, 1962.
- Brower, S.N. "Territoriality, the Exterior Spaces: The Signs We Learn to Read," Landscape. Vol. 15, 1965, pp. 9-12.
- Brunhes, T. Human Geography. Translated by I.C. Le Compte, New York: Rand McNally and Company, 1920.
- Bunge, W. Theoretical Geography. Sweden: Lund Studies in Geography, Series C, No. 1, 1962.
- Buttimer, A. (Sister Mary Annette, O.P.) "Some Historical Precedents and Contemporary Interpretations of Social Geography: With Particular Emphasis on Some French Contributions to the Field," Unpublished Ph.D. Dissertation, Department of Geography, University of Washington, 1964.
- Carroll, J.B. "The Measurement of Meaning: A Review," Language. Vol. 35, 1959, pp. 58-77.
- Chombard de Lauwe, P. Paris et L'Agglomeration Parisienne. Vols. 1 and 2, Paris: Presses Universitaire de France, 1952.
- Craik, K.H. "The Comprehension of the Everyday Physical Environment," Journal of the American Institute of Planners. Vol. 34, 1968, pp. 29-37.
- Edwards, A.E. Techniques of Attitude Scale Construction. New York: Appleton-Century-Crofts, Inc., 1957.

- Elliott, L.L. and Tannenbaum, P.H. "Factor Structure of Semantic Differential Responses to Visual Forms and Prediction of Factor-Scores From Structural Characteristics of the Stimulus Shapes," American Journal of Psychology. Vol. 76, 1963, pp. 589-597.
- Fried, M. and Gleicher, P. "Some Sources of Residential Satisfaction in an Urban Slum," Journal of the American Institute of Planners. Vol. 27, 1961, pp. 305-316.
- Firey, W. "Sentiment and Symbolism as Ecological Variables," American Sociological Review. Vol. 10, 1945, pp. 140-148.
- Gans, H. The Urban Villagers. New York: The Free Press, 1962.
- Gordon, M.M. "The Concept of Sub-Culture and its Application," Social Forces. Vol. 26, 1947, pp. 40-42.
- Gould, P. "Mental Maps," University of Michigan, Michigan Inter-University Community of Mathematical Geographers, Discussion Paper, No. 9, September, 1966.
- Harvey, D. "Behavioural Postulates and the Construction of Theory in Human Geography," University of Bristol, Department of Geography, Seminar Paper Series, Series A: Number 6.
- Hebb, D.O. A Textbook of Psychology. Philadelphia: W.B. Saunders Company, 1966.
- Hilgard, E.R. and Bower, G.H. Theories of Learning. New York: Century-Appleton-Crofts, 1966.
- Holt, J. "Who Runs Vancouver?" Vancouver Life. March 1968.
- Jackson, J.B. "Pretensions and Delusions," Landscape. Winter 1967-68, pp. 1-3.

- Kahl, J.A. The American Class Structure. New York: Holt, Rinehart and Winston, 1962.
- Kirk, W. "Historical Geography and the Behavioural Environment," Indian Geographical Journal: Silver Jubilee Volume. 1951, pp. 152-160.
- Kirk, W. "Problems of Geography," Geography. Vol. XLVII, 1963, pp. 357-371.
- Lilly, R.S. "A Developmental Study of the Semantic Differential," Educational Testing Service, Research Bulletin (RB-65-28).
- Lowenthal, D (ed.). Environmental Perception and Behaviour. (Chicago: University of Chicago, Department of Geography, Research Paper No. 109, 1967.
- Lowenthal, D. "Geography, Experience and Imagination: Towards a Geographic Epistemology," Annals. Association of American Geographers, Vol. 51, 1961.
- Lynch, K. The Image of the City. Cambridge, Mass.: The M.I.T. Press, 1960.
- Mayhew, B. Local Areas of Vancouver. Research Department, United Community Services of the Greater Vancouver Area, 1967.
- Meyer, A.H. and Strietelmeier, J.H. Geography in World Society. New York: J.B. Lippincott Company, 1963.
- Miller, N.E. and Dollard, J. Social Learning and Imitation. New Haven: Yale University Press, 1941.
- Osgood, C.E. "Behavior Theory and the Social Sciences," Behavioral Science. Vol. 1, 1956, pp. 167-185.
- Osgood, C.E. "A Behavioristic Analysis of Perception and Language as Cognitive Phenomena," in R.J.C. Harper, et al. (eds.) The Cognitive Process: Readings. Englewood Cliffs: Prentice Hall Inc., 1964.

- Osgood, C.E. "Motivational Dynamics of Language Behavior,"  
in M.R. Jones (ed.), Nebraska Symposium on Motivation.  
Lincoln, Nebraska: University of Nebraska Press, 1957.
- Osgood, C.E. "The Nature and Measurement of Meaning,"  
Psychological Bulletin. Vol. 49, 1952, pp. 197-237.
- Osgood, C.E., Suci, G.T. and Tannenbaum, P.H. The Measurement  
of Meaning. Urbana, Illinois: University of Illinois  
Press, 1957.
- Porter, J. The Vertical Mosaic. Toronto: University of  
Toronto Press, 1965.
- Rummel, R.T. "Understanding Factor Analysis," Journal of  
Conflict Resolution. Vol. XI, 19 , pp. 445-480.
- Saarinen, T.F. Perception of the Drought Hazard on the Great  
Plains. Chicago: University of Chicago, Department of  
Geography, Research Paper No. 106, 1966.
- Siegel, S. Nonparametric Statistics for the Behavioral  
Sciences. New York: McGraw-Hill Book Company, 1956.
- Sonnefeld, J. "Variable Values in Space and Landscape: An  
Inquiry Into the Nature of Environmental Necessity,"  
Social Issues. Vol. 22, 1966, pp. 71-82.
- Sorre, M. Rencontres de la Géographie et de la Sociologie.  
Paris: Librairie Marcel Riviere et al., 1957.
- Sprout, H. and M. The Ecological Perspective on Human Affairs.  
Princeton, New Jersey: Princeton University Press, 1965.
- Steward, J. Theory of Culture Change. Urbana: University of  
Illinois Press, 1963.

- Suci, G.J. "A Comparison of Semantic Structures in American Southwest Culture Groups," Journal of Abnormal and Social Psychology. Vol. 6, 1960, pp. 25-30.
- Sutton Brown, G. "Planning Administration," Community Planning Review. Vol. 4, 1954, pp. 24-30.
- Thomas, W.L. (ed.). Man's Role in Changing the Face of the Earth. Chicago: University of Chicago Press, 1956.
- Veldman, D.J. Fortran Programming for the Behavioral Sciences. New York: Holt, Rinehart and Winston, 1967.
- Wagner, P.L. and Mikesell, M.W. Readings in Cultural Geography. Chicago: University of Chicago Press, 1962. New York: Holt, Rinehart and Winston, 1967.
- Webber, M.W. "Culture, Territoriality and the Elastic Mile," Papers, Regional Science Association. Vol. 13, 1967, pp. 59-69.

#### Dictionaries and Directories

- Chaplin, J.P. Dictionary of Psychology. New York: Dell Publishing Company, 1968.
- Gould, J. and Kolb, W.L. (eds.). A Dictionary of the Social Sciences. New York: The Free Press, 1966.
- Directory of Directors. Toronto: The Financial Post, 1968.
- Poling Lists: 1967 Federal Election.

## APPENDIX A

### GROUP PERCEPTIONS INTERVIEW

1. What first comes into your mind when I mention the word "Vancouver" to you?
2. How would you describe the city to a friend who was not familiar with it?
3. I would like you to draw a quick sketch map of the downtown area of the city. It need not be detailed or accurate. Just try to show the main features.
4. Now, I would like to ask some questions about how you spend your time and about the places and people you visit in the city.
  - a) Where do you work?  
How often do you make the trip to work?
  - b) Do you belong to any clubs or organizations?  
Where is it (are they) located?
  - c) Apart from your family living with you, do you have any friends or relatives whom you visit regularly?  
  
Are these people friends or are they relatives?  
How often do you visit them?  
Where do you meet them when not visiting their homes?
  - d) Are there any other places in the city that you visit regularly, either by yourself or with your family?
5. Please give me directions for the trip you make to \_\_\_\_\_ (most frequent trip). Try to picture yourself making the trip and describe the things you see along the way.  
Do you have any strong feelings about any part of this trip?
6. Now, I would like to know what physical features of Vancouver buildings, streets, parks, etc.--you think are distinctive. They may be large or small but tell me those that stay in your mind.

(For each of two or three elements mentioned, ask question 7.)



7. Would you describe \_\_\_\_\_ to me?  
Do you have any particular feelings about \_\_\_\_\_?  
Would you show me on your map where \_\_\_\_\_ is  
located?
8. Are there any parts of the city where you feel lost or  
unsure of yourself?
9. Personal Information
- a) What is your age?
  - b) Are you married?
  - c) Do you have any children?
  - d) How much education have you had?
  - e) What is your occupation?
  - f) Where were you born?
  - g) When did you come to Vancouver?
  - h) How long have you lived in this area?
  - i) Can you tell me the places you have lived in  
the past 5 years?
  - j) What kind of job did your father have when he  
was about your age?

## APPENDIX B

### SEMANTIC DIFFERENTIAL TEST

The purpose of this study is to measure the meanings of certain things to various people by having them judge them against a series of descriptive scales. In completing the test, please make your judgements on the basis of what these things mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order.

Here is how you are to use the scales:

1. If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your check-mark as follows:

beautiful X : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ ugly

OR

beautiful \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : X ugly

2. If you feel that the concept is quite closely related to one or other end of the scale, you should place your check-mark as follows:

beautiful \_\_\_ : X : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ ugly

OR

beautiful \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : X : \_\_\_ ugly

3. If the concept seems only slightly related to one side as opposed to the other then you should check as follows:

beautiful \_\_\_ : \_\_\_ : X : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ ugly

OR

beautiful \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : X : \_\_\_ : \_\_\_ ugly

4. If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space:

beautiful \_\_\_ : \_\_\_ : \_\_\_ : X : \_\_\_ : \_\_\_ : \_\_\_ ugly

Here is an example of how someone might judge the HUDSON BAY BUILDING against a number of scales:

HUDSON BAY BUILDING

beautiful X : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ ugly  
 colourless \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : X : \_\_\_ : \_\_\_ colourful  
 new \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : X : \_\_\_ old  
 bad \_\_\_ : \_\_\_ : \_\_\_ : X : \_\_\_ : \_\_\_ : \_\_\_ good

Here, the person considered the HUDSON BAY BUILDING to be: very beautiful; slightly colourful; quite old; and neither good nor bad or equally good and bad.

On the next page you will find two examples on which to practice.

1.      2.            1.            0.            1.            2.            1.  
 very    quite    slightly    neutral    slightly    quite    very

POST OFFICE BUILDING

	3.	2.	1.	0.	1.	2.	3.			
unpleasant	___	:	___	:	___	:	___	:	___	pleasant
clean	___	:	___	:	___	:	___	:	___	dirty
boring	___	:	___	:	___	:	___	:	___	interesting
spacious	___	:	___	:	___	:	___	:	___	crowded
unusual	___	:	___	:	___	:	___	:	___	usual

BURNABY

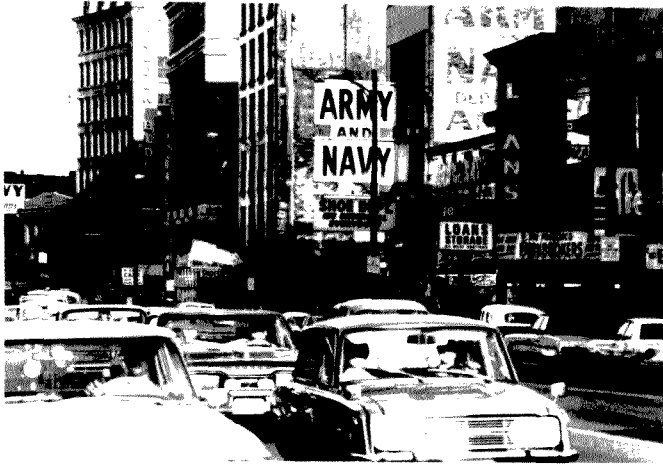
	3.	2.	1.	0.	1.	2.	3.			
unpleasant	___	:	___	:	___	:	___	:	___	pleasant
clean	___	:	___	:	___	:	___	:	___	dirty
boring	___	:	___	:	___	:	___	:	___	interesting
spacious	___	:	___	:	___	:	___	:	___	crowded
unusual	___	:	___	:	___	:	___	:	___	usual

Please work at fairly high speed through the test. It is your first impressions, the immediate feelings about the items that we want.



APPENDIX C: PERCEIVED LANDSCAPE OBJECTS

GROUP 1



West Hastings Street

Burrard Street



Broadway



Cambie Street



Woodward's  
Department Store



Vancouver Hotel



Hastings Park



GROUP 2



Georgia  
Street



Seymour  
Street



West  
Vancouver

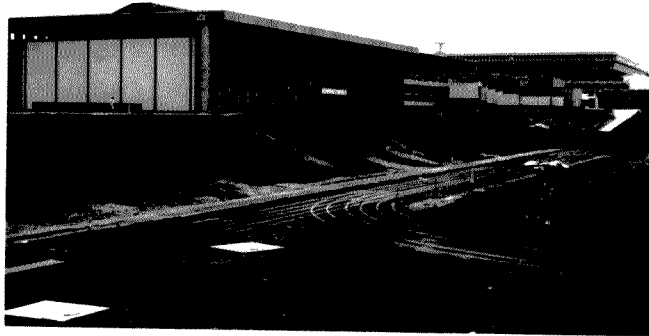


Queen Elizabeth  
Park

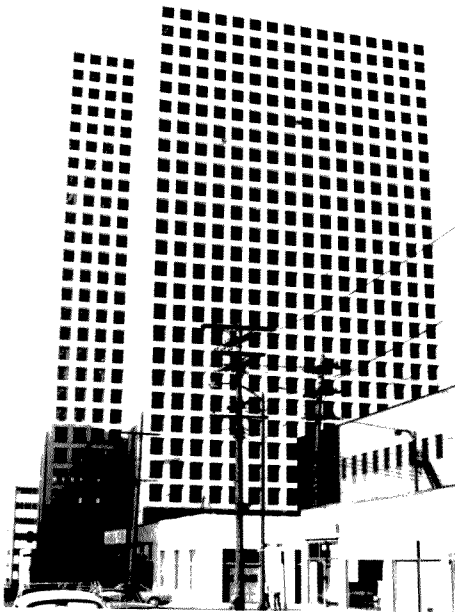
The East End



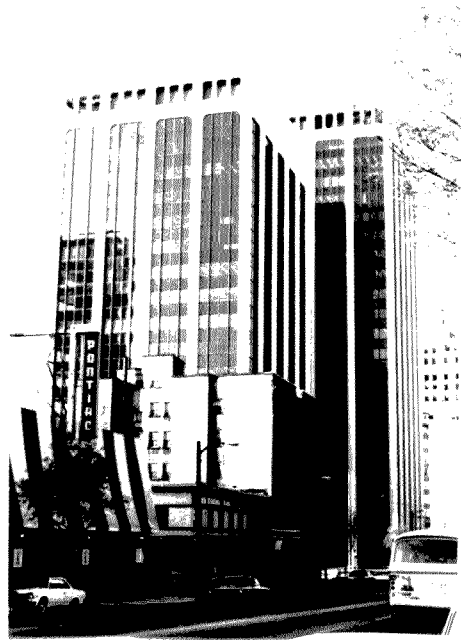
University of  
British Columbia



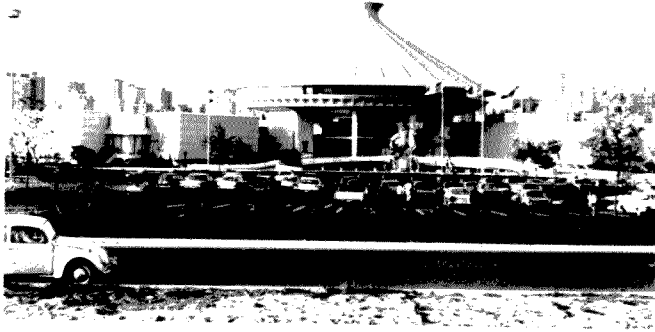
Simon Fraser  
University



McMillan-Bloedel  
Building



Bentall Towers



H.R. McMillan  
Planetarium

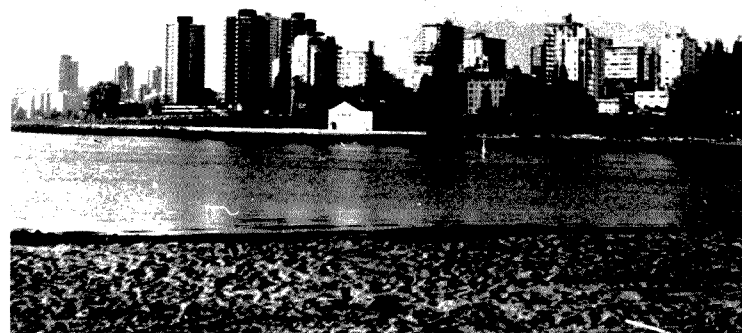
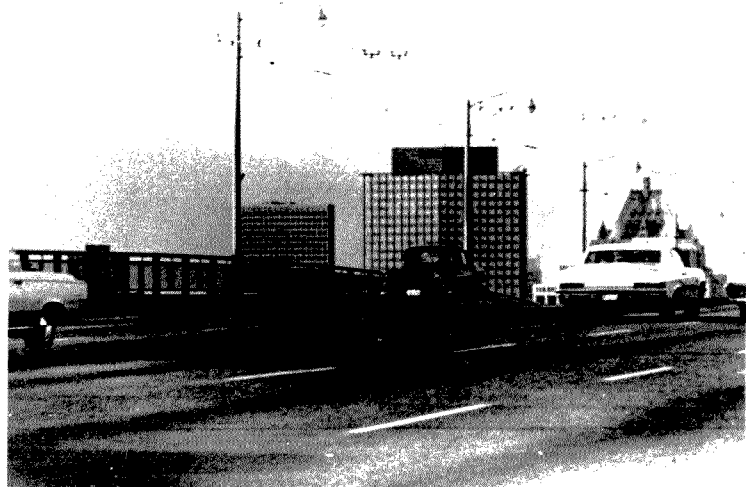


B.C. Hydro  
Building



Granville  
Street

Granville  
Bridge



The West End



Stanley Park



Skid Road

