

A CLASSIFICATION AND DEFINITION OF
SINGLE ENTERPRISE COMMUNITIES

A Thesis

Presented to

The Department of Geography

The University of Manitoba

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

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October, 1968

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ABSTRACT

Thesis Title: 'A Classification and Definition of
 Single Enterprise Communities'

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This research was prompted by the need for a definition based on a quantitative method of the term 'single enterprise community', the subject of a long term study by the Interdisciplinary Research Center for human Settlements, University of Manitoba, and for a classification of a number of these communities located beyond the urbanised fringe of Canada.

The method used is one of functional analysis by which the communities are defined and classified according to their basic employment characteristics, taken from the 1961 Census of Canada industrial employment figures. The functional categories used are: forestry, fishing and trapping; extraction; manufacturing; construction; transportation; community, business and personal services; trade; finance, insurance and real estate; public administration and defence.

It is concluded that the most useful measures for classifying and defining the communities are, firstly, the 'dominant function', that is, the function which employs the highest percentage of the basic labour force compared to other functions in the settlement; and, secondly, the

'distinctive function', that is, the function in which the basic employment exceeds to a marked degree the national average for basic employment in that function.

The classification is then used as a basis for studying the type of community growth and development, and some of the demographic and social characteristics of those communities, in order to see if any correlations exist between these and the function of the community. The characteristics examined include ethnic composition, age and sex structures, male and female labour force ratios, percentage employment, and average wages. It appears that there is a greater correlation between these characteristics and the age and location of the community, than with the type of function.

In final conclusion, although the method of functional analysis may not provide the best basis for analysing the characteristics of single enterprise communities, it is held to be a useful method of objectively classifying and defining single enterprise communities.

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to all the many people who have helped me during the preparation of this thesis.

I wish to make particular mention of Dr. Brian T. Perry, my supervisor, who gave generously of his time, and offered encouragement on the numerous occasions it was needed.

In addition, I gratefully acknowledge the financial assistance given me by the Center For Settlement Studies, University of Manitoba, which made this research possible.

INTRODUCTION

In October 1967, the University of Manitoba began a long range interdisciplinary study of isolated settlements on Canada's resource frontier. The program was set up with the aims of discovering:

(a) the principles which may now be governing the establishment and development of fringe settlements and isolated communities on Canada's resource frontier;

(b) the principles which could provide a basis for developing optimal living conditions in such communities in the future.¹

These settlements were loosely termed 'single enterprise communities' and a preliminary list of approximately three hundred communities was drawn up, based, in part, on the appendix of an earlier study of single enterprise communities, produced by the Queen's University Institute of Local Government in 1953.² All the communities on the preliminary list were thought to be 'single enterprise' either in origin or at the present time, but it became clear from the outset that a more definitive list of single enterprise communities, based upon specific criteria, was necessary.

It is the factor of dependence on the one activity within the town,

¹University of Manitoba, The Nature and Purposes of Single Enterprise Communities - A Proposal for a Long Range Interdisciplinary Study of Isolated Settlements on Canada's Resource Frontier (Winnipeg: October, 1967).

²Queen's University, Institute of Local Government, Single Enterprise Communities in Canada, by H. W. Walker, (Ottawa: Central Mortgage and Housing Corporation, 1953).

a dependence not shown by other Canadian settlements, which makes them distinct, and one of the aims of this work is to find more precise criteria for the measurement of this degree of dependence on one activity which merits the term 'single enterprise' being applied to the community. There are obviously great variations in origin, location, social, and economic structure of the communities in the study but the importance to each of the one activity is the linking factor.

The aims of the thesis can, therefore, be stated thus:

- (a) to quantify in some way the degree of dependence of a community on one activity in order to define the term 'single enterprise'
- (b) to classify the single enterprise communities so defined, according to their dominant activity or function.

The two major issues are involved in the production of a functional classification of settlements. These are firstly, the method used to allocate the settlements to groups or classes; secondly, the purpose of the classification, since the classification methods which have been developed in the past have too often been ends in themselves instead of being points of departure for further urban research.¹

The aim of this particular classification are to provide:

- (a) a statistical basis for comparison within and between different functional types according to their degree of functional specialization;

¹For further discussion of this point see, R. H. T. Smith, "Method and Purpose in Functional Town Classification," Annals of the Association of American Geographers, LVI, No. 3, (1965), pp. 539-548.

(b) a better understanding of the relation of the growth of the settlements to their function;

(c) a framework so that other aspects of the character of the settlements can be examined in relation to their function.

To fulfill all the aims of the thesis, the work involved falls logically into two quite distinct sections. Part One is concerned with methods of functional classification and the definition of single enterprise communities, based on a study of labour force characteristics. Part Two involves a consideration of the growth and development of different functional groups of communities, and of their different social and demographic characteristics in order to assess any salient variations within, and between, the groups of settlements, as classified and defined in Part One.

The analysis in Part Two is, of necessity, rather cursory but it is hoped that some aspects may be pointed up for further research.

Finally, it must be stressed here that the opinions expressed in this work are the personal views of the author. The research has received financial support from the Interdisciplinary Research Center for Human Settlements, University of Manitoba, but the views expressed in the thesis should not be taken as representing the views of other members of the Center.

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PART ONE

METHODS OF CLASSIFYING AND DEFINING
SINGLE ENTERPRISE COMMUNITIES BY
FUNCTIONAL ANALYSIS

CHAPTER I

METHODS OF FUNCTIONAL CLASSIFICATION

One of the basic concerns of the urban geographer has been the development of taxonomic systems whereby settlements could be differentiated one from another with respect to defined criteria, and sets of similar types of settlements could be recognized. One criterion which can be effectively employed to classify settlements is based on the functions each settlement performs, as reflected in the characteristics of the labour force.

Early methods based on the use of occupational and/or employment statistics were relatively simple, concerned principally with differences in crude percentages. More recent workers have developed more sophisticated classificatory systems, by which degrees of functional differences can be recognized.

Early Attempts at Classification

During the last century there have been many attempts at classification, but the early approaches to classification were non-quantitative and merely consisted of the application of descriptive labels. One of the earliest and best known of these qualitative classification methods was that developed by Aourousseau.¹ By observation he postulated six functional

¹M. Aourousseau, "The Distribution of Population--A Constructive Problem," *Geographical Review*, XI, No. 4 (1921), pp. 563-592.

categories--administration, defence, cultural, production, communication, and recreation. However, he also noted that in any particular city there is likely to be a combination of functions but one usually overshadows the rest, enabling the city to be given a functional label.

Only in the last two decades has there been any detailed analysis and comparison of the functional character of cities. By function is meant the economic activities which the residents are engaged in, and which is best reflected by the employment structure or characteristics of the labour force of a settlement. Quantitative methods of analysis are now possible because of the publishing by many countries of detailed statistics for small urban units, and the development of the electric calculator and computer which enable complicated statistical work to be carried out fairly quickly. There are many different schemes of classification, each with its own particular merits and defects.

A review of many of the early methods of both qualitative and quantitative methods, involving many different techniques for classification, can be found in Mayer and Kohn "Readings in Urban Geography"¹ and Lal "Some Aspects of Functional Classification of Cities and a Proposed Scheme for Classifying Indian Cities."² In this chapter only those

¹H. M. Mayer and C. F. Kohn (Eds.), "Readings in Urban Geography," (Chicago: Univer. of Chicago Press, 1959).

²A. Lal, "Some Aspects of Functional Classification of Cities and a Proposed Scheme for Classifying Indian Cities," National Geographic Journal of India, V. No. 1 (1959), pp. 12-24.

classifications in which new techniques were developed and which are relevant to the understanding of the method chosen for this study will be considered in any detail. Other classifications are mentioned in footnotes.

In 1943, Chauncy D. Harris published one of the first quantitative methods based on material from the 1930 Census of Population and the 1935 Census of Business for the U.S.A.¹ He assigned a city to a functional type according to the type of economic activity, measured by the occupations and employment of the residents of that city. Employment in manufacturing and trade formed the main basis of his classification and different ratios of these two activities were employed to distinguish different types of cities. For example, the classification of manufacturing (M') has as its principal criterion "employment in manufacturing equals at least 74% of the total employment in manufacturing, retailing, and wholesaling" plus a secondary criterion "manufacturing and mechanical industries contain at least 45% of gainful workers."² In this classification the personal selection of percentages for recognizable types means that it has the disadvantage of being subjective. These threshold values of Harris have been used by several other writers with slight modifications, but again the selection of the percentage threshold values is a

¹C. D. Harris, "A Functional Classification of Cities in the U.S.A." Geographical Review, XXXIII, No. 1 (1943), pp. 86-99.

²Op. cit., p. 88.

subjective one.¹

In a study of New Zealand towns in 1953, L. L. Pownall used a method involving percentage deviations from a mean value to define several types of towns.² The percentage employment values for functions in a town were compared with the mean percentage employment values for groups of towns of similar size, and the towns were classified according to the variation of the percentage value from the mean. This classification method was the first one in which it was recognized that the percentage employment in functional categories does show some variation with town size, an important factor in any analysis using deviations from mean values.

Two years later, Howard J. Nelson developed a method based on more clearly defined statistical procedures, involving standard deviations.³ He worked out the percentage of the total labour force in each of nine industrial categories, using the 1950 Census of Population of the U.S.A. for all cities with a population of over 10,000 and compared these

¹J. F. Hart, "Functions and Occupational Structure of Cities in the American South," Annals of the Association of American Geographers, XLV, No. 3 (1955), pp. 269-286.

V. Jones, "Economic Classification of Cities and Metropolitan Areas," Municipal Yearbook (1954), pp. 62-70.

M. G. A. Wilson, "Some Population Characteristics of Australian Mining Settlements," Tijdschrift voor Economische en Sociale Geographie, LIII, No. 5 (1962), pp. 125-132.

²L. L. Pownall, "Functions of New Zealand Towns," Annals of the Association of American Geographers, XLIII, No. 4 (1953), pp. 332-350.

³H. J. Nelson, "A Service Classification of American Cities," Economic Geography, XXXI, No. 3 (1955), pp. 189-210.

percentages with national averages. By using the standard deviation of values from the mean for each function, the degrees of variation from the mean could be compared statistically. Cities which were over one, two, or three standard deviations from the mean in particular functions were assigned appropriate ratings. Some cities emerged with ratings in more than one function whilst others emerged with no rating and thus were classed as diversified. This type of system presents a more valid picture of the structure of cities than a classification which groups cities into single category types, e.g., manufacturing, administration. The standard deviation method is preferable to the straight percentage deviation method employed by Powmall, but Nelson ignored the important factor of city size in determining his mean values.

One of the major disadvantages to using any comparison to means, medians, etc., lies in the danger of 'splitting up' groups of similar towns which happen to fall either side of the value chosen. It is, therefore, not possible with these methods to group towns so that they are characterized by maximum 'within group' and minimum 'between group' homogeneity, a point which will be considered further in the conclusion.¹

¹R. H. T. Smith, "Method and Purpose in Functional Town Classification," Annals of the Association of American Geographers, LVI, No. 4 (1965), pp. 539-548.

Basic/Non-Basic Concepts

One of the major problems in classifying towns by their employment characteristics has been in distinguishing the activities found in all urban areas, regardless of function, from those found in specialized centers. If the urban unit was completely isolated, having no trade contacts with other urban areas, the towns would theoretically develop a complete range of functions to serve the town, and the population would be employed in activities 'serving' the inhabitants. On the other hand, in a completely integrated urban society, settlements could develop specialized functions, and the population would be engaged almost entirely in so-called 'export' activities. Elements of both types of development are present in modern urban society and, therefore, a percentage of the population is employed in city serving (non-basic) activities, which are common to all towns, and another percentage in the export (basic) activities, which may be concentrated in one or two specialized centers.¹ Without the basic activities an urban unit would be unable to survive in a modern industrial society, and it is the nature of these activities which give the urban unit a particular functional character. As the non-basic activities are common to all urban areas, though in varying proportions, it therefore follows that a classification of cities on the basis of their basic activity employment would provide a better method of

¹ A variety of terms have been developed by economists and geographers to describe these two types of activity and throughout this thesis the words basic and non-basic have been used. The former covers such terms as export, excess, city forming employment and the latter city serving employment.

determining the *raison d'être* of a town. The basic population can be thought of as maintaining the non-basic population, which in turn requires a further layer of non-basic population to serve it.

Classifications Using Basic Employment

Since 1950, new methods of classification have been developed, based on the labour force engaged in basic activities. One of the principal obstacles to analyzing cities in this way is the fact that neither official nor unofficial statistics distinguish between basic and non-basic employment, and the distinction between the two is difficult to make. Numerous attempts have been made by geographers, economists and planners to determine satisfactory short cuts and estimating procedures to divide the labour force in this way.¹ The available published census data in

¹Some of the most important articles on the economic base of cities have been written by the following: J.W. Alexander, "The Basic Non-basic Concept of Urban Economic Function," Economic Geography, XXX, No. 3 (1954), pp. 246-261. R.B. Andrews, "Mechanics of the Urban Economic Base: A Classification of Base Types," Land Economics, XXIX, No. 4 (1953), pp. 343-350; and "Mechanics of the Urban Economic Base: The Problem of Base Measurement," Land Economics, XXX, No. 1 (1954), pp. 52-60; C. Clark, "The Economic Functions of a City in Relation to its Size," Econometrica, XIII, No. 2 (1945), pp. 97-113; H. Hoyt, "Economic Background of Cities," Journal of Land and Public Utilities Economics, XVLL, No.3 (1941), pp. 188-195; "Homer Hoyt on the Development of the Economic Base Concept," Land Economics, XXX, No. 2 (1954), pp. 182-191; "The Utility of the Economic Base Method in Calculating Urban Growth," Land Economics, XXXVLI, No.1 (1961), pp. 51-58; R. W. Pfouts, "The Techniques of Urban Economic Analysis", (New Jersey: Chandler Davis Publishing Co., 1960).

All these articles have been concerned with finding a means of base measurement. Most of the articles have been concerned with the determination of a normal ratio between basic and non-basic workers for different types and sizes of cities. The ratio can then be used for prediction of the future expansion of the basic employment, and therefore, as an aid to planning. Major difficulties involved in using the basic/non-basic ratio

Canada only relates to the total labour force in industrial or occupational categories, and the basic employment in particular categories must be determined in some way before inference about the functional typology can be made. The following methods all involve classification based on basic employment, which is determined in several different ways.

In a study of American cities in 1956, an attempt was made by Gunnar Alexandersson to classify cities using the basic employment only.¹ For each city the percentage of the employed population in each industrial category was calculated, and then, for each category, the cities were ranked according to percentage employment. The non-basic percentage of the labour force in each category was then taken as the percentage values of the city at the fifth percentile from the bottom in the rank order. This value was termed the 'k' value for each functional category, and the sum of all the 'k' values was therefore considered to be the minimum per-

for growth prediction arise from, firstly, the definition of the boundaries of a single urban unit, especially in a densely settled region, and secondly, the allocation of workers in some activities which have both basic and non-basic components.

Criticism of the methods can be found in: H. Blumenfeld, "The Economic Base of the Metropolis," Journal of the American Institute of Planners, XXI (1955), pp. 114-132; R.W. Pfouts and E.T. Curtis, "Limitations of the Economic Base Analysis," Social Forces, XXXIV, No. 4 (1958), pp. 303-310; V. Roterus and W. Calef, "Notes on the Basic/Non-basic Employment Ratio," Economic Geography, XXXI, No. 1 (1955), pp. 17-20; C.M. Tiebout, "The Urban Economic Base Reconsidered," Land Economics, XXXII, No. 2 (1956), pp. 95-99.

¹G. Alexandersson, "The Industrial Structure of American Cities," (Lincoln: University of Nebraska Press, 1956).

centage of the total employment required to meet non-basic needs. The fifth percentile value was used in preference to the actual minimum values to avoid using data from any 'extreme' cities, which tend to be characterized by peculiar circumstances. The cities were then classified rather arbitrarily for each function as A, B, or C cities, depending on whether the percentage employment in excess of the 'k' value was over 20%, between 10% and 20%, or between 5% and 10%. As with Nelson's classification, some cities emerged with ratings in several categories.

This method was elaborated upon by Irving Morrisset, who adjusted the 'k' values for different sizes of cities.¹ He computed the 'k' values for six different size groups of American cities and determined that in almost every case the 'k' value increased with city size. This indicates that the total minimum employment in non-basic activities is related to city size and increases with size, and, therefore, in classifying cities it is necessary to compute the minimum percentage values for different size groups if valid conclusions are to be drawn from the work.

The minimum requirements method was used by Edward L. Ullman and Michael F. Dacey as a measure for classifying cities on the basis of their degree of specialization.² However, instead of taking the values at the fifth percentile they selected the lowest percentages in the different

¹I. Morrisset, "The Economic Structure of American Cities," Papers and Proceedings of the Regional Science Association, IV, (1958), pp. 239-259.

²E. L. Ullman and M. F. Dacey, "The Minimum Requirements Approach to the Urban Economic Base," Papers and Proceedings of the Regional Science Association, VI, (1960), pp. 175-194.

size groupings of cities, ranging from 2,500 to over 1,000,000 population, using the 1951 U.S. Census.

Like Morrisset, they found that the larger the city the larger the sum of the minimum^a, ranging from 24% for towns of 2,500 to 3,000, to 57% for cities over 1,000,000 population. This finding is consistent with the theory that the larger the city the greater the number of activities that can be supported and the more self contained the city can be.¹ From the minima derived for the six different size groupings they were able to calculate regression lines for most categories (extraction, being the exception, as the minimum requirement is always zero percent) so that the exact minimum requirements could be read off for any particular size city. These data can then be used as a measure of non-basic activity to describe the economic base of cities, and also as an effective base for classifying cities by their degree of specialization or diversification.

An earlier attempt by Webb to classify cities by their degree of specialization involved the use of deviations from an 'average' employment structure, but Ullman and Dacey regard a method employing deviations from a minimum requirements structure, which varies with each city size, as more meaningful and consistent because of the dangers involved in using any abstracted 'average' values for comparison.²

¹Ibid, p. 180.

²J. W. Webb, "Basic Concepts in the Analysis of Small Urban Centers in Minnesota," Annals of the Association of American Geographers, XLIX, No. 1 (1959), pp. 55-72.

Ullman and Dacey, therefore, derived a Specialization Index by comparing the distribution of basic employment with the distribution of the minimum requirements. They believed that this index accentuates any large deviations and concentrations of employment in one or very few selected activities.¹

This method of determining the minimum requirements and the specialization index was subsequently adapted for use with Canadian cities with a population over 10,000 in 1951, by J. M. Maxwell.² Using the minimum requirements values for non-basic employment he deduced the dominant and distinctive functions for the cities, as well as specialization indices. The dominant function was defined as that function of activity which employs the highest percentage of the basic employment, and the distinctive functions as those functions in which basic employment exceeds greatly a nationally defined average for that function.

The methods employed by Maxwell for the larger Canadian towns have been adapted in this thesis for the classification of the smaller single enterprise communities and are described in fuller detail in the next chapter.

¹Ullman and Dacey, op. cit., p. 189.

²J. M. Maxwell, "The Functional Structure of Canadian Cities: A Classification of Cities," Geographical Bulletin, VII (1965), pp. 79-104.

CHAPTER II

CLASSIFICATION PROCEDURE

Methods to be Used: Dominant Faction, Distinctive Functions, and Specialization Index

It has been noted earlier that the proportion of population in non-basic activities increases with city size because the larger the city the more self supporting it can become, in that a great range of city services can develop. This large urban unit would obviously be more diversified than a small, remote mining settlement, producing a specialized commodity for an industrial market and providing, itself, only very limited urban services for its inhabitants. Some empirical measure of the functional differences between settlements provides a classificatory basis upon which to examine other social and economic aspects of the development of the settlement. The basis for arriving at this empirical measure is an examination of the functions of one community compared with the function of other communities, and the relative importance of functions within each specific community.

The most suitable method for measuring the importance of a function in a town relative to the other functions is the percentage population employed in that function.¹ However, a straightforward comparison, as such, may under-emphasise the importance of a highly

¹Webb, op. cit., p. 59.

localized function to the economy of a town. For example, if a town were to have 40% of its labour force in trade and 20% in mining, it would appear that trade was of greater significance in the economy. If, on the other hand, the relative proportions were then to be compared to, for example, national averages for the functions concerned the importance of mining ought to be reflected in its true perspective. The high percentage employed in trade is a reflection, in part, of service to a population engaged in producing a commodity for an external market, and the employment in trade is dependent on there being a mining population to serve. If this percentage of the population engaged in 'serving' the needs of other members of the community could be eliminated from the comparison of percentage employment, even greater emphasis can be placed on those functions which provide the *raison d'être* of a town. For this reason in the following analysis, this has been attempted using the minimum requirements method of Ullman and Dacey, and all comparisons are between employment percentages in basic activities only. Although there has been criticism of the basic/non-basic method of determining the economic base of a city (Footnote, page 8) it is believed that the minimum requirements method provides the most satisfactory means of comparing and analysing the single enterprise communities so as to gain a greater understanding of their economy.

It is proposed, therefore, to use the minimum requirements method developed by Ullman and Dacey for determining the basic employment in particular functions and then to determine, using the minimum require-

ments, the dominant and distinctive functions of the communities. In order to do this the basic outline of the work done by Maxwell on Canadian cities with a population over 10,000 has been taken as a guide but certain adaptations to the method had to be made because of the smaller size of the settlements presently under consideration.

In addition to the dominant and distinctive functions, it is also proposed to calculate a specialization index, using Ullman and Dacey's method in preference to that used by Webb for the reasons stated earlier, in an attempt to show the degree of diversity of a settlement, compared to the structure of the non-basic population.

It is hoped that through these methods a suitable framework for the classification and definition of the single enterprise communities can be achieved.

Selection of Settlements

The settlements chosen for this study as shown in Figure 1 and listed in Table 1 were selected from the preliminary list of approximately three hundred settlements drawn up by the Interdisciplinary Research Center in October, 1967 (Appendix I). As mentioned in the Introduction, this list was, in part, based on a selection of communities classed as single enterprise, to be found in the Appendix of the Queen's University Study of Single Enterprise Communities, but only those settlements outside the urbanised fringe of Canada were included.

The urbanised fringe was defined very generally by the Center as

FIGURE 1
LOCATION OF
SETTLEMENTS IN CANADA

NUMBERED BY PROVINCE
FOR KEY SEE TABLE 1

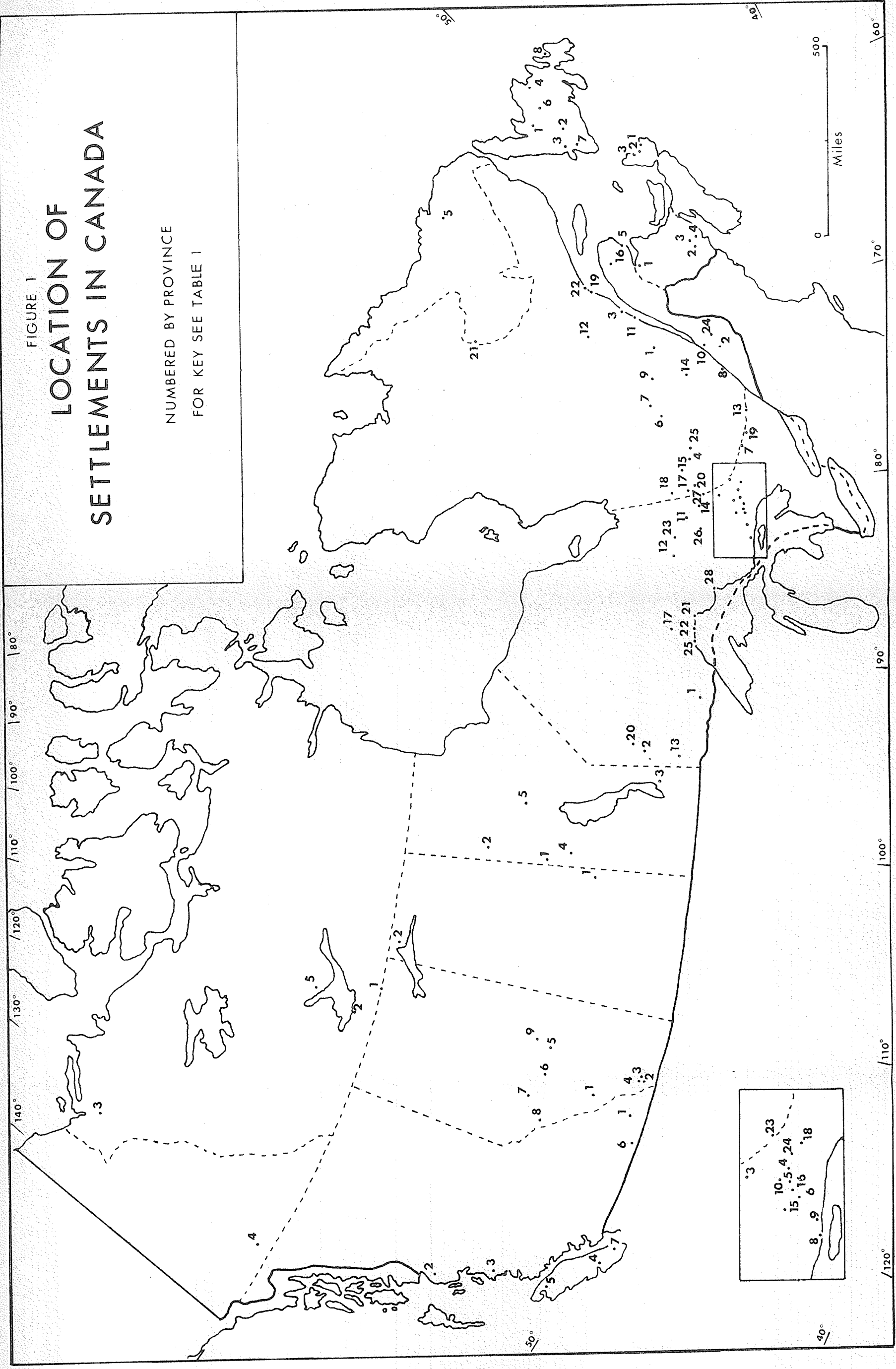


TABLE I

LIST OF SETTLEMENTS ARRANGED BY PROVINCE

(Numbered Alphabetically)

<u>Province</u>	<u>Settlement</u>	<u>Population 1961</u>
Newfoundland	1 Badger	1,036
	2 Buchans	2,463
	3 Corner Brook	25,185
	4 Gander	5,725
	5 GooseBay	3,040
	6 Grand Falls	6,606
	7 Stephenville	6,043
	8 Wabana	8,026
Nova Scotia	1 Glace Bay	24,186
	2 Sydney Mines	9,122
	3 New Waterford	10,592
New Brunswick	1 Atholville	2,145
	2 Maryville	3,233
	3 Minto	1,319
	4 Oromocto	12,170
Quebec	1 Arvida	14,460
	2 Asbestos	11,083
	3 Baie Comeau	7,956
	4 Bourlamaque	3,344
	5 Chandler	3,406
	6 Chapais	2,393
	7 Chibougamau	4,765
	8 Crabtree	1,313
	9 Dolbeau	6,052
	10 Donnacona	4,812

Table I (Cont'd)

<u>Province</u>	<u>Settlement</u>	<u>Population 1961</u>
	11 Forestville	1,529
	12 Gagnon	1,900
	13 Gatineau	13,022
	14 La Tuque	13,023
	15 Malartic	6,998
	16 Murdockville	2,951
	17 Noranda	11,477
	18 Normetal	2,285
	19 Port Cartier	3,458
	20 Rouyn	18,716
	21 Schefferville	3,178
	22 Sept Iles	14,196
	23 Temiscaming	2,517
	24 Thetford Mines	21,618
	25 Val d'Or	10,983
Ontario	1 Atikokan	6,674
	2 Balmerton & Cocheneur	1,421
	3 Cobalt	2,209
	4 Coniston	2,692
	5 Copper Cliff	3,600
	6 Creighton	1,727
	7 Deep River	5,377
	8 Elliot Lake	9,950
	9 Espanola	5,353
	10 Falconbridge	1,138
	11 Iroquois Falls	1,681
	12 Kapuskasing	6,870
	13 Keewatin	2,197
	14 Kirkland Lake	15,366
	15 Levack	3,178

Table I (Cont'd)

<u>Province</u>	<u>Settlement</u>	<u>Population 1961</u>
	16 Lively	3,211
	17 Longlac	1,125
	18 North Bay	23,781
	19 Petawawa	4,509
	20 Red Lake	2,051
	21 Red Rock	1,316
	22 Schreiber	2,230
	23 Smooth Rock Falls	1,131
	24 Sturgeon Falls	6,288
	25 Terrace Bay	1,901
	26 Timmins	29,270
	27 Virginiatown	2,009
	28 Wawa	4,040
Manitoba	1 Flin Flon	11,104
	2 Lynn Lake	1,881
	3 Pine Falls	1,244
	4 The Pas	4,671
	5 Thompson	3,418
Saskatchewan	1 Hudson Bay	1,601
	2 Uranium City	1,665
Alberta	1 Banff	3,429
	2 Bellevue	1,174
	3 Blairmore	1,779
	4 Coleman	1,507
	5 Devon	1,283
	6 Drayton Valley	3,352
	7 Hinton	4,307
	8 Jasper	2,360
	9 Redwater	1,041

Table I (Cont'd)

<u>Province</u>	<u>Settlement</u>	<u>Population 1961</u>
<u>British Columbia</u>	1 Kimberley	6,033
	2 Kitimat	8,217
	3 Ocean Falls	3,056
	4 Port Alberni	11,056
	5 Port Alice	1,065
	6 Trail	11,580
	7 Youbou	1,153
<u>Yukon and North West Territories</u>	1 Fort Smith	1,591
	2 Hay River	1,338
	3 Inuvik	1,248
	4 Whitehorse	5,031
	5 Yellowknife	3,141

Total Number of Settlements = 96

being the limit of permanently settled farmland.¹ It would have been preferable to have used a definition based on several, not just one, criteria.

The closely settled and utilized part of Canada represents only a narrow strip along the United States border, and north of this strip the land is more sparsely populated and sporadically utilized. By using several criteria it is possible to define a broad zone of transition between these two regions. The three most important delimiting factors are: density of population, cultivated or occupied farmland, and integration of communications.

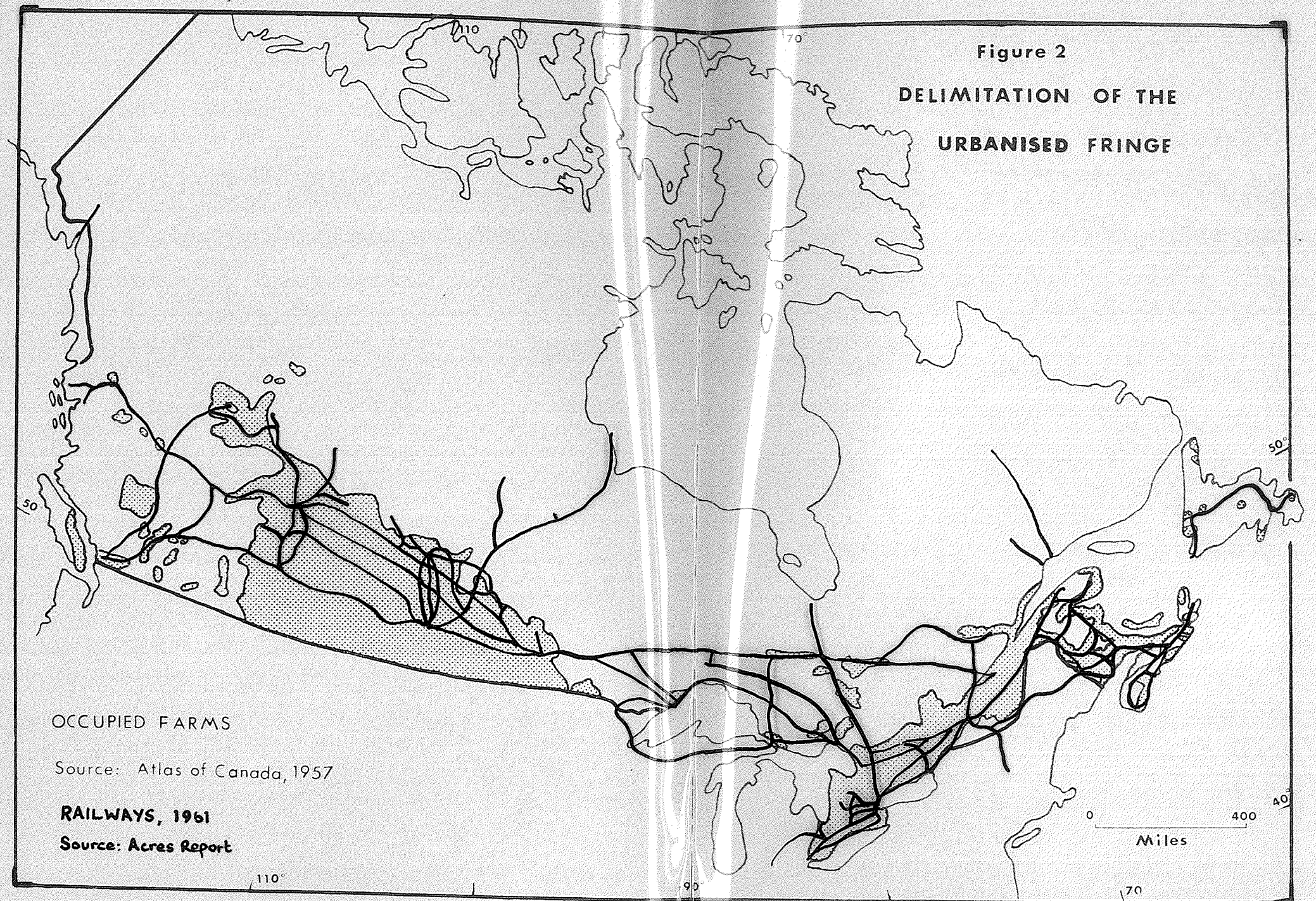
In Figure 2 the occupied farmland in 1958 is used as a base map and superimposed on this is the railway network. The area of integrated railway communications coincides very broadly with the occupied farmland and it is possible from the two to deduce a broad zone of transition.

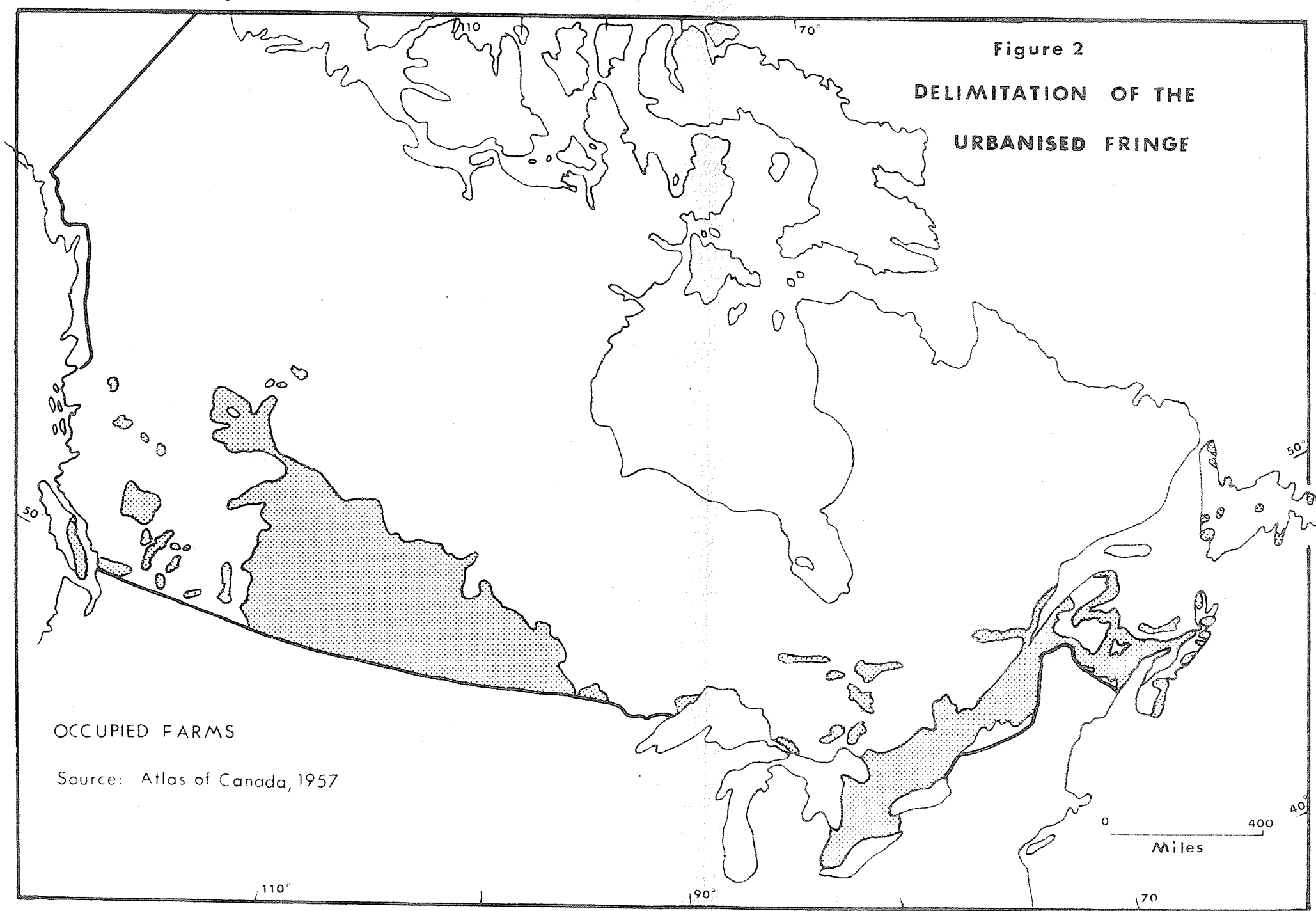
The diagram could have been further refined by superimposing the inhabited or closely settled area of Canada. A definition of the ecumene (inhabited) area of Canada was last attempted by Gajda from data for population distribution in 1958.² He describes in detail the earlier attempts at defining the ecumene and their limitations, and goes on to discuss four zones of habitation which he recognizes, but he

¹Atlas of Canada, 1958, 'Occupied Farmland' Table 68.

²R. T. Gajda, "The Canadian Ecumene---Inhabited and Uninhabited Areas," Geographical Bulletin, No. 15, (1960), pp. 5-18.

Figure 2
DELIMITATION OF THE
URBANISED FRINGE





fails to describe the method he himself used for delimiting the ecumene. For this reason it was considered as being insufficiently reliable, and excluded from Fig. 2.

It is impossible to define precisely the limit of the urban area and, therefore, because of the general coincidence of the farmland and integrated railway network, the earlier definition used by the Center has been accepted in the selection of the settlements. All the settlements, therefore, lie either within the fringe zone between the occupied and unsettled land or entirely outside the zone.

The number of settlements to be studied in this particular research was restricted by the availability of the required data for the labour force. This is available in published form in the 1961 Census of Canada for incorporated towns and villages with a population over 5,000, and for smaller settlements and those unincorporated was supplied by the Dominion Bureau of Statistics, Ottawa.¹

No data are available for settlements smaller than 1,000 population, except in one or two special cases, and even if the data had been available for these small communities it would have been difficult to apply the statistical techniques with any validity where such small numbers are involved.²

¹Census of Canada, 1961, Vol. III, Part 3.

²Data was supplied for the following communities with a population less than 1,000: Aklavik, Fort Simpson, Frobisher Bay, Ranklin Inlet, and Snow Lake but because of the small numbers in the labour force the conversion to percentages data was considered a problem. In the first four settlements where there are large numbers of native people the importance of fishing and trapping to the settlements could be under-emphasized because of the collection of the data in the summer.

The total number of communities to be studied, each with a population in excess of 1,000, is ninety-six. They range in size from Timmins (Ontario), 29,270, to Badger (Newfoundland), 1,036 and include both incorporated and unincorporated settlements.

The exclusion of settlements with a population of less than 1,000 from this study also means the exclusion of many settlements north of 55° latitude. These are the settlements most isolated from the southern urban areas of Canada and, therefore, emphasis in this study is on communities within, or close to, the urbanized fringe.¹

Data Required

As the functional structure of a town is to be determined by the employment, the statistics for the industrial labour force breakdown were required.² The 1961 Census of Canada gives a breakdown into a minimum of ten categories (excluding agriculture) for incorporated settlements over 5,000 population, and the data supplied from Ottawa was listed under the same ten headings.³ It is unfortunate that the material is several years out of date, especially as rapid change is a feature of certain types of

¹Of the 26 settlements in the North West Territories and the Yukon on the preliminary list, only 5 have a population greater than 1,000 and therefore 21 are excluded from the study.

²Census of Canada, 1961, Labour Force, 15 years of Age and over, by Industry Division and Sex, Volume III, Part 3.

³Personal communication with T. G. Beynon, Chief of the Economic Characteristics Section, Dominion Bureau of Statistics, Ottawa.

settlement, but the emphasis of the thesis is on methodology as well as factual information. It is stressed that the results of the analysis refer to particular settlements at a particular point in time.

It is also important to emphasize here that the data were collected during the summer of 1961, and consequently the results may be affected where seasonality of employment is an important characteristic of a community, as, for example, in the tourist or forestry industry.¹ The effects of the seasonality of employment on the apparent size of the labour force must be borne in mind especially in Part Two of the thesis where social and demographic characteristics are considered.

Determination of the Minimum Requirements (Non-Basic Employment)

As a basis for determining the non-basic employment, the percentage of the labour force employed in each of the ten categories was calculated from the census for all Canadian cities with a population greater than 5,000 in 1961. These cities were arbitrarily divided into five population size groupings, based on those used by Maxwell, and the figure for the city with the lowest percentage employed in each category was entered in Table 2.² Only separate towns were considered, not constituent parts of

¹An excellent example of the confusion arising from the collection of labour force data for employment in the week preceeding enumeration in June, is shown by the data for Fort Simpson, N.W.T. The census reports a total population of 563 (63% Indian) but a labour force of only 40, giving a work participation ratio of 7%. However, D.B.S. has unpublished material showing that the annual labour force was 221, suggesting that the demand for labour in the area is highly seasonal.

²Maxwell, op. cit., p. 83.

TABLE 2

MINIMUM PERCENTAGES EMPLOYED IN CANADIAN CITIES
IN VARYING SIZE CLASSES, 1961

Functional Category	City Size Classes (Population in Thousands)				
	5.0-9.9	10.0-19.9	20.0-29.9	30.0-99.9	100.0+
Forestry	0.0	0.0	0.0	0.0	0.0
Fishing & Trapping	0.0	0.0	0.0	0.0	0.0
Extraction ^a	0.0	0.0	0.0	0.0	0.0
Manufacturing	1.1	2.3	5.2	8.5	10.0
Construction	1.7	2.2	3.2	3.4	5.9
Transportation ^b	2.8	3.2	4.2	4.8	6.2
Trade	9.0	9.7	10.8	13.9	13.6
Finance, Insurance & Real Estate	0.4	1.4	1.7	1.9	2.6
Community, Business & Personal Service ^c	10.8	12.1	15.1	15.6	19.0
Public Administra- tion & Defence ^d	2.0	2.7	2.8	2.6	3.6
TOTAL MINIMUM REQUIREMENTS	27.8	33.6	43.0	50.7	60.9
	Figures expressed as percentage of total labour force				
Calculated from	132	61	24	31	12
	towns	towns	towns	towns	towns

* Census metropolitan areas have been considered as single cities, not as separate smaller cities.

^a Includes milling.

^b Includes communication and other utilities.

^c Includes education and related services, health and welfare, religious organizations, motion picture and recreational services, services to business management and miscellaneous services.

^d Covers establishments primarily engaged in activities that are basically governmental in character, such as enactment of legislation, administration of justice, collection of revenue, and defence.

Source: Tenth Census of Canada, 1961, Volume III, Part 3.

census metropolitan areas, as the percentage values derived from these contiguous units would not reflect the true minimum values for separate urban areas which are being considered in this particular study. In addition, the town of Oromocto, New Brunswick, in the population group 10,000-19,999, was omitted from the calculation of the minimum values as it is a residential area for a military camp and it exhibits a unique functional structure, with little development of the normal urban functions for a town of its size.

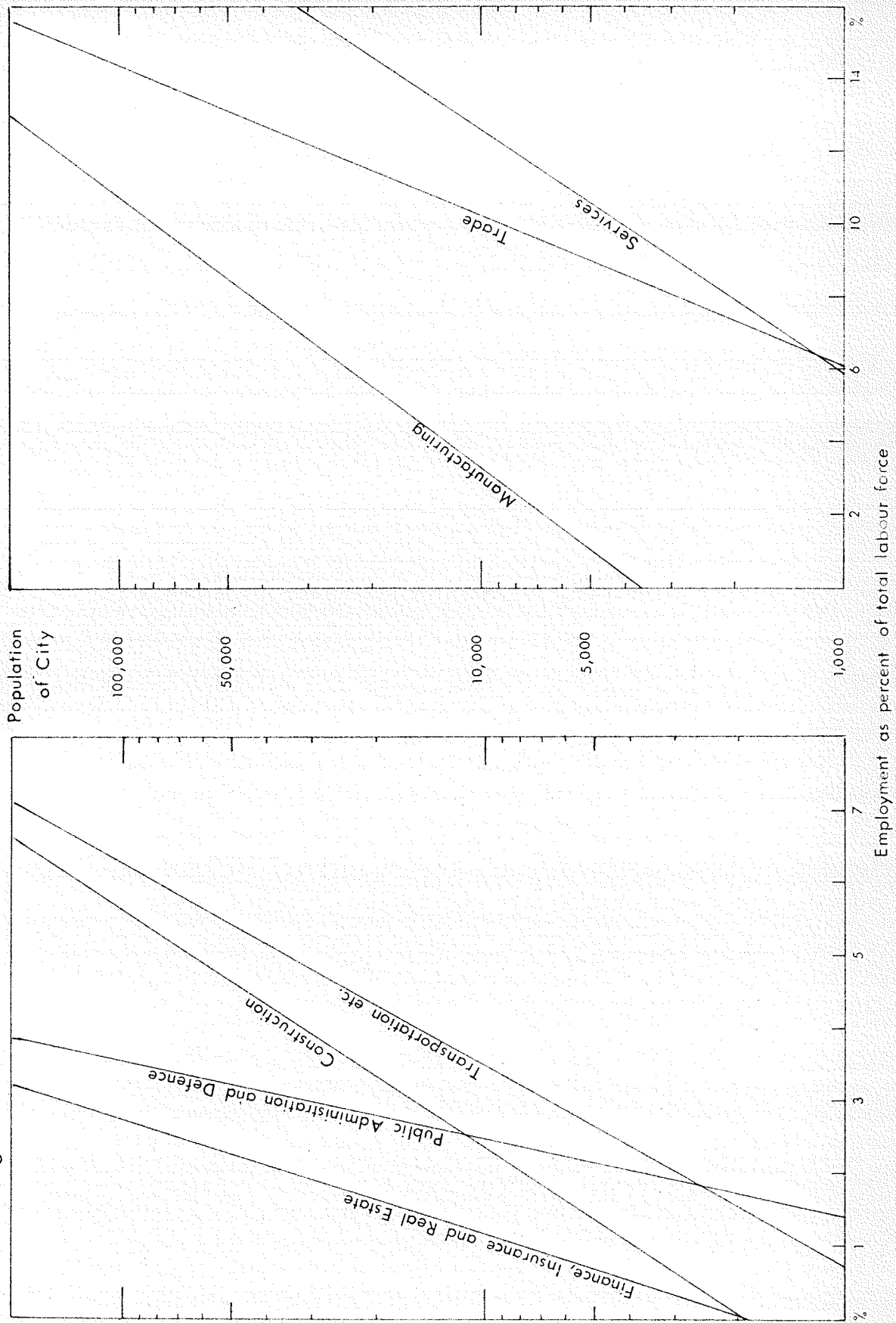
In comparing the minimum values thus derived with those calculated by Maxwell for four size groupings of cities using the 1951 Census of Canada figures (Appendix IV) it can be seen that the total minimum requirements have increased slightly, which may possibly reflect a change towards greater self sufficiency.¹

When the minimum percentage values are plotted against the logarithm of the city population, they closely approximate to straight lines and regression lines can be derived to enable the correct minimum values for any size of city to be determined. The regression lines calculated, by computer, for the data in Table 2 are shown in Figure 3.² There are no regression lines for forestry, fishing, and trapping, and extraction because the minimum percentage requirements does not vary with city size,

¹A similar change was noted by Ullman and Dacey, op. cit., p. 178, for American cities between 1940 and 1950.

²The accurate minimum values for all the settlements studied can be found in Appendix V.

Figure 3. REGRESSION LINES FOR MINIMUM REQUIREMENTS VALUES



being zero percent in every case. The gradients of the lines vary from function to function, as do the minima but in all cases the minima increase with city size. In the case of some functions (manufacturing; construction; finance, insurance, and real estate) the minimum values reach zero at population sizes greater than 1,000, which is the smallest size settlement studied. This in effect suggests that small settlements can survive without non-basic employment in certain functions, but even in very small communities there would be some non-basic employment in, for example, public administration or trade, which is as one would expect. The values obtained from the regression lines form the basis for evaluating the urban functional structure.

Dominant Function

The dominant function is defined by Maxwell¹ as that function involving the greatest percentage of the city's basic labour force i.e., the percentage employment as derived from the census, minus the minimum requirements, calculated from the regression lines. The dominant function gives a measure of the importance of one particular activity to the economy of the town.² If, for example, a high proportion of the basic employment is engaged in mining, and the mine should cease to operate, this would not only affect the population supported directly by mining,

¹Maxwell, op. cit., p. 85.

²A worked example can be found in Appendix VII.

FIGURE 4 DOMINANT FUNCTIONS

29

(FOR KEY TO NUMBERS SEE TABLE 3)

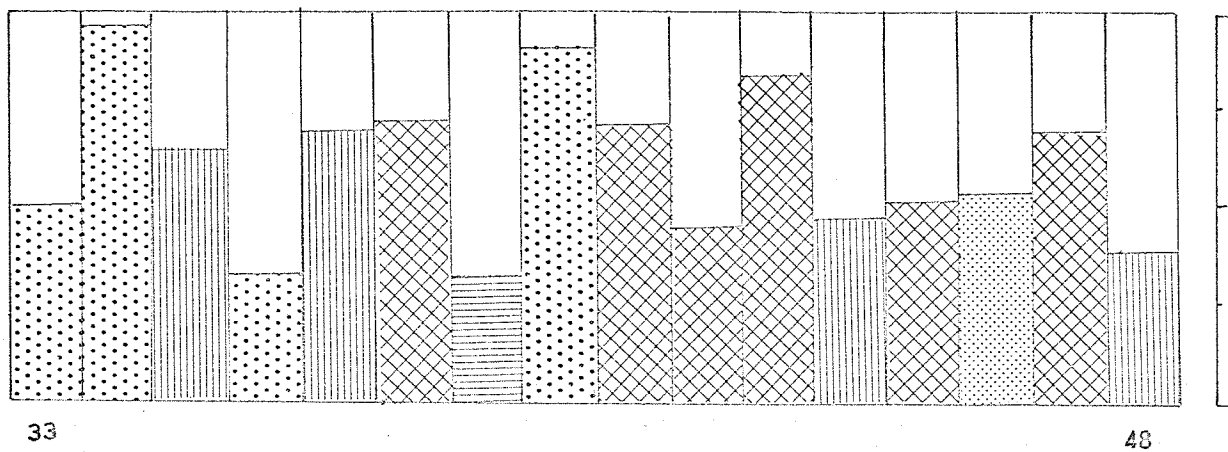
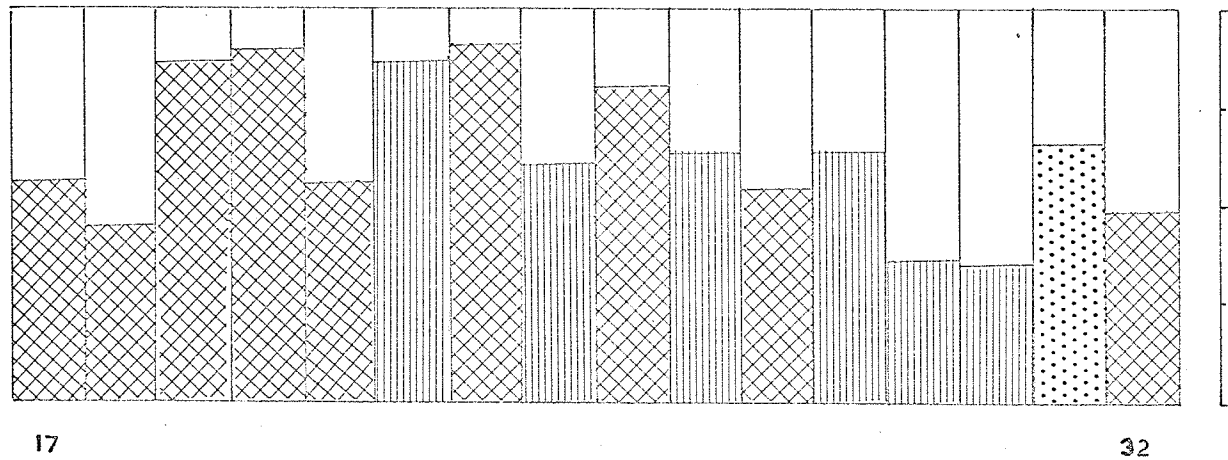
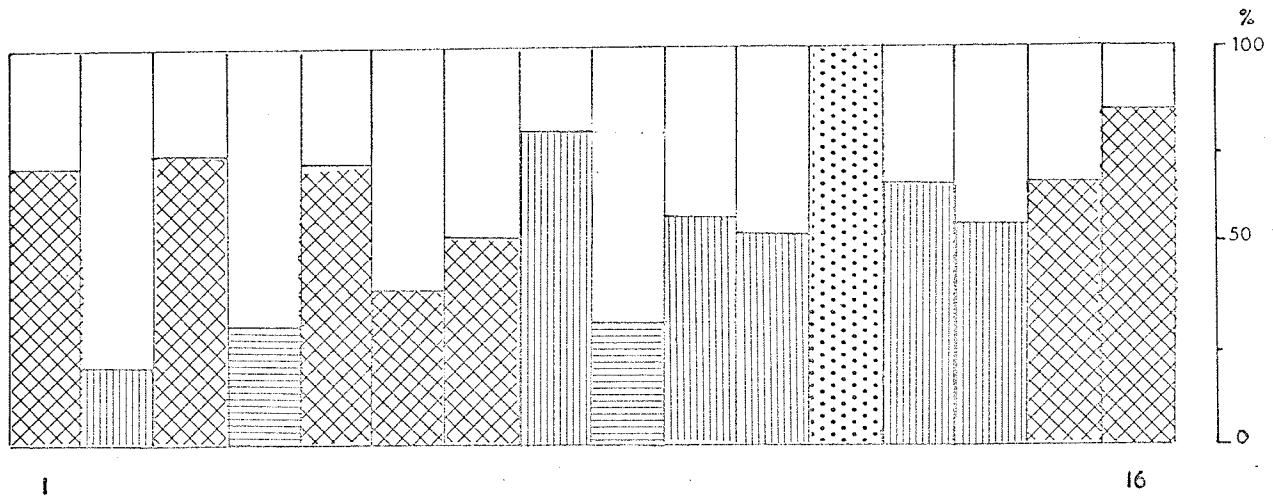
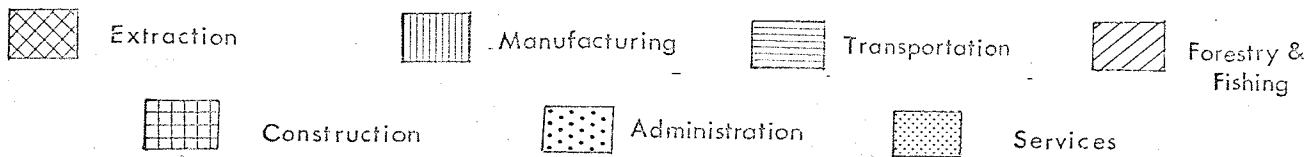
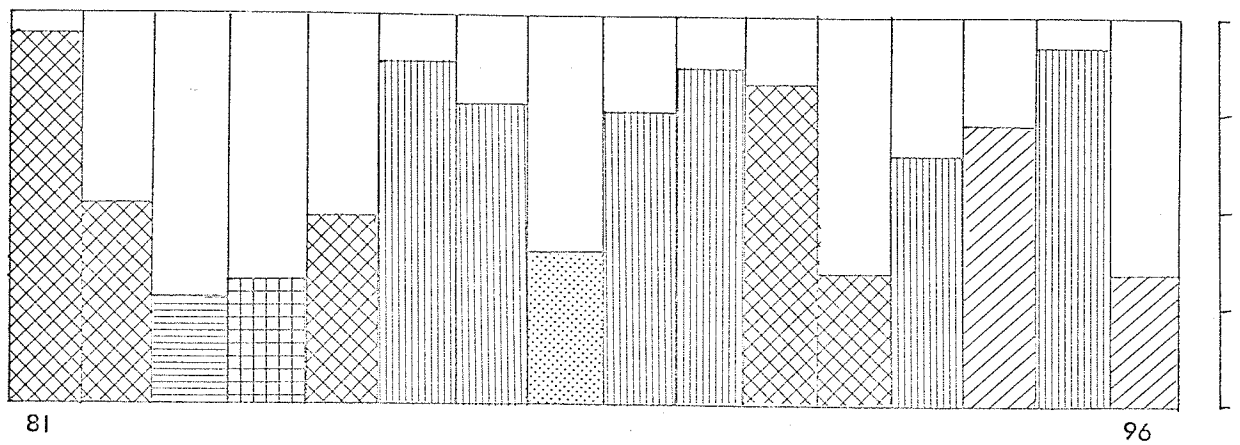
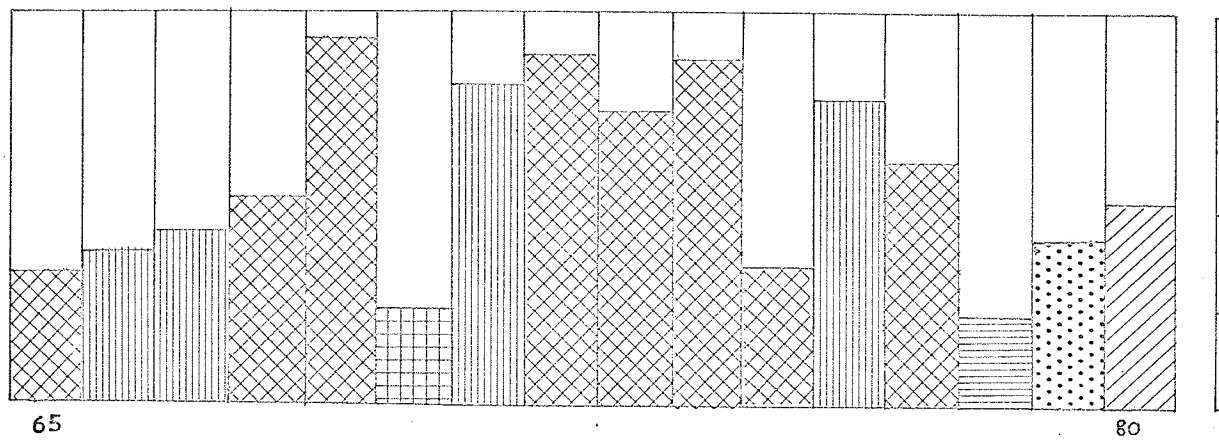
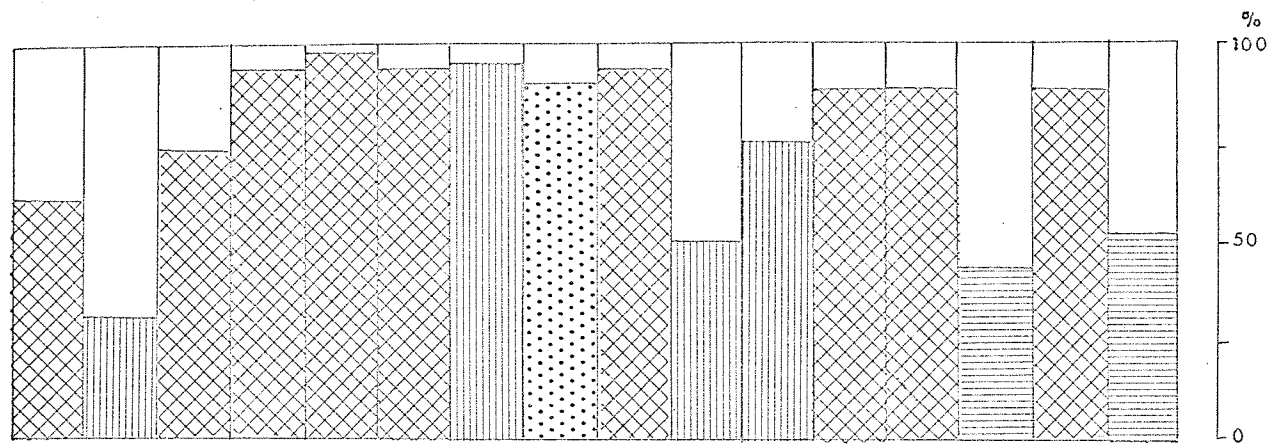


FIGURE 4

30



but also the population engaged in non-basic activities, providing the urban services for the miners and their families. They are indirectly employed by the mine. If, on the other hand, no one function is particularly dominant, it can be assumed that the non-basic population and the urban economy would not be so badly affected by a slump in any one particular field of employment.

The dominant functions are listed in Table 3, and the basic employment structures are expressed in diagram form in Figure 4. The basic employment structure is compared with the total employment structure for selected towns in Appendix VIII. This comparison brings out clearly the importance of considering the basic employment rather than the total employment in understanding the economic base of the town, especially the larger towns where there is a higher percentage of non-basic employment.

Distinctive Functions

The distinctive functions of a town are those whose share of basic employment is greater than the share they usually have in most towns. The calculation of these functions involves, therefore, a comparison with some mean values, and the selection of these values is extremely important if a meaningful comparison is to be made.

It would not be logical to work out mean values for different functions from the ninety-six settlements, because each of these was selected for study because it is unique in some way, and therefore a derived mean from these would not reflect the 'normal' mean values for

TABLE 3

DOMINANT FUNCTIONS

Settlements are listed in order of size.

<u>Number*</u>	<u>Settlement</u>	<u>Dominant Function</u>	<u>% of Basic Labour Force</u>
1	Timmins	Extraction	68%
2	Corner Brook	Manufacturing	43%
3	Glace Bay	Extraction	69%
4	North Bay	Transportation	31%
5	Thefford Mines	Extraction	68%
6	Rouyn	Extraction	43%
7	Kirkland Lake	Extraction	54%
8	Arvida	Manufacturing	80%
9	Sept Iles	Transportation	29%
10	La Tuque	Manufacturing	63%
11	Gatineau	Manufacturing	56%
12	Oromocto	Public Admin. & Defence	100%
13	Trail	Manufacturing	68%
14	Port Alberni	Manufacturing	63%
15	Noranda	Extraction	68%
16	Flin Flon	Extraction	86%
17	Asbestos	Extraction	58%
18	Val d'Or	Extraction	48%
19	New Waterford	Extraction	88%
20	Elliott Lake	Extraction	90%
21	Sydney Mines	Extraction	59%
22	Kitimat	Manufacturing	88%
23	Wabana	Extraction	90%
24	Baie Comeau	Manufacturing	62%
25	Malartic	Extraction	83%
26	Kapuskasing	Manufacturing	64%

Table 3 (Cont'd)

<u>Number</u>	<u>Settlement</u>	<u>Dominant Function</u>	<u>% of Basic Labour Force</u>
27	Atikokan	Extraction	56%
28	Grand Falls	Manufacturing	65%
29	Sturgeon Falls	Manufacturing	36%
30	Dolbeau	Manufacturing	36%
31	Stephenville	Public Admin. & Defence	65%
32	Kimberley	Extraction	50%
33	Gander	Public Admin. & Defence	51%
34	Deep River	Public Admin. & Defence	97%
35	Espanola	Manufacturing	64%
36	Whitehorse	Public Admin. & Defence	32%
37	Donnacona	Manufacturing	70%
38	Chibougamau	Extraction	72%
39	The Pas	Transportation	33%
40	Petawawa	Public Admin. & Defence	89%
41	Wawa	Extraction	73%
42	Drayton Valley	Extraction	47%
43	Copper Cliff	Extraction	84%
44	Hinton	Manufacturing	49%
45	Port Cartier	Extraction	52%
46	Banff	Services	53%
47	Thompson	Extraction	67%
48	Chandler	Manufacturing	42%
49	Bourlamaque	Extraction	61%
50	Marysville	Manufacturing	32%
51	Lively	Extraction	76%
52	Schefferville	Extraction	95%
53	Levack	Extraction	97%

Table 3 (Cont'd)

<u>Number</u>	<u>Settlement</u>	<u>Dominant Function</u>	<u>% of Basic Labour Force</u>
54	Yellowknife	Extraction	95%
55	Ocean Falls	Manufacturing	96%
56	Goose Bay	Public Admin. & Defence	90%
57	Murdockville	Extraction	95%
58	Coniston	Manufacturing	50%
59	Temiscaming	Manufacturing	77%
60	Buchans	Extraction	90%
61	Chapais	Extraction	91%
62	Jasper	Transportation	46%
63	Normetal	Extraction	89%
64	Schreiber	Transportation	52%
65	Cobalt	Extraction	33%
66	Keewatin	Manufacturing	39%
67	Atholville	Manufacturing	46%
68	Red Lake	Extraction	55%
69	Virginiatown	Extraction	97%
70	Blairmore	Construction	25%
71	Terrace Bay	Manufacturing	84%
72	Gagnon	Extraction	91%
73	Lynn Lake	Extraction	77%
74	Creighton	Extraction	88%
75	Coleman	Extraction	35%
76	Iroquois Falls	Manufacturing	78%
77	Uranium City	Extraction	63%
78	Hudson Bay	Transportation	22%
79	Fort Smith	Public Admin. & Defence	34%
80	Forestville	Forestry	52%
81	Balmerton & Cocheneur	Extraction	97%

Table 3 (Cont'd)

<u>Number</u>	<u>Settlement</u>	<u>Dominant Function</u>	<u>% of Basic Labour Force</u>
82	Devon	Extraction	52%
83	Hay River	Transportation	29%
84	Bellevue	Construction	32%
85	Minto	Extraction	50%
86	Red Rock	Manufacturing	89%
87	Crabtree	Manufacturing	79%
88	Inuvik	Services	41%
89	Pine Falls	Manufacturing	75%
90	Youbou	Manufacturing	89%
91	Falconbridge	Extraction	83%
92	Redwater	Extraction	34%
93	Smooth Rock Falls	Manufacturing	64%
94	Longlac	Forestry	73%
95	Port Alice	Manufacturing	93%
96	Badger	Forestry	34%

*Number refers to Figure 4.

a complete range of Canadian towns.

To overcome this problem the mean basic employment values have been calculated from the 132 Canadian cities in the size range 5,000 to 10,000 population at the 1961 census. This was achieved by working out the percentage employment in each of the functions from the census, and then subtracting from these percentages the minimum percentage values derived from the regression lines. It is realized that these mean values also have their limitations, in that they only represent means for a small section of the population size range of the settlements being studied. However, there were two overwhelming problems to calculating the mean basic values for the complete size range. Firstly, the data for the settlements with a population under 5,000 are not published in the census, and secondly, the mathematics of the calculations would have proved too immense in the time available. Considering these problems, the calculation of the mean basic values from one complete population size group seemed the most acceptable solution, especially as the size factor is compensated for, to some extent, by the use of minimum percentage values adjusted to the actual size of the settlements.

To determine the degree of distinctiveness of the functions, three classes of distinctiveness were used, based on standard deviation from the calculated mean values of basic employment.¹ The standard deviations were again worked out for the 132 towns in the size range 5,000 to 10,000

¹Standard deviations were first used as a measure for classification by Nelson.

population, and then the results were applied to the ninety-six settlements.

Functions were considered to be distinctive if the values of basic employment were above the mean, the class of distinctiveness being determined thus:

Class 1. All functions with basic employment values greater than the mean value of basic employment plus two standard deviations;

Class 2. All functions with basic employment values greater than the mean value plus one standard deviation;

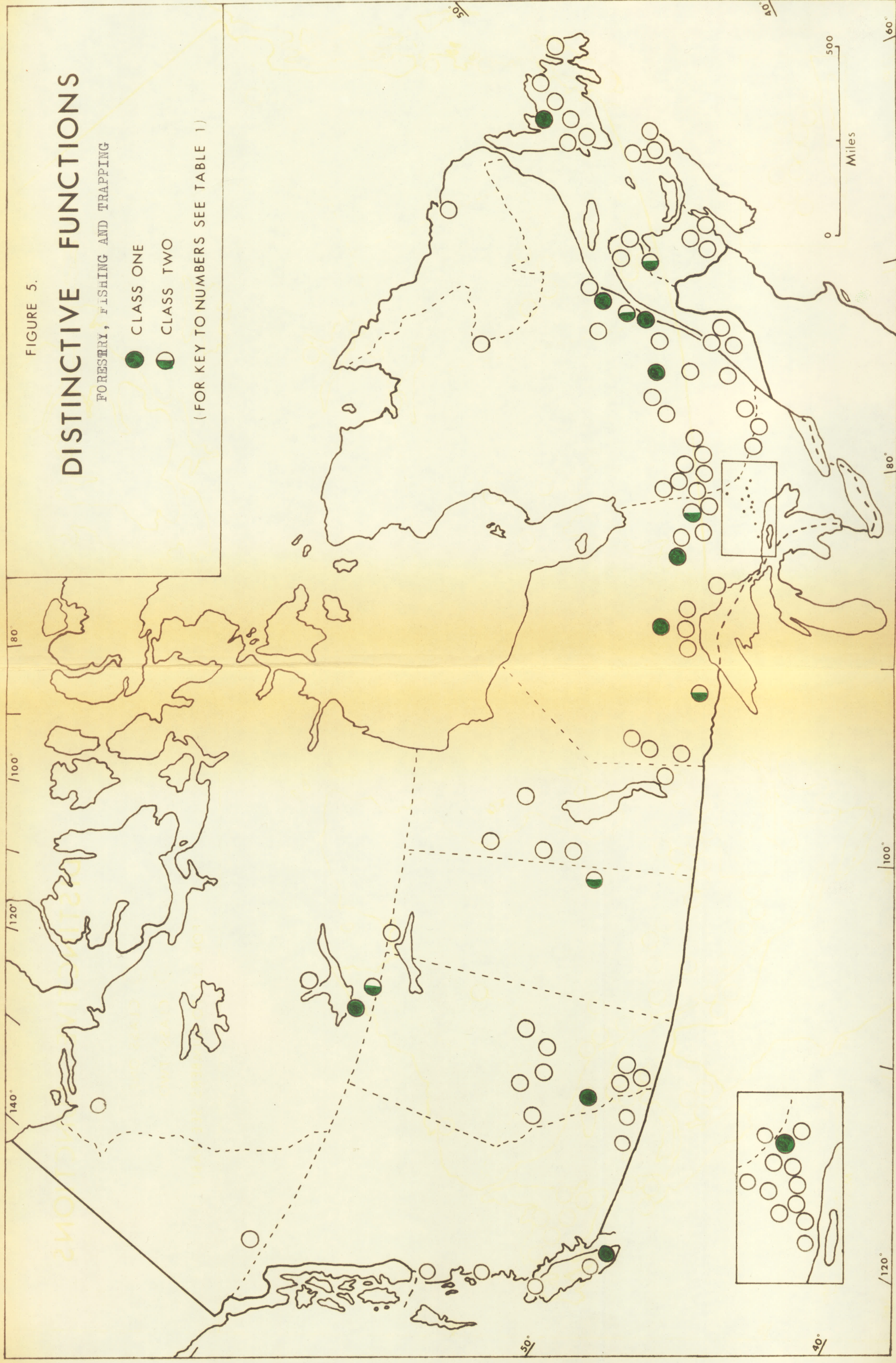
Class 3. All functions with values between the mean value and one standard deviation.

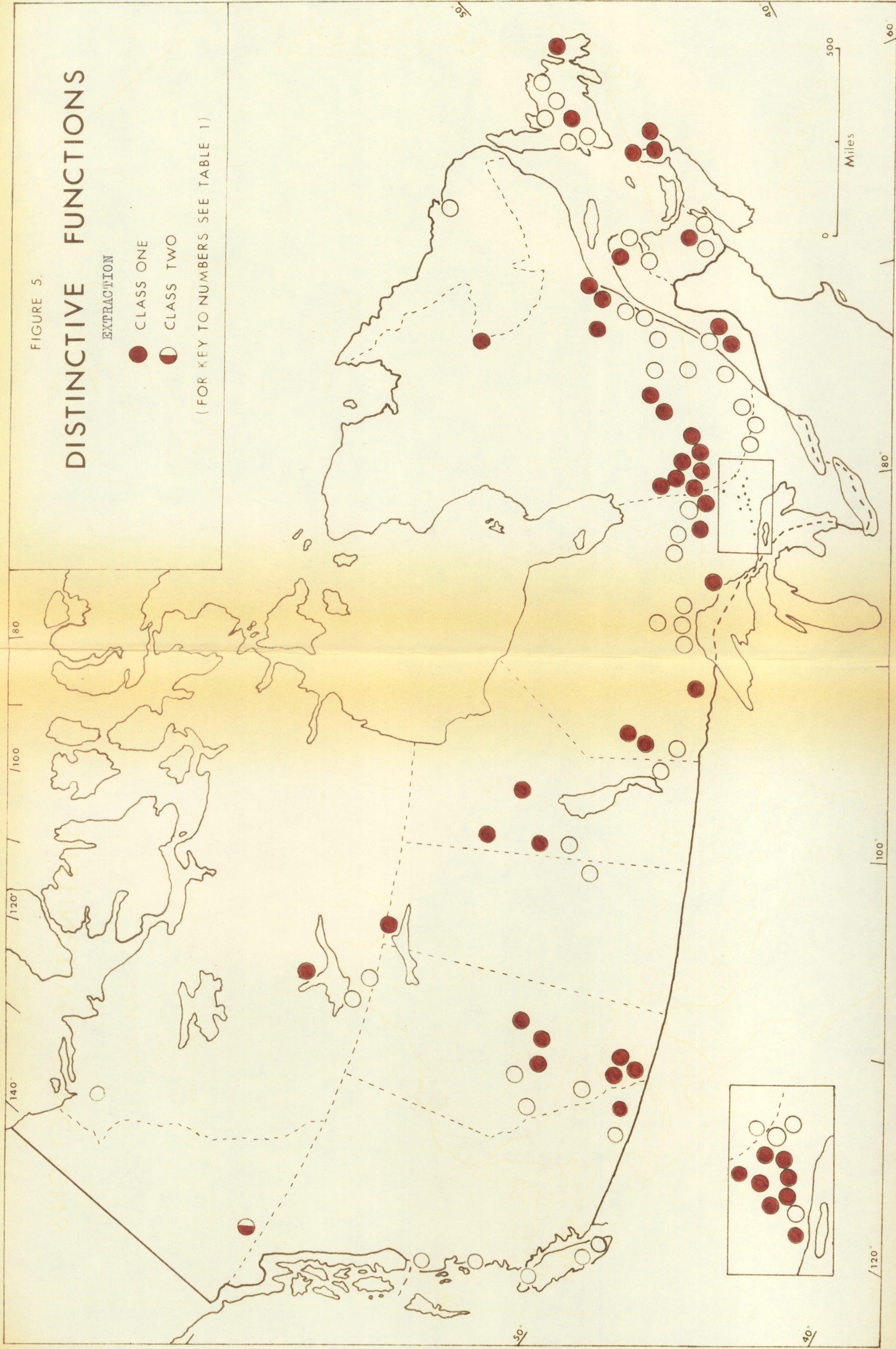
These values as calculated for each function are given in Table 4, and the distinctive functions thus derived are listed in Table 5. Any functions with values below the mean value for that function were not considered as distinct.

Figure 5 gives a visual impression of the distribution of settlements with functions of class 1 or 2 distinctiveness, each separate map showing the distribution of particular functions. The overlay provides a reference guide to the settlements so that the functions of particular settlements can be studied at the same time as the distribution pattern of the particular functions.

Specialization Index

The specialization index is a measure of a city's functional diversity or specialization, and is determined by comparing a city's





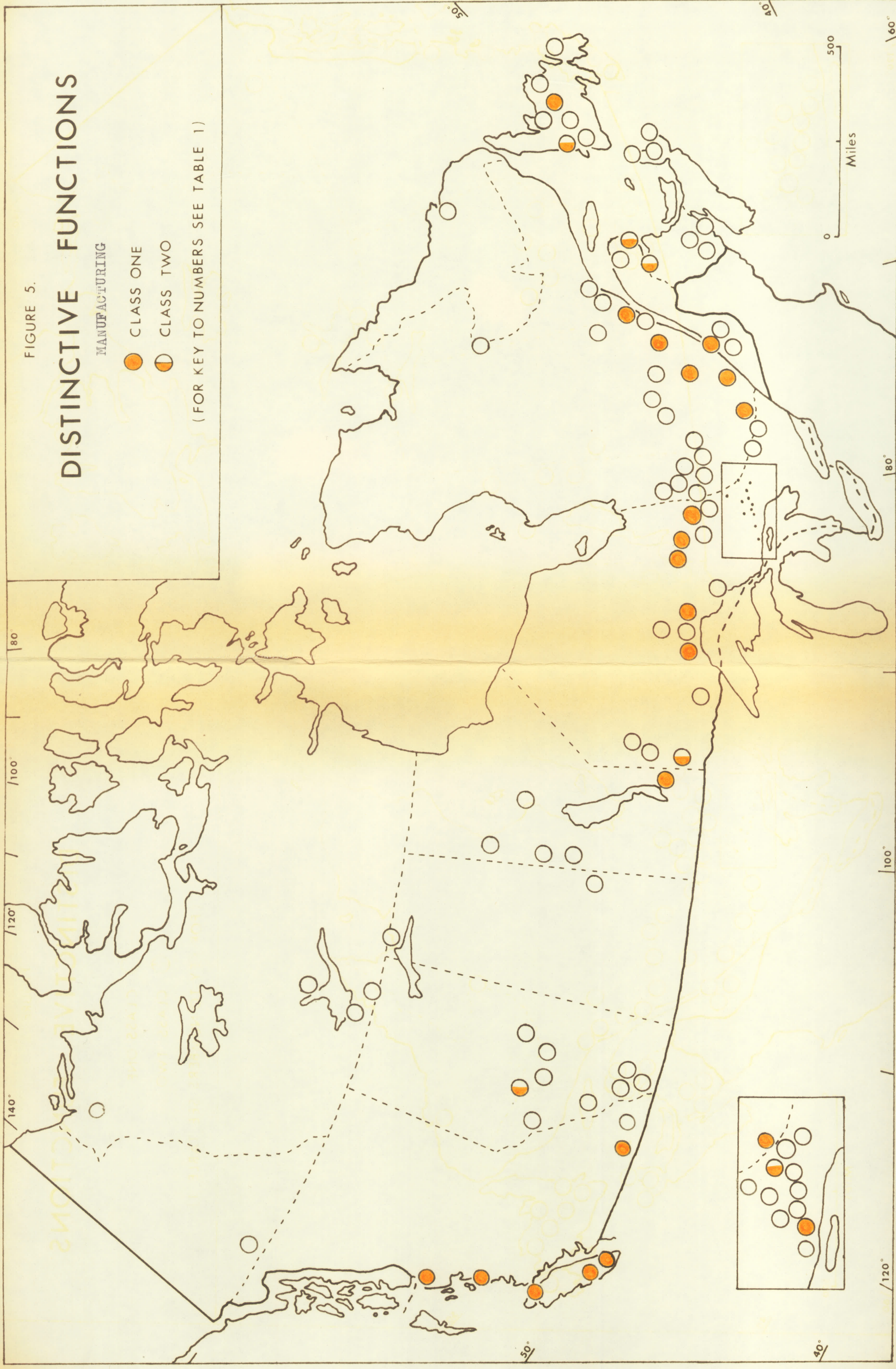


FIGURE 5.

DISTINCTIVE FUNCTIONS

MANUFACTURING

- CLASS ONE
- CLASS TWO

(FOR KEY TO NUMBERS SEE TABLE 1)



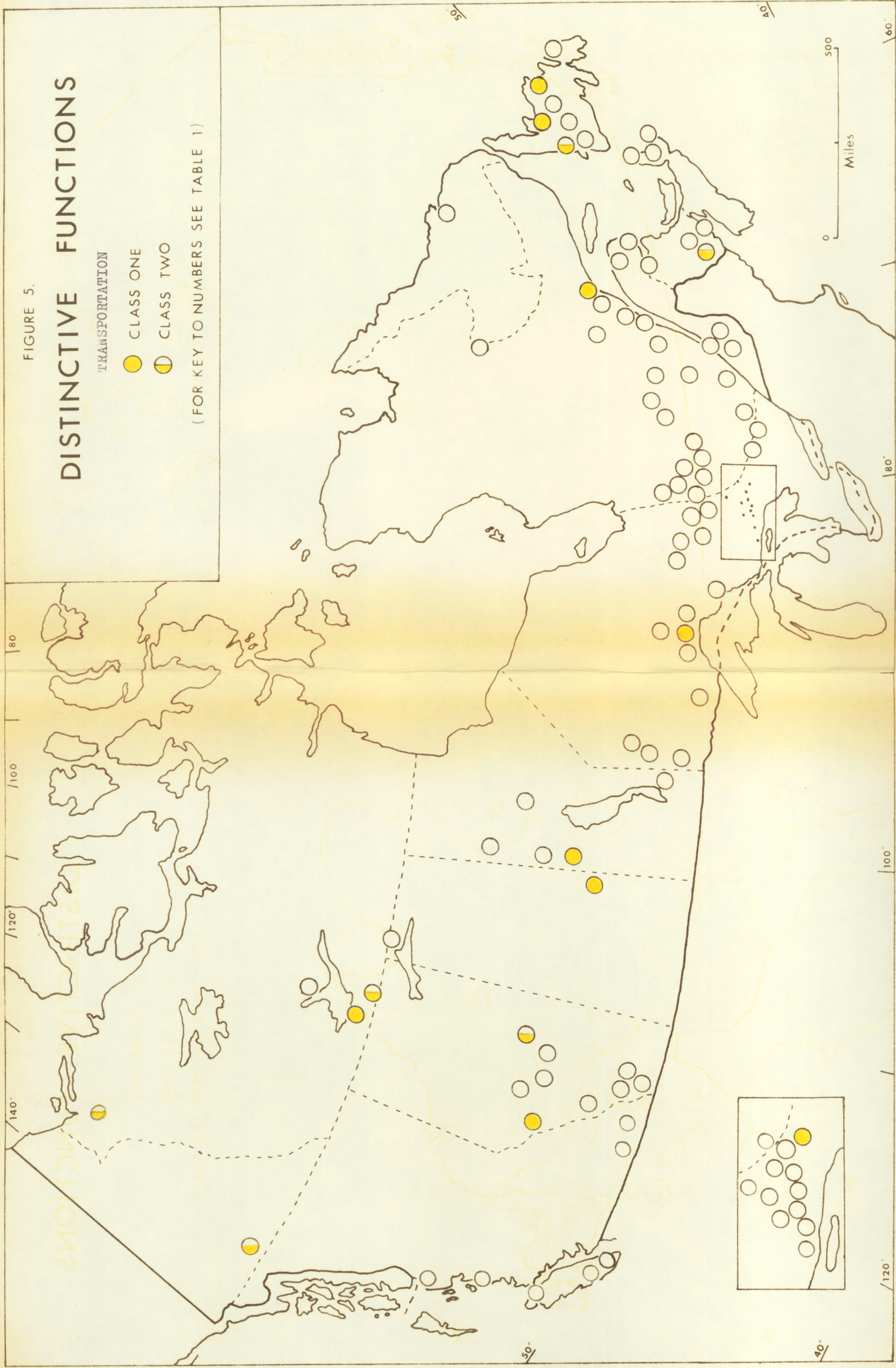


FIGURE 5.

DISTINCTIVE FUNCTIONS

TRANSPORTATION

- CLASS ONE
- CLASS TWO

(FOR KEY TO NUMBERS SEE TABLE 1)

FIGURE 5.

DISTINCTIVE FUNCTIONS

TRADE

CLASS ONE

CLASS TWO

(FOR KEY TO NUMBERS SEE TABLE 1)

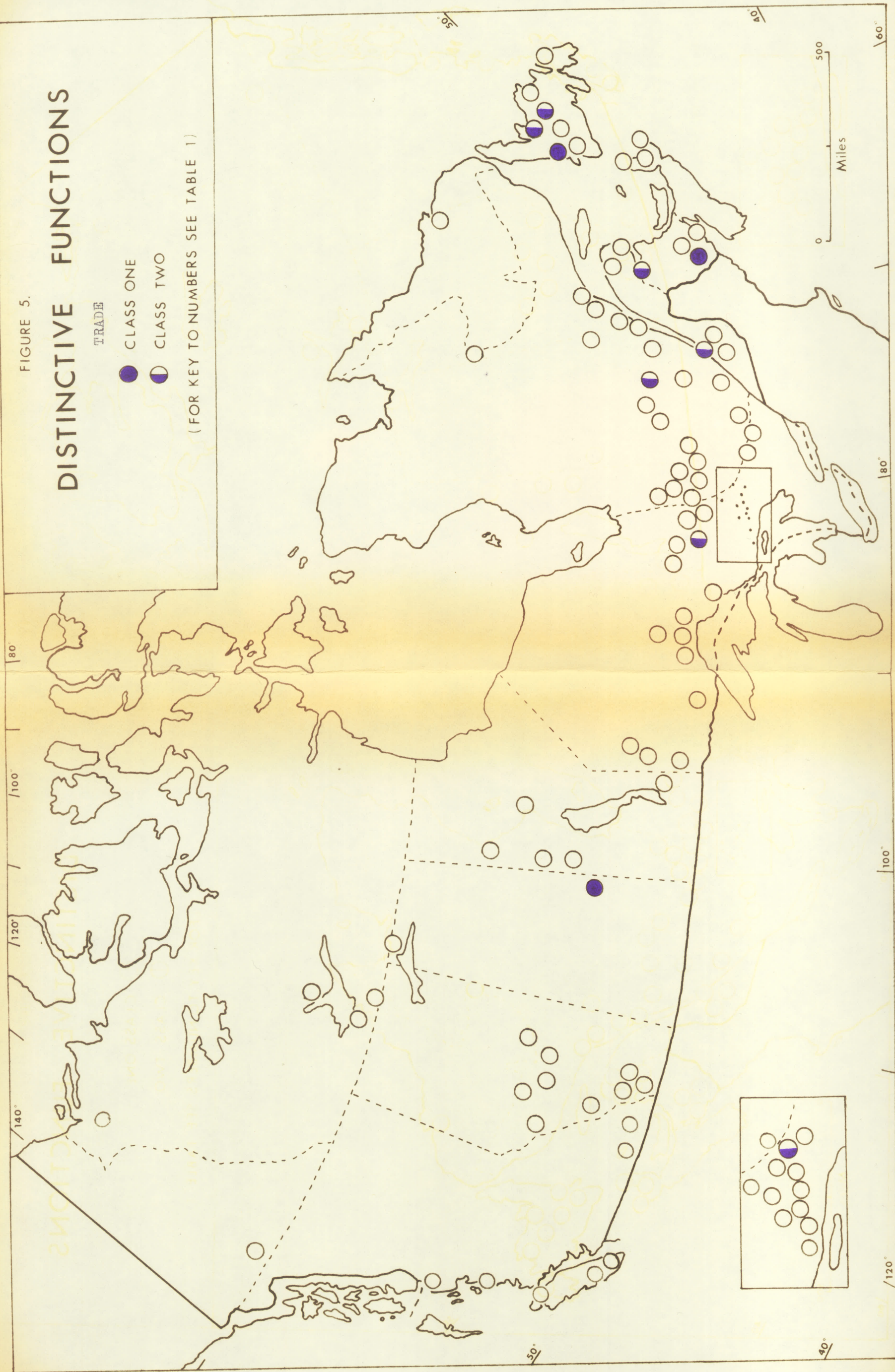


FIGURE 5.

DISTINCTIVE FUNCTIONS

COMMUNITY, BUSINESS AND PERSONAL SERVICES

● CLASS ONE

○ CLASS TWO

(FOR KEY TO NUMBERS SEE TABLE 1)

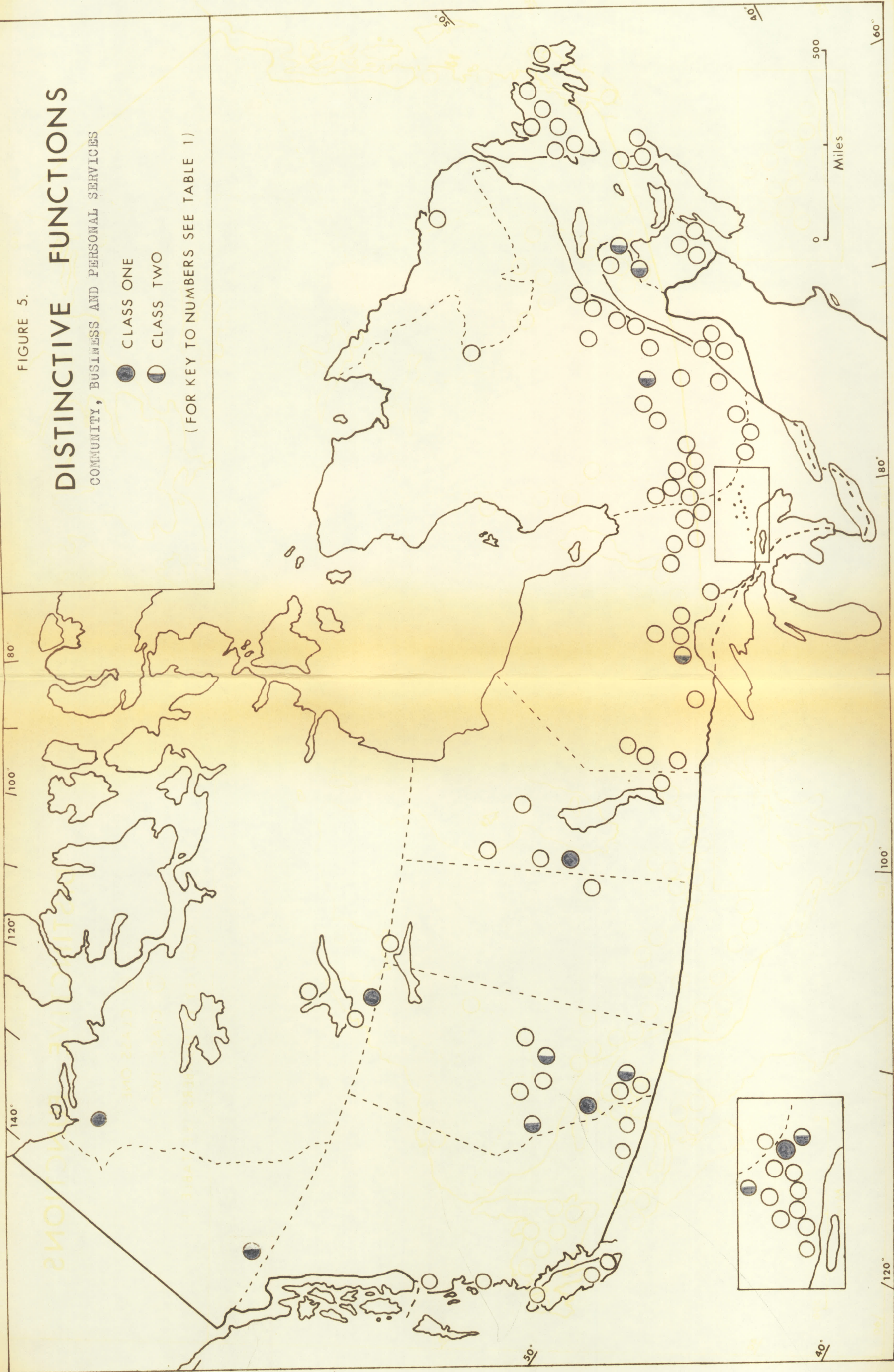


FIGURE 5.

DISTINCTIVE FUNCTIONS

PUBLIC ADMINISTRATION AND DEFENCE

● CLASS ONE

◐ CLASS TWO

(FOR KEY TO NUMBERS SEE TABLE 1)

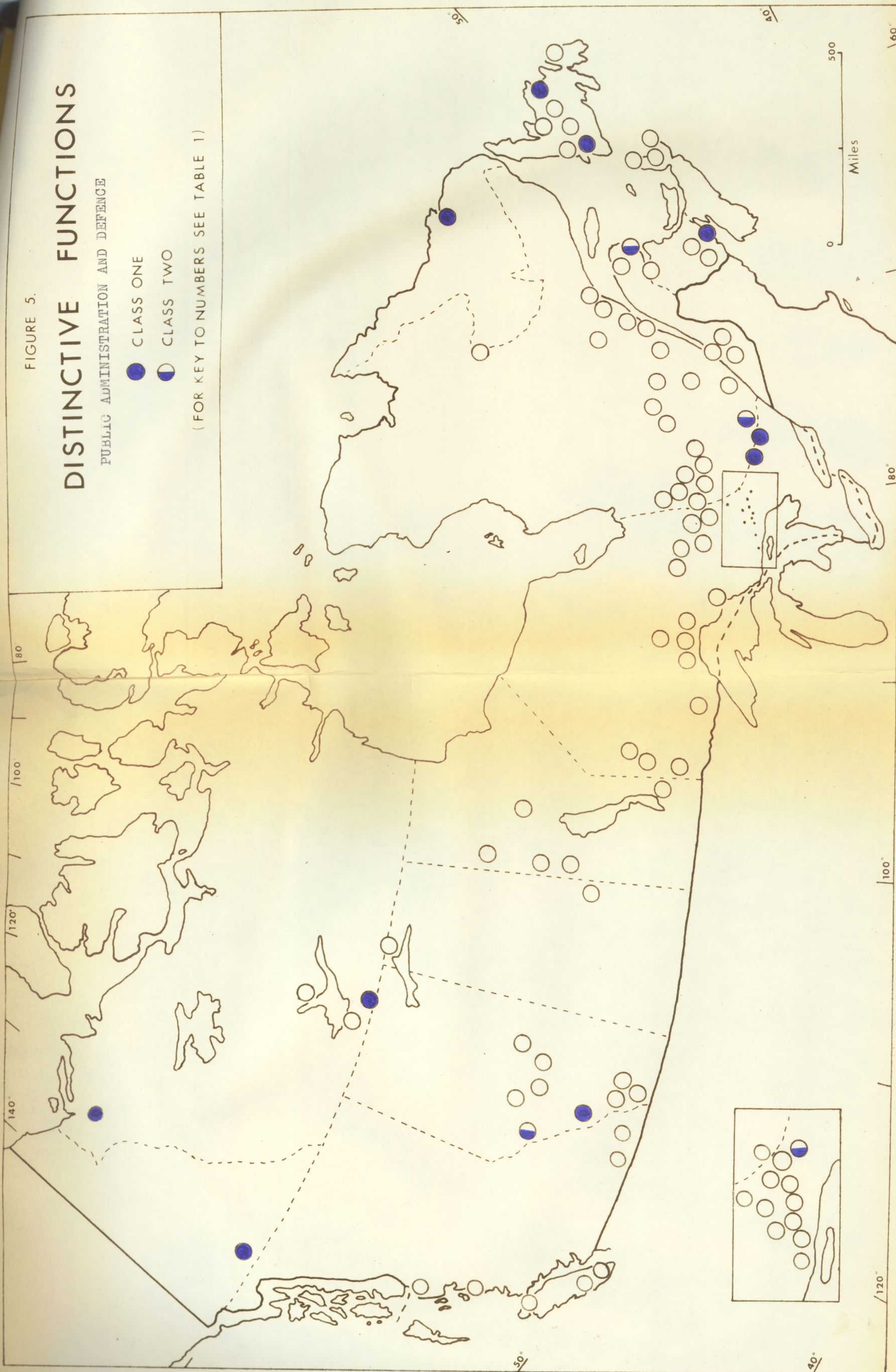


FIGURE 5.

DISTINCTIVE FUNCTIONS

PUBLIC ADMINISTRATION AND DEFENCE

● CLASS ONE

○ CLASS TWO

(FOR KEY TO NUMBERS SEE TABLE 1)

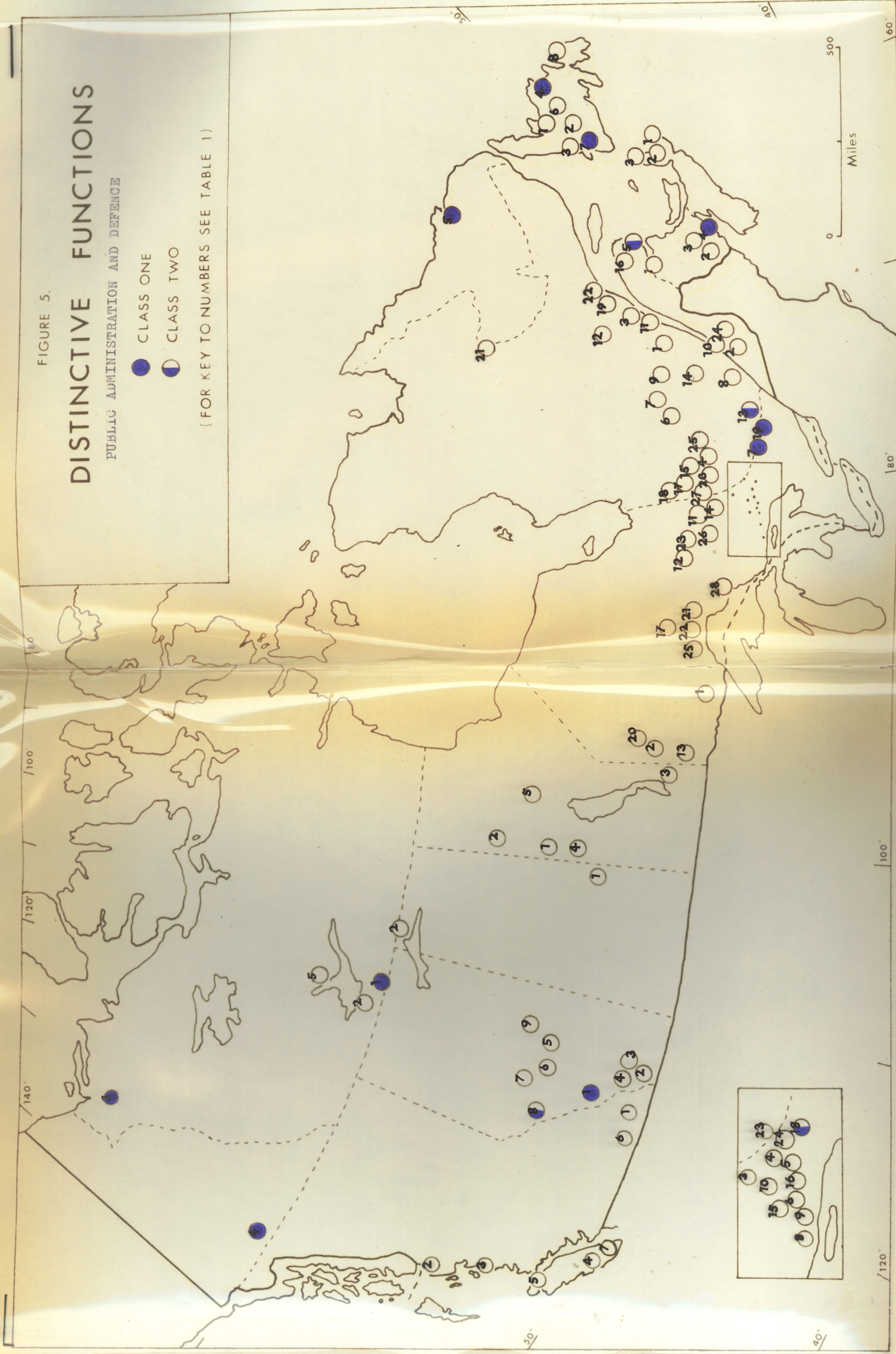


TABLE 4

PERCENTAGE VALUES OF BASIC EMPLOYMENT FOR DETERMINING CLASSES OF
FUNCTIONAL IMPORTANCE (DISTINCTIVE FUNCTIONS)

Function	Mean % value of Basic Employment	Standard Deviation of Basic Employment	Classes			
			4	3	2	1
Forestry, Fishing & Trapping	1.2	2.2	< 1.2	1.2- 3.3	3.4- 5.5	> 5.6
Extraction	2.3	8.8	< 2.3	2.3-11.0	11.1-19.9	>20.0
Manufacturing	24.6	14.0	< 24.6	24.6-38.5	38.6-52.5	>52.6
Construction	5.3	3.2	< 5.3	5.3- 8.4	8.5-11.6	>11.7
Transportation	7.3	5.2	< 7.3	7.3-12.4	12.5-17.6	>17.7
Trade	7.2	4.1	< 7.2	7.2-11.2	11.3-15.3	>15.4
Finance, Insurance & Real Estate	2.2	1.6	< 2.2	2.2- 3.7	3.8- 5.3	> 5.4
Community Business & Personal Services	9.4	6.3	< 9.4	9.4-15.6	15.7-21.9	>22.0
Public Administration & Defence	5.2	8.2	< 5.2	5.2-13.3	13.4-21.5	>21.6
Percent of basic labour force						

functional profile with an idealized profile. The degree of specialization is given by the deviation of the actual profile from the model. The main problem is to develop a meaningful model as a basis for comparison. Webb, in his study of small towns in Minnesota, derived a specialization index using regional mean percentage values for employment, for two size groups of towns.¹ This method, however, makes no distinction between basic and non-basic employment and for this reason the Ullman and Dacey index has been adopted for this study.²

To derive the index, the distribution of the minimum requirement values was used as a model of a balanced profile, and city specialization was said to increase with increasing deviation of the city's basic employment distribution from the distribution of the minimum requirements.

The formula for the index involves the squaring of the basic employment in each functional category (the squaring gives weight to the size of the functional category), and dividing this by the minimum requirement for that function. These values must then be summed and the index adjusted for city size by dividing by the square of the total basic employment and dividing this by the total minimum requirement.

The formula is as follows:

$$S = \frac{\sum_i \left[\frac{(P_i - M_i)^2}{M_i} \right]}{\frac{[\sum_i P_i - \sum_i M_i]}{\sum_i M_i}}$$

where S is the index of specialization; i refers to each of the functions

¹Webb, op. cit., p. 68

²Ullman and Dacey, op. cit., p. 190.

TABLE 5

DISTINCTIVE FUNCTIONS

Settlements are listed in order of size

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Timmins	Extraction	Trade	
Corner Brook	Trade	Manufacturing Transport	Construction
Glace Bay	Extraction		Public Administration
North Bay	Transport	Services Public Administration	Finance, Insurance & Real Estate
Thetford Mines	Extraction		Trade
Rouyn	Extraction		Construction Trade Services
Kirkland Lake	Extraction		Transport, Trade, Finance, Insurance & Real Estate

Arvida	Manufacturing		Services
Sept Iles	Extraction Construction Transport		Trade
La Tuque	Manufacturing		Construction
Gatineau	Manufacturing Construction	Public Administration	
Oromocto	Public Admin- istration		
Trail	Manufacturing		Extraction

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Port Alberni	Manufacturing		Transport
Noranda	Extraction		Finance, Insurance & Real Estate
Flin Flon	Extraction		
Asbestos	Extraction		
Val D'Or	Extraction		Trade, Finance, Insurance & Real Estate, Services
New Waterford	Extraction		Public Administration
Elliot Lake	Extraction		
Sydney Mines	Extraction		Transport, Trade Public Administration
Kitimat	Manufacturing		
Wabana	Extraction		Trade
Baie Coneau	Manufacturing	Fishing, Forestry & Trapping	Construction, Finance Insurance & Real Estate Services
Malartic	Extraction		
Kapuskasing	Manufacturing Fishing, Forestry & Trapping		
Grand Falls	Manufacturing	Trade	Finance, Insurance & Real Estate
Sturgeon Falls	Services Fishing Forestry & Trapping	Trade	Manufacturing

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Dolbeau	Fishing Forestry Trapping	Services Trade	Manufacturing Finance, Insurance & Real Estate
Stephenville	Public Admin- istration	Construction	Trade
Kimberley	Extraction		Manufacturing
Gander	Transportation Public Admin- istration		Trade
Deep River	Public Admin- istration		
Espanola	Manufacturing		Services, Fishing Forestry & Trapping
Whitehorse	Public Admin- istration	Construction Transportation Services	Trade Extraction
Donnacona	Manufacturing	Trade	Transportation
Chibougamau	Extraction	Construction	
The Pas	Transportation Services		Construction Public Administration Trade Fishing, Forestry & Trapping
Petawawa	Public Admin- istration		
Wawa	Extraction		Fishing, Forestry & Trapping
Drayton Valley	Extraction Construction		Transportation Services

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Copper Cliff	Extraction		
Hinton		Manufacturing	Services
Port Cartier	Extraction Construction Fishing, Forestry & Trapping		
Banff	Services Public Admin- istration Fishing Forestry & Trapping		
Thompson	Extraction Construction		
Chandler		Manufacturing Public Adminis- tration Services	Trade Finance, Insurance & Real Estate
Bourlamaque	Extraction		Finance, Insurance & Real Estate
Marysville	Trade	Transportation	Manufacturing Public Administration Construction & Services
Lively	Extraction		
Levack	Extraction		
Yellowknife	Extraction		
Ocean Falls	Manufacturing		
Goose Bay	Public Admin- istration		Transportation

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Murdockville	Extraction		
Coniston	Extraction	Manufacturing	
Temiscaming	Manufacturing		Services
Buchans	Extraction		
Chapais	Extraction		
Jasper	Transportation	Public Adminis- tration Services	Construction
Normetal	Extraction		
Schreiber	Transporta- tion		Trade Manufacturing
Cobalt	Extraction	Services	Construction Transportation Trade Finance, Insurance & Real Estate
Keewatin		Manufacturing Construction Public Administration	Transportation Trade Finance, Insurance & Real Estate, Fishing Forestry & Trapping
Atholville		Manufacturing Services Trade Fishing Forestry & Trapping	Construction
Red Lake	Extraction		Transportation, Trade Services, Fishing Forestry & Trapping

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Virginiatown	Extraction		
Blairmore	Construction	Extraction Services	Transportation Trade Fishing, Forestry & Trapping
Terrace Bay	Manufacturing	Services	
Gagnon	Extraction		Construction
Lynn Lake	Extraction		
Creighton	Extraction		
Coleman	Extraction Construction		Services
Iroquois Falls	Manufacturing	Fishing, Forestry Trapping	Services
Uranium City	Extraction		Services Finance, Insurance & Real Estate
Hudson Bay	Construction Transportation Trade	Fishing, Forestry & Trapping	Services Finance, Insurance Real Estate
Fort Smith	Public Adminis- tration Services	Fishing, Forestry & Trapping Transportation	
Forestville	Fishing, Forestry & Trapping		Transportation Services
Balmerton & Cocheneur	Extraction		

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Devon	Extraction	Services	Construction Transportation
Hay River	Construction Transportation Fishing, Forestry & Trapping		Services Public Administra- tion
Bellevue	Extraction Construction		Transportation Services Fishing, Forestry & Trapping
Minto	Extraction		Transportation Trade Services Public Administra- tion
Red Rock	Manufacturing		Services Fishing, Forestry & Trapping
Crabtree	Manufacturing		Construction
Inuvik	Public Administra- tion Services	Transportation	
Pine Falls	Manufacturing		Services Fishing, Forestry & Trapping
Youbou	Manufacturing Fishing, Forestry & Trapping		
Falconbridge	Extraction		

Table 5 (Cont'd)

Settlement	Distinctive Functions		
	Class 1	Class 2	Class 3
Redwater	Extraction Transportation		Construction Trade Services
Smooth Rock Falls	Manufacturing		Services Fishing, Forestry & Trapping
Longlac	Fishing, Forestry & Trapping		Services
Port Alice	Manufacturing		
Badger	Transportation Fishing, Forestry & Trapping	Trade	Construction Services

P_i is the percentage of the labour force in each of the i functions; M_i is the minimum percentage requirement for each i function and $\sum i$ is the sum of all the functions.

This index accentuates large deviations from the minimum requirement profile. The case of least specialization results when the basic employment is distributed in the proportion of the minimum requirements. A city with a specialization index of 1 would represent the case of least specialization of greatest diversification of functions. Table 6 is a list of the specialization indices for the various settlements averaged in order of size of the index, and also showing the dominant functions for each as previously determined.

The index was not applied by Ullman and Dacey to any extractive centers nor to small settlements where the minimum requirement in any function is zero, and for these cases the index must be adjusted. If zero is substituted for the minimum requirement in any function, the index will not reflect the specialization in that function. To overcome this difficulty Maxwell substituted the value 0.01% for a zero minimum requirement in mining, emphasizing that this value is small enough not to distort the index for non extractive centers, and sufficient to emphasize the high specialization of an extractive center.¹ However, it is felt that by using the value of 0.01% the index for extractive centers is over-emphasized with respect to indexes for cities highly specialized in other functions, where

¹Maxwell, op. cit., p. 87

TABLE 6

SPECIALIZATION INDICES

Settlement	Dominant Function	Specialization Index
Elliot Lake	Extraction	302.6
Flin Flon	Extraction	289.3
Wabana	Extraction	289.1
New Waterford	Extraction	288.1
Timmins	Extraction	255.3
Schefferville	Extraction	248.1
Levack	Extraction	248.1
Thetford Mines	Extraction	241.5
Malartic	Extraction	236.2
Yellowknife	Extraction	233.3
Glace Bay	Extraction	232.6
Ocean Falls	Manufacturing	224.9
Murdockville	Extraction	217.9
Virginiatown	Extraction	187.0
Noranda	Extraction	184.8
Gagnon	Extraction	174.5
Normetal	Extraction	174.0
Buchans	Extraction	173.6
Chapais	Extraction	173.5
Copper Cliff	Extraction	172.4
Balmertown & Cocheneur	Extraction	162.0
Chibougamau	Extraction	154.5
Lively	Extraction	150.0
Creighton	Extraction	146.7
Wawa	Extraction	144.3
Port Alice	Manufacturing	141.2
Terrace Bay	Manufacturing	137.8

Table 6 (Cont'd)

Settlement	Dominant Function	Specialization Index
Red Rock	Manufacturing	137.2
Asbestos	Extraction	133.0
Thompson	Extraction	132.9
Youbou	Manufacturing	132.0
Kirkland Lake	Extraction	131.5
Temiscaming	Manufacturing	131.4
Sydney Mines	Extraction	129.4
Iroquois Falls	Manufacturing	116.1
Lynn Lake	Extraction	113.7
Falconbridge	Extraction	112.4
Crabtree	Manufacturing	107.6
Atikokan	Extraction	105.8
Pine Falls	Manufacturing	99.3
Val D'Or	Extraction	97.7
Bourlamaque	Extraction	93.5
Rouyn	Extraction	92.9
Longlac	Forestry	87.7
Smooth Rock Falls	Manufacturing	80.8
Kimberley	Extraction	79.2
Uranium City	Extraction	76.0
Port Cartier	Extraction	75.3
Coniston	Manufacturing	72.7
Hinton	Manufacturing	67.4
Drayton Valley	Extraction	63.2
Red Lake	Extraction	61.8
Forestville	Forestry	57.9
Devon	Extraction	51.1
Chandler	Manufacturing	47.5
Minto	Extraction	45.0

Table 6 (Cont'd)

Settlement	Dominant Function	Specialization Index
Atholville	Manufacturing	42.8
Coleman	Extraction	37.4
Bellevue	Construction	33.6
Keewatin	Manufacturing	33.3
Oromocto	Public Administration & Defence	31.6
Blairmore	Construction	28.3
Marysville	Manufacturing	26.2
Cobalt	Extraction	26.1
Redwater	Extraction	22.9
Badger	Forestry	21.4
Sept Iles	Transportation	20.5
Donnacona	Manufacturing	18.9
Schreiber	Transportation	17.4
Hay River	Transportation	14.0
Espanola	Manufacturing	13.2
Deep River	Public Administration & Defence	12.9
Goose Bay	Public Administration & Defence	11.1
Petawawa	Public Administration & Defence	10.5
Kapuskasing	Manufacturing	10.5
Port Alberni	Manufacturing	10.1
Kitimat	Manufacturing	10.1
Hudson Bay	Transportation	9.4
Grand Falls	Manufacturing	7.8
Baie Comeau	Manufacturing	7.1
La Tuque	Manufacturing	7.0
Stephenville	Public Administration & Defence	6.2
Arvida	Manufacturing	6.2
Trail	Manufacturing	5.5
Dolbeau	Manufacturing	5.4

Table 6 (Cont'd)

Settlement	Dominant Function	Specialization Index
Gander	Public Administration & Defence	4.5
Sturgeon Falls	Manufacturing	4.1
Gatineau	Manufacturing	4.1
Fort Smith	Public Administration & Defence	3.6
Jasper	Transportation	3.5
Whitehorse	Public Administration & Defence	3.2
Inuvik	Services	2.6
Corner Brook	Manufacturing	2.3
North Bay	Transportation	2.0
The Pas	Transportation	2.0
Banff	Services	1.7

the minimum requirement value is not zero. To correct for this, a value of 0.1% has been substituted in the formula for zero requirements in any functional categories. This value has produced a smaller range in the index values obtained, but the high specialization characteristic of extractive centers is still maintained.

CHAPTER III

CLASSIFICATION AND DEFINITION OF SINGLE ENTERPRISE COMMUNITIES

Classification

The most satisfactory way of classifying settlements appears to be on the basis of their dominant function, that is, the function which employs the highest percentage of the basic labour force. As the census divides the labour force into ten industrial categories, theoretically ten different groups of settlements could be distinguished from the data. In practice, the settlements in this study have dominant functions in the following industrial categories:

Forestry

Extraction

Manufacturing

Construction

Transportation

Community, Business and Personal Services

Public Administration and Defence

there being no communities with fishing, finance, insurance, and real estate; or trade as dominant functions.

In Table 7 all the settlements are listed according to their function and the percentage of the basic employment in this activity. In addition, the main type of enterprise and approximate date of the founding of the settlement are given for further information.

Extraction

The largest number of communities dependent on one type of industry are those connected with extraction. This is true for both this study and for all Canadian single enterprise communities. Under the heading of 'extraction' the Dominion Bureau of Statistics includes concentration and beneficiation of ores, but not smelting and refining of ores, which is considered under the heading of 'manufacturing.'

The extractive centers in the study range in population size from just over 1,000 to over 29,000 and produce minerals as different in character as coal and uranium. Some of the operations began in the early part of the nineteenth century whilst others are as recent as 1960.

Manufacturing

The second largest group comes under the heading of manufacturing, in all cases, in this particular study, dealing with the processing of non-agricultural natural resources. The majority of the settlements are associated with the manufacture of pulp and paper, but smelting and refining centers are also included in this category. In the pulp and paper centers there is often subsidiary employment in the lumber industry, but they are classified separately from forestry communities because the greatest emphasis is on processing rather than exploitation of the natural resource, timber. Similarly, some of the centers classed as extractive may also have employment in smelting and refining of ores (Table 7) but the employment is primarily in extracting the mineral.

Administration, Defence and Services

The third group of settlements are those concerned with public administration and defence, and community business and personal services. They come into being for a variety of reasons such as National Park administration, government administration, or defence purposes. They differ from other single enterprise communities in that they have rarely 'mushroomed' into being overnight and they are not dependent on non-renewable resources. They are concerned more with services to people living outside the immediate community and they are therefore probably less vulnerable than some other communities. Military establishments prove the exception to this generalization as bases become obsolete with changing defence needs.

Transportation and Construction

The two other types of settlements distinguished by their dominant function are those concerned with transportation and construction. Unlike the other settlements the percentage of the basic employment in these dominant functions is fairly low suggesting that they are more diversified. This can readily be seen by looking further at the breakdown of the basic employment (Appendix VI). The only community with a very significant percentage of the labour force in the dominant function is Schreiber, Ontario. This is one of the few remaining railway division points settlements, where crews and locomotives were changed in the days of steam locomotives. The advent of the diesel electric locomotive has resulted in

the decline of many such villages and most of those which remain were too small to be included in this study.

Forestry

Three settlements have been classed as forestry centers: Longlac, Ontario; Forestville, Quebec; and Badger, Newfoundland. The logging operations are run by pulp and paper companies but there is very little basic employment in manufacturing in these communities and it is to be assumed that the timber is sent elsewhere for processing.

Other Communities

Another group of single enterprise communities deserves mention.

based on the dominant function is that the settlements have been labelled too rigidly just on the basis of one function when there may be other important aspects of the employment structure which are ignored.

However, as the study is dealing, in the first place, with a particular group of settlements which are thought to depend on the functioning of one type of industry, the criticism would not appear to be as valid as it would be if less specialized towns were being considered, and where application of definite functional labels could be very misleading.

The degree to which the basic employment in a settlement is dependent on the dominant function is illustrated in Figure 6,¹ which also shows the relative population sizes and types of functions of the settlements.

By using the list of distinctive functions in conjunction with the dominant functions it is possible to gain further insight into the economic structure of the communities. The settlements may possess unusual types of employment structures compared to the mean basic employment values for Canadian communities, and this uniqueness is expressed by the list of distinctive functions (Table 5). Used in conjunction with the list of dominant functions, it gives an impression of any unusual or well above average employment characteristics in a function or functions which do not employ the greatest percentage of people, and thereby points out any special functional characteristic which the settlements might possess.

For example, La Tuque and Baie Comeau, both in Quebec, have as their dominant function manufacturing with 63% of the basic employment in manufacturing in the former and 62% in the latter. Manufacturing employment in both is the only function of Class 1 distinctiveness. In

¹ See end folder.

TABLE 7

CLASSIFICATION OF SETTLEMENTS ACCORDING TO DOMINANT FUNCTION (INCLUDING
THE MAIN ENTERPRISE AND APPROXIMATE DATE OF SETTLEMENT)

Extraction	% Basic Labour Force in Function	Main Type of Enterprise	Approximate Date of Settlement ¹
Levack	97	Nickel, copper	1938
Balmerton & Cocheneur	97	Gold	1939
Virginiatown	97	Gold	1937
Schefferville	95	Iron ore	1954
Murdockville	95	Copper*	1953
Yellowknife	95	Gold*	1939
Chapais	91	Copper	1953
Gagnon	91	Iron ore	1960
Wabana	90	Iron ore ²	1894
Buchans	90	Lead, zinc, copper	1926
Elliot Lake	90	Uranium	1954
Normetal	89	Copper, zinc	1938
Creighton	88	Nickel, copper	1900
New Waterford	88	Coal ²	1908
Flin Flon	86	Copper, lead, zinc, gold*	1929
Copper Cliff	84	Nickel, copper*	1888
Falconbridge	83	Nickel, copper	1928

Footnotes:

¹Date of settlement refers as accurately as possible to the commencement of the particular enterprise, although the settlement may have been in existence earlier.

²Mines now closed.

*Mining and smelting operations.

Table 7 (Cont'd)

Extraction	% Basic Labour Force in Function	Main Type of Enterprise	Approximate Date of Settlement
Malartic	83	Gold	1937
Lynn Lake	77	Nickel, copper	1951
Lively	76	Residential town for Creighton Mine	1938
Wawa	73	Iron ore	1946
Chibougamau	72	Lead, zinc, gold, copper	1952
Glace Bay	69	Coal	1858
Timmins	68	Gold	1909
Thetford Mines	68	Asbestos	1876
Noranda	68	Copper, Gold*	1937
Thompson	67	Nickel*	1958
Uranium City	63	Uranium	1952
Boulamaque	61	Residential center for Val d'Or	1934
Sydney Mines	59	Coal	1830
Asbestos	58	Asbestos	1899
Atikokan	56	Iron ore	1945
Red Lake	55	Gold	1925
Kirkland Lake	54	Gold	1911
Port Cartier	52	Iron ore	1959
Devon	52	Oil	1949
Kimberley	50	Silver, lead, zinc	1892
Minto	50	Coal	1825
Val d'Or	48	Gold	1934
Drayton Valley	47	Oil	1955
Rouyn	43	Gold, copper	1917
Coleman	35	Coal	1904
Redwater	34	Oil	1948
Cobalt	33	Silver, cobalt	1903

Table 7 (Cont'd)

Manufacturing	% Basic Labour Force in Function	Main Type of Enterprise	Approximate Date of Settlement
Ocean Falls	96	Pulp and paper	1909
Port Alice	93	Pulp and paper	1917
Red Rock	89	Pulp and paper	1944
Youbou	89	Logging, sawmilling, wood veneers	1919
Kitimat	88	Aluminum smelting	1953
Terrace Bay	84	Pulp	1946
Arvida	80	Aluminum smelting	1926
Crabtree	79	Paper	1907
Iroquois Falls	78	Pulp, paper and H.E.P.	1951
Temiscaming	77	Pulp	1919
Pine Falls	75	Pulp and paper	1926
Donnacoona	70	Paper	1912
Trail	68	Refining and smelting	1920
Grand Falls	65	Pulp and paper	1909
Kapuskasing	64	Pulp and paper	1921
Espanola	64	Pulp and paper	1900
Smooth Rock Falls	64	Pulp and paper	1917
Port Alberni	63	Lumber, plywood, pulp and paper	1912
La Tuque	63	Pulp and paper, H.E.P.	1910
Baie Comeau	62	Pulp and paper, aluminum smelting	1937
Gatineau	56	Lumber, pulp and paper	1926
Coniston	50	Refining and smelting	1913
Hinton	49	Pulp and paper	1956
Atholville	46	Pulp and rayon	1929
Corner Brook	43	Pulp and paper, cement	1925
Chandler	42	Pulp	1912

Table 7 (Cont'd.)

Manufacturing	% Basic Labour Force in Function	Main Type of Enterprise	Approximate Date of Settlement
Keewatin	39	Lumbering, pulp and paper flour mill	
Sturgeon Falls	36	Paper	1901
Dolbeau	36	Pulp and paper	1927
Marysville	32	Cotton	1962
<u>Transportation</u>			
Schreiber	52	Divisional point on C.P.R.	1890
Jasper	46	Divisional point on C.N.R. National Park	1914
The Pas	33	Transportation center for N.W. Manitoba	1907
North Bay	31	Transportation center C.P.R.	1882
Hay River	29	MacKenzie Hwy, terminus Fishing ind.	1868
Sept. Iles	29	Transport base for Schefferville mines	1950
Hudson Bay	22	C.N.R. rail point, timber products	1911
<u>Construction</u>			
Bellevue	32	Coal mining center	1906
Blairmore	25	Coal mining center	1907
<u>Public Administration and Defence</u>			
Oromocto	100	Adjoins Camp Gagetown, military training	1952
Deep River	97	Nuclear power and research station	1945
Goose Bay	90	Military airbase	1941
Petawawa	87	Army camp	1916

Table 7 (Cont'd.)

Public Administration and Defence	% Basic Labour Force in Function	Main Type of Enterprise	Approximate Date of Settlement
Stephenville	65	Near U.S. airforce base at Harmon Field	1940
Gander	51	Airport	1938
Fort Smith	34	Freight Relay center regional center	1847
Whitehorse	32	Administration center for Yukon	1900
<u>Services</u>			
Banff	53	National Park, convention center	1888
Inuvik	41	Administration center	1956
<u>Forestry</u>			
Longlac	73	Logging, pulp and paper	1938
Forestville	52	Logging, pulp and paper	1845 1944(mill)
Badger	34	Wood cutting for pulp and paper mills at Grand Falls	

addition in Baie Comeau forestry is of Class 2 distinctiveness, with construction; finance, insurance, and real estate; and community, business and personal services employment in Class 3. In La Tuque, construction is the only other distinctive function, in Class 3.

Disadvantages of the Specialization Index

The specialization index, in the view of the author, does not provide a very useful measure, in this case, of the degree of specialization in one particular industry. The index shows the relationship of the distribution of basic labour force in a community to the idealized distribution, as given by the distribution of the labour force in non-basic activities, i.e., the minimum requirements values for a settlement of a particular size. A high percentage employment in one particular functional category does not appear to be necessarily reflected in a high specialization index, contrary to the opinion of Ullman and Dacey.¹

Where the minimum requirements for non-basic employment in a particular function is zero, e.g., extraction; forestry; any high percentage employment in that function is emphasized by a very high specialization index. Similar emphasis may occur in very small settlements where non-basic employment may be zero in 'sporadic' functions like manufacturing. A similar high percentage of basic labour force in another category where non-basic employment is necessary, even though it may be very small,

¹Ullman and Dacey, op. cit., p. 189.

is not reflected in such a high index. For example, Petawawa, Ontario, has 87% of its basic employment in public administration and defence, whilst New Waterford, Nova Scotia, has 88% of its basic employment in extraction, but the specialization indices for the two places are 10.5 and 288.1, respectively. Both these indices are high compared to the value of 1.0 for diversified centers, but there appears to be undue emphasis on the extraction function. The index only shows that the distribution of basic employment in Petawawa is closer to the idealized distribution of the non-basic employment, as expressed by the distribution of the minimum requirements values for the various functions, than is the distribution of the basic employment in New Waterford.

The apparent anomalies in index values occur because in the formula used to determine the index, the minimum requirement values of non-basic population in any function occurs as the denominator. As 0.1% was substituted for a zero minimum value, so that the employment in that particular category would be reflected by the index, the use of such a small percentage value will obviously be reflected in a high specialization value in that particular category. The substitution of the value 0.1% gives approximately a ten times higher value for the index than that which occurs in a function where there is a similar percentage of basic employment but where the non-basic value is 1.0%. Obviously a positive value has to be substituted for zero minimum values if an index is to be obtained which reflects the basic employment in that function, but the final index value seems to be influenced too greatly by the value of the substitution. If a value of 0.01% is substituted for zero, as in the

case of Maxwell's study, the index value increases for particular functions by the factor ten. As the index was developed by Ullman and Dacey for cities large enough to have non-basic employment in all categories, and where extraction and other sporadic industries were not present, the difficulty of substitution values was not encountered.

It appears that the specialization index has little relevance to the classification and definition of single enterprise communities, and must be considered solely as a measure of the degree of difference in distribution of the basic labour force in a community, compared to the distribution of the non-basic labour force.

DEFINITION

The problem of defining the term 'single enterprise community' is a far more complex one than classifying the settlements.

In his classic study of single enterprise communities, mentioned in the Introduction, Walker states that one of the chief characteristics of such communities is "that the company (or other single authority) is the sole employer and owns and controls all the physical properties."¹ and by reason of the definition he specifically excludes from the category of single enterprise the following types of communities:

- (a) military establishments e.g., Oromocto
- (b) settlements where there is one major employer with additional minor ones e.g., La Tuque

¹Walker, op. cit., p. 4.

(c) settlements where there is no company control of housing e.g., Glace Bay, Sydney Mines and this definition would also exclude administrative and service centers where housing is privately owned e.g., Banff, Fort Smith.

Walker took as his criterion for selection of communities the presence of one company or other single authority, which exerted some measure of control over the living conditions of the labour force. Company control, particularly over housing, is an important factor in the development of townsites and in the resulting attitudes of the labour force, but in this study it is not considered as the criterion in the definition of what is, or is not, a single enterprise community.

Walker's study was completed in the early 1950's when the company town was very much the rule for resource based settlements, but since then there has been a change of policy regarding the role of the company outside the actual operation of the mine or plant.¹ Employee ownership of housing and private ownership of business is now considered preferable, and some of the more recent resource based towns, although clearly brought into existence by one industry, may be excluded from the list of single enterprise communities if Walker's definition is applied to them.

The definition which is to be used in this study is based solely on the importance of one type of employment to a settlement, and, therefore, includes a far wider range of settlements than those included in Walker's study.

¹ See, for example, the views of the Aluminum Company of Canada in E.H. Eberts, "Arvida and Kitimat--The Story of Two Industrial Community Development Properties," Canadian Labour, III (January 1958), pp. 10-13.

The most useful measure of a community's degree of dependence on one particular type of employment appears to be given by the dominant function. Any community where a large percentage of the basic labour force is employed in one dominant industrial activity, and where employment is dependent on the functioning of that activity can be looked upon as a single enterprise community. In this context the term 'enterprise' is considered as any functional category of industrial employment, and not as a company. A single enterprise community can thus be considered as a community where the employment of the population depends on the continued operation of one industrial activity.

The next problem is to define the degree to which a community must be dependent on one industry for it to be considered as single enterprise. The degree of dependence on that particular industry must be sufficient to markedly affect the economy of the settlement should the dominant industry cease to exist for any reason. Not only would the direct employment be affected but also the employment in industries 'serving' that population. The higher the degree of dependence on one industry, the more vulnerable one would expect that community to be.

The selection of the percentage of the population which must be employed in the dominant function for a community to be considered as single enterprise becomes very subjective. There are several settlements where the employment in the dominant function is not greatly in excess of employment in secondary and tertiary functions, and these, therefore, should not be considered as single enterprise.

For this study the following criteria have been selected by the

author for the definition of single enterprise communities. It is stressed that this is merely personal choice, based on a study of the basic employment breakdown (Appendix VI). There is no rigidity to the method and other workers may prefer to amend the list of communities thus selected by applying their own criteria after studying the figures.

It has been decided to define a community as being single enterprise if:

- (a) at least 40% of the basic labour force is engaged in the dominant function, and
- (b) the percentage employed in the dominant function is at least twice that employed in the secondary function.

On the basis of this definition the following communities were initially excluded:

Forestry; Badger, 34%

Extraction; Kimberley, 50%; Cobalt, 33%; Coleman, 35%; Redwater, 34%.

Manufacturing; Sturgeon Falls, 36%; Dolbeau, 36%; Marysville, 32%;

Coniston, 50%; Keewatin, 39%.

Construction; Blairmore, 25%; Bellevue, 32%.

Transportation; North Bay, 31%; Sept Iles, 29%; The Pas, 33%;

Hudson Bay, 22%; Hay River, 29%.

Community, Business and Personal Service; Inuvik, 42%.

Public Administration and Defence; Whitehorse, 32%; Fort Smith, 34%.

However, on closer examination of the employment statistics it becomes apparent that in some of the communities the dominant and secondary functions are very closely related, and because of the high

degree of employment in the two related industries these, too, for the purpose of this work, will be considered as single enterprise.

As a result five communities can be reinstated to the list of single enterprise communities:

Kimberley: 50% extraction

27% manufacturing (smelting and refining)

Coniston: 50% manufacturing (smelting and refining)

27% extraction

Whitehorse: 32% public administration and defence

19% community, business and personal services

Fort Smith: 41% public administration and defence

30% community, business and personal services

Inuvik: 41% community, business and personal services

37% public administration and defence

Out of the list of ninety-six settlements, eighty-one can be considered as single enterprise communities in 1961. The other communities which have been excluded are more diversified in function, in many cases acting as trade centers for the surrounding areas, even though they may have been dependent on one type of industry in the past. In general, the older and larger the settlement the more likely it is to have become diversified in function. Marysville, New Brunswick, for example, first existed in the 1860's as a logging town, and then later it became a cotton manufacturing town but now it acts largely as a residential suburb for Fredericton, the capital of New Brunswick, which lies only five miles away.

In defining single enterprise communities by their employment characteristics it is possible to identify a considerable range of settlements. Within the general heading of extraction centers, for example, there are many different types of organization. Some towns are the traditional 'company towns', but others are dependent on several companies mining one particular mineral, or one company or authority mining several minerals. In addition, this definition also allows consideration of purely residential towns, where the employment may be in another single enterprise community.

PART TWO

THE DEVELOPMENT AND CHARACTERISTICS OF DIFFERENT TYPES OF SINGLE ENTERPRISE COMMUNITIES

The aims of Part Two of the thesis are concerned with an examination of the development and characteristics of the various groups of single enterprise communities identified in Part One. This examination must of necessity be rather cursory but it is hoped that some salient similarities and differences within and between the various types will be highlighted.

CHAPTER IV

HISTORICAL DEVELOPMENT OF SINGLE
ENTERPRISE COMMUNITIES

In this chapter a short summary of the evolution of the many types of single enterprise communities is attempted, special emphasis being given to the resource based communities as they constitute the largest group of communities under study. In the final section of the chapter consideration is given to the vulnerability of all single enterprise communities, and the means now being taken to safeguard the existence of such settlements.

Much of the material for this chapter on development has been based on three major relevant studies. Walker's study of single enterprise communities already mentioned in the Introduction, and two more recent studies by Robinson and Parker.^{1,2}

Robinson's study is concerned primarily with four of the new communities on Canada's resource frontier--Kitimat, Drayton Valley, Elliot Lake, and Schefferville, but the first chapter deals with resource development and new town building as a whole. Robinson describes these

¹I. M. Robinson, New Industrial Towns on Canada's Resource Frontier, (Chicago: Dept. of Geography, Research Paper No. 73, University of Chicago Press, 1962).

²V. J. Parker, The Planned Non-Permanent Community, (Ottawa, Northern Co-ordination and Research Center, Dept. of Northern Affairs and National Resources, 1963.

new towns as

"...typically one industry communities, located beyond the continuously settled areas of southern Canada. They come into being by fiat of a single enterprise (usually a private industrial company, although sometimes a government agency) engaged in the extraction and/or primary processing of a non-agricultural resource, including power."¹

The summary, therefore, deals with several of the types of single enterprise community considered in this particular study.

Parker, too, is concerned with single enterprise communities, but considers only those based on extraction. Although the main purpose of his study is to examine the feasibility of a planned non-permanent mining community, it contains an excellent summary of the historical development of mining centers, covering such aspects as their characteristics, problems (both physical and social), and government legislation.

Resource Based Communities

The single enterprise resource based community is not a new phenomenon in Canadian history. It has been a feature of Canadian settlement since minerals and forest resources were first exploited. The settlements have advanced from crude beginnings to the status of modern towns, but they are not, in the most part, the result of natural socio-economic forces in community growth and development. This type of community does not usually pass through the stages of hamlet to village to town, but cuts across the normal development stages of an urban

¹Robinson, op. cit., p. 1.

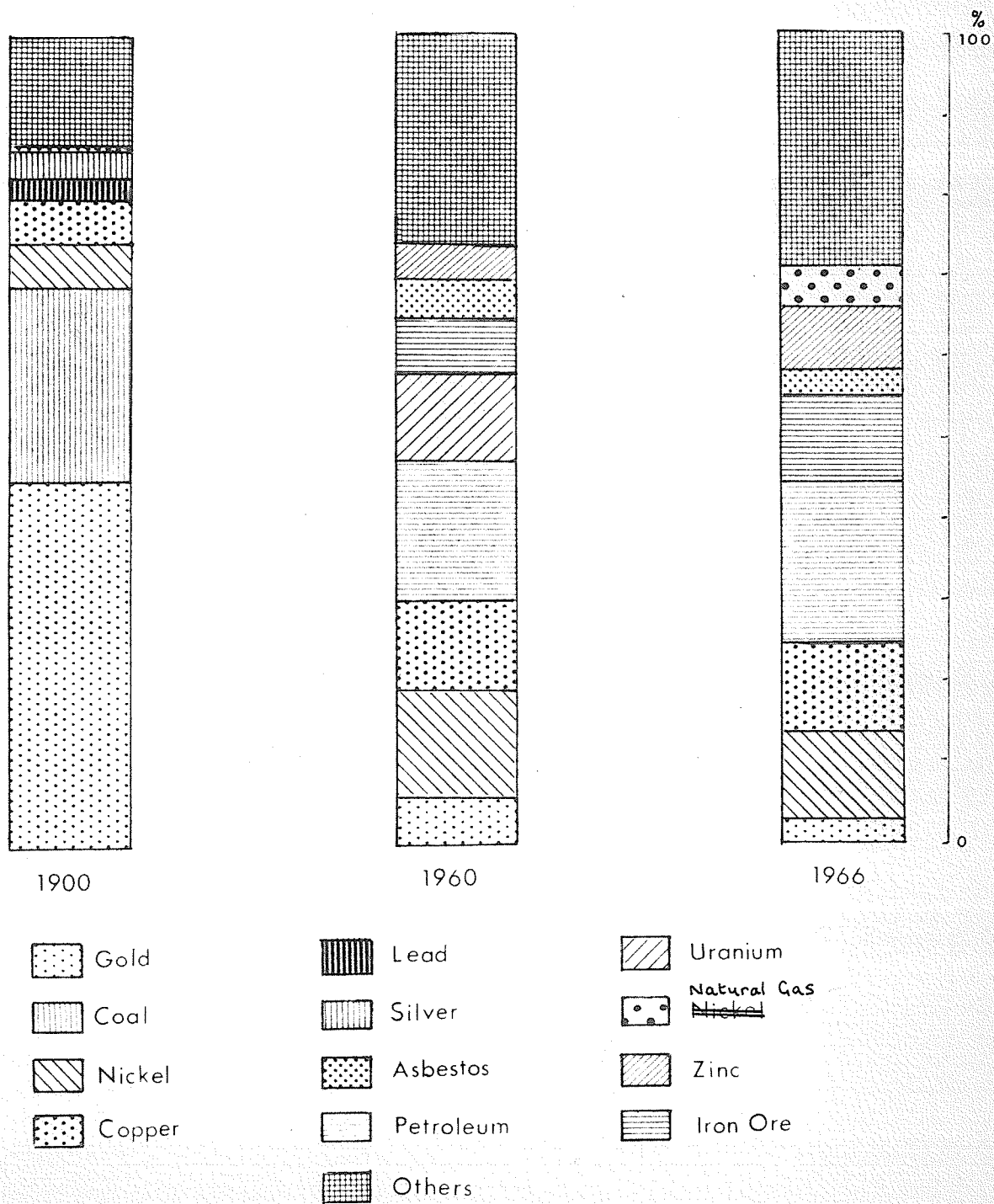
community, 'booming' into existence and perhaps dying just as rapidly.

In the early stages of resource development in the nineteenth century, the settlements were often merely 'sleep camps' which were later abandoned as the ore and timber resources were exhausted, or the demand for the product on the market dropped. Many of the early 'sleep camps' were connected with the mining of gold and silver ores, which had a high value and were, therefore, worth mining in remote areas. At this time there was little demand for the heavier base metals which now make up the bulk of Canadian mineral production (Figure 7). The camps attracted unskilled male labour, usually on a temporary or seasonal basis, from the nearby rural areas. There was no attempt made to make them permanent settlements and there was no need, therefore, to create a suitable environment for family life.

The greatest degree of permanence was to be found in the coal mining centers of Eastern Canada, and a little later in Western Canada. Coal was necessary at this time to serve the needs of the shipping and railway companies utilizing steam power. Conditions, however, were scarcely better than in the 'sleep camps' and there was little development of service industries because of the insecurity associated with the enterprise.

This was the era of the small time investor and the one man, or family, operations. One such investor was Alexander Gibson, who built the logging and lumbering village of Marysville, New Brunswick, in the 1890's. The town still exists but no longer as a single enterprise community.

Figure 7 CANADIAN MINERAL PRODUCTION
BY % VALUE



In the 1880's, the exploitation of lead-zinc-copper ores commenced. The opening of more mines and the building of the transcontinental railways led to a demand for mining timbers and railway ties, and so there was an increase in lumber production and logging towns. The private investor was still more concerned with the extraction and processing of the raw materials than with the development of attractive communities. In all resource based communities, the standard of living was very low and continued to be so until the 1920's. The turn of the century saw the Yukon gold rush, and the resultant 'mushrooming' of mining communities, often nothing more than tent towns.

During the 1920's and 1930's, more interest was taken in public welfare and community planning. The first attempts were made during this period by the government, through legislation, to control the standards of housing.¹ The resource development companies were being faced with increasing competition in recruiting a labour force, both from the urban areas and of the south and from other mining concerns. A labour force could only be kept happy and efficient by providing better living conditions in the remoter areas, and by providing urban facilities which were comparable to those in the south.

In these early days of 'model' town building there was little government participation, on either the federal or the provincial level, and this was the era which saw the large scale development of 'company' towns so prevalent in the history of resource exploitation in Canada.

¹Parker, op. cit., p. 23.

In these towns the major employer provided not only the jobs but, to varying extents, the housing, entertainment, stores, services, etc. Examples of such planned, model, company townships are Kapuskasing, Ontario, built for the pulp and paper industry in 1921, and the smelting town of Arvida, Quebec, developed by the Aluminum Company of Canada (Alcan) in 1926.

Not all the towns built in this period or subsequently have been planned. Many houses were still built in a haphazard fashion around the mine or plant. The new planned communities have come into existence side by side with the unplanned, and as a result at present there is a great variety of types of resource based communities.

Up to the Second World War, resource exploitation was concentrated on known resources of minerals, timber, and power, and most development took place on the fringe of the already settled land, in both eastern and western Canada, especially in the Shield area of western Quebec and northern Ontario. Gold was particularly important in the decade of the Depression. Pulp and paper capacity was increased from Newfoundland to British Columbia, and hydro electric power sites were developed to meet the increasing needs of the urban south of Canada. Smelting and refining capacity was also increased. The building of new towns has been especially marked since this time reflecting the accelerating development of natural resources.

Since 1950, the emphasis on development has shifted more to the vast unexplored resources in the, hitherto, largely inaccessible regions further north, and townsite development has proceeded in leapfrog patterns.

The history of mining in the North West Territories is only 34 years old, the first mine being the Eldorado mine at Yellowknife (1934). New techniques in transport have opened up the north to railways, roads, and aircraft, and together with increasing demands for most minerals, has made possible the economic production of the vast mineral deposits in remoter locations, the presence of which had been known for some time.

New technology has also emphasised the strategic importance of the northlands to the defence of North America, and the building of the Defence Early Warning stations and the Mid Canada defence line brought about the introduction of thousands of white personnel into the under-developed northern regions, into a different working and living environment and into contact with the native people.¹

The rapid investigations into the use of atomic power in the early 1950's also led to considerable demand for uranium ores, and brought the towns of Elliot Lake and Uranium City into existence. Some of the largest developments in resource exploitation have taken place well outside the urbanized fringe in very remote locations. Examples of such developments are at Schefferville and Gagnon, Quebec (iron ore); Thompson, Manitoba (nickel); and Kitimat, British Columbia (aluminum smelting). Because of their remote locations almost all the new towns have been developed as planned communities. The characteristics and problems of these new settlements will be considered in greater detail in the following chapter.

¹ Since completion in 1957, the D.E.W. line has been maintained by a staff of 1,500 workers. The Mid Canada line became obsolete in 1965.

Non-Resource Based Communities

The remaining single enterprise communities in the study comprise a smaller proportion of the settlements (twelve out of eighty-one) than the resource based communities. They have come into being over many years for a variety of reasons and have been administered in different ways. It is impossible to consider any general pattern of growth as in the resource based communities, and so each group of settlements with similar functional characteristics will be considered separately.

One group concerned with defence are the military bases and their associated residential quarters. A camp was established at Petawawa, Ontario, in 1916, and the town has since been dependent on the existence of the military base. Stephenville, New Brunswick, is the residential area for the U.S.A.F. base at Harmonfield, whilst Oromocto, New Brunswick, serves Camp Gagetown built in 1952. Oromocto has had a varied history; from 1830 the main industry was shipbuilding; from 1875 to 1940 saw-milling was the dominant industry and the town was given a new lease of life with the building of the camp, the largest military training camp in the British Commonwealth. The settlement of Goose Bay in Labrador developed with the establishment of the R.C.A.F. and U.S.A.F. bases during the Second World War in 1941. Gander, too, was established as an airbase for the R.C.A.F. in 1938, and since it has become a civil airport on the North Atlantic route. In some respects these settlements show analogies with the resource based settlements. They have been developed rapidly by an 'agency' (the government) and have 'company' housing and administration.

Another large group of settlements are those connected with the administration of the North West Territories and the Yukon. Two of these settlements, Fort Smith and Whitehorse, grew up slowly as transportation centers; Fort Smith for the Mackenzie waterway and Whitehorse for the Yukon. Both have suffered fluctuations in their population with the fortunes and needs of nearby mining areas, which they serve.

Deep River is another example of a government administration town. The town is based on nuclear power development. It is a relatively new town (1945) and was planned by the Federal government.

Two centers are connected with transportation. Schreiber, Ontario and Jasper, Alberta, are both at transfer points on the C.N.R. railway. The former was founded in 1890 and the latter in 1914 but they have lost much of their importance as railway centers with the advent of the diesel electric train.

Banff, Alberta, and Inuvik, N.W.T., have a high percentage of their basic employment in services but they are also important as administration centers. Banff was founded in 1888 as the headquarters of the National Park, and Inuvik was built as recently as 1958 in the Mackenzie delta in the North West Territories. It was built with Federal government finance to replace the old settlement of Aklavik, which is slowly sinking into the silt of the delta. It is a planned town with many modern amenities, built to house the native people and the government workers connected with the education and training of native peoples.

Future Development of Single Enterprise Communities

One of the most important features of single enterprise communities is their vulnerability because of the dependence on one type of activity. This vulnerability depends on a great many factors, all relating to the degree of dependence and the type of activity.

Extraction centers are based on non-renewable resources and as deposits are limited in size, they are likely to experience rapid growth and decline.¹ The resource base may be exhausted or changing technology and the discovery of new deposits may render the production uneconomic.² Some minerals are far more vulnerable than others to fluctuations in world demands. The growth and subsequent decline and stagnation of Elliot Lake with fluctuations in the world market for uranium serves as an example. In the early 1950's with the development of nuclear power the demand for uranium was very great, with the result that much money was invested in the rapid development of the mines and townsite. However, after 1959, the United States Government decided not to take up its options and as a result the mines began to close and the population of the town declined almost as rapidly as it had grown.³

¹In its ten years of existence Thompson has expanded to become the third largest town in Manitoba.

²New techniques in mining and transportation made possible the opening of the huge iron ore deposits at Schefferville in Labrador and since then the old mines at Wabana, Newfoundland have ceased production.

³The town was saved from becoming a ghost town by an increasing demand for uranium in 1965.

A settlement based on several minerals and with several operating companies is obviously less vulnerable than a one company, one mineral based settlement. Oil field based towns are the exceptions to this generalization, as there are many different types of by-products from oil.

Manufacturing centers are less vulnerable than extraction centers. The resource base of forestry industries is renewable and it is difficult to imagine a future slump in the demands of the building, newspaper, and publishing companies. Diversification within the field of wood products is also possible.

Somewhat more vulnerable, but less so than the mining communities, are the smelting and refining centers. They draw on a wide number of mines or mineral outlets, sometimes from overseas, as in the case of Kitimat and Arvida, and they may process several different minerals. They are not necessarily located in proximity to mining areas, the major factors in siting being good transportation and adequate cheap power. However, difficulties are sometimes experienced in maintaining production. In 1960, there was some urgency in the building of the railway to Pine Point, the new lead-zinc-producing area on the south shore of Great Slave Lake, because additional supplies of raw materials were required to maintain production at Trail in southern British Columbia.

Other factors causing decline or expansion of existing single enterprise communities include labour supplies, size of the operation, and government decisions. Some of the smaller, more isolated communities may have difficulty in attracting labour, especially if they are old

communities lacking the modern facilities of the new townsites, and also as new technology makes large scale production more economic, smaller operations may decline. As an example, the gold mines at Tundra in the N.W.T. were forced to close in late 1967 because of a shortage of skilled workers. In the case of the Newfoundland fishing villages centralization is now the key factor in improving fishery production to take advantage of economies of scale.

Government decisions can affect settlements in many ways. The selection of Yellowknife as the seat of the North West Territories Government in January 1967 has affected the functional structure of both Yellowknife and Fort Smith, where many of the government offices were formerly located. The economy of Yellowknife has diversified since 1961 from mining chiefly to mining and public administration and the town is expected to expand to 7,000 inhabitants by 1970.¹

Military bases are similarly susceptible to government action, as illustrated recently in the case of Stephenville, New Brunswick. The Harmonfield airbase outside Stephenville closed in 1966 because missiles had rendered the long range bomber obsolete, and the only source of employment in the town now are the commercial airport and some government departments. As the percentage of the population directly connected with the base was removed to other bases the people most affected by its closure were those engaged in services in the town or who had civilian

¹Report of the Commissioners of the North West Territories, 1966-67, p. 35.

employment on the base.

Many former single enterprise communities have maintained a continuous existence as settlements because they have been able to diversify their economic base. This is most likely to occur where the settlement is adjacent to an agricultural or settled region, or where another enterprise can be attracted soon enough to prevent the emigration of people. Rouyn, Quebec, the old gold and copper mining town, with a population nearing 20,000 has been able to diversify somewhat in becoming a commercial and communication center for the surrounding small mining and manufacturing area of Northern Ontario, whilst still maintaining its mining function.

The situation in Elliot Lake might have been improved in the early 1960's when demands for uranium had slackened if the government had aided the townspeople in their search to attract new industry. At one time it was thought that the new nuclear power station, later built at Pinawa, Manitoba, might be built near the town. This type of enterprise would not have safeguarded the employment of the mining population, but the investment and employment in the service sector could have been maintained. The Federal and Provincial governments had themselves invested sixty-five million dollars in the area, apart from the considerable private investment in business and homes. The fact that the town served miners from eleven mines had little effect on the potential disaster as all the mines were producing the same commodity. The problem of Elliot Lake was summed up at the time of the crisis by Dr. Kenneth Walker when he stated:

"In planning new towns diversification of industry should be the keystone. The one industry town always stands in danger of becoming obsolete, particularly in an era of rapid technological change and shifting consumer demand. If Elliot Lake is added to the long list of Canadian Ghost Towns it will be because the planners forgot that it never really was a town. It was only a mining camp."¹

Some extractive centers have diversified somewhat with the building of smelters. Copper Cliff is primarily a mining town but has also become the smelting center for the International Nickel Company mines of the Sudbury area because of its favorable location.

Wherever hydro-electric power has been developed there is opportunity for further industrial development. The town of Baie Comeau, Quebec, has operated as a paper manufacturing town since 1927, but in December 1957 an aluminium smelter was completed, utilizing local power. The improvement of the port for the import of bauxite ore has also led to its use as a grain exporting port. A wider economic base has developed very rapidly and the town's population can be expected to expand as a result.

The trend in planning is now away from townsites catering from one particular operation towards larger townsites from which workers can travel daily to several mines and plants. The trend in areas where resource development has been in progress for several years and where operations at individual sites may be small is for the building of new centralized townsites. In this way there can be better community facilities and the possibility of self-government for the settlement

¹Quoted by M. Porter, "Elliot Lake's Glamorous Rise and Bitter Fall," Maclean's, July 1960, p. 40.

if it is large enough to become incorporated. Townsites built as 'mining combine towns' include Uranium City, Saskatchewan; Chibougamau, Quebec; and Yellowknife New Town, N.W.T.

The tremendous sums of money now being ~~investigated~~ invested in resource development, not only in the plant and mine, but in the townsite and services, makes long term working of the enterprise almost essential if the investment is to be realized. For the various reasons mentioned earlier, long term working of the operation cannot always be relied upon and, therefore, recent studies have considered an alternative plan for building semi-permanent communities where investment in the townsite is not restricted to one place at one time only.¹ One of the earliest examples of townsite movement was in Manitoba in 1952 when the buildings of the old mining town of Sherridon were moved by the Sherritt Gordon Mining Company to the site of their new operations at Lynn Lake, 120 miles away. The substantial cost of the ~~cost of the~~ movement was far less than the cost of abandoning the houses in the ghost town and building a completely new townsite at Lynn Lake. Mobile houses and buildings would not eliminate the quite considerable costs involved in initial townsite servicing and planning but in isolated areas where long term residence may not be envisaged by workers and where the extent of the resource base is not known very accurately, they may play an important part in the future development.

¹For bibliography see Parker, op. cit., pp. 92-103.

CHAPTER V

COMMUNITY DEVELOPMENT

In considering the historical development of the communities in Chapter IV, the settlements defined as being single enterprise as a result of the findings in Part 1, were divided into two groups for the purpose of summarizing their development--the resource based and the non-resource based.

In considering in greater detail the actual planning and development of the townsites, a different breakdown of communities is possible cutting across both the classification grouping from Part 1 and the resource based/non-resource based grouping, because certain planning characteristics are common to settlements from all groups.

The discussion of the planning of communities is achieved most effectively through a breakdown of the communities into:

- (a) communities in which there has been one major developing concern; and
- (b) communities in which there has been no one particular agency involved in the development and where private enterprise is more important.

Whilst some of the development characteristics may not be entirely exclusive to the one group, the above breakdown does seem to provide the best framework for a discussion of planning characteristics.

Because of the character of the single enterprise communities in this study, most of them can be considered in the first category. They include both resource based and non-resource based settlements but because

of the overwhelming proportion of the former in the study and the volume of available literature concerning their development, they have tended to be considered in greater detail. They are almost entirely 'planned' communities and because of the rapid development of such settlements the term 'new town' is often used to describe many of the more recent communities built since World War II.

In the second section--multi-company towns-- the settlements tend to be of older founding and have tended to develop gradually with no overall development plan.

One-Company Towns

Townsite Development

Resource towns are usually built from scratch by a public or private concern, which completely controls the site selection, town plan and services, style and material of buildings, education, recreation, and transport. Because of the location of new resources in sparsely settled areas, industrial development has to be proceeded by townsite development, the buildings appearing in what was formerly virgin bush country. There is more need now for well planned communities offering a variety of urban facilities which can attract and hold a new labour force. The days of the itinerant male labourer as the mainstay of the labour force are rapidly disappearing, although such workers may play an important part in the initial development of the townsite. The company now has to attract a labour force of engineers, key technicians and management personnel.¹ In

¹The term 'company' is used throughout to mean either private or public concern.

the last few years a shortage of manpower, particularly skilled workers, has been developing in the more isolated communities, as living and working conditions improve in the southern urban areas. The skilled worker now has a greater choice of job opportunities in the south, and, therefore, northern communities must improve their standards to attract the workers. High wages alone will not attract a steady work force which is necessary for the efficient operation of any mine or plant. High wages may in fact attract itinerant workers intent on making money quickly, and, therefore, act against a stable work force. Employment and living conditions must be compatible with those of the urban south and the surroundings must be attractive for developing satisfactory family life. Not only must the worker feel happy in his work and leisure but, more important, his wife and family must be too.

A great deal has been written concerning the shortcomings of these new communities, but it must be recognized that there are many problems, apart from the physical ones, in developing a new townsite in any remote area.¹ The site usually has to be in close proximity to the mine or plant which may prove to be difficult for the planner; many architects have little or no direct experience of living in the north and, therefore, in an attempt to provide modern urban facilities, design communities

¹For further discussion on the problems encountered in satisfactory planning for townsites reference can be made to the following: C. L. Langlois, "Our Mining Towns: A Failure?," Community Planning Review, VII, No. 1, (1957), pp. 53-63; I. M. Robinson, op. cit., Chapter 4, pp. 59-79; P. & C. Oberlander, "Critique: Canada's New Towns," Progressive Architecture, VIII, (August 1956), pp. 113-119.

which resemble modern city suburbs transplanted to the bush, with very little adaptation being made for the different and difficult physical environment; speed of completion is an important consideration and so there is little time available for extensive studies of the problems of the townsite, often resulting in hasty siting which may prove inadequate in the event of future expansion of the town or plant.¹

One of the planners of the new town of Thompson, Manitoba, has emphasized the need for extensive research at the early stages of development, for as he states:

"The greater the knowledge of the planner and engineer with respect to site conditions, climate, the terms of the agreement, the desires of the developer, the needs of the future population, the limitations of the budget, and the policies of the various agencies and government departments involved, the greater the opportunity for the plan to prove accurate and the project to be completed according to plan, on schedule, and within the budget."²

He goes on to consider the complaints levelled at some of the new town plans and states his belief that most of them emanate from people who have neglected to inform themselves of the background to the planning.³

¹There are several examples of townsites which were unsuitable. The town of Asbestos, Quebec, was built partly over the mineral deposits and as workings extend some parts of the town are being razed. The original site of Schefferville, Quebec, was also found to be over the ore body so the townsite was moved five miles to the southeast. Yellowknife was built on a restricted rocky site and the new town is on a sandy plain one mile from the old town.

²D. G. Henderson, "Community Planning of the Townsite of Thompson," Transactions of the Canadian Institute of Mining and Metallurgy of Nova Scotia, LXVIII, (1964), p. 271.

³Ibid, p. 275.

In Thompson, for example, it has proved impossible to construct high rise, multi-family dwellings, desirable as they might be in the climatic conditions prevailing, because of the permafrost and soil conditions.¹

Criticism has been made of the siting of another new town, Inuvik, in the Mackenzie delta.² The town was built to replace the old native settlement of Aklavik which was slowly sinking into the mud, but because of the underlying ground conditions for building modern buildings the new town had to be built on the other (east) side of the Mackenzie channel which separated the inhabitants from the best hunting and fishing grounds. As a result some of the inhabitants of Aklavik have preferred to remain there.

If imagination and invention are used in the planning of new communities, however, it should be possible with modern materials and techniques to provide "...a specific northern environment which is rational, comfortable, and with which people can identify themselves as being their place, where they want to live."³

Townsite Administration

The type of concern responsible for development has changed in the

¹Henderson, op. cit., p. 270.

²M. Sullivan, "Down North," Habitat, III, No. 2, (1960), pp. 11-16.

³G. Jacobsen, "The Northern Urban Scene," in Proceedings of the Fourth National Development Conference (Edmonton: November, (1967) p. 106.

last few decades. The small independent company has been replaced by the large, highly capitalized corporation because of the investment now necessary to develop and operate an industrial undertaking in a remote area. In many cases the developing concern may need to be aided in the expenditure by federal and provincial legislation and assistance, in the form of both direct financial help and through taxes and loans.¹ This huge investment can only be realized if the development has longterm potential, and if a sufficiently stable and skilled work force can be attracted to the operation.

A change in attitude of the company with respect to the administration of the townsite has also occurred. In the 'company' town, in its most extreme form the company owns all the land and can limit access to the townsite. It owns the facilities and stores and may also control the local government of the community so that the inhabitants have very little say in the organization of the community. The company regulates all aspects of their lives. Fortunately, there are few such towns.

Various degrees of control are exhibited by the company over the physical and non-physical aspects of community affairs, depending on the settlement and the developing concern. The trend in the last decade has been towards reducing, if not eliminating, the 'paternalistic' control in

¹The International Nickel Company of Canada, Ltd., spent 8 million dollars in the initial development of the townsite, schools, hospitals, services in Thompson. The Federal government was instrumental in the opening up of the lead-zinc deposits at Pine Point, N.W.T. in 1965. It provided the 65 million dollars needed to build a railway linking the deposits to Grimshaw, Alberta, the previous northern terminus.

the single enterprise communities.

The change in the policy of the Aluminum Company of Canada with regard to its development at Arvida and Kitimat illustrates this trend.¹ In 1926, Alcan built the town of Arvida as an aluminum smelting center in Quebec and controlled all the property until 1954 when houses were sold to employees. The change in policy "...was motivated by a conviction that property owners are happier and more stable employees."² The town was incorporated early in its life and so its inhabitants have enjoyed political freedom and it has never been a closed company town. The company hoped that by selling homes they could make Arvida a 'normal' community. By 1958, the company owned only 17% of the residential units, compared to 75% at the end of 1954.

In Kitimat, British Columbia, built in 1954, the company made itself responsible for clearing land, the engineering work, and the initial houses. The land was then sold for commercial enterprise and home ownership was encouraged, although the company was prepared to buy back the houses within ten years at the purchase price, less a small sum for depreciation.³ To aid ownership they also offered second mortgages to bring down the sum needed for the initial deposit, and paid monthly

¹E. H. Eberts, "Arvida and Kitimat-The Story of Two Industrial Community Development Properties," Canadian Labour, III (January 1958), pp. 10-13.

²Ibid, p. 11.

³This policy has been used successfully in other resource development towns, e.g., Chapais, Quebec.

bonuses for house financing, to make up the difference between building costs in Vancouver and Kitimat.

Housing

As stated previously, in order to attract a stable labour force, good housing must be available to the work force. In remote areas, where development is taking place in virgin country, the operating company is probably in the best position to supply adequate cheap housing. In any expanding area private speculators will attempt to make money out of the development, and company ownership and development of the townsite is one way of preventing real estate prices from rising too high.

In Thompson, where the International Nickel Company of Canada, Ltd., desired to create a non-company town, the lots required for residential purposes were sold to employees at a very low rate to provide incentives for people to construct their own homes, and the money derived from the sales was used for additional townsite facility development.¹

The selling of land and/or property to employees after the initial townsite development seems to provide a satisfactory solution in some cases, but in very isolated areas company ownership of housing would appear to be preferable. The work force might not envisage staying for a long period of time and might, therefore, consider private investment in housing as too risky a proposition. This is particularly the case in

¹Henderson, op. cit., p. 269.

extraction centers, where the resource base or demand may be exhausted quite rapidly. In the early 'boom' years in any new town there seems to be unfailing optimism for the future and some workers may invest considerable funds in housing, forgetting the failure of so many similar enterprises in the past.

A similar situation regarding company housing prevails in government administration or military base centers, where personnel is rarely employed in one place over a long period of time. In these places public (government) ownership is logical.

One argument for private development of housing is that it may prevent the 'Snob Row' type of segregation of white and blue collar workers, which may occur in townsites completely developed by the company and where property is rented.¹ Development plans incorporating single family dwellings and bunkhouse accommodation immediately segregate the single and the married, and there may be further segregation within these groups into white and blue collar workers.

Three sections of the National Housing Act of 1954 apply to the financing of housing in isolated communities.² The Central Mortgage and Housing Corporation is able to make loans to people building homes in localities where the facilities of private lending institutions are not

¹For further discussion of housing policy see Walker, op. cit., pp. 100-104.

²Ottawa, Parliament, House of Commons, National Housing Act, 1954, 1959, (2-3 Elizabeth II, Chapter 23), Sections 7, 17, 40.

available. The Imperial Oil Company encouraged their employees in Devon, Alberta, to build their own homes with these loans and as a result no company housing had to be built. From 1946 to 1957 loans were made available to companies engaged in the mining, lumbering, logging, or fishing industries to assist in the construction of low or moderate cost housing projects in localities that were adjacent to, or connected with, the operations of the borrower, but because of the many conditions attached to the loans most companies preferred to finance the housing projects themselves.¹

Some degree of planning and regulation of the development of the townsite is necessary to avoid the growth of 'shack' towns. In Chibougamau, Quebec, the provincial government laid out the street pattern, installed services and sold residential lots but omitted to provide regulations concerning the standard of buildings. As a result many of the buildings are substandard and the recently developed community has the appearance of one of the old 'shack' mining towns of the Canadian past.

The latest trend in the development of new townsites is for the segregation of housing and the business center from the plant or mine, in an attempt to separate work and leisure activities. It appears inevitable though, in a community where most of the inhabitants are connected with one industry that the industry will overshadow all aspects of their life. Even if private enterprise is encouraged along with home ownership, the presence of the developing company will still

¹Parker, op. cit., p. 30.

be strongly felt, and the inhabitants may still view the town as a company town because of the vulnerability of their livelihood should the industry cease to exist.

In the agreement between the Province of Manitoba and the International Nickel Company on December 3rd, 1956, it was arranged that the town of Thompson would be two miles distant from the plant site in order to segregate the work and residential aspects of the town.¹ (Further discussion of work and home segregation is given in the section on Future Development of Single Enterprise Communities).

Two of the single enterprise communities in the study were built solely as residential areas for nearby mining areas. Lively, Ontario, was built by the International Nickel Company in 1953 as a residential area for the old Creighton mine nearby, and Bourlamaque serves a similar function for the mines of Val d'Or. In this way the workplace and home are well separated. There are no mines operating in the settlements but their inhabitants are dependent on extraction for employment.

Fringe Communities

The control of development of the townsite by a company can result in the growth of fringe or 'parasite' communities beyond the townsite boundaries. These settlements develop without any plan or provision of essential services and facilities. They spring up for various reasons. Sometimes their origin lies in the temporary trailer camps established

¹Henderson, op. cit., p. 269..

during the initial construction work and subsequently not abandoned either because of a shortage of housing in the townsite for hourly paid workers, or because of excessively high building standards imposed by the developing concern, which prohibits the building of low cost dwellings, within the townsite. In other cases, residence outside the townsite is seen as a means of avoiding high taxes, whilst still being near enough to utilize the facilities of the town. Often considerable conflict develops between the inhabitants of the two communities, not only over taxes but also over the health problems which can develop if essential services are lacking. Once the fringe communities are established the only solution seems to be incorporation with the parent settlement, as has occurred in Grand Falls and Corner Brook, Newfoundland.¹ Prevention is preferable to cure and in new towns the policy, wherever possible, is towards regulation of the surrounding area by extending the boundaries of the townsite to include more land than will be covered by the town buildings. This policy has recently been put into practice in the plans for the development of Port Cartier, Quebec.

Multi-company Towns

As much of the recent work on single enterprise communities has been concerned with the company town type organization, usually associated with the exploitation of one resource by one company, other resource based companies tend to be overlooked. These communities include those in

¹W. C. Wonders, "Parasite Communities in Newfoundland", Community Planning Review, III, No. 1, (1953), pp. 27-29.

which several companies are operating, and in which there may be no company control of housing, services, etc., and those in which a variety of different minerals are produced. Fishing communities are also excluded. In addition, other single enterprise communities, concerned with, for example, administration, transportation, recreation, are not considered.

Timmins is an example of a single enterprise community in which several mining companies operate individual mines. The town has never been planned or administered by one company. Although the prosperity of Timmins reflects the market value of gold, the end of operations by one company will not necessarily seriously affect the population of the community. The coal mining centers of eastern and western Canada are also single enterprise, but likewise there has been no company control over housing or administration of the whole community. These extraction communities are usually the old mining communities and they had no overall plan for development, growth taking place rather haphazardly in the normal fashion of communities.

Not all the single enterprise communities of recent development have been built solely for the purpose of exploitation. Drayton Valley and Redwater, Alberta, for example, have expanded from farming villages to towns based on oil drilling. Because of the rapid expansion development plans were put into operation, but the old village still remains within the new development.

Settlements which have seen a change in function over the years may have experienced several different growth stages, some planned and

others unplanned. The administrative centers of the North West Territories illustrate these stages well, expanding and contracting with the fortunes of the northern mining ventures, beginning in the case of Whitehorse with the Yukon gold rush. In recent years the increasing interest in the welfare of the native population and in exploitation, has meant rapid expansion for most of the settlements and the appearance of company (government) housing.

The era of the unplanned settlement has now passed, for as investment and scale of development increases planning becomes of foremost importance.

CHAPTER VI

SOCIAL CHARACTERISTICS

A knowledge of the structure of the population in the single enterprise communities is very important in the planning of new towns in the remote areas of Canada, because it is the nature of the population, among other factors, which gives the community its individual distinctive character. Any settlement which develops rapidly experiences special problems not encountered in other urban centers. In the new towns a great variety of people are brought together for the purpose of employment; people of different cultures, races, and background. The factors which operate in the movements of these people, their attitudes to their new environment, and the characteristics of the new people themselves must be assessed if future planning is to be successful.

In this chapter, most of the characteristics of the inhabitants of the single enterprise communities have been assessed from the available published data in the 1961 Census for features such as age structures, male/female, ratios, unemployment, wage earnings, ethnic origin, and migration. The data is unfortunately not comprehensive for all the communities, but it is hoped that the following analysis, though of necessity rather cursory, will bring out some of the more salient features, and allow further examination to be made of any interesting differences to be found between the various classes of communities, as defined in Part One.

Factors Operating In the Movement of Workers

In the old agricultural frontier migrations the factors operating in the movement of people were largely 'push' factors, such as political and religious aggression, lack of opportunity, hunger, or unemployment, but as conditions improve in the 'home' areas, whether in Canada, U.S.A., or Europe, the 'push' factors are no longer as dominant. The 'pull' factors, such as the opportunities in the newer communities, high wages, good living conditions become more important. Some people have been, and always will be, attracted to remote areas out of a spirit of adventure, but often they are the people lacking the skills and training necessary for modern industrial employment. It has been stated recently that in the modern frontier regions the jobs involve a degree of hard physical labour, comparative physical isolation and eight months of cold weather, but that they also provide the worker and his family with "a chance to get away from the confusion and social isolation of the big city and to live the friendlier, more active life of the small community...the image of the bearded prospector and hard rock miner must go."¹

The migrants of the future, to all types of communities, will move for both economic and social reasons. Although the single itinerant labourer is still a factor in the labour force, particularly of resource development communities, the mainstay of the labour force, in the future, should be skilled technicians, who are prepared to settle with their

¹J. D. Christian, "Northern Manpower Needs: Brawns and Brains," Proceedings of the Fourth National Development Conference, (Edmonton, November 1967), p. 58.

families. As stated earlier they will not be attracted by high wages alone, but must find in addition acceptable living and working conditions to justify the move.

Ethnic Origin

The ethnic composition of the population in the settlement shows considerable variations. A high and dominant percentage of the population in the mining and manufacturing settlements of Quebec and north western Ontario is French Canadian, e.g., Noranda 60%; La Tuque 93%; Thetford Mines 95%. However, the English speaking minority hold the majority of the managerial, technical and staff positions, whilst the French Canadians are mostly employed as hourly paid wage earners.¹ In Quebec, those of French and British origin make up most of the total population, but further west the origins of the workers become more diversified, with many of German, Scandinavian, and Ukranian origin. In the Prairie provinces the numbers of French Canadians diminishes sharply. The French/English speaking division also tends to be a religious division, the former being predominantly Roman Catholic and the latter Protestant.

In the Maritimes and Western Canada, those of British origin form the dominant group but this one group does not form such a high proportion of the population as the French Canadians in Quebec.

Communities in British Columbia exhibit the greatest diversity in ethnic groups. Italians are found in many places: Trail, for example,

¹Walker, op. cit., p. 237.

having 21% of its population composed of those of Italian origin, and there are large numbers of Asiatics, mostly Chinese. The latter are often employed in manual service tasks, in hotels, laundries, and restaurants. There is also a significant percentage of French Canadians, who were initially recruited from Quebec in the labour shortage of World War II.¹

Indians and Eskimos form a significant sector of the population in Fort Smith (27%) and Inuvik (33%) and comprise a small percentage in Whitehorse (4%) and Yellowknife (10%). In no other communities for which data is available do the native people comprise more than one or two percent of the total population and, therefore, they cannot be considered as playing a significant role in the operation of the communities. However, were it not for the outlying native people several of the government administration centers in the north would cease to function. In the future, if adequate training programs are initiated, the native people may come to play a fuller role in resource development operations, as they adjust to a different working environment.

Immigration

The study of the ethnic origins of the population is interesting in its own right, but gives no clue as to the geographic origins of the people, or the percentage of new immigrants. A population composed of people of diverse ethnic groups may have a higher percentage of Canadian

¹Walker, op. cit., p. 237.

born citizens than a settlement where there is less ethnic diversity. Unfortunately, the data on birthplace is only published for settlements with a population in excess of 10,000, but these figures show that in all these communities at least 75% of the population is Canadian born, and in the older resource towns of eastern Canada the proportion is over 90%. Of the Canadian born, the vast majority were born locally, that is, within the province. To cite examples, Timmins has 83% Canadian born with 79% of these born in Ontario; Asbestos has 98% with 98% of these born in Quebec; Flin Flon has 86% with 70% of these born in Manitoba and the majority of the others in Saskatchewan. Most of the immigrant population in these towns originated in Europe.

The newer resource towns are smaller, and therefore, figures on immigrants are not available. However, according to Robinson, in the new town of Kitimat almost 50% of the population is composed of recent immigrants, particularly from Germany and Scandinavia, and it is likely that other recently built resource towns will have a somewhat similar proportion of immigrants.²

It appears from the census data that among Canadians there is very little long distance movement to jobs in new resource development towns. This fact is borne out in the results of a more detailed study of the

¹1961 Census of Canada, Volume I, Part 2, Table 52.

²Robinson, Op.cit., p. 83.

work force at Elliot Lake, carried out by Hall in 1956.¹ He found that the proportion of the labour force coming from outside the province of Ontario was small. In general they came from nearby depressed mining areas, especially the gold mining area of Northern Ontario, but there were also workers from the depressed coal mining area of the Maritimes and the copper areas of the Gaspé, even though the mining techniques at Elliot Lake were completely different. New migrants made up 10% of the population. It appeared from this study that the old resource communities provide workers for the modern communities nearby.

The exceptions to these statements are the communities associated with government administration and defence, where the inhabitants of the communities are drawn from a wider area of Canada. In Oromocto, for example, 90% of the population is Canadian born, and of these 30% were born in Nova Scotia and 29% in New Brunswick, the local born amounting to only 59% of the Canadian born.

Age Structure

The population pyramid is considered by geographers to be one of the simplest and most revealing ways of analyzing population composition and change in a community. The pyramid graphically depicts the proportion of the total population in each age/sex group, and the shape of the pyramid is affected by past mortality, fertility, and migration.

¹O. Hall, "The Social Consequences of Uranium Mining," University of Toronto Quarterly, XXVI, (January 1957), pp. 226-243.

If it is assumed that there will be no migration, the future structure of the population is reflected by the pyramid shape. However, in most of the single enterprise communities, migration is a very significant factor and prediction of future growth based on the pyramid is hazardous. Any estimation of future growth from the shape of the pyramid must not be considered in isolation, but in conjunction with the nature and stability of the enterprise.

Figure 8 shows the age and sex structures in 1961 of many of the single enterprise communities in the study, the population being broken down into ten year age groups.^{1,2} One of the major difficulties involved in producing this type of diagram arises from the form in which the statistics are presented in the census tables. The information is given for age groups of either five or ten years, and in order to arrive at an even grouping system, which is the only way in which an accurate visual impression of the characteristics of the age structure can be achieved, it is necessary to interpolate occasionally.³ Although this method may be open to criticism, it seems preferable to produce such a diagram, stating the limitations, than no diagram at all. In the written analysis, on the other hand, the characteristics of the age structure have been considered in three major groups: under 15 years; 15 to 65 years (the working population) and over 65 years. In short analyses, such as this one, a clearer picture of the composition and growth characteristics can be determined by simplifying the age structure under these three

¹ Census of Canada, 1961, Bulletin SP-1.

² See end folder.

³ Age groups 20-60 years

headings.' The 'unproductive' sector of the population can then be studied in relation to the potentially 'productive' sector. In some cases the working population is further broken down into those under 45 years and those older.

The age-sex population pyramid for Canada for 1961 reflects the post war 'baby boom' in the large numbers of children in the age group 0-14 years (33.9%) and the low fertility of the 1930's is reflected in the smaller proportion of people in the age group 25-34 years (13.6%), comprising the young labour force. People over 65 years account for 7.6% of the total Canadian population. The proportion in the 15-65 age group is 58.4%.

All the single enterprise communities for which census data are available exhibit variations from this shape for a variety of reasons.

In order to consider the age structure and sex ratio differences between settlements, all the single enterprise communities which have been built in the ten years prior to 1961, have been compared to twelve communities which had been in existence more than fifty years by 1961. In this way it is hoped that any salient differences between communities of different types and different ages can be noted. The communities are listed below (Table 8), with the percentage of the total population younger than 15 years and older than 65 years.

In the new communities there is a relatively high percentage of children, the percentage being below the Canadian national average only in Gagnon. However, very small percentages of children are found in communities which are either very new, like Schefferville and Gagnon,

TABLE 8
PERCENTAGE OF TOTAL POPULATION IN
SELECTED AGE GROUPS, 1961

<u>New Communities (Post 1951)</u>			<u>Old Communities (Pre 1911)</u>		
	Under 15 Years	Over 65 Years		Under 15 Years	Over 65 Years
Kitimat	39.4	0.5	Timmins	33.6	5.9
Chibougamau	33.3	0.3	Glance Bay	36.0	7.4
Drayton Valley	44.4	0.8	Thetford Mines	37.1	4.2
Hinton	41.9	0.9	La Tuque	37.4	4.1
Port Cartier	37.8	1.6	Trail	31.9	6.0
Schefferville	34.8	0.1	Asbestos	41.5	3.2
Murdockville	44.6	0.7	Sydney Mines	40.0	6.7
Chapais	42.4	0.5	Whitehorse	34.2	2.2
Gagnon	30.1	0.5	Copper Cliff	26.2	4.4
Lynn Lake	36.2	0.6	Schreiber	40.3	5.8
Inuvik	40.0	0.8	Fort Smith	41.6	1.7
Oromocto	45.4	0.6	Banff	20.5	8.0

where, in the young section of the labour force, males far outnumber females, or else rather isolated communities. The high percentage of children in most of the new communities occurs because the majority of migrants are people in the youthful sector of the labour force. If there is a large number of people in their young adult years, there is likely to be a high percentage of children, provided the male/female ratio is balanced.

Kitimat, for example, has 23% of the population in the age range 25-34 years and 39.4% of the population is under 15 years of age, whilst Drayton Valley has 22.8% in the first category and 44.5% in the latter.¹ The town of Oromocto shows a very unusual structure — 45.4% of the population is under 15 years and although there are 38.1% between the ages of 15 and 35, there is a great imbalance between males and females (24.8% as opposed to 13.3%).

In all these settlements there is a very small percentage of elderly people, largely because of the newness of the community, as very few workers will have reached retiring age. The isolation of most of the settlements makes them unfavorable places for retirement, and many of the elderly people may only move into these communities to be with their children and families.

The older communities have, on the whole, a lower percentage of children because of the larger percentage of the population in the older age groups. In Copper Cliff, 45.7% of the population is between the ages of 45 and 65 years and the percentage of children is only 26.2, well below the Canadian national percentage of 33.9. In Banff, the percentage of children is even lower (20.5) and although only 37% are over 45 years the small number of children most likely reflects the presence of large numbers of single summer seasonal workers.

There is also a larger percentage of retired people in the older

¹In Thompson, Manitoba, founded in 1958, the birth rate in the early 1960's has been more than twice the national average.

communities, but the percentage is still below the Canadian national percentage. The larger the community and the nearer it is to the urbanized fringe, the higher the percentage tends to be as more people are likely to remain there on retirement. In Whitehorse and Fort Smith the percentage is low (2.2 and 1.7, respectively) because of the unfavorable nature of the physical environment.

The main points which seem to emerge from the analysis of the age structures of the two groups is that firstly, the age of a community seems to be a more important factor than the type in determining the age structure, and secondly, the isolation of a community plays an important part in determining the number of older residents and children.

The same twenty-four communities, when examined for differences in the male-female ratios for different age groups show considerable variations. The sex ratios are given below (Table 9) for the age groups 15-65 years and over 65 years. The male-female ratio for those under 15 years is not considered by the author to show any variations related to type or age of community but reflects normal fluctuations in the male/female birth rate. (The male/female ratios for the total population are considered in the next section.)

In the new communities, the working age group shows in every case, except Inuvik, a higher percentage of males than females. The greatest disparity between males and females occurs in Gagnon, where males outnumber females by 2.2 to 1; and in Schefferville where the ratio is 1.7 to 1. Although one would expect to find an excess of males in

TABLE 9

PERCENTAGE OF TOTAL POPULATION IN SELECTED AGE GROUPS BY SEX, 1961

	<u>New Communities (Post 1951)</u>			<u>Old Communities (Pre 1911)</u>		
	15-65		Over 65	15-65		Over 65
	M	F	M F	M	F	M F
Kitimat	33.4	26.7	0.3 0.3	30.8	29.7	3.1 2.8
Chibougamau	30.5	25.9	0.4 0.1	28.9	27.7	3.7 3.7
Drayton Valley	30.0	24.0	0.5 0.3	28.7	30.4	2.2 2.1
Hinton	30.3	26.0	0.6 0.3	29.9	28.6	2.1 1.9
Port Cartier	35.2	24.8	1.0 0.6	32.4	30.7	3.1 2.9
Schefferville	40.8	24.3		27.1	28.3	0.5 0.4
Murdockville	28.2	25.5	0.4 0.2	26.9	26.4	30.0 3.5
Chapais	31.8	25.3	0.4 0.2	34.5	29.1	1.4 0.8
Gagnon	47.0	21.6	0.2 0.2	36.7	32.7	2.2 2.0
Lynn Lake	38.8	24.4	0.3 0.3	29.9	25.6	3.3 2.5
Inuvik	28.1	30.8	0.4 0.4	29.8	27.1	1.2 0.7
Oromocto	34.3	19.7	0.3 0.4	38.5	32.4	4.2 3.8

the early stages of building and development, other new communities show less disparity, probably because of their more favorable physical location. Kitimat and Drayton Valley, to take two examples, have ratios of 1.2. Oromocto exhibits a high ratio of 1.7 because of its function as a military base settlement. Inuvik is the only settlement where females outnumber males.

In all the new communities there are very few persons over 65 and there are few differences between the numbers of males and females over 65. By comparison, in the older communities where there are more people in this age group, there are significantly more males than females over 65. This is unusual because there are more females than males in the Canadian population over 65 as the female life span is longer than the male. This would suggest that these communities are unattractive for older women to remain in, but less so for males who have worked for some time. There would also probably be more males than females reaching retiring age because of the excess of males in the labour force, especially in extraction and manufacturing centers. Again, the isolation of a community will affect the relative numbers of older males and females.

The male to female ratio in the age group 15-65 in the old communities shows far less disparity than in the new communities, and in some communities the females even outnumber the males. This pattern is associated with communities with a declining resource base. The young males are usually the first to leave in search of better employment prospects elsewhere, and in the age groups from 15-34 years the females very often outnumber the males. The outward movement of the young men

may also be reflected in a lower birth rate and fewer children. In Glace Bay, 36.0% of the population are under 15 years and in the age group 25-34 years there is only 10.4%, over half of whom are female. However, there are many other factors, such as religious beliefs, and the age of marriage which influences the numbers of children and there are examples of towns in declining resource areas, where again there is an excess of males over females in the young labour force age groups but where the birth rate is very high, for example, New Waterford, Wabana, and Asbestos.

In most of the older communities the disparity between males and females appears to be unrelated to the type of enterprise and may be more related to either the size of the community and its degree of isolation. The highest ratios of males to females in the 15-65 age group are found in Banff, Whitehorse, and Schreiber (1.2 to 1).

Summary of Age Structures

In considering the age structure of the communities, the age of the community and its location appear to be the dominant factors in determining the age structure, and the type of enterprise has little effect on it.

The nature of the enterprise tends to have more influence on the sex structure. The extraction centers, in the early stages of development, and the military establishments have the highest male to female ratios in the 15-65 years age group, but all the new settlements, of any type, on the whole exhibit a greater disparity of males to females than

occurs in the older settlements.

This suggests that most single enterprise communities pass through certain population development stages with age, the development being modified by the location of individual settlements.

In the first stages of development, the communities tend to have a high percentage of people under 35 in the labour force, with males exceeding females. As development proceeds, the disparity between the sexes tends to disappear and the youth of the community is reflected in the high percentage of children under 15. With maturity, the male/female ratio for the population over 15 years may even be reversed, a higher proportion of the population is to be found in the age group 15-65, with the numbers of children tending to decrease proportionally whilst the number over 65 years increases.¹

Male/Female Ratios

As jobs in mines and plants are mainly for men, it is hardly surprising that these towns are overwhelmingly male dominated, both in population and labour force, the proportion of males to females being higher in almost all the settlements than for Canada as a whole and for

¹The question of population development stages would be extremely interesting to consider further by tracing age/sex structures for the communities from their origin but, unfortunately, there is very little data on age structures of small communities in the earlier censuses.

the regions. The ratios for the regions are based on provincial averages.¹ The factors which seem to have the greatest effect on the numbers of females in the communities are:

- (a) nature of enterprise
- (b) isolation of settlement
- (c) age of settlement
- (d) size of settlement

but it is impossible to do more than draw tentative conclusions from the data because of the multitude of variables operating.

The highest ratios of males to females in the population are found in new, remote development areas because in the early stages of plant and mine construction there are a substantial number of single, transient construction workers. The married people engaged in the early stages of work are not likely to bring their families until living conditions are satisfactory. Gagnon, Quebec, in the early production and construction stages of 1961 had a ratio of 163:100 whilst Schefferville, comparable in terms of isolation and type of exploitation had a ratio of 145:100 after seven years of operation.

The excessive male dominance in these communities, together with limited social facilities and rather poor living conditions, gives rise to a high labour turnover. It has been estimated that in the early stages of development of Schefferville that there was a turnover of 100-120% per annum, with only 50% of the workers completing three months of

¹Census of Canada, 1961, Bulletin, 1-5.

their six months contract.¹ During the early construction stages such settlements take on the characteristics of old frontier boom towns, for, as was stated about Kitimat in 1958: "Half the men are without women, there are scarcely any old people in the town, and there's a single girl to every ten bachelors."²

In the smaller, more isolated settlements the ratio appears to remain high because of the difficulty of attracting families to the towns. Lynn Lake, in northern Manitoba, after eight years of mine operation had a ratio of 144:100 whilst Devon in southern Alberta, after ten years of drilling had a ratio of 108:100.

The lowest ratios tend to occur in the larger settlements and in those places where the dominant industry is declining and young male workers are seeking jobs elsewhere, e.g., Sydney Mines 99:100; Thetford Mines 98:100 but, whilst low compared to the other settlements, these ratios are no lower than the regional urban ratios (Maritimes 98:100; Quebec 97:100).

The proportion of males to females is high in military settlements and low in communities where services and public administration are important.

The numbers of males to females in the labour force is also highest where there is a high degree of specialization in employment in a male dominated activity. The following serve to illustrate the high ratios in certain industries:

¹E. Derbyshire, "Notes on the Social Structure of a Canadian Pioneer Town," Sociological Review, VIII, No. 1 (1960), pp. 63-75.

²P. Berton, "A Native's Return to B. C." Maclean's, May 10, 1958, p. 76.

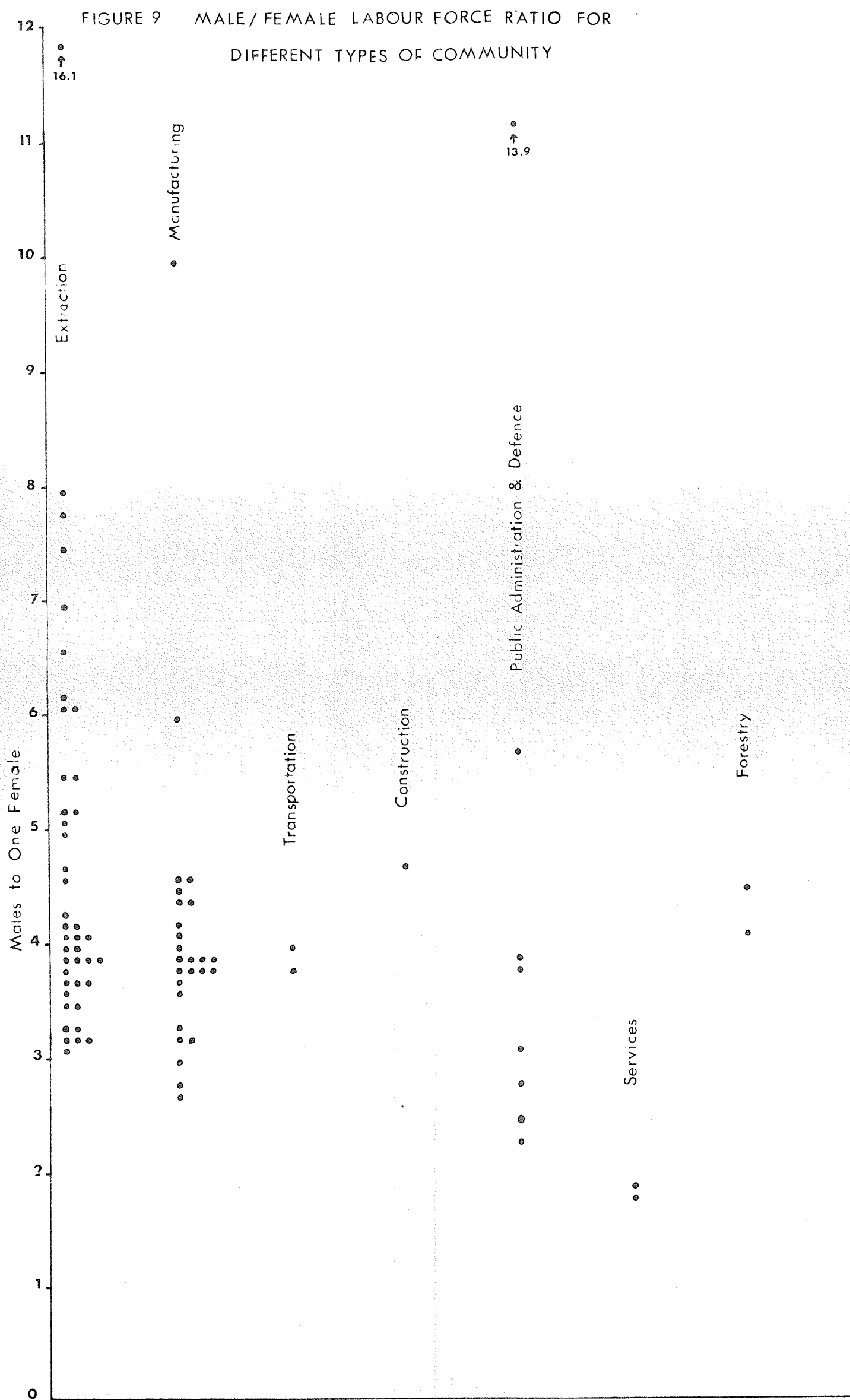
- (a) extraction, Schefferville 7.7:1; Gagnon, 6.0:1
- (b) extraction (construction stages) Thompson 16.1:1
- (c) military establishments, Oromocto 13.9:1
- (d) pulp and paper, Youbou 9.9:1.

The greatest opportunities for employment of female labour are in retail and service functions and these are best developed in the older, larger, more diversified centers which are in close proximity to the agricultural and urbanized area. The more isolated the settlement the less opportunity there is for service functions to develop. Timmins and Kirkland Lake have ratios of 3.6 and 3.0 respectively, compared to ratios of 6.1 for Chibougamau and 6.4 for Chapais (smaller, more isolated settlements, but still extraction centers).¹ Also, in a newly developing area where the labour force is predominantly young, many of the women may be at home with young families, so in spite of high male/female ratios there may still be an abundance of available female employment but little demand for it.

It is impossible here to consider all the variables but another useful guide to female employment openings may be found in the list of distinctive functions (Table 5) where subsidiary, but nevertheless important, functions are derived.

Figure 9 illustrates the spread of ratios in employment for the various types of single enterprise communities. It serves to point out

¹Trade is a distinctive function in both Timmins and Kirkland Lake.



the very high ratios in extraction compared to the other types, but also shows the variations within types.

Wage Levels

Wage levels¹ in the single enterprise communities under consideration, for which data ^{are} ~~is~~ available, are almost entirely above the provincial median earnings for urban dwellers. It is invalid to compare the wage earnings with a Canadian median or average because of the disparity between provinces, and between rural and urban areas.

The highest earnings were found in:

(a) New mining towns where there are plenty of work opportunities and rapid exploitation of the resource is in progress. The degree of isolation of a community accounts in many instances for exceptionally high rates,² e.g., Schefferville \$6261 (\$3367); Gagnon \$5146 (\$3367) but in more climatically favored localities where there is a demand for skilled technicians the earnings may be as high as e.g., Drayton Valley \$4545 (\$3510); Devon \$4615 (\$3510);

(b) Settlements where heavy manual labour is required, sometimes under unpleasant conditions, for example, Iroquois Falls \$5587 (\$3935); Kapuskasing \$5162 (\$3935);

¹ Defined as earnings by male workers, resident in the communities, during the twelve months ending June 1st, 1961. Census of Canada, 1961, Bulletin 3.3-2, Table 13.

² In all cases the provincial median earnings are in brackets.

and, (c) Centers of government administration or defence, where there is a high concentration of civil servants, e.g., Deep River (atomic energy) \$5725 (\$3935); Whitehorse \$4683 (\$4538).

By comparison the lowest earnings were found to be in the old mining centers, particularly those connected with coal mining, where mineral ores are nearing exhaustion and costs are high compared to the market price of the commodity, e.g., Sydney Mines \$2942 (\$2775); New Waterford \$2985 (\$2775).¹ These are in the depressed areas of the Maritime provinces, but even though wage levels are low compared to other mining areas, they are still compatible with provincial wage levels. Malartic and Timmins in northern Ontario have higher average wage earnings but they are below the median earnings for the province, as are those in the coal mining towns of Alberta.

The settlements with the lowest wages are, in general, those with the highest levels of unemployment, e.g., Chandler 10%; Malartic 6%; Cobalt 9% compared to the Canadian average, in 1961, of 4%. In the prosperous new settlements the unemployment rate runs as low as 1%.

The average female earnings for the year cover a smaller range than the male, and in many cases fall below the provincial medians. This could suggest:

(a) a surplus of women seeking employment in places where there are few jobs for women, thereby keeping the wage rates down;

(b) a restricted type of employment available in these

¹ Production in the New Waterford mines ceased in 1961.

communities;

(c) seasonal employment.

The highest earnings were found to be in isolated places where the male/female ratio is high, e.g., Schefferville \$3249 (\$1904); Gagnon \$3020 (\$1904), and in communities with government employment, e.g., Deep River \$2481 (\$2137).

The lowest earnings were in Wabana, Newfoundland, the iron ore mining settlement, where male earnings were comparatively high.

In the author's view many of the characteristics usually applied to the social structure of mining settlements appear to apply equally to other single enterprise communities. The most important factors in determining many of these characteristics appear to be those of age and isolation of the settlement with functional type as a third factor.¹

¹Appendix IX contains a summary of the findings of a survey of the characteristics of Australian mining communities which can be compared to the characteristics of some of the Canadian single enterprise communities just discussed.

CHAPTER VII

CONCLUSION

The aims of this thesis, stated briefly, were to define the term 'single enterprise' and to classify the settlements, identified as being single enterprise in 1961, using some quantitative method. The purpose of the classification was to provide a framework for looking at the growth, development, and social characteristics of the communities in order to assess the similarities and differences within and between the different types identified in the classification. This summary is an attempt to assess how far these aims have been achieved and, if necessary, to suggest other methods by which certain aspects of the work could have been better achieved.

Functional analysis is one of the most widely used methods in the study of urban areas. It offers advantages in data availability but poses problems if, as in this case, the classification and definition are to be derived from a study of basic labour force characteristics rather than total labour force, for the reasons stated earlier (Chapter II, pp. 12-14). Firstly, there is the problem of finding a method which appears to make a fairly valid distinction between basic and non-basic activity, and secondly, in this case, having decided on the minimum requirements technique, in grouping the towns from which the minimum requirements are to be derived for the regression lines.

However, having accepted the problems of determining the basic

labour force, a functional classification using basic employment still appears to be preferable to a classification using total employment.

The definition of single enterprise communities is based on a quantitative method but in the final analysis the selection of the communities depends on the arbitrary selection of acceptable values. It does allow for degrees of dependence of basic employment on one activity and, therefore, allows comparison between communities (Chapter III, pp. 67-79). The method used for the definition is the same as that used for the classification.

The classification of the settlements according to their dominant function has one major, easily recognizable weakness but other advantages which tend to outweigh the disadvantages for the purpose for which the classification was devised.

In using the dominant function (that is, the function employing the highest percentage of the basic labour force) as the criterion for classification, the settlements are given rather rigid functional labels, but, by using the distinctive functions, in addition, it is possible to differentiate within the main functional groups according to the degree of development of other distinctive functions. As the settlements were also selected initially as being highly dependent on one activity a one-function label is not as misleading as it might be in classifying settlements with more diverse functions.

Another weakness of this type of method lies in the restriction imposed on the number of settlements able to be analyzed by the data availability for small communities, and also the fact that such a

statistical technique is not really suitable for use with small communities.

One of the major advantages of the method is that other communities can be added to the list and analyzed in the same way at a later date using either the minimum requirements values list in Appendix V, or by interpolation of the values from Figure 3. The method is also very easy to apply once the minimum requirements have been derived.

It is also possible to differentiate within groups by comparison of the degree of dependence of the different communities on one activity, and it is also possible to compare the degrees of dependence between the groups.

However, in considering the use of the classification as a framework for further community analysis by looking at other factors besides function, the particular classification is less satisfactory.

The growth and development of the communities do not appear to be strongly correlated to functional dominance. It would seem that a number of different taxonomic structures should be constructed, each related to the particular phenomenon under consideration. For example, the growth characteristics would appear to be related to whether the communities are resource based or non-resource based, and the development pattern appears to be linked to the type and number of operating concerns.

It is likely that the particular classification would be of more use as a framework in considering the growth and development if all single enterprise communities, not just those beyond the urbanized fringe, had been included because location beyond the urbanized fringe has meant that

all the communities have experienced similar locational difficulties, resulting in somewhat similar patterns of growth and development for all types in general.

Similarly, age and location of the communities appear to be the underlying factors in determining the social characteristics.

It must be stressed again, however, that the analysis in Part Two was very cursory and one of the advantages of this classification system is that an analysis in greater depth could be achieved by not only attempting to compare the social characteristics of the different functional groups, but in addition, by comparing the differences within and between the groups according to the various degrees of dependence on the one activity. It is possible that if this deeper analysis is made the classification could be more useful in highlighting significant differences and similarities.

If the classification were to be attempted again in order to achieve groupings of communities, it might be better to apply multivariate statistical techniques which would allow several dimensions of community structure to be examined, instead of just one. Variables could be selected to cover such factors as economic base, physical development, social development, local government, accessibility, etc., and by developing a matrix of correlation coefficients and applying factor analysis, factor scores could be determined for individual towns. In this way the settlements are grouped to give maximum within group similarity and minimum between group similarity.

This method would prove very useful for initial grouping which

could then be subjected to further analysis, but the method is more complex than functional classification and could not be used as easily to include additional settlements. Also, the lack of data, in published form, for many of the settlements might place a tighter restriction on the number able to be considered in this way.

In final conclusion, although the method of functional analysis has many weaknesses, it has been reasonably successful as a method of objectively defining and classifying single enterprise communities.

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APPENDICES

APPENDIX I

LIST OF SINGLE ENTERPRISE COMMUNITIES - OCTOBER 1967

<u>ALBERTA</u>	<u>LATITUDE</u>		<u>LONGITUDE</u>	
Alexo	52	28	115	48
Banff	51	10	115	34
Bellevue	49	35	114	22
Blairmore	49	36	114	26
Coal Valle	53	05	116	49
Coleman	49	38	114	30
Cynthia	53	17	115	25
Devon	53	22	113	44
Drayton Valley	53	13	114	59
Eyremore (Bow City)	50	26	112	14
Foothills	53	04	116	47
Hays	50	06	111	48
High Level	58	31	117	08
Hinton	53	25	117	34
Jasper	52	53	118	05
Lodgepole	53	06	115	19
Luscar	53	04	117	24
Mercoal	53	10	117	05
Nordegg (Brazeau)	52	28	116	05
Rainbow Lake	58	30	119	23
Redwater	53	57	113	06
Robb	53	13	116	58
Swan Hills	54	52	115	45
Waterton	49	03	113	55
<u>BRITISH COLUMBIA</u>				
Atlin	59	34	133	42
Blubber Bay	49	47	124	38
Bralorne	50	47	122	49
Britannia Beach	49	38	123	12
Cassiar	59	18	129	43
Caycuse	48	53	124	22
Ceepeecee	49	52	126	43
Copper Mountain	49	20	120	33
Field	51	24	116	29
Fraser Lake	54	04	124	51
Holberg	50	31	128	01
Honeymoon Bay	48	49	124	10
Howe Sound	49		123	S.E.
Ioco	49		122	S.W.
James Island	48	37	123	22

LIST OF SINGLE ENTERPRISE COMMUNITIES - OCTOBER 1967 (CONT'D)

<u>BRITISH COLUMBIA</u>	<u>LATITUDE</u>		<u>LONGITUDE</u>	
Kemano	53	34	127	56
Kimberley	49	41	115	59
Kitimat	54	02	128	39
McDame Creek	59		129	S.E.
Michel	49	43	114	49
Namu	51	49	127	52
Nickel Plate	49	22	120	02
Nitinat	48	55	124	29
Ocean Falls	52	21	127	40
Pioneer (Mine)	50	46	122	46
Port Alberni	49	14	124	48
Port Alice	50	23	127	27
Port Edward	54	14	130	18
Port McNeill	50	35	127	06
Port Mellon	49	32	123	29
Powell River	49	52	124	33
Radium Hot Springs	50	38	116	03
Sparwood	49	44	114	54
Tadanac	49	1	117	S.W.
Trail	49	06	117	42
Tulsequah	58		133	N.W.
Woodfibre	49	40	123	15
Youbou	48	53	124	13
Zincton	50	02	117	12
<u>MANITOBA</u>				
Bissett	51	02	95	40
Churchill	58	46	94	10
Flin Flon	54	46	101	53
Gillam - Kettle Rapids	56	25	94	32
Lynn Lake	56	51	101	03
Pinawa	50	13	95	55
Pine Falls	50	35	96	15
Sherridon	55	07	101	05
Snow Lake	54	53	100	02
The Pas	53	50	101	15
Thompson	55	45	97	54
Wasagaming	50	39	99	58
<u>NEW BRUNSWICK</u>				
Atholville	47	59	66	43
Blacks' Harbour	45	03	66	47
Marysville	45	59	66	35
Minto	46	05	66	05
Oromocto	45	51	66	29

LIST OF SINGLE ENTERPRISE COMMUNITIES - OCTOBER 1967 (CONT'D)

<u>NEWFOUNDLAND</u>	<u>LATITUDE</u>		<u>LONGITUDE</u>	
Aguathuna	48	30	58	52
Badger	48	58	56	03
Buchans	48	49	56	52
Churchill Falls	53	36	64	19
Corner Brook	48	57	57	57
Gander	48	57	54	34
Goose Bay	53	19	60	24
Grand Falls	48	56	55	40
Harmon Field (Stephenville)	48	33	58	34
Wabana	47	38	52	57
<u>NORTHWEST TERRITORIES</u>				
Aklavik	68	14	59	13
Baker Lake	64	19	96	02
Discovery Mines	63	11	113	51
Coral Harbour	64	08	83	10
Eskimo Point	61	06	94	04
Fort Good Hope	66	16	128	38
Fort Simpson	61	52	121	20
Fort Smith	60	00	111	53
Frobisher Bay	63	44	68	28
Hay River	60	51	115	44
Inuvik	68	21	133	43
Lake Harbour	62	51	69	53
Negus Mine	64	17	76	22
Norman Wells	65	17	126	51
Pelly Bay	68	32	89	49
Pine Point	60	49	114	28
Port Radium	66	05	118	00
Rankin Inlet	62	49	92	05
Snowdrift	62	24	110	45
Tukoyaktuk	69	27	133	02
Yellowknife	62	27	114	22
<u>NOVA SCOTIA</u>				
Brooklyn	44	03	64	42
Glace Bay	46	12	59	59
New Waterford	46	15	60	05
Stirling	45	44	60	26
Sydney Mines	46	14	60	14
<u>ONTARIO</u>				
Abitibi Canyon	49	02	80	53
Ajax	43	51	79	02

LIST OF SINGLE ENTERPRISE COMMUNITIES - OCTOBER 1967 (CONT'D)

<u>ONTARIO (CONT'D)</u>	<u>LATITUDE</u>		<u>LONGITUDE</u>	
Atikokan	48	45	91	37'
Attawapiskat	52	56	82	24
Balmertown	51	04	93	44
Barriefield (Ft. Henry Heights)	44	14	76	28
Batawa	44	10	77	36
Cameron Falls	49	08	88	20
Caramat	49	37	86	09
Cantral Patricia	51	29	90	09
Chenau Rapids	45	34	76	43
Cobalt	47	24	79	41
Cochenour	51	05	93	47
Coniston	46	29	80	51
Copper Cliff	46	28	81	04
Creighton (Mine)	46	27	81	11
Deep River	46	06	77	29
Deloro	44	31	77	37
Des Joachims	46	13	77	42
Elliot Lake	46	23	82	39
Espanola	46	15	81	46
Falconbridge	46	35	80	48
Haley (Station)	45	34	76	37
Heron Bay South	48	40	86	17
Hillsport	49	27	85	33
Iroquois Falls	48	46	80	40
Island Falls	49	35	81	23
Kapuskasing	49	25	82	26
Keewatin	49	46	94	33
Kirkland Lake	48	09	80	02
La Cave	46	23	78	43
Leitch (Mines)	49	15	81	10
Levack	46	38	81	23
Lively	46	26	81	08
Longlac	49	47	86	32
Madsen	50	58	93	55
Maitouwadge	49	08	85	49
Marathon	48	40	86	25
McKenzie Island	51	05	93	50
Moosonee	51	17	80	39
Nephton	44	38	77	58
Nobel	45	25	80	06
North Bay	46	19	79	28
Ojibway	42	16	83	05
Petawawa	45	54	77	17

LIST OF SINGLE ENTERPRISE COMMUNITIES - OCTOBER 1967 (CONT'D)

<u>ONTARIO (CONT'D)</u>	<u>LATITUDE</u>		<u>LONGITUDE</u>	
Pickle Crow	51	30	90	04
Pine Portage	49	18	88	18
Red Lake	51	03	93	50
Red Rock	48	47	88	17
Renabie	48	23	83	53
Schreiber	48	48	87	15
Smoky Falls	50	04	82	10
Smooth Rock Falls	49	17	81	38
South Porcupine	48	29	81	13
Starratt Olsen Mine	50	57	93	57
Stevens	49	33	85	51
Sturgeon Falls	46	22	79	55
Terrace Bay	48	47	87	08
Thorne	46	41	79	06
Timmins	48	28	81	20
Virginiatown	48	08	79	35
Wawa (Jamestown)	48	00	84	47
<u>QUEBEC</u>				
Arvida	48	26	71	11
Asbestos	45	46	71	56
Baie-Comeau	49	13	68	10
Baie Trinite	49	24	67	19
Belleterre	47	25	78	40
Bourlamaque	48	05	77	47
Burnt Creek (part of Schefferville)				
Chandler	48	21	64	41
Chapais	49	47	74	52
Chibougamau	49	53	74	21
Clarke City	50	12	66	38
Crabtree Mills	45	58	73	28
Dolbeau	48	53	72	14
Donncona	46	40	71	47
Duparquet	48	30	79	13
Forestville	48	45	69	06
Gagnon	51	56	68	16
Gatineau	45	29	75	39
Great Whale River	55	17	77	47
Havre Saint Pierre	50	15	63	36
Isle-Maligne	48	34	71	38
Kewagama	48	14	78	24
Kilmar	45	46	74	37
La Tuque	47	27	72	47
Malartic	48	08	78	08

LIST OF SINGLE ENTERPRISE COMMUNITIES - OCTOBER 1967 (CONT'D)

<u>QUEBEC (CONT'D)</u>	<u>LATITUDE</u>		<u>LONGITUDE</u>	
Matagami	41	50	78	10
Murdochville	48	58	65	31
Noranda	48	15	79	01
Mormetal	49	00	79	22
Perron (Pascalis)	48	10	77	34
Port Cartier	50	03	66	46
Port Harrison	58	27	78	09
Port Menier	49	49	64	20
Povungnituk	60	02	77	16
Rapide Blanc	47	41	71	03
Riverbend	48	34	71	39
Rouyn	48	14	79	01
Schefferville	54	48	66	49
Sept Isles	50	12	66	23
Shelter Bay (Port Cartier)	50	01	66	53
Sugluk	62	12	75	38
Temiskaming	46	44	79	05
Thetford Mines	46	05	71	18
Val D'Or	48	06	77	47
Wabush	52	56	66	56
<u>SASKATCHEWAN</u>				
Cumberland House	53	58	102	16
Hudson Bay	52	52	102	25
Island Falls	55	32	102	21
Uranium City (Eldorado)	59	34	108	36
Waskesiu	53	55	106	05
<u>YUKON TERRITORY</u>				
Clinton Creek	64	25	140	37
Dawson City	64	03	139	25
Elsa	63	55	135	29
Keno City	63	55	135	19
Mayo Landing	63	36	135	53
Old Crow	67	35	139	50
Whitehorse	60	44	135	05

APPENDIX II

PERCENTAGE POPULATION CHANGE: 1956-61; 1961-66

	<u>1956-61</u>	<u>1961-66</u>		<u>1956-61</u>	<u>1961-66</u>
Timmins	+6.2	+0.1	Corner Brook	+8.2	+7.9
Glace Bay	-0.9	-2.8	North Bay	+13.1	-0.6
Thetford Mines	+10.8	0.0	Rouyn	+9.7	+1.1
Kirkland Lake	+1.1	-8.8	Arvida	+12.0	*
Sept Iles	*	+33.8	La Tuque	+17.4	+4.0
Gatineau	*	*	Oromocto	*	+16.0
Trail	+1.7	0.0	Port Alberni	+11.6	*
Noranda	+11.1	+0.4	Flin Flon	+8.5	-8.1
Asbestos	*	-0.4	Val d'Or	*	+10.9
New Waterford	+2.0	-7.5	Elliot Lake	+162.8	-33.3
Sydney Mines	+4.5	+0.5	Kitimat		+19.4
Wabana	+1.9	*	Baie Comeau	*	+54.0
Malartic	+2.6	-5.6	Kapuskasing	+25.8	*
Atikokan	+14.0	-6.4	Grand Falls	+8.9	*
Sturgeon Falls	+24.0	+2.4	Dolbeau	+19.1	+9.9
Stephenville	+61.1	-2.1	Kimberley	*	-1.8
Gander	+36.2	+27.3	Deep River	+69.2	+3.7
Espanola	+22.1	+3.7	Whitehorse	+95.7	-5.2
Donnacoona	*	0.0	Chibougamau	+277.3	+86.9
The Pas	*	*	Petaawawa	...	+23.7
Wawa	+49.6	+13.1	Drayton Valley	*	*
Copper Cliff	-5.3	-2.4	Hinton	+272.0	+22.1
Port Cartier	...	+2.3	Banff	+37.5	-16.0
Thompson	...	+158.8	Chandler	+2.1	+5.8
Bourlamaque	+10.8	+20.3	Marysville	+27.8	+10.5
Lively	+13.0	-1.6	Schefferville	+94.4	-2.8
Levack	+8.5	-4.7	Yellowknife	+1.3	+19.1
Ocean Falls	+7.9	-5.2	Goose Bay	-23.3	-28.8
Murdochville	+74.3	+2.4	Coniston	*	0.0
Temiscaming	-6.5	+11.2	Buchans	+2.0	-13.6
Chapais	+521.0	+4.2	Jasper	+12.1	+6.1
Normetal	+20.6	-7.4	Schreiber	+8.8	-2.4
Cobalt	-6.7	0.0	Keewatin	+12.7	-5.0
Atholville	-5.7	+6.5	Red Lake	+22.8	+16.0
Virginiatown	+18.6	-27.4	Blairmore	+0.4	-10.0
Terrace Bay	+21.4	-0.2	Gagnon	...	+105.3
Lynn Lake	+54.2	+17.5	Creighton	+3.6	...
Coleman	+9.6	*	Iroquois Falls	+13.7	+8.9
Uranium City	-7.3	0.0	Hudson Bay	+12.7	*
Fort Smith	+36.9	+33.3	Forestville	+36.9	+2.9

PERCENTAGE POPULATION CHANGE: 1956-61; 1961-66 (CONT'D)

	<u>1956-61</u>	<u>1961-66</u>		<u>1956-61</u>	<u>1961-66</u>
Balmerton &					
Cocheneur	+26.6	+25.3	Devon	*	-9.2
Hay River	+42.5	+49.6	Bellevue	-6.7	-11.3
Minto	-14.6	-6.0	Red Rock	+3.2	+7.4
Crabtree	+16.0	+13.7	Inuvik	*	...
Pine Falls	+14.7	-0.9	Youbou	-12.8	-3.0
Falconbridge	-10.6	-3.8	Redwater	+6.6	-7.9
Smooth Rock Falls	+2.4	+5.3	Longlac	*	+16.0
Port Alice	-1.0	-10.6	Badger	+4.9	+14.9

*Change in boundaries

...Figures not available.

APPENDIX III

% EMPLOYMENT BREAKDOWN BY TEN FUNCTIONAL CATEGORIES

Source: Census of Canada, 1961, Vol. III, Part 2.

	Forestry	Fishing & Trapping	Extraction	Manufacturing	Construction	Transportation	Trade	Finance, Ins. & Real Estate	Services	Public Administration & Defence
Timmins	3.3	-	35.2	5.2	5.6	7.2	16.3	2.6	17.4	3.6
Corner Brook	1.2	0.4	0.2	29.4	7.8	13.2	22.0	1.9	17.4	4.1
Glace Bay	0.1	1.1	37.6	6.3	3.2	7.6	14.5	1.7	19.6	6.8
North Bay	0.6	-	0.5	8.7	6.9	21.4	17.6	3.4	24.6	11.4
Thetford Mines	0.1	-	38.0	7.5	4.9	5.6	16.5	2.5	17.6	3.3
Rouyn	2.8	-	24.6	6.0	6.9	7.7	17.6	2.5	22.5	5.3
Kirkland Lake	2.0	-	32.0	7.8	4.7	8.3	16.6	2.9	18.9	3.6
Arvida	0.4	-	0.1	52.5	3.1	5.4	9.7	2.3	20.9	4.1
Sept Iles	0.4	0.2	12.0	4.3	17.8	21.5	16.5	2.5	16.4	3.4
La Tuque	4.9	-	-	42.6	7.0	8.2	11.9	1.9	16.9	3.5
Gatineau	0.2	-	0.1	38.7	11.5	4.4	13.1	2.1	14.6	13.2
Oromocto	-	-	-	0.4	0.3	0.5	2.6	0.8	3.7	90.6
Trail	0.1	-	1.6	46.5	3.1	8.0	13.2	2.4	17.3	5.0
Port Alberni	7.4	0.8	-	43.1	3.7	8.5	13.2	1.7	15.6	3.2
Noranda	1.2	-	42.5	4.0	3.9	6.3	14.1	3.3	18.5	3.6
Flin Flon	0.1	0.1	54.5	2.3	2.9	4.2	11.5	1.5	17.9	3.2
Asbestos	0.1	-	36.5	18.0	6.3	3.4	12.2	1.7	16.6	2.7
Val d'Or	3.6	-	30.2	5.8	6.0	6.6	14.9	2.6	22.0	3.8
New Waterford	-	0.1	56.0	2.3	2.2	3.5	12.3	1.4	15.3	5.9
Elliot Lake	0.2	-	57.9	2.8	1.6	2.4	10.6	2.3	16.7	3.7
Sydney Mines	-	0.2	38.6	5.6	3.0	9.5	15.3	2.1	17.1	6.1
Kitimat	-	-	-	60.7	4.0	3.7	9.3	1.6	15.1	3.5
Wabana	0.1	-	61.0	0.6	2.8	4.1	14.8	0.3	12.2	2.3
Baie Comeau	3.5	-	-	44.2	6.1	6.4	11.4	2.9	18.6	2.4
Malartic	0.7	0.1	56.5	3.2	3.3	5.1	11.3	1.5	12.9	2.0
Kapuskasing	6.5	-	0.1	46.2	3.3	5.2	11.8	2.2	17.0	3.6
Atikokan	2.7	-	39.1	4.7	10.7	6.1	12.4	2.0	17.4	2.8
Grand Falls	0.5	-	0.1	47.1	4.6	5.9	17.8	3.0	15.2	3.3
Sturgeon Falls	4.2	0.2	0.6	27.1	5.4	5.0	17.5	2.3	28.6	5.2
Dolbeau	6.1	-	0.3	26.9	4.8	4.8	19.2	3.6	26.3	4.9
Stephenville	0.2	-	0.2	2.7	7.9	7.1	14.5	2.4	15.6	47.6
Kimberly	0.7	-	35.7	20.4	4.2	2.9	11.4	1.9	17.0	4.0
Gander	-	-	0.1	1.1	4.7	21.8	15.6	1.2	14.9	38.7
Deep River	0.1	-	0.2	1.1	1.7	4.0	7.7	1.7	10.7	71.6
Espanola	2.4	-	1.5	47.1	4.0	5.2	13.9	0.8	19.1	2.7

% EMPLOYMENT BREAKDOWN BY TEN FUNCTIONAL CATEGORIES (CONT'D)

	Forestry	Fishing & Trapping	Extraction	Manufacturing	Construction	Transportation	Trade	Finance, Ins. & Real Est.	Services	Public Admin & Defence
Whitehorse	0.2	0.1	4.2	2.4	9.9	13.4	14.5	1.8	24.6	25.1
Donnacona	0.3	-	-	52.1	4.0	10.6	10.0	1.5	13.5	3.0
The Pas	1.1	0.4	1.1	4.5	6.6	26.9	16.1	2.1	29.8	7.3
Petawawa	0.7	-	-	2.9	4.4	2.8	6.3	0.4	14.0	67.8
Jamestown	1.2	-	55.0	0.8	4.6	6.5	10.9	1.0	14.7	2.9
Drayton Valley	-	-	35.8	1.2	14.0	10.4	13.0	1.5	17.4	2.3
Copper Cliff	-	-	64.0	3.4	2.9	1.9	7.8	1.7	14.2	3.6
Hinton	9.2	-	1.2	37.4	4.2	6.6	11.3	1.9	19.5	4.9
Port Cartier	12.2	0.2	39.6	0.3	14.4	6.0	5.7	16.4	16.4	1.0
Banff	-	-	0.1	1.3	2.7	7.7	13.2	1.8	49.9	21.0
Thompson	-	-	54.4	15.8	11.4	2.6	3.2	11.1	10.1	0.4
Chandler	0.9	-	-	31.9	3.4	4.2	16.1	3.3	23.9	12.5
Bourlamaque	1.0	-	47.2	4.6	3.1	5.2	13.3	3.2	16.8	3.9
Marysville	0.9	-	-	24.5	7.5	12.3	22.3	1.5	15.8	12.0
Lively	-	-	58.5	15.4	0.6	1.5	6.4	1.8	12.2	1.5
Schefferville	-	-	78.7	0.5	0.6	5.8	4.6	0.6	7.3	0.5
Levack	0.3	0.1	78.6	0.8	0.3	1.1	4.5	0.8	10.4	1.6
Yellowknife	-	-	78.0	-	0.5	1.1	5.1	-	11.9	3.4
Ocean Falls	1.0	-	-	75.1	0.1	2.8	6.1	0.5	11.5	0.8
Goose Bay	-	-	-	0.5	1.5	8.9	4.1	1.4	7.9	74.9
Murdockville	-	-	73.8	0.5	1.7	0.5	5.1	0.6	13.5	1.3
Coniston	-	-	21.6	39.1	3.0	5.5	9.3	1.8	14.1	4.0
Temiscaming	0.9	-	0.1	60.6	1.1	7.2	5.4	1.1	18.6	2.5
Buchans	-	-	11.6	0.4	2.4	2.9	8.3	0.4	12.6	0.6
Chapais	1.0	-	72.1	-	3.5	1.9	5.5	0.7	12.8	1.3
Jasper	-	0.2	-	0.7	4.8	37.9	10.9	1.3	23.5	18.2
Normetal	0.7	-	71.4	1.8	0.4	1.1	7.0	0.5	12.0	2.2
Schreiber	0.3	-	0.4	20.4	1.7	42.9	13.9	1.2	13.9	2.4
Cobalt	0.8	-	26.3	8.3	5.0	11.4	15.9	2.7	21.1	5.7
Keewatin	1.4	0.1	11.1	31.5	8.9	10.6	15.6	3.5	19.1	7.1
Atholville	3.0	-	-	36.8	6.5	7.3	18.1	1.8	24.3	1.8
Red Lake	1.3	-	44.8	3.6	2.9	10.2	14.6	1.7	17.1	2.8
Virginiatown	-	-	78.1	0.1	0.2	1.5	4.6	0.9	9.4	3.3
Blairmore	2.3	-	11.4	10.3	20.6	8.5	14.7	1.3	21.3	5.5
Terrace Bay	-	-	0.2	67.9	0.2	3.4	7.7	1.0	16.2	1.4
Gagnon	-	-	74.1	-	6.1	4.2	5.2	0.8	7.2	0.7
Lynn Lake	0.2	0.9	62.9	0.5	2.5	6.5	10.3	1.1	13.3	1.5
Creighton	-	-	71.3	1.2	0.7	2.3	7.7	1.7	9.9	3.0
Coleman	1.0	-	28.6	3.7	20.2	6.3	11.0	1.1	20.0	3.9

% EMPLOYMENT BREAKDOWN BY TEN FUNCTIONAL CATEGORIES (CONT'D)

	Forestry	Fishing & Trapping	Extraction	Manufact.	Construct.	Transport.	Trade	Finance, Ins & Real Est.	Services	Public Admin & Defence
Iroquois Falls	3.8	-	-	64.3	0.6	2.2	4.3	1.3	19.6	2.4
Uranium City	0.3	0.3	52.1	1.9	2.3	7.0	8.0	2.4	20.0	4.2
Hudson Bay	2.9	0.2	-	9.2	12.2	19.6	20.0	2.0	18.3	5.3
Fort Smith	3.3	0.7	-	3.8	3.6	13.4	5.7	0.3	31.9	35.6
Forestville	43.0	-	-	0.8	2.9	10.7	12.4	1.5	18.1	3.2
Balm. & Coch.	-	-	80.5	0.4	0.9	2.0	5.9	0.9	8.1	0.9
Devon	-	-	43.5	1.8	5.3	11.1	8.9	1.6	19.8	5.3
Hay River	0.5	16.4	-	3.8	14.0	25.0	9.8	0.7	18.3	7.9
Bellevue	1.5	-	22.3	9.6	26.8	7.3	9.4	1.2	15.7	3.1
Minto	1.1	-	41.5	0.5	3.6	11.2	14.5	1.6	16.6	6.2
Red Rock	1.2	-	-	74.4	0.2	0.9	4.3	0.9	14.8	1.6
Crabtree	-	-	-	65.6	5.8	4.1	10.1	1.5	10.1	1.0
Inuvik	-	1.0	-	-	2.9	13.2	6.2	0.4	41.2	32.6
Pine Falls	1.6	-	-	63.0	-	2.5	8.9	1.1	17.1	2.5
Youbou	5.1	-	0.3	74.9	0.7	3.6	6.6	0.5	6.0	-
Falconbridge	-	-	69.8	5.6	1.2	1.2	7.5	0.5	10.9	1.6
Redwater	-	-	29.2	3.5	5.4	17.4	14.2	1.9	18.4	5.3
Smooth Rock Falls	3.0	-	-	53.7	0.2	4.0	9.1	1.3	17.6	1.5
Longlac	61.5	-	0.2	-	1.0	5.9	9.5	1.2	15.9	2.4
Port Alice	-	-	-	78.5	-	2.3	3.3	0.6	11.5	0.6
Badger	28.9	-	1.5	8.7	4.9	22.6	17.7	-	14.3	0.3

APPENDIX IV

MINIMUM PERCENTAGES EMPLOYED IN CANADIAN CITIES OF VARYING SIZE
CLASSES, 1951

	Cities (Population in Thousands)			
	10.0-19.9	20.0-29.9	30.0-39.9	100 & Over
	Percent of City Urban Labour Force			
Extraction	0.0	0.0	0.0	0.0
Manufacturing	2.7	5.2	11.8	12.4
Construction	1.8	3.3	4.0	5.8
Public Utilities	0.4	0.5	0.6	0.8
Transportation	2.4	3.2	3.6	5.1
Wholesale Trade	0.4	1.0	1.5	3.0
Retail Trade	4.2	8.3	9.1	10.3
Finance, Insurance & Real Estate	1.1	1.1	1.7	2.5
Government Service	1.9	1.6	2.5	3.0
Recreation	0.2	0.4	0.4	0.4
Community Service	4.7	5.3	5.1	5.7
Business Service	0.2	0.3	0.6	1.2
Personal Service	4.4	4.0	4.2	5.4
Total	24.4	34.2	45.1	55.6
	35	15	17	13
	Cities	Cities	Cities	Cities

Source: J. W. Maxwell "The Functional Structure of Canadian Cities: A Classification of Cities," p. 83.

Calculated from the Ninth Census of Canada, 1951.

Brackets relate to categories used in 1961 analysis.

APPENDIX V

MINIMUM REQUIREMENTS DERIVED FROM REGRESSION LINES, 1961

	Population	Manufactur.	Construct.	Transport.	Trade	Finance, Ins & Real Est.	Services	Public Admin & Defence	Total %
Timmins	29,270	6.7	3.8	4.7	12.1	1.9	15.6	2.9	48.0
Corner Brook	25,185	6.2	3.6	4.5	11.8	1.8	15.2	2.9	46.3
Glace Bay	24,186	6.1	3.6	4.5	11.8	1.7	15.1	2.8	45.8
North Bay	23,781	6.0	3.5	4.5	11.7	1.7	15.0	2.8	45.6
Thetford Mines	21,618	5.7	3.4	4.3	11.6	1.7	14.8	2.8	44.5
Rouyn	18,716	5.2	3.2	4.2	11.3	1.6	14.4	2.7	42.9
Kirkland Lake	15,366	4.6	2.9	3.9	11.0	1.4	13.8	2.6	40.6
Arvida	14,460	4.4	2.8	3.9	10.9	1.4	13.6	2.6	39.9
Sept Iles	14,190	4.3	2.8	3.9	10.8	1.4	13.6	2.6	39.7
La Tuque	13,023	4.1	2.7	3.7	10.7	1.3	13.3	2.5	38.7
Gatineau	13,022	4.1	2.7	3.7	10.7	1.3	13.3	2.5	38.7
Oromocto	12,170	3.8	2.6	3.7	10.6	1.3	13.1	2.5	37.9
Trail	11,588	3.7	2.5	3.6	10.5	1.2	13.0	2.5	37.3
Port Alberni	11,560	3.7	2.5	3.6	10.5	1.2	13.0	2.5	37.3
Noranda	11,477	3.7	2.5	3.6	10.5	1.2	13.0	2.5	37.2
Flin Flon	11,104	3.5	2.5	3.6	10.4	1.2	12.9	2.5	36.8
Asbestos	11,083	3.5	2.5	3.6	10.4	1.2	12.9	2.5	36.8
Val d'Or	10,983	3.5	2.5	3.5	10.4	1.2	12.8	2.5	36.7
New Waterford	10,502	3.4	2.4	3.5	10.3	1.2	12.7	2.5	36.3
Elliot Lake	9,950	3.2	2.3	3.4	10.2	1.1	12.6	2.4	35.6
Sydney Mines	9,122	2.9	2.2	3.3	10.0	1.1	12.3	2.4	34.6
Kitimat	8,217	2.6	2.0	3.2	9.8	1.0	12.1	2.3	33.1
Wabana	8,026	2.5	2.0	3.2	9.8	1.0	12.0	2.3	33.1
Baie Comeau	7,956	2.5	2.0	3.2	9.8	1.0	11.9	2.3	33.0
Malartic	6,998	2.0	1.8	3.0	9.6	0.9	11.6	2.3	31.5
Kapuskasing	6,870	2.0	1.8	3.0	9.5	0.9	11.5	2.3	31.3
Atikokan	6,674	1.9	1.8	3.0	9.5	0.9	11.4	2.2	30.1
Grand Falls	6,606	1.9	1.8	2.9	9.5	0.8	11.4	2.2	30.8
Sturgeon Falls	6,288	1.7	1.7	2.9	9.4	0.8	11.3	2.2	30.2
Dolbeau	6,052	1.6	1.6	2.8	9.3	0.8	11.2	2.2	29.8
Stephenville	6,043	1.6	1.6	2.8	9.3	0.8	11.1	2.2	29.8
Kimberly	6,013	1.6	1.6	2.8	9.3	0.8	11.1	2.2	29.7
Gander	5,725	1.4	1.5	2.8	9.2	0.8	11.0	2.1	29.2
Deep River	5,377	1.2	1.5	2.7	9.1	0.7	10.6	2.1	28.4
Espanola	5,353	1.2	1.5	2.7	9.0	0.7	10.6	2.1	28.4
Whitehorse	5,031	1.0	1.4	2.6	9.0	0.7	10.6	2.1	27.7

MINIMUM REQUIREMENTS DERIVED FROM REGRESSION LINES, 1961 (CONT'D)

	Population	Manufact.	Construct.	Transport.	Trade	Finance, Ins. & R. E.	Services	Public Admin & Defence	Total %
Donnacona	4,812	0.8	1.3	2.6	8.9	0.6	10.5	2.1	27.1
Chibougamau	4,765	0.8	1.3	2.6	8.9	0.6	10.5	2.1	27.0
The Pas	4,671	0.7	1.3	2.5	8.9	0.6	10.4	2.1	26.8
Petaawawa	4,509	0.6	1.2	2.5	8.8	0.6	10.3	2.1	26.4
Jamestown	4,040	0.3	1.1	2.4	8.6	0.5	10.0	2.0	25.1
Drayton Valley	3,854	0.1	1.0	2.3	8.5	0.5	9.9	2.0	24.5
Copper Cliff	3,600	0.1	0.9	2.2	8.4	0.4	9.7	2.0	24.0
Hinton	3,529	0.1	0.9	2.2	8.4	0.4	9.6	1.9	23.8
Port Cartier	3,458	0.1	0.8	2.2	8.3	0.4	9.6	1.9	23.7
Banff	3,429	0.1	0.8	2.2	8.3	0.4	9.5	1.9	23.6
Thompson	3,418	0.1	0.8	2.2	8.3	0.4	9.5	1.9	23.6
Chandler	3,406	0.1	0.8	2.2	8.3	0.4	9.5	1.9	23.5
Bourlamaque	3,344	0.1	0.8	2.1	8.3	0.4	9.5	1.9	23.4
Marysville	3,233	0.1	0.8	2.1	8.2	0.4	9.4	1.9	23.1
Lively	3,211	0.1	0.7	2.1	8.2	0.4	9.4	1.9	23.1
Schefferville	3,178	0.1	0.7	2.1	8.2	0.4	9.3	1.9	23.0
Levack	3,178	0.1	0.7	2.1	8.2	0.4	9.3	1.9	23.0
Yellowknife	3,141	0.1	0.7	2.1	8.2	0.3	9.3	1.9	22.9
Ocean Falls	3,056	0.1	0.7	2.0	8.1	0.3	9.2	1.9	22.6
Goose Bay	3,040	0.1	0.7	2.0	8.1	0.3	9.2	1.1	22.6
Murdockville	2,951	0.1	0.6	2.0	8.1	0.3	9.1	1.9	22.4
Coniston	2,692	0.1	0.5	1.9	7.9	0.2	8.9	1.8	21.6
Temiscaming	2,517	0.1	0.4	1.8	7.8	0.2	8.7	1.8	21.0
Buchans	2,463	0.1	0.4	1.8	7.7	0.2	8.6	1.8	20.9
Chapais	2,363	0.1	0.3	1.7	7.7	0.1	8.5	1.8	20.5
Jasper	2,360	0.1	0.3	1.7	7.7	0.1	8.5	1.8	20.5
Normetal	2,285	0.1	0.3	1.7	7.6	0.1	8.4	1.7	20.2
Schreiber	2,230	0.1	0.2	1.7	7.6	0.1	8.3	1.7	20.0
Cobalt	2,209	0.1	0.2	1.7	7.6	0.1	8.3	1.7	20.0
Keewatin	2,197	0.1	0.2	1.6	7.5	0.1	8.3	1.7	19.8
Atholville	2,145	0.1	0.2	1.6	7.5	0.1	8.2	1.7	19.7
Red Lake	2,051	0.1	0.1	1.6	7.4	0.1	8.1	1.7	19.4
Virginiatown	2,009	0.1	0.1	1.5	7.4	0.1	8.0	1.7	19.2
Blairmore	1,980	0.1	0.1	1.5	7.4	0.1	8.0	1.7	19.2
Terrace Bay	1,901	0.1	0.1	1.5	7.3	0.1	7.9	1.7	19.0
Gagnon	1,900	0.1	0.1	1.5	7.3	0.1	7.9	1.7	19.0
LynnLake	1,881	0.1	0.1	1.5	7.3	0.1	7.8	1.6	18.8
Creighton	1,727	0.1	0.1	1.4	7.1	0.1	7.6	1.6	18.3
Coleman	1,713	0.1	0.1	1.3	7.1	0.1	7.6	1.6	18.2

MINIMUM REQUIREMENTS DERIVED FROM REGRESSION LINES, 1961 (CONT'D)

	Population	Manufact.	Construct.	Transport.	Trade	Finance, In. & R.Estate	Services	Public Ad. & Defence	Total %
Iroquois Falls	1,681	0.1	0.1	1.3	7.1	0.1	7.5	1.6	18.1
Uranium City	1,665	0.1	0.1	1.3	7.0	0.1	7.5	1.6	18.0
Hudson Bay	1,601	0.1	0.1	1.3	7.0	0.1	7.4	1.6	17.9
Fort Smith	1,591	0.1	0.1	1.3	6.9	0.1	7.4	1.6	17.8
Forestville	1,529	0.1	0.1	1.2	6.8	0.1	7.2	1.6	17.4
Balm. & Coch.	1,421	0.1	0.1	1.1	6.8	0.1	7.0	1.5	17.0
Devon	1,418	0.1	0.1	1.1	6.7	0.1	7.0	1.5	16.9
Hay River	1,338	0.1	0.1	1.1	6.7	0.1	6.9	1.5	16.8
Bellevue	1,323	0.1	0.1	1.0	6.7	0.1	6.8	1.5	16.6
Minto	1,319	0.1	0.1	1.0	6.6	0.1	6.8	1.5	16.5
Red Rock	1,316	0.1	0.1	1.0	6.6	0.1	6.8	1.5	16.5
Crabtree	1,313	0.1	0.1	1.0	6.6	0.1	6.8	1.5	16.5
Inuvik	1,248	0.1	0.1	1.0	6.5	0.1	6.7	1.5	16.3
Pine Falls	1,244	0.1	0.1	1.0	6.5	0.1	6.7	1.5	16.3
Youbou	1,153	0.1	0.1	0.9	6.4	0.1	6.4	1.4	15.7
Falconbridge	1,138	0.1	0.1	0.9	6.4	0.1	6.4	1.4	15.7
Redwater	1,135	0.1	0.1	0.9	6.4	0.1	6.4	1.4	15.7
Smooth Rock Falls	1,131	0.1	0.1	0.9	6.4	0.1	6.4	1.4	15.7
Longlac	1,125	0.1	0.1	0.9	6.4	0.1	6.4	1.4	15.7
Port Alice	1,065	0.1	0.1	0.8	6.3	0.1	6.2	1.4	15.3
Badger	1,036	0.1	0.1	0.8	6.2	0.1	6.1	1.4	15.1

N.B.: For Forestry, Fishing, and Trapping, and Extraction, - Ascribed

Minimum Requirement values are 0.1%.

APPENDIX VI

BASIC EMPLOYMENT IN FUNCTIONAL CATEGORIES AS
PERCENTAGE OF TOTAL BASIC EMPLOYMENT

	Basic Employment as % Total Employment	Forestry	Fishing & Trapping	Extraction	Manufacturing	Construction	Transportation	Trade	Finance, Insur. & Real Estate	Services	Public Admin. & Defence
Timmins	52.0	6.0	-	67.5	3.0	3.5	5.0	8.1	1.3	3.5	1.2
Corner Brook	53.7	2.0	0.6	-	43.2	7.8	16.2	19.0	0.2	4.1	2.2
Glance Bay	54.2	-	1.9	69.2	0.4	-	5.7	5.0	-	8.3	7.4
North Bay	54.4	0.9	-	0.7	5.0	6.3	31.1	10.8	3.1	17.6	15.8
Thetford											
Mines	55.5	-	-	68.3	3.2	2.7	2.3	8.8	1.4	5.0	0.9
Rouyn	57.1	4.7	-	42.9	1.1	6.5	6.5	11.0	1.6	14.4	4.6
Kirkland											
Lake	59.4	3.2	-	53.7	5.4	3.0	7.4	9.4	2.5	8.6	1.6
Arvida	60.1	0.5	-	-	80.2	0.4	2.5	-	1.5	12.2	2.5
Sept Iles	60.3	0.5	-	19.7	-	24.9	29.4	9.5	1.8	4.6	1.4
La Tuque	61.3	8.0	-	-	62.8	7.0	7.2	2.0	1.0	5.9	1.6
Gatineau	61.3	-	-	-	56.4	14.4	1.0	3.9	1.3	2.1	17.5
Oromocto	62.1	- -	-	-	-	-	-	-	-	-	100.0
Trail	62.7	-	-	2.4	68.3	0.0	7.8	4.3	1.9	6.9	4.0
Port Alberni	62.7	11.6	1.2	-	62.8	2.0	7.8	4.3	0.9	4.1	1.1
Noranda	62.8	1.8	-	67.6	0.5	2.2	4.5	6.0	3.5	8.7	1.8
Flin Flon	63.2	-	-	86.0	-	0.6	1.0	1.8	0.5	8.0	1.1
Asbestos	63.2	-	-	57.6	22.9	5.0	-	3.0	0.8	5.9	0.3
Val d'Or	63.3	5.5	-	47.6	3.6	4.7	5.0	7.5	2.3	15.0	2.1
New Waterford	63.7	-	-	87.7	-	-	-	3.1	0.3	4.1	5.3
Elliot Lake	64.4	-	-	89.7	-	-	-	0.6	1.9	6.4	2.0
Sydney Mines	65.4	-	-	58.9	4.1	1.3	9.5	8.1	1.6	7.3	5.6
Kitimat	66.2	-	-	-	87.8	2.9	0.8	-	0.9	4.0	1.6
Wabana	66.9	-	-	89.6	-	1.1	1.4	7.5	-	0.4	-
Baie Comeau	67.0	5.0	-	-	62.2	6.1	4.8	2.4	2.8	10.0	-
Malartic	68.5	0.9	-	82.3	1.8	2.2	2.9	2.5	0.9	1.9	-
Kapuskasing	68.7	9.3	-	-	64.3	2.2	3.2	3.2	1.9	8.0	1.8
Atikokan	69.1	3.8	-	56.4	4.1	13.0	4.5	4.2	1.6	8.7	0.9
Grand Falls	69.2	0.6	-	-	65.3	4.2	4.3	12.0	3.2	5.5	1.6
Sturgeon Falls	69.8	5.9	-	-	36.4	5.3	3.0	11.6	2.2	24.8	4.3

BASIC EMPLOYMENT IN FUNCTIONAL CATEGORIES AS PERCENTAGE OF TOTAL BASIC
EMPLOYMENT (CONT'D)

	Basic Employment as % of Total Employment	Forestry	Fishing & Trapping	Extraction	Manufacturing	Construction	Transportation	Trade	Finance, Insur. & Real Estate	Services	Public Admin. & Defence
Dolbeau	70.2	10.0	-	-	36.0	4.6	2.9	14.0	4.0	21.4	3.8
Stephenville	70.2	-	-	-	1.5	9.0	6.1	7.4	2.2	6.5	64.8
Kimberly	70.8	1.0	-	50.3	26.8	3.8	0.2	3.1	1.5	8.5	2.5
Gander	71.6	-	-	-	-	4.5	26.5	9.1	0.8	5.7	51.1
Deep River	71.6	-	-	-	-	0.3	1.8	-	1.4	-	96.9
Espanola	72.3	3.3	-	2.1	64.0	63.6	3.6	6.8	0.2	11.8	0.8
Whitehorse	72.4	0.3	-	5.7	2.1	11.7	14.9	7.6	1.5	19.3	31.8
Donnacona	72.9	0.2	-	-	70.4	3.7	10.9	1.5	1.2	4.1	1.2
Chibougamau	73.0	0.8	-	72.2	1.0	10.7	3.7	1.1	1.2	4.2	0.6
The Pas	73.2	1.5	0.4	1.5	5.2	7.2	33.3	10.0	2.0	27.0	7.1
Petawawa	73.6	0.9	-	-	3.1	4.3	0.4	-	-	5.0	87.3
Jamestown	74.9	1.5	-	73.2	0.7	4.7	5.5	31.1	0.6	5.9	1.2
Drayton Valley	75.4	-	-	47.3	1.4	17.2	10.7	6.0	1.3	10.0	0.4
Copper Cliff	76.0	-	-	84.1	4.1	2.5	-	-	1.6	5.6	2.0
Hinton	76.2	12.1	-	1.4	49.0	4.3	5.8	3.8	1.8	13.0	3.9
Port Cartier	76.3	16.0	-	51.8	0.2	17.8	4.7	-	1.5	8.5	-
Banff	76.4	-	-	-	1.6	2.3	7.2	6.4	1.7	52.9	25.0
Thompson	76.4	-	-	66.5	19.0	12.8	0.5	-	0.9	0.8	-
Chandler	76.5	1.0	-	-	41.6	3.1	2.5	10.2	3.6	18.8	13.9
Bourlamaque	76.6	1.2	-	61.4	5.6	2.9	3.7	6.2	3.5	9.1	2.4
Marysville	76.9	1.1	-	-	31.7	8.3	13.3	18.3	1.4	8.3	13.1
Lively	76.9	-	-	75.9	19.9	-	-	-	1.7	3.5	-
Scheffer- ville	77.0	-	-	95.0	0.5	-	4.6	-	0.4	-	-
Levack	77.0	-	-	97.0	0.9	-	-	-	0.6	1.3	0.4
Yellowknife	77.1	-	-	95.0	-	-	-	-	-	3.2	1.9
Ocean Falls	77.4	1.0	-	-	95.9	-	1.0	-	0.2	2.0	-
Goose Bay	77.4	-	-	-	0.5	1.0	8.0	-	1.3	-	89.0
Murdockville	77.6	-	-	95.0	0.5	1.3	-	-	0.4	5.5	-
Coniston	78.4	-	-	27.4	49.7	3.1	4.5	1.7	2.0	6.5	2.7
Temiscaming	79.0	1.1	-	-	76.6	0.9	6.5	-	1.2	12.0	0.9
Buchans	79.2	-	-	90.3	0.4	2.4	1.3	0.7	0.2	4.8	-

BASIC EMPLOYMENT IN FUNCTIONAL CATEGORIES AS PERCENTAGE OF TOTAL BASIC
EMPLOYMENT (CONT'D)

	Basic Employment as % of Total Employment	Forestry	Fishing & Trapping	Extraction	Manufacturing	Construction	Transportation	Trade	Finance, Ins. & Real Estate	Services	Public Admin. & Defence
Chapais	79.5	1.2	-	90.6	-	3.8	0.2	-	0.7	5.0	-
Jasper	79.5	-	0.2	-	0.7	5.6	45.5	3.8	1.4	18.8	20.6
Normetal	79.8	0.8	-	89.3	2.0	0.2	-	-	0.4	4.2	0.6
Schreiber	80.0	0.3	-	0.5	25.4	1.9	51.5	7.9	1.3	6.5	0.8
Cobalt	80.1	1.0	-	32.7	10.2	6.0	12.2	9.9	3.1	16.0	4.8
Keewatin	80.1	1.8	-	1.2	39.2	10.6	10.9	10.1	4.2	13.5	6.7
Atholville	80.3	3.7	-	-	45.7	7.8	7.1	13.2	2.1	20.0	-
Red Lake	80.7	1.6	-	55.3	4.2	3.3	10.3	8.6	2.0	10.9	1.3
Virginiatown	80.8	-	-	96.5	-	0.1	-	-	1.0	1.7	2.0
Blairmore	81.0	2.8	-	14.0	12.6	25.3	8.6	9.0	1.5	16.4	4.7
Terrace Bay	81.2	-	-	0.2	83.5	0.2	2.3	0.5	1.1	9.9	-
Gagnon	81.2	-	-	91.0	-	6.5	2.7	-	0.8	-	-
Lynn Lake	81.2	0.2	1.0	77.3	0.5	2.9	6.0	3.6	1.2	6.8	-
Creighton	81.7	-	-	87.8	1.3	0.7	1.1	0.7	1.9	2.7	1.7
Coleman	81.8	1.1	-	34.8	4.1	24.6	6.0	4.4	1.2	15.1	2.8
Iroquois Falls	81.9	4.6	-	-	78.4	0.6	1.1	-	1.4	14.8	1.0
Uranium City	81.9	0.3	0.3	63.0	2.2	2.7	6.9	1.1	2.7	15.3	3.2
Hudson Bay	82.2	3.5	0.2	-	11.1	14.7	22.2	15.8	2.3	13.3	4.4
Fort Smith	82.2	4.0	0.6	-	4.4	4.2	14.7	-	0.2	29.8	41.4
Forestville	82.5	52.0	-	-	0.8	3.4	11.3	6.6	1.7	13.1	1.9
Balm. & Coch.	82.9	-	-	97.0	0.3	0.9	1.0	-	0.9	1.3	-
Devon	82.9	-	-	52.3	2.0	6.2	12.0	2.6	1.8	15.4	4.5
Hay River	83.3	0.5	19.6	-	4.4	16.7	28.7	3.7	0.7	13.7	7.7
Bellevue	83.4	1.8	-	26.6	11.4	32.0	7.5	3.2	1.3	10.7	1.9
Minto	83.4	0.2	-	49.6	0.5	4.2	12.2	9.5	1.8	11.7	5.6
Red Rock	83.4	1.4	-	-	89.1	0.1	-	-	0.9	9.6	0.1
Crabtree	83.4	-	-	-	78.5	6.8	3.6	4.1	1.6	3.9	-
Inuvik	83.7	-	1.1	-	-	3.4	14.7	-	0.3	41.2	37.1
Pine Falls	83.8	1.8	-	-	75.1	-	1.8	2.7	1.2	12.4	1.2
Youbou	84.2	6.0	-	0.3	88.8	0.7	3.2	2.2	0.5	-	-
Falconbridge	84.3	-	-	82.7	6.6	1.3	0.4	1.3	0.5	5.4	0.2
Redwater	84.3	-	-	34.5	4.0	6.3	19.6	9.3	2.2	14.2	4.6
Smooth Rock Falls	84.4	3.6	-	-	63.5	0.1	3.7	3.2	1.4	13.3	9.5

BASIC EMPLOYMENT IN FUNCTIONAL CATEGORIES AS PERCENTAGE OF TOTAL BASIC
EMPLOYMENT (CONT'D)

	Basic Employment as % of Total Employment	Forestry	Fishing & Trapping	Extraction	Manufacturing	Construction	Transportation	Trade	Finance, Ins. & Real Estate	Services	Public Admin. & Defence
Longlac	84.4	72.7	-	0.2	-	1.1	6.0	3.6	1.3	11.3	1.1
Port Alice	84.7	-	-	-	92.6	-	1.8	-	0.6	6.3	-
Badger	84.9	33.9	-	1.6	10.1	5.6	25.8	13.5	-	9.7	-

APPENDIX VII

DOMINANT FUNCTION - WORKED EXAMPLE PORT ALBERNI - POPULATION 11,560

	FUNCTIONAL CATEGORIES									
	A	B	C	D	E	F	G	H	I	J
1) % of Total Employment in Each Functional Category (Appendix III)	7.4	0.8	0.0	43.1	3.7	8.5	13.2	1.7	15.6	3.2
2) Minimum Requirement % Values Derived from Regression Lines (Appendix IV)	0.0	0.0	0.0	3.7	2.5	3.6	10.5	1.2	13.0	2.5
3) Excess Employment in Functional Categories (Subtract 2 from 1)	7.4	0.8	0.0	39.4	1.2	4.9	2.7	0.5	2.6	0.7
4) Excess Employment in Functional Categories as a % Total Excess Employment	11.6	1.2	0.0	62.8	2.0	7.8	4.3	0.9	4.1	1.1
	↑									
	Dominant Function									

Functional Categories:

- A - Forestry
- B - Fishing & Trapping
- C - Extraction
- D - Manufacturing
- E - Construction
- F - Transportation
- G - Trade
- H - Finance, Insurance & Real Estate
- I - Community, Business & Personal Service
- J - Public Administration & Defence

APPENDIX VIII

A COMPARISON OF TOTAL AND BASIC EMPLOYMENT BREAKDOWN FOR SELECTED SETTLEMENTS

Settlement	Function						
	Primary		Secondary		Tertiary		
Timmins	T	Extraction	35%	Services	17%	Trade	16%
	B	Extraction	67%	Trade	8%	Transportation	5%
Arvida	T	Manufacturing	52%	Services	20%	Trade	10%
	B	Manufacturing	80%	Services	12%	Transportation	2%
Kitimat	T	Manufacturing	61%	Services	15%	Trade	9%
	B	Manufacturing	88%	Services	4%	Construction	3%
Deep River	T	Administration	72%	Services	11%	Trade	8%
	B	Administration	97%	Transportation	2%	Finance, Insurance & Real Estate	1%
Whitehorse	T	Administration	25%	Services	24%	Trade	14%
	B	Administration	32%	Services	19%	Transportation	15%
Chibougamau	T	Extraction	53%	Services	14%	Trade	10%
	B	Extraction	72%	Transportation	11%	Services	4%
Ocean Falls	T	Manufacturing	75%	Services	11%	Trade	6%
	B	Manufacturing	96%	Services	2%	Transportation	1%
Schreiber	T	Transportation	43%	Manufacturing	20%	Trade	14%
	B	Transportation	52%	Manufacturing	25%	Trade	8%
Gagnon	T	Extraction	74%	Services	7%	Construction	6%
	B	Extraction	91%	Construction	6%	Transportation	3%
Hay River	T	Transportation	25%	Services	18%	Fishing	16%
	B	Transportation	30%	Fishing	20%	Construction	17%
Inuvik	T	Services	41%	Administration	33%	Transportation	13%
	B	Services	41%	Administration	37%	Transportation	15%
Longlac	T	Forestry	61%	Services	16%	Trade	9%
	B	Forestry	73%	Services	11%	Transportation	6%

T = Total; B = Basic.

APPENDIX IX

COMPARISON OF SOCIAL CHARACTERISTICS OF AUSTRALIAN MINING SETTLEMENTS TO
CANADIAN SINGLE ENTERPRISE COMMUNITIES

In 1961, M. G. A. Wilson carried out an analysis of twenty-nine so-called mining centers in Australia in an attempt to test the supposed distinctiveness of mining towns to determine whether they possess any demographic and social characteristics different from other settlements.¹

The elements which Wilson studied as commonly thought to be distinctive of mining settlements were:

- (a) dominance of one industry in employment
- (b) high proportion of foreign born people
- (c) small proportion of total population over 65
- (d) high male/female ratio for both total population and in the labour force.

He was able to assess the distinctiveness of these features in mining settlements by plotting the values for these features for all settlements in Australia, and he considered particular features as being distinct if they fell in the upper or lower quartiles of the total data for all Australian settlements.

The conclusions he arrived at were that the degree of dominance

¹M. G. A. Wilson, "Some Population Characteristics of Australian Mining Settlements," Tijdschrift voor Economische en Sociale Geografie, LIII, No. 5, (1962), pp. 125-132.

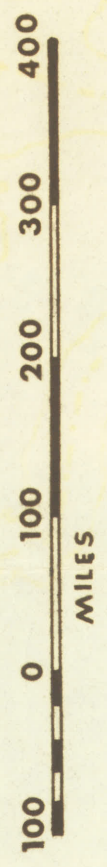
COMPARISON OF SOCIAL CHARACTERISTICS OF AUSTRALIAN MINING SETTLEMENTS TO
CANADIAN SINGLE ENTERPRISE COMMUNITIES (CONT'D)

of mining in employment is particularly high and, therefore, there is extreme functional specialization. The mining settlements also tended to have a high masculine work force, a higher percentage of foreign born people, and a small percentage of elderly people.

It has proved impossible, although desirable, to analyze the data for the Canadian single enterprise communities in this way, by deducing median and quartile values from the data for all Canadian settlements, but similar conclusions to those of Wilson have been reached by comparing the characteristics of mining settlements to other types of settlements.

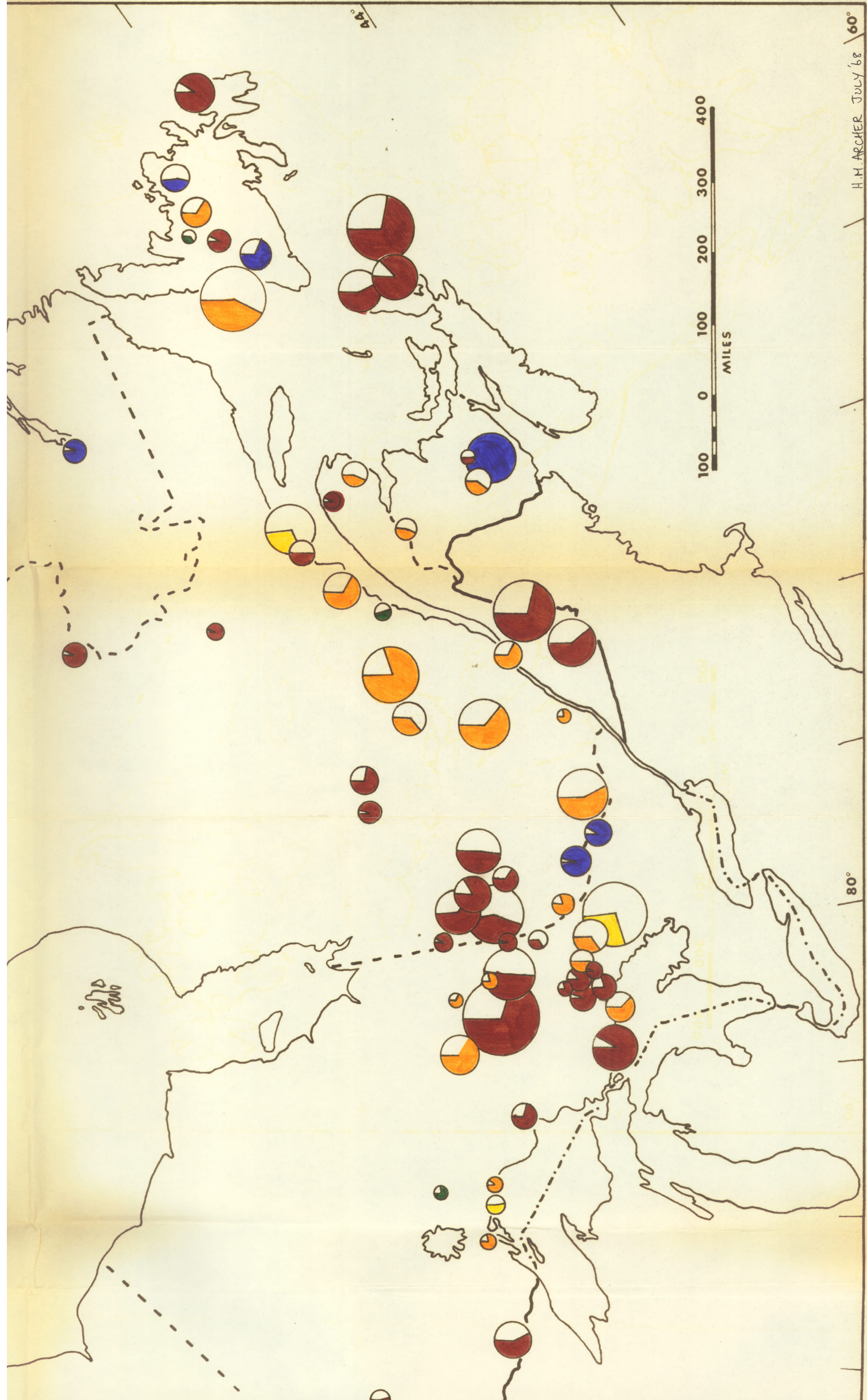
However, the characteristics which Wilson considered as making mining settlements distinct, also appear to apply to some of the other groups of single enterprise communities, particularly the manufacturing settlements. The factors of isolation and age of the community again appear as important as the type of enterprise in determining the distinctiveness of mining communities.

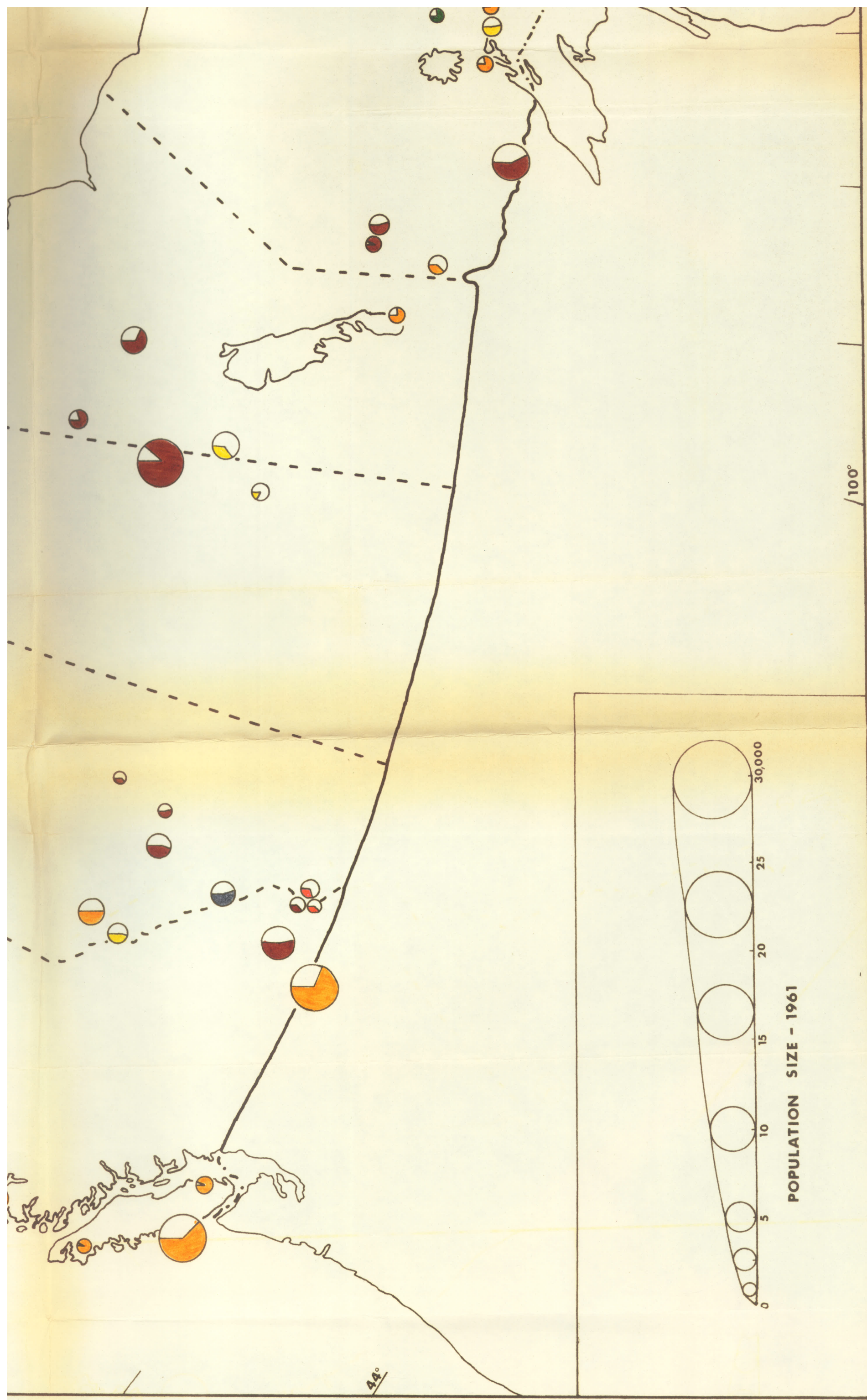
H.M. ARCHER July '68 60°



80°

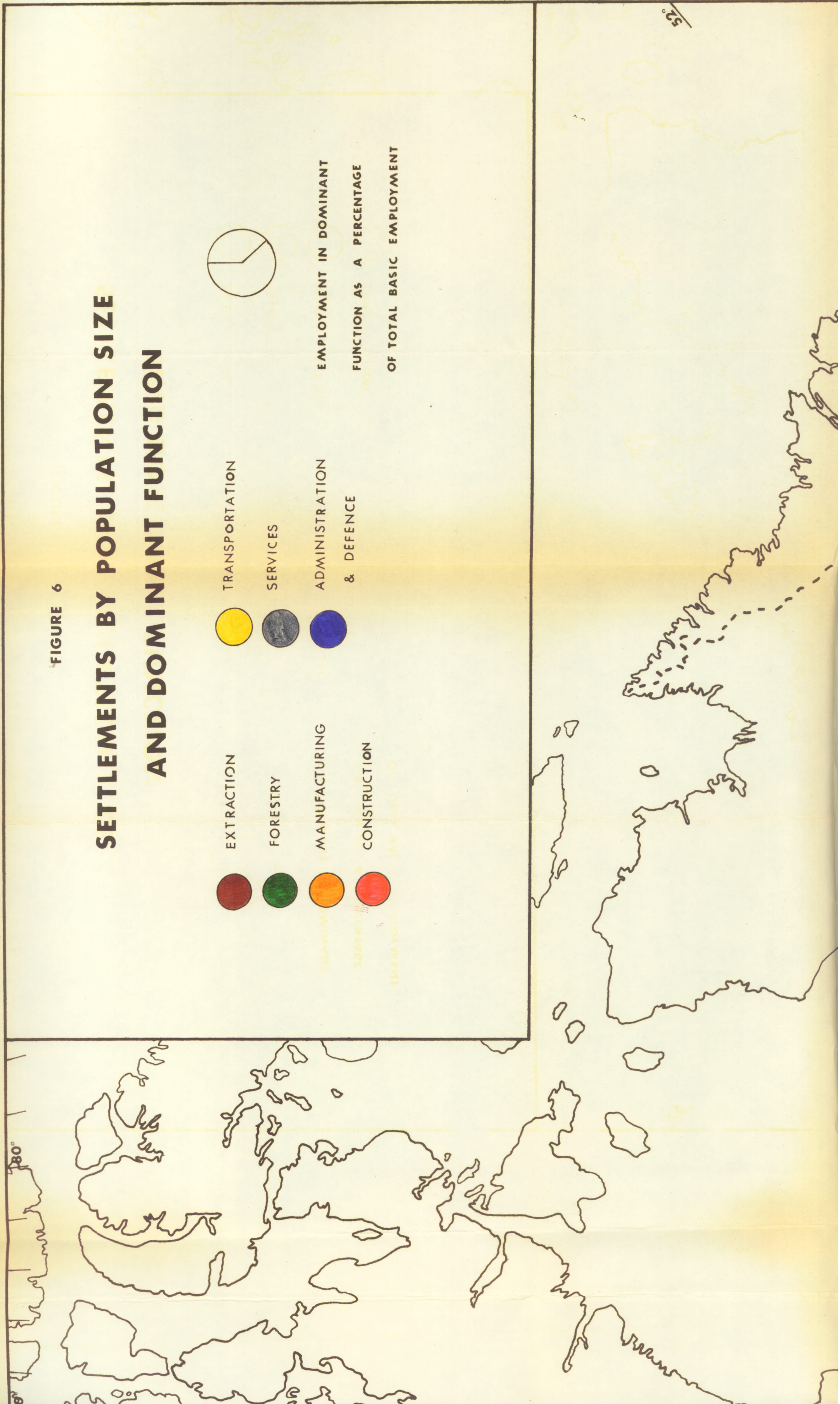
44°





100°

44°



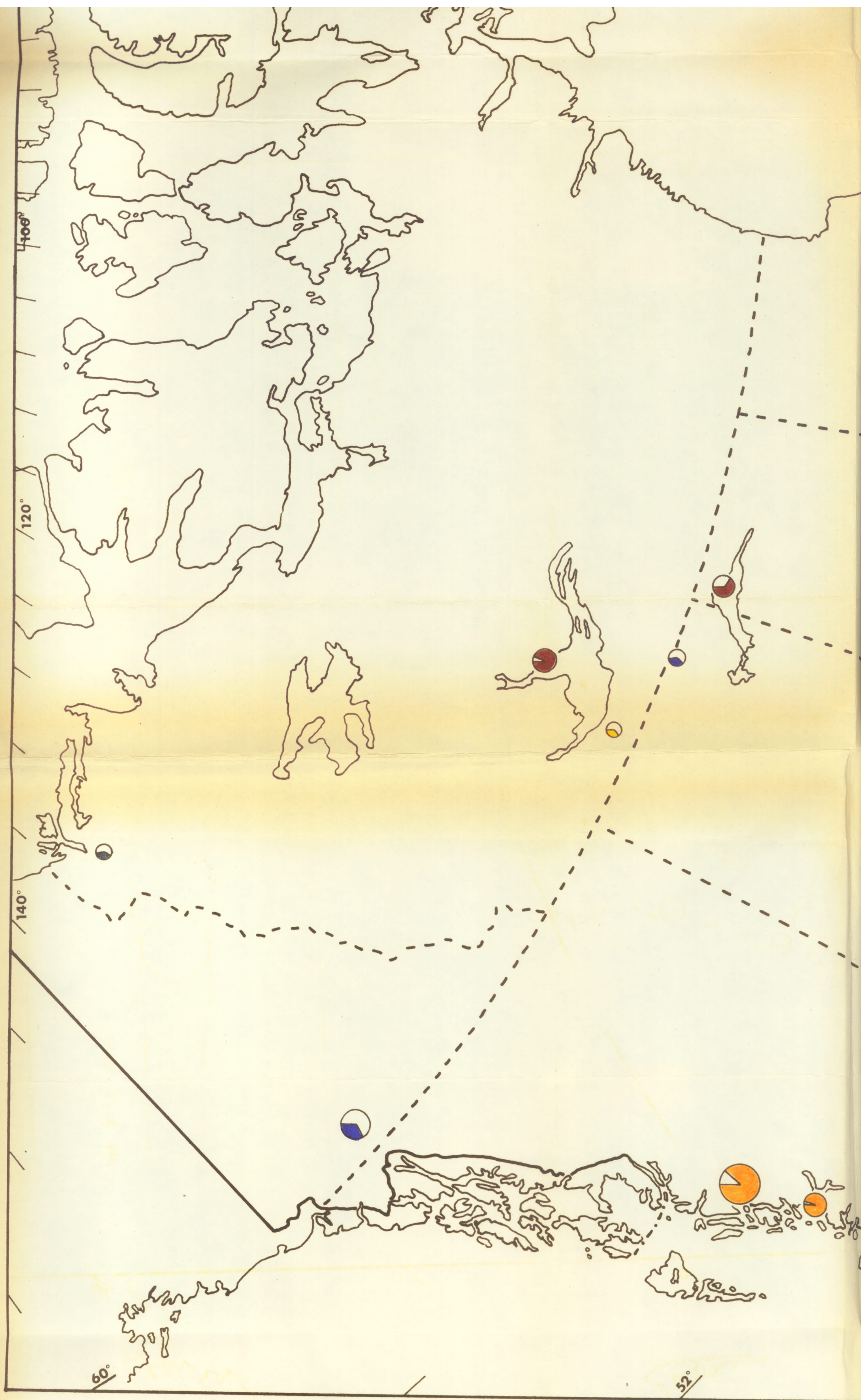
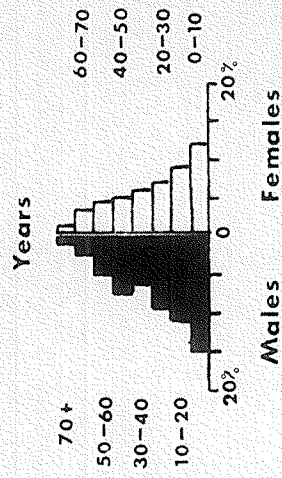


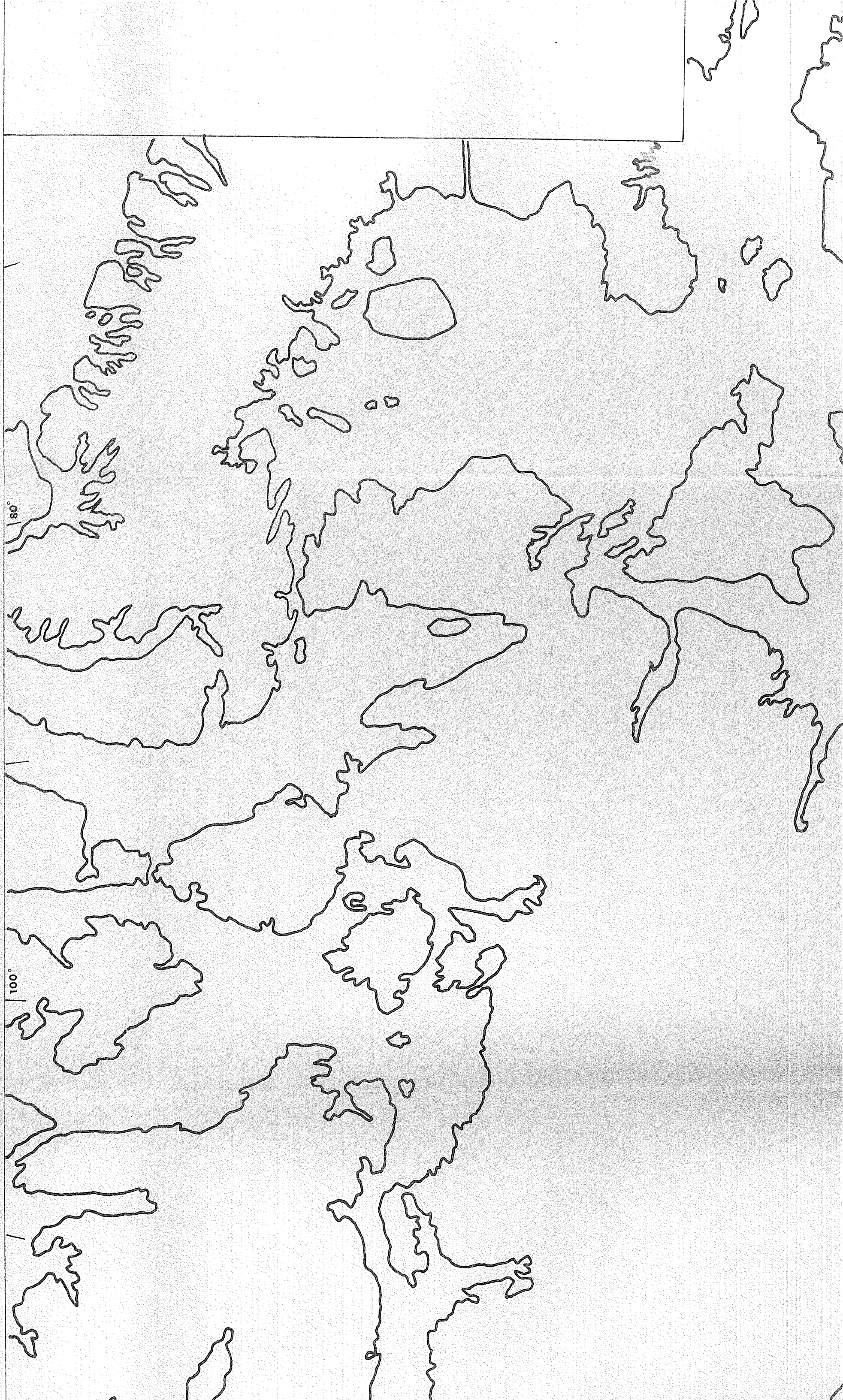
FIGURE 8

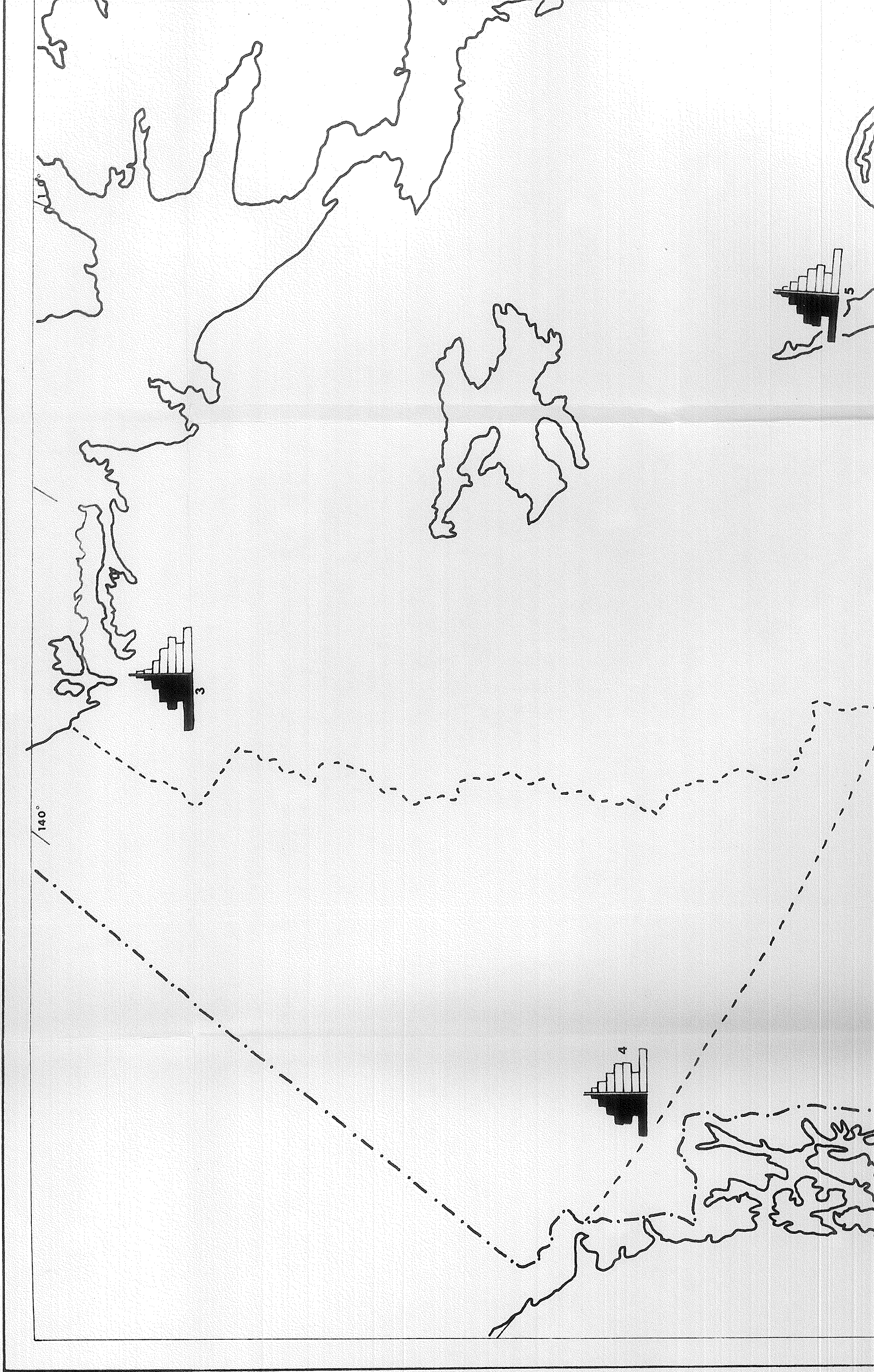
AGE/SEX POPULATION PYRAMIDS, 1961

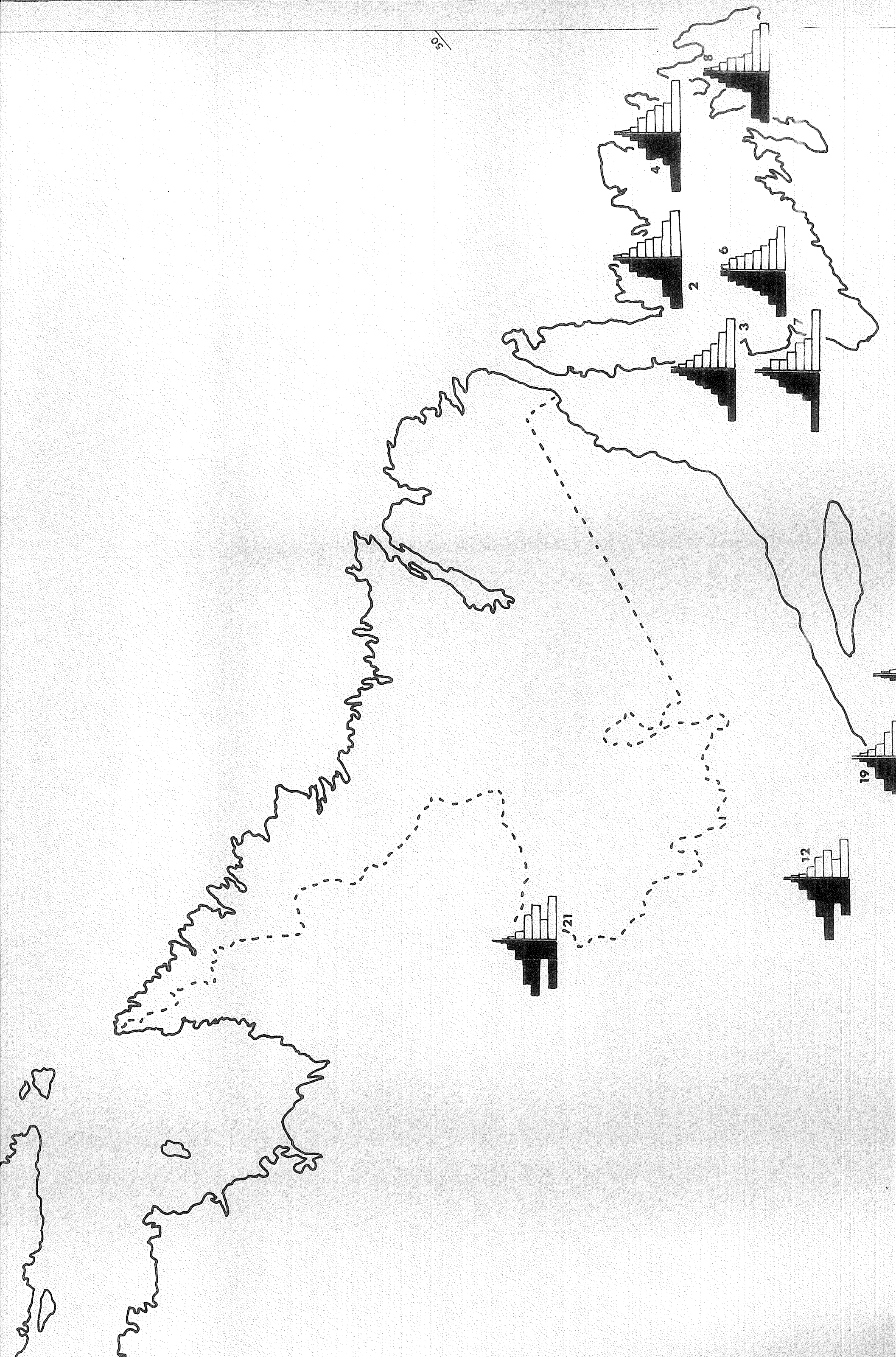


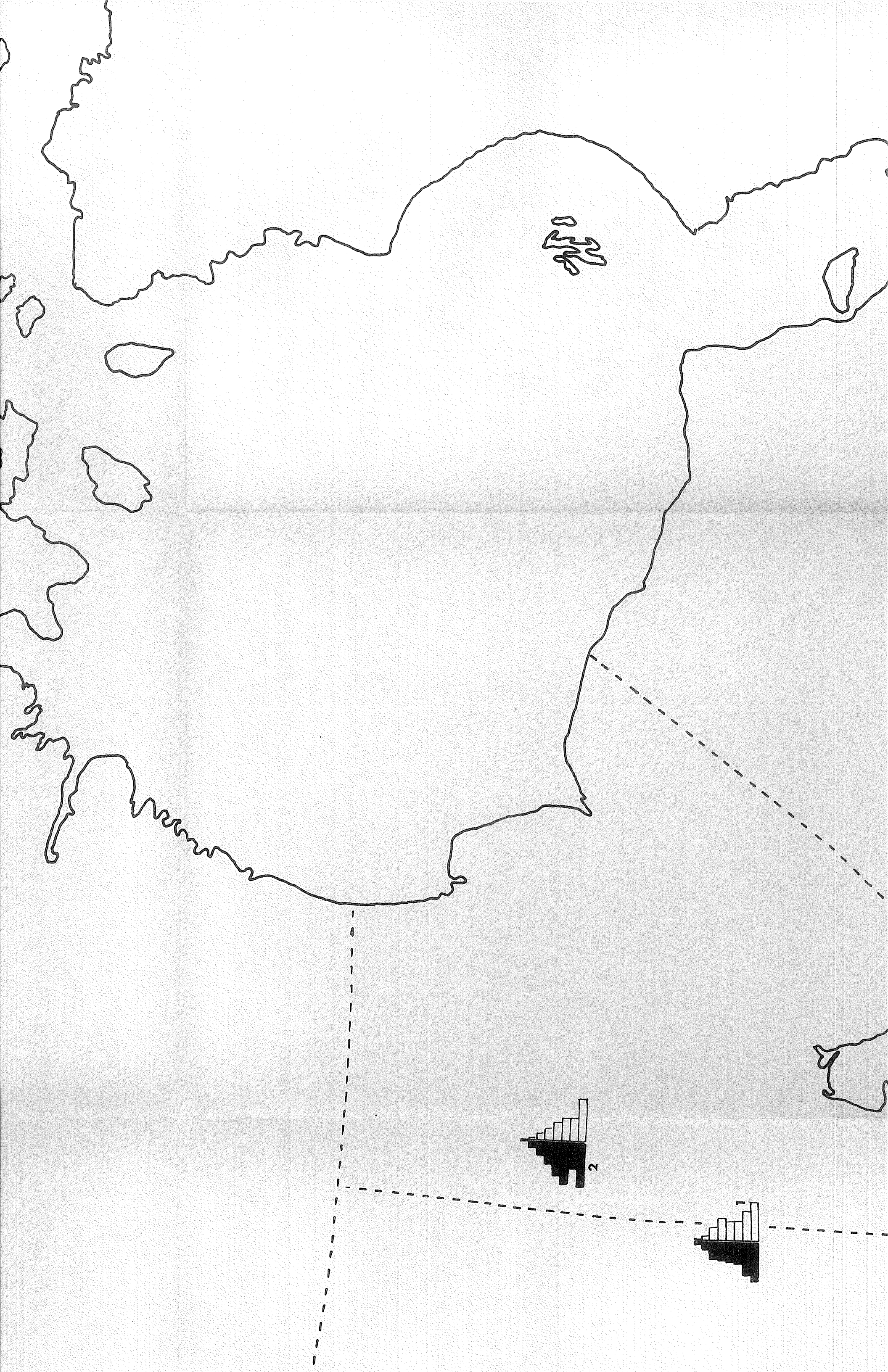
For key to numbers see Table 1

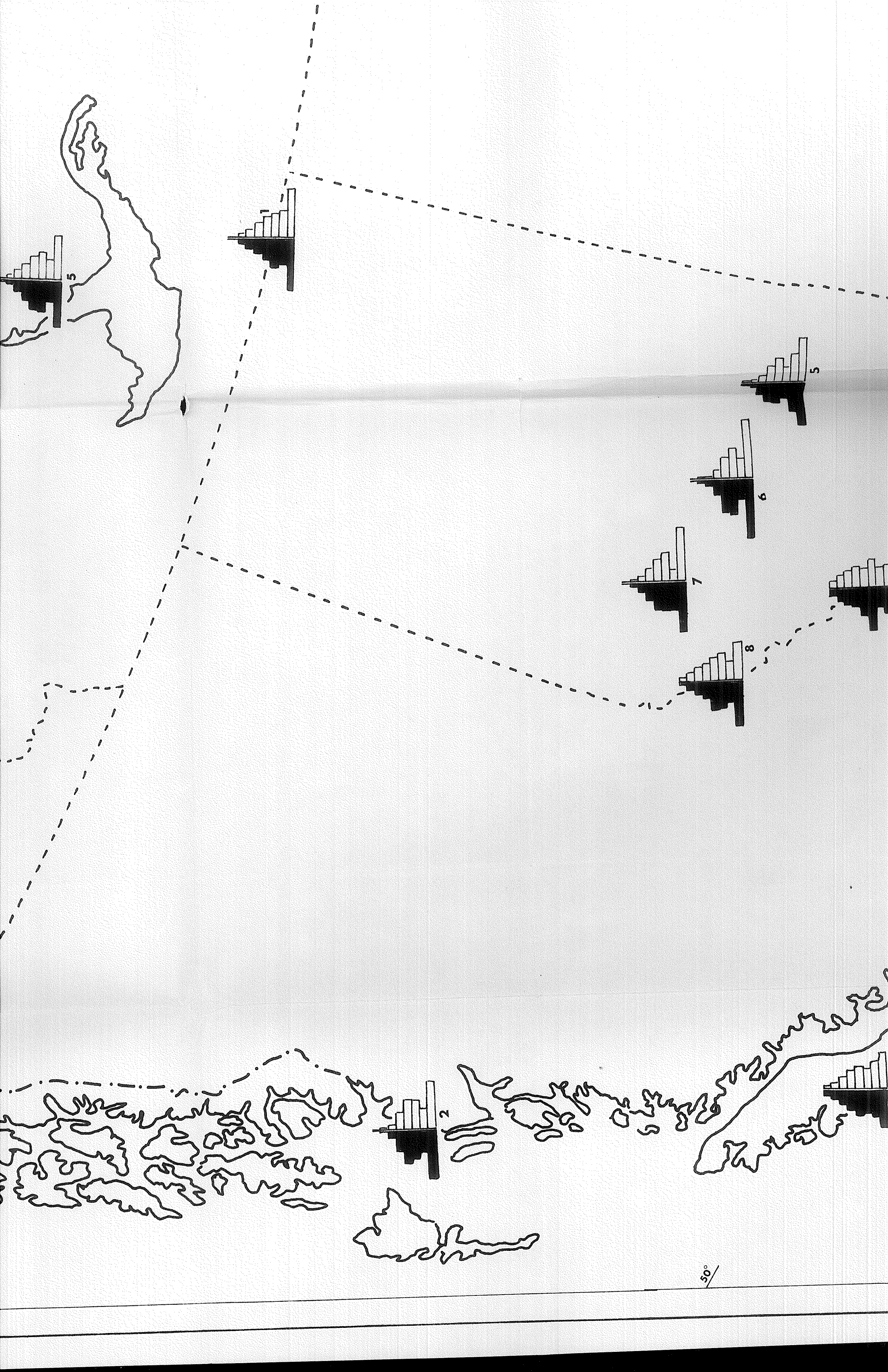
Source: Census of Canada, 1961

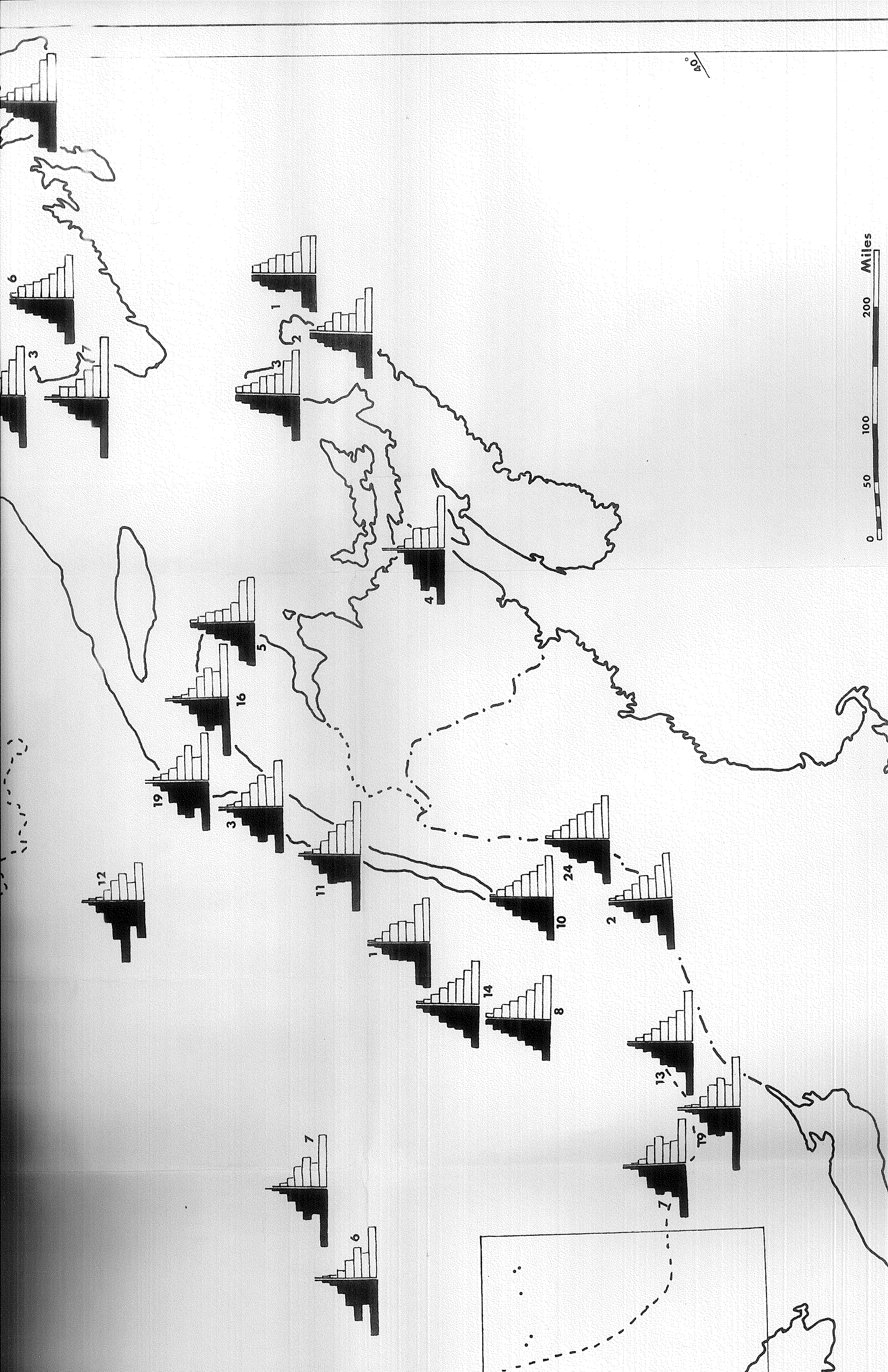












0 50 100 200 Miles

