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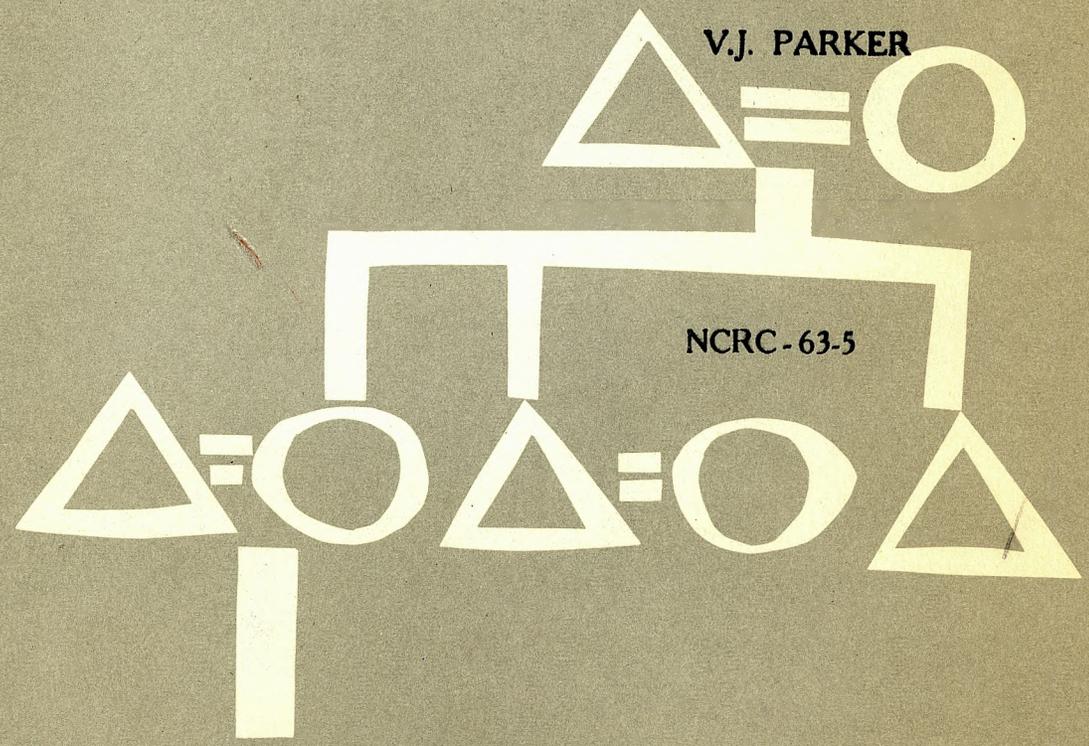
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THE PLANNED NON-PERMANENT COMMUNITY

V.J. PARKER



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THE PLANNED NON-PERMANENT COMMUNITY

An approach to development of New Towns based
on mining activity.

by

V. J. Parker

This report was originally submitted as a thesis at the University of
British Columbia, and is being reproduced in its present form as a
contribution to our knowledge of the North. The opinions expressed,
however, are those of the author and not necessarily those of the
Department.

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Ottawa, Ontario, Canada.

June, 1963.

PREFACE

Among its other functions, the Northern Co-ordination and Research Centre publishes, or aids in the publication of, reports, papers, books and theses on northern Canada and northern development which merit publication, but for which financial support is not available. Mr. Parker's thesis, which was originally submitted as an M.Sc. thesis to the Department of Community and Regional Planning of the University of British Columbia in April, 1960, contains a great deal of material that is relevant to northern development. Accordingly, the Centre is publishing this thesis to make it more widely available to all interested in northern development.

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FOREWORD

by

Dr. Ira M. Robinson

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University of British Columbia.

One of the manifestations of contemporary urban life is the emergence of new towns in places where no settlement existed heretofore. Increasing numbers of new communities are being built from scratch by government agencies or private enterprise the world over.

The Canadian new town that has received the most publicity and attention is Kitimat, built by the Aluminum Company of Canada along the British Columbia coast. But, Kitimat is by no means the first new town ever planned and developed in Canada. In fact, perhaps more than any other country, Canada might well be considered the land of new towns. These are typically small, one-industry communities located beyond the continuously settled areas of southern Canada. They come into being to serve the needs of a private industrial enterprise engaged in the extraction and/or primary processing of a non-agricultural resource, including power. It is estimated that there are approximately 150 such communities now in existence, with a total population of around 175,000 persons.

The bulk of Canada's population and economic activity is concentrated in a narrow belt of arable land hugging the Canadian-United States border. The exploitable non-agricultural resources, however, whether underground, on the surface, or in the water, are mainly located north of this belt. Lack of settlement and consequent shortage of labor at or near the site of a natural resource to be exploited have made it necessary to create wholly new communities in isolated areas to house and service the workers and their families.

While new resource towns have developed in many countries, the number of them and their relative importance is a unique feature of Canada's development. Although not large in terms of population numbers (nor are they apt to become so), they nevertheless play an exceedingly critical role in the economy of the nation. The building of such towns has been especially marked since World War II, reflecting the accelerated development of minerals,

forest and water power resources which have sparked Canada's post-war economic "boom." The number of new resource towns is likely to increase in the future as the frontier of resource development in Canada continues to move progressively northward.

One of the distinguishing features of a large number of these communities is that they were planned from scratch; that is to say, they were built in accordance with a pre-conceived Town Plan. As a result, these towns have not only been able to avoid the many undesirable features of past boom developments, but they also provide their residents with housing accommodations, community facilities, and public utilities of a type and quality not emulated in many ordinary Canadian towns of the same population size.

While these achievements shouldn't be minimized, the fact is that in one important respect, planning for these towns must be termed a failure. With a few exceptions, the plans do not reflect the special social, geographical, economic, or governmental circumstances under which they are built; for example, their unbalanced social structure; the dependence on a single industrial enterprise; and the harsh climate and rugged terrain of the areas in which they are located. The plans have differed little from those being carried out in the more developed urban centers in southern Canada. In short, there have been no original or specially-adapted solutions equal to the individual problems of site and situation that these northern Canadian towns face.

One of the major reasons for this situation, in the opinion of this writer, is that until recently there has been a dearth of serious research on the structure of this special type of community and its problems and potentialities--even though such towns have been built in Canada since the early 1900's. For the most part researchers interested in urban studies focus their attention on built-up developed cities and metropolitan areas where, admittedly, the problems are more complex and intriguing. Confronted by this lack of basic knowledge about these communities, it is natural for Canadian new town planners--who themselves are primarily engaged in planning established urban centres--to apply those principles and concepts most readily available and with which they are most familiar. Clearly, then, there is a need for more fundamental research on these special Canadian towns, out of which new solutions will emerge.

This writer first became interested in the special development problems facing Canada's new resource towns while he was a member of

the Faculty of the Graduate Program in Community and Regional Planning at the University of British Columbia from 1952 to 1961. My own research in this area led to writing a book on the experiences of four post-war Canadian new towns: Kitimat, Elliot Lake, Drayton Valley and Schefferville.¹ In addition, I encouraged my students to explore this little-studied area of research through classroom workshop projects and through masters' theses. One of the students who shared my interest in the planning problems facing Canadian new resource towns was Victor J. Parker, the author of the present work.

Mr. Parker's interest in this special type of Canadian community stemmed from the days when he lived and worked in Falconbridge, Ontario (an older Canadian resource town built in 1928) and Thompson, Manitoba (a post-World War II new town), while employed by the International Nickel Company of Canada, Limited. The present work constitutes Mr. Parker's masters' thesis which he prepared under my direction and supervision.

In this study, Parker deals with one type of Canadian resource town--those dependent on a basic mining activity, and focuses on a special problem they face. Because these communities are based on a volatile type of economic activity and because they find it difficult to diversify their economic base, permanent settlement is impossible. In view of this, what should be the policy towards building these towns? Parker examines various approaches used in the past and currently, and argues for an alternative solution for the future.

In the early days of exploitation in Canada, the settlements were generally regarded as temporary--often mere "sleep" camps. They attracted unskilled, unattached male workers for nearby farms, who were satisfied with comparatively primitive and impermanent accommodations. When the minerals were exhausted, the settlements were abandoned, resulting in only minimum hardships to the workers and developers.

Since the 1930's and especially since World War II, a basic change has occurred in the approach toward building these towns. They are now being built as permanent communities, with housing, paved roads, sewer systems, parks, playgrounds, and other urban amenities of a quality similar to what is provided in ordinary urban areas. These facilities

¹. Ira M. Robinson, New Industrial Towns on Canada's Resource Frontier (University of Chicago Press, 1962)

require relatively large investments of private and social capital. Several factors have caused this change. The type of enterprise responsible for resource development in Canada has changed. The small independent prospector has given way to the large, highly capitalized corporation, whose investment is enormous, permanent and long-term. As a consequence, today's resource developer is desirous of attracting and maintaining a stable work force.

At the same time, technological changes have been occurring in the mining industry, creating a need for skilled mechanics and operators, whose needs and wants are considerably different from the resource workers of the past. Recruited in the main from the southern urban areas and other resource towns, these workers cannot be attracted to the remote regions of northern Canada by high wages alone; they also want good housing, schools, churches, playgrounds, stores, beauty parlors, and other urban amenities for their wives and children. The resource developers of today realize that in order to attract and hold a stable labor force, it is necessary to furnish facilities that go considerably beyond what were considered satisfactory in the earlier mining camps.

The governments of the various provinces (as well as the Federal government itself) have become more interested and concerned with the ways that natural resources are being exploited and developed and with the welfare or human aspects of resource development. They have established conservation policies and regulations designed to protect the public interest against unplanned and indiscriminate exploitation of natural resources, and in several provinces the governments have set down certain minimum requirements and standards with respect to housing and other community facilities in building resource towns. This is making it both feasible and desirable to build permanent resource-based townsites.

While these permanent new communities are in many cases models of what a community should be like (indeed, they are often referred to as "planned, model communities"), the one compelling economic fact of life that the planners and builders, did not, or could not, plan for was their dependence on a single industrial enterprise, and one highly vulnerable to fluctuations in the supply of and demand for its mineral resource. As a result, Canadian mining towns typically follow a "boom" or "bust" pattern of growth. They grow rapidly, almost by spontaneous generation, either when a new mineral deposit is discovered or when technology, tariff protection, or world demand make a long-known resource profitable for development. There is a sudden rush of capital investment and rapid

exploitation continues until such time as the resource is depleted, scientific discoveries make it obsolete, or world demand becomes saturated; then the towns experience an equally swift slow-down or actual loss in population.

Under normal conditions, a town's livelihood may be extended or revitalized by bringing in other sources of employment, when its basic industry declines or collapses completely. But, economic and other conditions in most parts of the Canadian North are not "normal." The prospects for diversifying the economic base of most mining towns are quite limited and in certain cases well nigh impossible. As a consequence, a large number of such communities never have recovered from one of their setbacks and have become ghost towns ; all that remains of their once thriving and hopeful past are empty buildings, broken windows and gutted streets. Canada today, from Newfoundland on the East to British Columbia on the West and stretching northward to the Yukon and Northwest Territories, is studded with the ghosts of former mining towns that "went broke" as resoundingly as they boomed. As is well known, the costs of ghost towns--to the private developer, the provincial government and the workers and families living in these communities--are enormous.

In the light of this past experience, those responsible for planning new mining communities in the future will face a dilemma: establishing a permanent town is wasteful, the earlier "sleep camps" were simply degrading, and there are inherent difficulties blocking diversification of their economic base. Clearly, then, some new solutions must emerge for the community of time-limited usefulness.

Parker suggests one possible solution. His underlying thesis is that in view of the economic facts of life facing new mining towns, the normally acceptable practice of planning for permanent buildings, facilities and utilities should not be accepted blindly. Nor should planners succumb to their usual occupational disease of excessive optimism about the future economic and population growth of these communities. Instead, they should plan for "non-permanent" settlements--that is, they should build communities which, while including all of the housing and urban amenities required of the anticipated population, also possess a built-in physical mobility and flexibility. The techniques for planning and establishing non-permanent mining communities are drawn from a study of the mobile home community and the demountable house community--now popular throughout North America, where mobility has been a major consideration in community design.

Substantial mobile-type houses can be built today that have no resemblance in appearance or structure, either to the familiar war-time "temporary" housing nor the "shack" common to older resource towns. Community buildings, e.g., schools and recreation halls can similarly be constructed to be portable. Technological developments, Parker notes, offer some hope around the obstacle of needing permanent utilities; already mobile sewage disposal plants have been developed.

This approach to building new mining towns would not only minimize the initial capital investment required in building these towns, but it would also save them from becoming ghost towns if and when their economic base collapses. The mobile resource town could easily be relocated, in part or as a whole, to a new site where employment is available, should the resource operation terminate. Alternatively, if economic conditions improve, making permanent settlement a possibility, the community could remain as a permanent town on the original site.

In addition to presenting the concept and techniques underlying the non-permanent mining community, Parker also examines and makes recommendations about associated policies which are necessary in order to establish the non-permanent community--policies with respect to planning, land ownership, finance, and the administration and government of such communities. He demonstrates the need for careful preplanning and continuous planning and control; a system of land leasehold and private home ownership under civic administration; a special "transitional" form of local government; and a method of finance whereby the provincial government advances the funds needed to build the non-permanent community while the sponsoring mining community makes annual payments to cover both the initial development costs and the municipal operating expenses.

Parker discusses frankly the problems that would be faced in implementing his proposed approach to building non-permanent mining communities. He recognizes that there are many sociological, technical, financial and administrative questions which require further research before his proposal can be translated into reality. Its great virtue, however, is that it represents an extremely fresh and bold approach to an old problem-- an effort to adapt techniques and experiences tried out elsewhere to the peculiar geographic and economic conditions encountered in the Canadian North.

Parker's study can be considered a success if it accomplishes nothing more than to encourage other researchers in and out of the universities to examine alternative solutions to the many problems facing those responsible for planning and building Canadian new towns. Perhaps the newly-established Canadian Council on Urban and Regional Research will accept this challenge and institute a long-range research program on the structure, problems and potentialities of Canada's northern communities.

It is not enough, of course, that research on Canadian new resource towns be undertaken; the findings from such research must see the light of day--in short, they must be published so that those who could benefit from the information and recommendations can have the opportunity to become aware of the existence of such research. In fact, there may already be several other studies, such as Parker's, which have not seen the light of day but are gathering dust in some university or government department file. In this regard, the Department of Northern Affairs and National Resources should be congratulated for its willingness and foresight in publishing Mr. Parker's thesis.

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ACKNOWLEDGEMENTS

The study of the non-permanent community was proposed in November, 1959. Dr. Ira M. Robinson, formerly Assistant Professor in Planning at the University of British Columbia, agreed that an investigation of non-permanent mining communities could make a significant contribution to planning knowledge.

In making the study of the mining community, the author received the co-operation of the Central Mortgage and Housing Corporation and the Department of Northern Affairs and National Resources. Their valuable assistance is acknowledged.

Appreciation is expressed to the Mobile Home Manufacturers Association and to the Canadian Mobile Home Association for their interest and assistance in the study of the mobile home community. The writer is also indebted to the Tennessee Valley Authority for the assistance received in the study of the TVA demountable house and the TVA construction villages.

Acknowledgement is made to Dr. Ira M. Robinson for his active interest and invaluable counsel, without which this project could not have been completed. Appreciation is expressed to Dr. H. Peter Oberlander of the University of British Columbia for his suggestions on the manuscript. The author is indebted to Professor L. G. R. Crouch of the Department of Mining and Metallurgy of the University for his advice concerning the mining industry. Appreciation is also expressed to Miss M. Dwyer of the Fine Arts Library for her interest and assistance in the initial research for the project, and for advice in the editing of the completed study.

INTRODUCTION

This study investigates the concept of "planned non-permanent mining communities" as an approach to the planning and development of new single-enterprise mining towns in Canada.

The anticipated accelerated development of Canadian mineral resources will give rise to new communities, located in previously isolated areas, to house and service the labour force of the resource development companies. The early mining activity in Canada was characterized by unregulated shabby communities, abandoned communities, and spoiled countryside. This undesirable development was partly the result of the volatile nature of the mineral resource, and partly the result of the uncertainties in the mineral industry itself. The more recent Canadian mining developments have given rise to planned model towns and planned regional mining centres.

The concept of the planned non-permanent mining community proposed in this thesis holds that future mining towns, that are to be dependent for their existence solely upon the exploitation of a non-renewable mineral deposit, should be planned for physical mobility and flexibility to minimize the social and private costs that are incurred by uncontrolled development and abandoned communities.

This study draws on Canadian experience in the field of mining towns and new town development. The mining community is a relatively untouched field of planning research. No comprehensive study has been made of the mining community. However, four major relevant studies have been carried out in the fields of geography and public administration, and the findings of these studies are referred to in the appropriate chapters of this thesis.

The first study, "General Principles for the Planning of Sub-Arctic Settlements", a Ph.D. thesis prepared in 1953 by G. F. Ridge of McGill University, is a documentation of the major existing settlements in the Canadian western sub-Arctic. The study was made for the purpose of formulating principles for the site selection and the physical development of both new and existing settlements in the Yukon and Northwest Territories. The focus of the study is physical planning, and little attention is paid to the socio-economic features of these communities. The proposed general physical planning principles apply to all types of settlement. The study and the proposed planning principles are of value to the present study of planning for mining communities.

The second work, "Single-Enterprise Communities in Canada", prepared by the Institute of Local Government at Queen's University in 1953, is a lengthy study of company towns and the employer-employee and landlord-tenant relationships in these communities. The study covers all types of single-enterprise towns in all the Canadian physiographic regions. The physical planning problems of these towns are covered lightly, whereas the socio-political problems are dealt with comprehensively. A high percentage of the communities studied in this work were based on mining activity, and hence, some of the findings have been used in the present study.

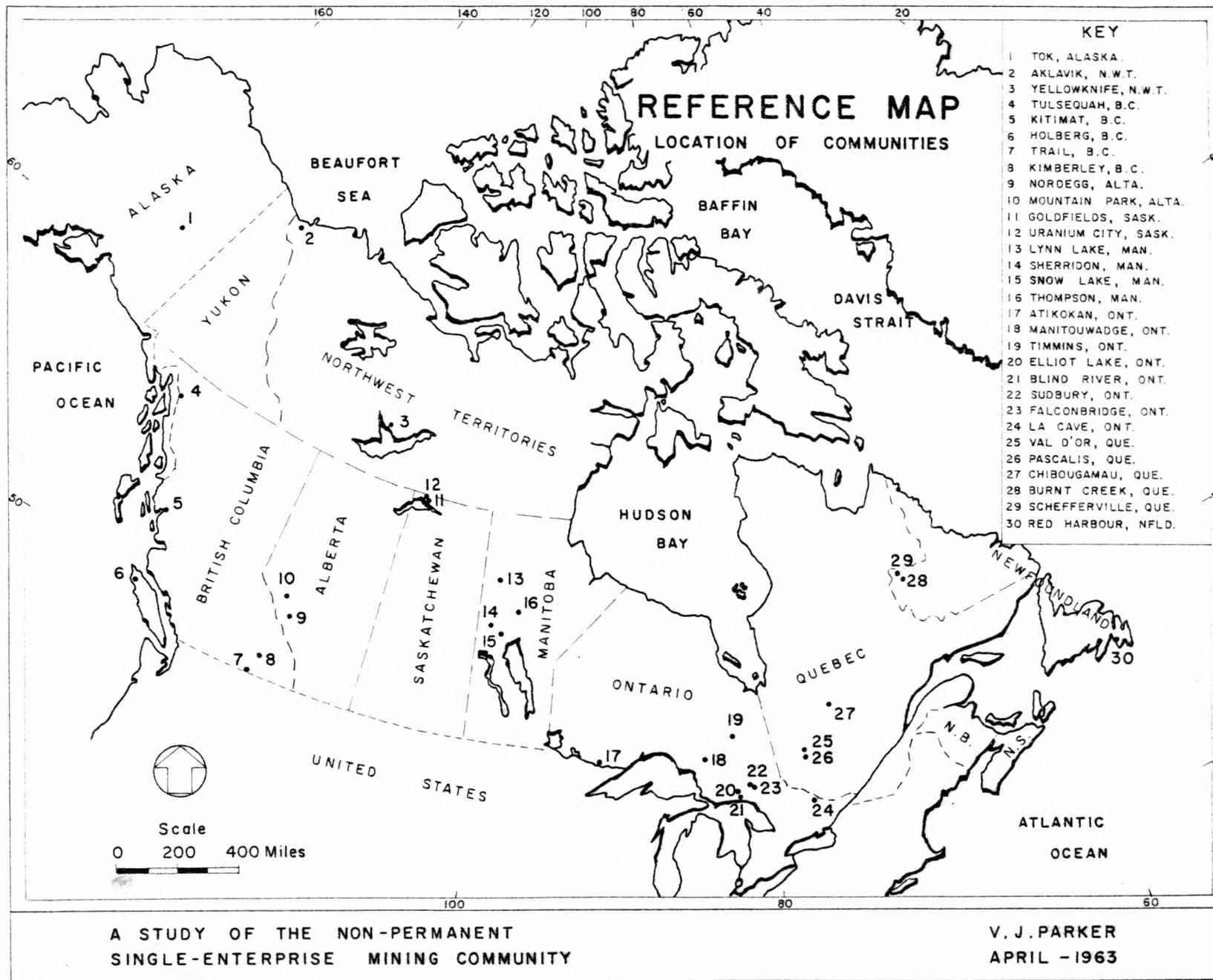
The third work, "L'Amenagement Des Villes A Industrie Extractive Du Subarctique", an M.A. thesis prepared in 1957 by Claude Langlois of McGill University, deals with communities which are based on the exploitation of natural resources in the Canadian eastern sub-Arctic. The study is a comprehensive survey of the characteristics, the regional and local geographical setting, and the planning of extractive industry towns. This study provides valuable data for the present study on the organization, administration, and financing of mining communities.

The fourth work, "Single-Enterprise Community of Settlement", an M. Sc. thesis prepared in 1958 by E. T. Clegg of the University of British Columbia, treats the problem of unplanned, dispersed extractive industry towns. The study investigates the historical development of ghost towns in southern British Columbia, and explores the possibility of planning for regional centres of settlement as opposed to the dispersed single-enterprise towns. The study is of value to the present study in providing historical data on the early mining activity in British Columbia.

In addition to these studies, much descriptive literature has been published concerning particular mining communities and new town developments in Canada, and this material is a valuable source of data for this present study.

In the study of physical mobility and flexibility in the development of communities, the report draws heavily upon experience in Canada and in the United States in the mobile home trailer park and the Tennessee Valley Authority's construction village. The material for this was obtained from government research reports, studies and reports prepared by planning agencies, universities, and mobile home associations, and descriptive published literature. The facts that are presented in this report are therefore not in themselves particularly new. However, it is hoped to achieve a new perspective of the facts in their application to new situations.

Briefly, the study is organized as follows: first, some preliminary considerations of the mining industry are discussed, and certain terms basic to the thesis are defined. Second, the characteristic features and the problems of and the legislation for Canadian mining communities, in particular, the single-enterprise mining communities, are reviewed as a basis for the formulation of principles and policies for new mining town development. The case for an alternative approach to the planning of mining communities is presented in a discussion of the value of planning, previous approaches, and case studies of relocated communities. The techniques for planning and establishing non-permanent mining communities are drawn from a study of the mobile home community and the Tennessee Valley demountable house construction village, where physical mobility has been a major consideration in community design. A solution is proposed in terms of general principles and policies for achieving the non-permanent single-enterprise mining community. The report concludes with a discussion of the limitations and value of the proposed approach of planning for non-permanent single-enterprise mining communities. To orient the reader, the communities referred to in the text of this study are shown on a general reference map.



CHAPTER I

PRELIMINARY CONSIDERATIONS

In order to orient the reader with reference to the general subject of the mining community, the main body of this study is prefaced by a discussion of a general and introductory nature. The discussion which follows considers the nature of the mining industry, and includes the definition of some key terms.

The Mining Industry

The nature of the economic activity on which human settlement is based greatly influences and shapes that settlement. A review of the main features of the mining industry is therefore fundamental to the study of the mining community and for the planning of mining communities.

Mining in Canada has developed from a sporadic small-scale activity in the mid 1800's to an established mineral industry that today contributes 4 per cent of the gross national product and 25 per cent of Canadian commodity exports.¹ Mining has influenced the character and extent of Canadian economic development by attracting foreign capital, opening up remote areas, stimulating capital investment, providing employment, and contributing to export trade.

The mining industry differs from other industries in two important aspects, which should be formative considerations in the planning of mining communities. First, the mining industry is an extractive industry based on the exploitation of non-renewable mineral deposits. Mineral deposits are definitely limited in size; they are not regenerative, and the total amount of ore, or economic mineral, in a deposit may be expanded or contracted by economic factors. The life of a mining operation is determined by the quantity of the ore reserves in the deposit and the rate of production from the deposit. The volatile nature of the raw material of the industry is a most important consideration for the planning of mining communities.

Second, the mining industry differs from the majority of other industries in the amount of uncertainty and risk associated with the productive process. Market risks are common to all industries; indeed, they may even be smaller in mining because of strong commercial ties with fabricators, and because of frequent use of production contracts. However, there are great uncertainties in the discovery and the estimation of the quality and

extent of an unseen mineral resource deposit, and there are great physical risks in ore production.² These risks are unique to the mining industry. In addition, the capital invested in the physical plant is large and fixed; the plant is often located in a remote area, necessitating total write-off of all assets since there may be no alternative use or salvage value.³

Associated with mining activity, there are the mineral processing activities of concentration, beneficiation, reduction of ores (smelting and refining), and fabrication.⁴ Concentration and beneficiation are classified by the Canadian Dominion Bureau of Statistics with the extractive mining activity, whereas, reduction of ores and fabrication are included in the D. B. S. category of "manufacturing". Smelting and refining activities have been included by the Gordon Commission in a classification "primary manufacturing industries" which includes those highly capital intensive and extremely complex industries which produce industrial materials from basic natural resources for sale chiefly in the export market.⁵

In mineral processing, the first stage of treatment of the broken ore from the mine is crushing and concentration in what is commonly called a mill. Usually the mill building is located in close proximity to the mine workings. The mineral dressing technique in the mill is designed to accommodate an ore supply from a particular ore deposit, but where several mines are exploiting the same ore deposit, or ore deposits which possess similar geological and mineralogical properties, a single mill may treat the ores from these mines. In any case, the mine plant and the mill building are wasting assets and it is common practice in the industry to write-off the mill plant within three to ten years.

The second stage of mineral processing may be smelting and refining. The concentrate from the mill may be transported directly to the market for further processing elsewhere or to local or regional smelting and refining plants. Smelting and refining facilities require large capital investment in the physical plant, and consequently, such a plant is planned for a minimum productive life of twenty to thirty years. Raw materials may be transported from distant mining regions to a smelter plant. The location factors for a smelter include such items as transportation facilities, availability of suitable forms of abundant energy, and the location of markets. The smelter operation may be independent of any one mineral deposit, and may be supplied from several mines exploiting separate ore bodies.

The third stage of mineral processing of interest here, is fabrication. The fabrication industries which utilize refined metals generally locate near the markets for the finished goods. However, there are raw material oriented industries which utilize the by-products of the primary manufacturing industries, such as chemicals and energy, and these industries generally locate in conjunction with the mineral processing industries. These industries, similar to the reduction industries, may be independent of any one mineral deposit.

Normally, the processing operations are integrated locally with mining activity. However, there are factors which inhibit this "normal" process in favour of integration of mining activity with "foreign" processing. Some of these factors are: limited Canadian markets for most Canadian minerals; tariffs and trade restrictions in other countries which effectively exclude shipment of many minerals in processed form; economics sometimes dictate that minerals be transported in ore and concentrate form to the areas of ultimate consumption; and the availability of energy in adequate quantities at low prices.

Basic Definitions

The preceding review of the features of the mining industry enables certain key terms that are used in this study, and that are basic to the concept of non-permanent single-enterprise communities to be defined and clarified. It must be understood that these definitions are not universally acceptable, but that they have been developed for use in this study.

The term "community" is defined here as an assemblage of humans living together in a cohesive social, physical, and economic environment. The term "town", normally used in the sense of status of the community as in the hierarchy of village, town, city and metropolis, is used here interchangeably with the term community. The term "settlement" is used in the broader sense of many communities as in "settlement pattern" and "types of settlement". The term "townsite" refers largely to the physical community and includes the site, structures, and amenities, apart from the industrial plant.

Three main types of communities are discussed in this study. The first is the "single-enterprise community". Single-enterprise communities, in the broadest sense, are communities that have been built around a single

economic enterprise. In Canada, the most common type of single-enterprise community is that resulting from man's exploitation of a natural resource. Generally, the natural resource is located in a remote and sparsely populated region, and hence, an industrial enterprise must provide a community to house and service its labour force. Townsites that have been developed and that are administered by an industrial enterprise have been labelled "closed company towns".

The single-enterprise community is essentially a product of the private enterprise system, and is not the result of natural socio-economic forces in community formation and growth. It violates the traditional urban development process of gradual growth from hamlet to town and city status. It is not uncommon for this type of community to "boom" into existence in a matter of a few months, nor has it been uncommon for such a community to die out equally as fast resulting in what is termed a "ghost town".⁶

Therefore, a single-enterprise mining community is a mining community centred on a single mining operation. Some of the single-enterprise communities may provide limited services for the local rural region, but they are primarily dependent for their existence on a single mining enterprise.

The second type of community is the "mining centre". This is a community serving several mining operations. The term "multi-enterprise" community is used interchangeably with mining centre since the labour force of several mining enterprises is housed and serviced in the community.

The third type of community is the "regional centre". The regional centre is a community which has a broad base of economic activity. It performs diversified commercial and industrial functions. It may provide goods and services for a rural tributary area, and it may house and service the labour force engaged in mining activity in addition to other functions. Consequently, it is also known as a "multi-function" community.

A term of major importance in this study is that of "permanence". Permanence refers to the continuity of a community, and this is determined by the nature of the economic activity which provides employment for the labour force of the community. All economic activities have market risks

for the goods and/or services produced, but given the vagaries of the market, not all economic activity can continue through time because of limited supplies of the raw material for production. By definition, then, a permanent community is a community which is based upon economic activities which are continuous through time. Where the economic activity has a foreseeable limited life, the labour force must eventually seek employment elsewhere. Where no alternative employment opportunities are available, a community will reduce in size, and may be abandoned.

In the field of natural resource industries, any economic activity based on a resource that can be "farmed" or worked on a sustained basis is by definition a generator of permanent communities.⁷ Mineral resources are not regenerative, and hence, mining activity is not a generator of permanent communities, unless of course the mineral deposit is infinite in size. Therefore, mining communities that are based solely upon the exploitation of a non-renewable mineral resource are not permanent, and may be abandoned when mining operations cease.

It is important to make a distinction between communities based on mining activity and communities based on the primary manufacturing industries of smelting and refining (with or without the basic mining activity). As was stated above, the mining community is non-permanent. Mining communities based on smelting and refining activities by definition are permanent. The reason for this distinction is that the mineral processing industries may not be tied to any one particular mine or mineral deposit, but may receive their raw materials from many mines or deposits. Hence, the mineral processing activities may be continuous through time. Further, other manufacturing industries may be attracted to the community to utilize mineral by-products and surplus energy from the primary manufacturing industries, as for example at Trail and Kitimat in British Columbia.

Closely related to permanence in a community is "stability". Stability refers to the ability of the economic activity of a community to provide continuity in employment. Cyclical variations in markets for goods produced by an economic activity result in periodic unemployment. Instability results from over-specialization in one industry or one type of industry with dependent industries, all of which are affected by a downswing in demand for the major goods produced. Stability may be introduced in a community through establishing industries which will balance the unfavourable depressed state of other industries in the community.

As a rule, stability is not a major factor in determining the permanency of a community, but is more of a short-term condition in the basic economic activity. However, a change in markets for goods produced may result in the termination of an economic activity, and if the community is entirely dependent on this activity, the result may be an abandoned community. The question of stability in communities is not taken up in this study.

The term "temporary" is to be distinguished from "non-permanent". Temporary, meaning having a short period of life, has the connotation of an emergency situation, that is, "temporary" housing accommodations are provided with the intention that they will be razed at the end of a specified period of usefulness. Non-permanent, however, has the connotation of discontinuity in location and implies mobility and flexibility, that is, permanent features but temporary in location.

NOTES

1. E. R. E. Carter, "Canada's Position In The Mining Industry", Canadian Mining Journal (December 1959), p. 74.
2. According to P. M. Taylor, From The Ground Up, Toronto, McGraw-Hill, 1948, p. 190, "perhaps 1 out of 10 mines that come into production is successful, and probably not more than 1 out of 100 ever grows into a (large, producing) mine."
3. Donald Carlisle, "Maximum Total Recovery Through Mining High-Grade and Low-Grade Ore Together Is Economically Sound," "The Canadian Mining and Metallurgical Bulletin (January 1953), p. 24.
4. A brief review of what is involved in mineral processing is presented in the pamphlet published by the British Columbia Department of Mines, The Mineral Industry of British Columbia, 1958, p. 6. "The ores of metals are of no use in their natural state. A few yield their valuable content by direct treatment at the mine, such as by cyanidation of gold and silver ores to produce bullion, or by distilling mercury ores to produce mercury (quick-silver). Most metallic ores are concentrated at the mine by a process that involves separating the ore minerals from the finely ground ore and discarding the waste. Concentrates of gold, silver, lead, and zinc ores may be treated at the Trail smelter. Copper concentrates are exported, as are the concentrated ores of iron, tin, and other metals, because smelting facilities for them do not at present exist in the Province. . . . Beneficiation is a broad term. It may mean sorting to eliminate waste rock, as rock is removed from the coal at coal preparation plants. It may mean washing or sizing or up-grading, or a combination or all three. It includes the burning of limestone. The making of cement from rock and the fabrication of brick and tile shapes from clay and shale are included under processing, as part of the mineral industry. Crude petroleum is refined. Natural gas is scrubbed or cleaned to remove sulphur and certain hydrocarbons before use or transmission."
5. Canada, Royal Commission on Canada's Economic Prospects, Canadian Secondary Manufacturing Industry, by D. H. Fullerton and H. A. Hampson, Ottawa, Queen's Printer, 1957, p. 3.

6. "Ghost town," Encyclopedia Canadiana, 1958, vol. 6, p. 363.
7. Fishing, forestry, agriculture, hydro-electric power generation are industries capable of sustained production since the basic resources are renewable or regenerative.

CHAPTER II

THE MINING COMMUNITY

The creation of single-industry towns or suburbs has serious defects and as a rule, either leads to paternalistic control in order to secure health and efficiency, or alternatively, to the kind of disorder and haphazard development which follows from unhampered speculation. Many new towns with adequate capital behind them have been a complete or partial failure because of one of these weaknesses.

Thomas Adams 1917

The mining community is an established type of Canadian settlement. Basically, it is a single-enterprise community which has evolved from the temporary camps and shack towns of the gold rush days through a long history of development to the model towns of today. This chapter deals with the historical development, the major characteristics, the chief problems, and the present legislation for the establishment, organization and financing of mining communities, particularly the single-enterprise mining communities. Much of what follows in this chapter is either substantially derived from or else supported by the work of previous investigators of single-enterprise communities in Canada.

The Changing Community

The present day mining community has advanced from the crude rural beginnings of a century ago to the status of a modern urban town. The first mining communities were temporary camps¹ located at the site of the mineral workings. The mineral industry in the 1800's was not an established industry, and mining activity had little sophistication in resource development. Consequently, mining operations were haphazard and discontinuous, and the dependent communities were short-lived.²

The majority of the early mineral workings were for the exploitation of gold and silver ores since these ores had high values and were worth finding in remote areas. Early coal mining operations were developed

in connection with the transportation routes to supply the fuel needs of shipping and railway companies, and also the early smelter operations. There was little demand for the heavier and bulkier base metal and industrial mineral ores.

The early mining activity did not generate permanent communities because of the exhaustible resource, the limited technology of resource discovery and exploitation, and the narrow unstable mineral market. The industry itself was reluctant to invest in a permanent type of community, and hence, company structures were limited to cookhouses and bunkhouses for male employees. Consequently, the population of these early communities was composed of men with no ties or with families living in established centres elsewhere in Canada. In general, the camp life was too insecure to permit the development of service industries in the mining areas.

Towards the end of the century, beginning in the 1880's, mining activity was extended to the exploitation of lead, zinc, and copper ore deposits. The mining camps persisted, but more urban-type communities sprang up in the mining areas, and in conjunction with the associated smelting operations. Very little regard was paid to the standard of comfort and living conditions in these new communities. Public welfare was a little known concept; the emphasis was on private enterprise in the extraction and processing of raw materials rather than on the development of communities as living places. Thomas Adams wrote of the poor housing conditions of the early 1900's in the Cobalt and Sudbury mining areas of Ontario, and in the coal mining areas of the western provinces.³

In the early 1900's, the mining companies were faced with competition in recruiting a labour force. The problems that confronted them were how to obtain labour, and after obtaining it, how to make it contented and efficient. Because the mining operations and communities were usually located in remote areas, several of the mining corporations saw the need to provide better housing conditions in model towns with a full complement of urban facilities, close to their mining operations, to attract a permanent stable labour force with families. In 1917, W. J. Dick realized that an inducement to labour was necessary: "as the life of the mine is limited, there is little or nothing to encourage the labouring man to settle down and establish a home."⁴

In the 1920's and 1930's, with the general awakening of interest in public welfare and community planning, initiated by the early planning

education work of the Commission of Conservation, provincial and federal legislation was enacted concerning housing and the regulation of mining communities to safeguard the public good. At the same time, the mineral industry was developing and assuming an increasingly important role in the economic development of Canada. New mineral developments led to the creation of new mining communities and many of these communities were planned as 'model' towns, completely financed, constructed and operated by the resource development companies.

Since the 1940's, the trend in new town development in mining areas has been away from company towns and toward planned multi-enterprise communities. Where possible, the new towns in extractive industry areas have been planned with a view to creating permanent communities. Where coincident mine development has occurred, mining towns have been built to serve several mining companies such as Uranium City, Elliot Lake and Yellowknife. Instead of a pattern of dispersed company towns, a more populous community has been created with the attendant social and cultural benefits as well as being able to support a higher level of community services.

In concluding this brief account of the historical development of the mining community, it is important to point out that the recent trend of planning for mining centres is in response to the need for: (a) reducing, if not eliminating, paternalistic control in single-enterprise communities, and (b) introducing permanence to the community to obviate the dependence of the community on a non-renewable resource activity.

Characteristics of Mining Communities

The single-enterprise mining community has developed with the growth of the Canadian mineral industry. The mining community, because of its industrial base and its manner of development, possesses several major characteristics which distinguish it from other types of communities.

Industrial Base

The primary characteristic of the single-enterprise mining community is the dependence on an industry engaged in the exploitation of a volatile mineral resource. Further, the basic mining activity is carried on apart from the mining community proper. In the history of mining activity, the result of this dependence of communities upon exhaustible

natural resources has been "boom" towns and "ghost" towns, and ravaged countryside with depressed local economies.

Location

A second characteristic of single-enterprise mining communities is their frequent location in remote areas. Canadian mineral resources lie, for the most part, in sparsely populated and municipally unorganized areas. The nature of mining activity requires that a population be concentrated at or near the site of the mineral resource. The erratic occurrence of mineral deposits has been the primary cause of the pattern of dispersed, discontinuous mining communities.

Generally, the Canadian mineral resources lie beyond the continuously settled areas of the provinces, which geographically, places them north of a 250 mile-wide band along the southern boundary of Canada. The terrain of this area varies regionally from rugged mountains and barren rock to bushland, muskeg, and icy wastes. The climate is similarly varied from the temperate climates of the southern and coastal areas to the severe and unfavourable climate of the Arctic regions. Compared to the southern agricultural areas, the country which is host to mining activity possesses a difficult terrain and an adverse climate.

Impetus

A third characteristic of mining communities is the deliberate creation of these communities to serve a single industrial enterprise. The lack of settlement and the shortage of labour at or near the site makes it necessary for the resource development company or government agency to establish a townsite to house and service the industrial employees and their families.

The single-enterprise mining community comes into existence as a result of a decision of a resource development company to open a new mine. An existing community, if suitably located, may serve the needs of the labour force. In either case, the community must be developed within a few months to accommodate the sudden, but necessary, influx of population.

Role of the Company

A fourth characteristic is the pre-eminence of the mining company. The lack of population in the region of the resource activity makes it

necessary in some instances for the company to become creator, owner, and administrator of a new community. In such a company town, the paternalistic control of the company poses major problems in the everyday life of the community since the company may be landlord, employer, merchant, policeman, fireman and administrator. In a number of communities, the role of the company is limited to the initiation of the town and the provision of some housing.

It appears inevitable that the life and activity of a community which is dependent upon a single industrial enterprise will be dominated by that enterprise. Recent trends in the development of new communities favour the elimination of this element of company pre-eminence through the promotion of private home-ownership and the incorporation of the community at an early stage of its development.

Character of the Community

A fifth characteristic of the mining community is the urban character of the townsite in contrast to the rural wilderness setting. The majority of existing mining townsites possess none of the early camp features. Rather, they have been built as permanent communities, and they possess urban features which are more frequently associated with the metropolitan suburbs in the temperate zones.

In the controlled company sponsored townsite, the housing and community facilities and services may be on a par, if not of a higher level, with those found in southern communities of comparable size. They have been deliberately planned and developed as permanent townsites in spite of the dependence of the communities upon exhaustible natural resources. In the unregulated mining communities which are a carry-over from early mining activities, the housing and community facilities retain much of their frontier character, well illustrating the early concept of the secondary importance of the community with respect to the mining activity.⁵

Problems of Mining Communities

The preceding primary characteristics of single-enterprise mining communities reveal upon close examination several important problem areas

Economic Base

Perhaps the greatest problem of the single-enterprise mining community is the dependence on a non-renewable resource. The volatile

nature of the basic mineral resource has resulted in several instances in the growth of "ghost towns". These abandoned communities remain as mute evidence of mining activity long after the mines have closed. Even in Mark Twain's day, he could write of ghost towns:

You will find it hard to believe that here stood at one time a fiercely flourishing city. . . . In no other land, in modern times, have towns so absolutely died and disappeared as in the old mining regions of California. 6

Mining activity in Canada has not been spared the evils of ghost town developments. At the turn of the 20th century, south-eastern British Columbia saw the abandonment of many mining communities when the early mineral discoveries expired. The Lardeau gold mining area, active around 1900, now displays an abandoned railway grade and "rusty junk lies where mine and sawmill buildings once throbbed with industry." 7 E. T. Clegg 8 in his study, describes the ghost towns of the Boundary Mining Region, the Rossland-Trail District, the Moyie District, and the Cranbrook District.

Ghost towns are by no means a thing of the past, though they are not as common today as half a century ago. Since 1950, the recession in the coal-mining industry, caused by inroads into the coal markets by the competing oil and gas fuels, resulted in the closing of such mining communities as Nordegg and Mountain Park in Alberta. 9 During 1957, The Consolidated Mining and Smelting Company closed its Tulsequah properties which came into production in 1952. 10

The town of Snow Lake in Manitoba is a good example of a 'near' ghost town. The gold mine operated by Howe Sound Explorations Company Ltd. was scheduled to shut down in July 1958. Had the Hudson Bay Mining and Smelting Company not discovered two new zinc and copper deposits just south of Snow Lake, the town would most certainly have been abandoned. The development of the new ore deposits has since given a new life to the town.

The abandonment of a community can be argued to be an economically justifiable action on the part of a mining company. With the exhaustion of the orebody, either physically or economically, a mining company has no alternative but to terminate its operations. However, while a company is

able to write-off its wasting assets in anticipation of ore exhaustion, the residents of the mining community may not be able to write-off their investments. The residents may hold expectations of the community which exceed those of the mining community. Where the residents have invested in private housing, commercial enterprises, and community facilities, the desertion of the community places large capital losses on the individual. The resultant vacant homes and buildings, unused streets and utilities represent an investment worth many thousands of dollars.¹¹

Population

The mining community is essentially an industrial town. However, because of the remote location of the town and the necessity for extensive development and construction work before actual mining operations commence, the mining town is faced with population problems that are not shared by other types of communities.

Initially, a large labour force is required on the site to develop the mine and to construct the surface plant, which usually consists of a mill, offices, and a change-house, although it may include a smelter and a refinery. This labour force consists almost entirely of male workers, these being recent immigrant labourers, transient construction workers, and part-time construction workers supplementing farm incomes. The housing of this labour force in the townsite area in temporary buildings may prejudice the future townsite development. Several companies have avoided this problem by restricting all temporary structures to a campsite adjacent to the construction project and by providing for the removal of the camp at the end of the construction period.¹² The labour turnover during this development stage is usually high, and this is due in part to the remote location of the project, and in part to the lack of accommodation for married personnel.¹³

At the start of the mine production stage, there is a period of population adjustment as permanent employees move in and occupy the townsite. The labour turnover is still high, but as the single men are replaced by married men with families, the population becomes more stable and begins to resemble that of an urban community.

When a new mining operation comes into production, there is a demand for technical and hourly-paid non-skilled labour. Hence, an

entirely new population is brought together in the mining community. The source and composition of this population is an important consideration in planning the new town. The majority of the employees and their families come from other single-enterprise communities and from foreign countries as emigrant labour. This fact has not been entirely acknowledged since recent Canadian new towns have been planned for North American urban population.¹⁴ As far back as 1917, it was pointed out that only 46 per cent of the miners were born in Canada, whereas 72 per cent of the workers in agriculture were born in Canada.¹⁵

Because of the remote locations in which the majority of mining operations are carried on, there is a problem of obtaining and holding a permanent stable population in the mining community. In some areas, high wages provide the incentive, whereas in others, a model community with all urban conveniences has to be created to attract the desired labour force. These measures have been successful to a limited degree since the small single-enterprise community must compete for labour with the established southern cities and towns situated in more pleasant climatic zones.

Planning

The planning of mining communities goes back historically to the model company towns of the early 1900's. This type of planning was, in the main, physical planning, involving the laying out of roads, lots, use areas, and public services. This planning was not community planning as we know it today. Planning was carried out by the company and all decisions were made for the community by the company; the community played no part in the planning process. The result was a "grand" physical plan.

Since a community must be created, it is obvious that there is no existing population to participate in democratically achieving a community development plan. The initial planning must of necessity be carried out by an agency for the future community. In company towns, the resource development company prepares the plan with or without the aid of planning consultants. In towns established by the provincial government, a government planning staff prepares the community development plan.

Every new community has its own individual problems, but in planning new mining towns, there is much to be gained from the experience and problems of other mining towns. This has not been the case in the new

mining towns and single-enterprise towns in Canada since planning concepts and principles which are more suited to southern urban communities have been applied to the designs of northern new towns. The new community of Kitimat has been described as a "suburb without Metropolis." ¹⁶ It appears that a universal pattern of town design, which does not recognize differences in the physical and human environment of communities, is developing. New town developments to date indicate that "the northern town has yet to find its soul." ¹⁷

It is a comparatively easy matter to design a mining community when the ultimate population is known within limits. However, an unexpected influx of population by unforeseen developments may pose a major problem for the community. This has occurred in several mining communities which were built on restricted sites in the vicinity of the mining operations. ¹⁸ In the more recent mining towns and other new towns in Canada, the design of the townsite has incorporated the element of flexibility to accommodate future expansion if it should occur.

The problem of anticipating and planning for an unknown community population has been discussed previously in the population problems.

The nature of the economic activity on which the community is based poses great problems for the planning of mining communities. Essentially, the life expectancy of the mining community is limited to that of the resource. The uncertainties of the industry have not been conducive to long range planning for the community. ¹⁹ The uncertainty as to the permanency of the community has been a problem, and this in part, has fostered the concept of planned multi-enterprise towns to ensure more permanent resource-based communities.

Housing

The policies for the provision of housing have greatly influenced the character of the mining community. In the early closed company towns, the company provided the entire stock of housing accommodation. Employees rented company housing allocated to them by the company. Even in the towns open to the public, the company provided a large part of the housing accommodation. However, the employers recognized that being a landlord made for poor labour relations. Today, many mining companies are following policies which advocate the sale of company houses and the construction of new housing by private individuals. ²⁰ Further, with rising building costs, the mining companies found company housing requiring

increasingly greater non-productive investment, in many cases producing a loss, and have given up the role of housing authority.

To encourage employees to construct private homes and to purchase company housing in the townsite, several companies have made loans available and instituted re-purchase plans. In some cases, subsidiary companies have been set up by the company to administer the house-financing schemes. These plans for employees to build and to own their own dwellings have not only been prompted to relieve the company of the role of landlord, but also by the consideration that private home ownership would tend to stabilize the working force, cutting down on labour turnover and inducing employees to remain with the company. In some communities, a re-purchase guarantee may be necessary on all housing in the townsite to stimulate the construction of buildings of a standard better than temporary shacks.²¹

There are three sections in the National Housing Act of 1954 which apply to financing housing in mining communities. Under Section 7, mortgage loans from approved lending institutions, such as banks, life insurance and trust companies, are available to assist in construction of new housing. Until policy changes in 1957, loans for housing in mining communities were available under Section 17 to a company "engaged in the mining, lumbering, logging or fishing industry to assist in the construction of low or moderate cost housing projects in areas or localities that are adjacent to or connected with the operations of the borrower."²² Section 40 enables Central Mortgage and Housing Corporation to make loans to persons building houses in localities where the facilities of private lending institutions are not available.

In spite of the preceding National Housing Act provisions for house construction loans, mining companies have tended to finance the housing in their own dependent townsites. Outside, in the sense of outside the company and the community, private financing has not been encouraged. However, even among the company house-financing schemes, there does not appear to be one generally acceptable scheme.

The concept of the house in the mining community has remained unchanged from that in established southern cities and towns. Housing is generally of the conventional permanent type in the controlled residential areas. Temporary substandard dwellings have been common in early mining communities, and are still common today in the older mining centres

and in the unregulated fringe areas.

The single-family residence is the most common dwelling type. In spite of economies in construction and site area, multiple housing units have not been popular in these communities. The semi-detached house has been used in townsites with restricted building space, but preference has been for the detached one-family dwelling wherever possible. Two-family houses have been difficult to sell, and in addition, lack the privacy of the one-family dwellings.

The mining communities generally have one or two bunkhouses or dormitories for single men and women employees. The type of building varies from one community to another and may have several stories or be a single-story barrack building. Some variation in dormitory accommodation has been achieved in some towns through the use of small buildings to avoid the military-barrack appearance.

House construction in mining communities has followed conventional house framing techniques practised elsewhere in Canada. On-the-site construction has been common in the established as well as in the newer communities. Building materials are shipped in to the townsite from outside manufacturing centres. There has been some speed-up in construction where entire panels and trusses are constructed on the ground and then hoisted into position by mobile cranes.

Prefabrication has been employed only in limited amounts in mining communities.²³ Prefabricated dwellings have been shipped in component form to the townsite and assembled on the building site. However, the mining community has benefited very little from the techniques of prefabrication to date.

Fringe Communities

A major problem in the development of single-enterprise mining communities is extra-territorial control over the haphazard growth that takes place beyond the municipal boundaries. The fringe settlements develop without any plan or provision of basic community facilities and services. They have sometimes been referred to as "parasite communities."²⁴ They provide a marked contrast to the well ordered company townsite.

The shabby fringe communities spring up for any of several basic reasons. The amount of housing provided in the townsite may be insufficient

to accommodate all the employees of the company, and hence, supplementary accommodation must be found outside of the townsite. The company or municipality may enforce too stringent building standards for new housing in the townsite, and hence, those wishing to build low-cost housing must build in the adjacent unregulated territory. The inhabitants of the fringe areas may wish to avoid municipal taxes, and may be satisfied to live with a lower standard of services and facilities.

The fringe settlements may develop to such proportions as to become incorporated communities. They may also demand annexation with the original townsite. In either case, the fringe community has not been a desirable type of development since unhealthy rivalries, snobberies, and hostilities frequently emerge between the communities.

In the more recent mining communities, efforts have been made to avoid the peripheral shack developments. The most effective control has been the regulation of the surrounding unorganized territory either by the province or by a local authority when authorized.

Services and Facilities

The mining community, similar to other communities, must provide urban services and facilities for the resident population. This must be done in the face of the remote location, the adverse climate, and the rapid construction of the townsite.

When a new mining town is established, it must be developed as a whole in a very short period of time. This means that unlike ordinary communities which develop by gradual growth over long intervals, the mining community must be provided with public utilities and services within a few months. Hence, large outlays of capital are required to finance the programme of public works before the townsite is occupied.

Further, the geographical location of the mining community in the northern or mountainous areas presents problems in the installation and maintenance of services and utilities. Areas of shallow soil, rock outcrops, or permafrost render services both difficult and expensive to install. The climate frequently necessitates insulation precautions quite different from those in the temperate zones.

Land Use Controls

The mining community has several problems in the control of urban development which are peculiar to this type of community. The remote location and the uncertainties connected with the mining activity necessitate strict regulation of the townsite development to avoid substandard, unhealthy living conditions. The development may be controlled by a resource development company or by a government authority through retaining ownership of the land in the townsite, and through the enforcement of building codes and zoning by-laws. In a company administered townsite, the company has absolute control over development on company property. Where the townsite is publicly owned and operated, the dangers of shabby substandard residential development are greater than in the single-authority administered town. Strong zoning and building control are essential; the result of uncontrolled town development is the shacktown, a singular example being the new town of Chibougamau, Quebec.²⁵

Legislation for Mining Communities

Canadian legislation for the single-enterprise mining community has been prompted by the historical record of indiscriminate establishment of mining communities, the uncontrolled townsite development, and the inherent disadvantages of the company town. The following is a brief review of the legislation enacted in the Canadian provinces and territories for the establishment, development, and organization of new mining communities.

Newfoundland

There is no legislation which deals specifically with new mining communities. New mining towns are incorporated under the Local Improvement District legislation. The Lieutenant-Governor in Council is empowered to create a local improvement district in uninhabited areas. The government and administration of the district lies in the hands of a three man board of trustees, the members of which are appointed by the provincial government. The board, after three years, may be replaced upon a majority petition of the inhabitants of the district to elect a council, thereby becoming a self-governing municipality.

Quebec

In Quebec, "No holder of a mining licence can develop a mining town or even a semblance of a few buildings as a mining town without the control of the Government. The Minister of Mines in co-operation with that of Municipal Affairs decides what is to be done."²⁶ The three major laws which deal with mining communities are the Mining Act, the Law of Mining Villages, and the Law of Mining Towns.

Under the Quebec Mining Act, Section 37 states that the Lieutenant-Governor in Council shall have full power and authority "to provide for the establishing of mining villages and towns on Crown lands, including those under mining claim or under development licence, without being obliged to pay any indemnity, in mining regions...."²⁷ The sale of the land in the designated townsite area is to help finance the provision of community services.

The Mining Villages Act states that the Lieutenant-Governor in Council upon recommendation of the cabinet can establish a "village municipal corporation."²⁸ The powers of government and administration are vested in a manager appointed by the Lieutenant-Governor in Council. The powers of the village manager are those of a municipal council, and these are spelled out in the Act. The manager has a term of office of five years, at the end of which, a municipal council is to be elected. The Act states that the surface mine buildings are not exempt from village taxation. Also, the provincial government is to be reimbursed by the village corporation for expenditures incurred by the province in establishing the townsite.

The Mining Towns Act states that the Lieutenant-Governor in Council may incorporate any area, which is deemed advisable, as a town municipality. A five-man council consisting of a mayor and four aldermen are to be appointed by the Lieutenant-Governor in Council for a term of office of five years. The term may be extended on request for an additional year, to be followed by a municipally elected council. As in the Mining Villages Act, provision is made for the reimbursement of the province for expenses incurred in the establishment of the townsite.

Ontario

Mining communities in Ontario, as in Newfoundland, come under the Improvement District legislation. New towns are incorporated as

Improvement Districts, and are subject to the Department of Municipal Affairs Act. The power to create a district lies with the Ontario Municipal Board, but the three man board of trustees is appointed by the Lieutenant-Governor in Council. The boundaries of the district are established by the Municipal Board, and as a rule, these are larger than the minimum townsite area required.²⁹

The Mining Act of Ontario was amended in 1954, and provides that the surface rights of mining claims may be reserved by the government through Order-in-Council for the purpose of developing townsites.

It is mandatory for new mining communities to be established as to design and municipal administration under the guidance of the Province. For the development of the new town of Manitouwadge, the Province advanced a sum of \$600, 000 to the improvement district.³⁰

Manitoba

In Manitoba, the Lieutenant-Governor in Council has the power to incorporate as a "Local Improvement District" communities in unorganized territories adjacent to a place where mining (or other industrial operation) is carried on. The governmental and administrative power for the district is invested in a resident administrator appointed by the Minister of Municipal Affairs upon approval by the mining company. The resident administrator performs the functions of a municipal council as well as other powers set out in the particular act creating the district. The act gives the resident administrator authority to make a contract with the resource development company to establish a district with three parts: the proposed townsite area, the company's industrial site, and the surrounding undeveloped territory. The land in the townsite is sold to the district by the province for \$1.00

In the particular contract with the resource development company, the company assumes the responsibility for preparing a community development plan, a zoning plan and a building code, and these must be approved by the provincial government.³¹ The company is also responsible for financing the construction of all the services and facilities,³² satisfying provincial standards, and these become the property of the district. The company's plant site is outside the townsite, and is exempted from taxation. However, the company is required to make a payment to the municipality in lieu of taxes.

Alberta

In Alberta, the New Towns Act of 1956 provides that the Lieutenant-Governor in Council, upon recommendation of the Provincial Planning Advisory Board may establish an area as a new town and may appoint a Board of Administrators as the governing body.³³ Provision is made that the Board of Administrators is to present proposals for the planning and orderly development of the new town to the Provincial Planning Advisory Board for its approval. The comprehensive development plan may be prepared for the Board of Administration by the planning staff of the Provincial Planning Advisory Board or by a District Planning Commission. The Act provides that the government may grant or loan up to \$1,000,000 to aid in establishing the new town. The provincial loan or any expenses incurred by the province in establishing the new town are to be repaid from the revenues of land sales and annual taxation over a 20 year period.

British Columbia

A number of successful company towns have been built in British Columbia under the Company Towns Regulation Act of 1919.³⁴ This Act was enacted to make provision for access by the public to company towns. The Act provides for the declaration of a "company town" by the Lieutenant-Governor in Council, and requires that upon request, a company must file a road plan of the town with the Minister of Lands and Forests, and ensures the right of public "ingress, egress and regress" in the town. The present policy in British Columbia is to incorporate new communities as municipalities at a very early stage in their development rather than the promotion of company controlled towns. New towns are incorporated by special acts of the Legislature, and the new municipality comes under the Municipal Act of British Columbia.

Northwest Territories

The municipal form of government and administration in the Territories is the Local Administrative District. The governing body is a 'local trustee board' which has powers quite similar to those of town councils in the provinces. The members of the board are in part elected and in part appointed by the Commissioner in Council.

Summary

The Canadian legislation for new mining communities deals largely with municipal organization and very little with the problem of setting up

and developing new towns. The preceding survey does show the trend to avoid the development of company towns, and that incorporated municipal units are favoured. There is a common feature in the legislation in the provision of a transitional type of administration for the initial stages of town development.

Concerning the development of the new town, the legislation is considered too inadequate to cope with comprehensive townsite development since it leaves too much to the discretion of the builder.³⁵ A more comprehensive study of the special and private acts and agreements for new town development would possibly reveal the additional provisions required for townsite establishment.

Some of the legislation provides for the reservation of land for a new town and for the sale of Crown land to the municipal unit, which in turn may sell or lease the land. Two provinces, Ontario and Alberta have established a policy of making capital advances to new towns to assist in the basic development work of the townsites.

It is sufficient here to note the general framework within which new towns are established. The legislation provides for a flexible local authority to ensure orderly development 'to prevent shack towns from arising, to prevent land speculation, to protect the financial interests of the major investor, and to provide a period of training and experience in preparation for the ultimate assumption of full local self-governing powers by the local residents.'³⁶

NOTES

1. Camp is used here in reference to temporary living accommodations. This usage is to be distinguished from that meaning a mining region, such as the Porcupine gold camp and the Blind River uranium camp.
2. The vanished nineteenth century mining camp: "The hurly-burly of gold discoveries, the fever of quick exploitation, the disregard of personal comfort in the gambler's plunge for his Eldorado, the mud-rutted streets, the wild untamed natural environment menacing the crazy-angled shacks of mining pioneers, the long, tough journeys by canoe, horse or on foot into new settlements -- all these are now, for the gold-mining communities of Canada, the forgotten echoes of a vanished era." William Loughheed Associates, The Gold-Mining Community: A Study of the Problems of Economic Growth, Timmins, The Industrial Commission of the Town of Timmins, April, 1958, p. 32.
3. Thomas Adams, Rural Planning and Development, Ottawa, The Commission of Conservation, 1917, p. 38.
4. Quoted in: Ibid., p. 39.
5. In a discussion of the types of townsites for extra-active industries, the statement was made: "There is some truth in saying that some towns need a good fire so that they can be built properly. New towns are fortunate in that the fire is not required. Foresight, however, is needed." P. G. Gauthier, "New Industrial Townsites," The Canadian Mining Journal, vol. 70, No. 7 (July 1949), p. 78.
6. Quoted in V.S. Swaminathan, "Gold Made California," Canadian Mining Journal, vol. 70, No. 7 (July 1949), p. 75.
7. "Mine Hunting In The Lardeau," The Cominco Magazine, vol. 19, No. 11 (November 1958), p. 1.
8. E. T. Clegg, Single Enterprise Community of Settlements, M.Sc. Thesis, University of British Columbia, 1958, pp. 5-37.
9. "Death In The Rockies," Time, vol. 56, No. 7 (August 14, 1950), p. 32.

10. Consolidated Mining and Smelting Company of Canada Limited, Fifty-Second Annual Report for the Year Ended Dec. 31, 1957, Montreal, The Company, March 13, 1958.
11. "The one hundred and fifty thousand residents of Canada's gold-mining communities have invested in homes, land and business establishments now worth well over \$250 million...." William Lougheed Associates, The Gold-Mining Community: A Study of the Problems of Economic Growth, Timmins, The Industrial Commission, April, 1958, p. 1.
12. A procedure carried out at Thompson, Manitoba.
13. The estimated turnover at Schefferville was 120 per cent per year. Graham Humphreys, "Schefferville, Quebec: A New Pioneering Town," The Geographical Review, vol. 48 (April 1958), p. 162. The labour turnover in Blind River, Ontario, was 4:1. Alan Phillips, "Our Wild Atomic City," Maclean's Magazine, vol. 70, No. 11 (May 25, 1957), p. 68.
14. Contemporary North American planning principles have been employed in the new towns of Kitimat, B.C. (Claude Langlois, L'Amenagement Des Villes A Industrie Extractive Du Subarctique, Master's Thesis, McGill University, 1957, p. 292), Thompson, Manitoba (letter dated January 25, 1960, from David G. Henderson, Associate Planner, Province of Manitoba Planning Service, Winnipeg, Manitoba), and Elliot Lake, Ontario (Norman Pearson, "Elliot Lake: Experiment In Conformity," Town and Country Planning, vol. 27 (May 1959), p. 202).
15. Adams, op. cit., p. 38.
16. Claude Langlois, L'Amenagement Des Villes A Industrie Extractive Du Subarctique, Master's Thesis, McGill University, 1957, p. 282.
17. S.D. Lash, "Planning of Recent New Towns in Canada," The Engineering Journal, March 1958, p. 49.

18. The new town of Schefferville, Quebec, lies in a restricted area between two lakes. Its new role as a transportation, mining and service centre has brought about unexpected development. Future growth will be accommodated with difficulty because of the terrain. At Yellowknife, N.W.T., the original town was established on a restricted rocky peninsula. New development has been accommodated in a new townsite on a more favourable site nearby.
19. "Even when the industry is expanding, however, the gold mining communities have some special problems. Both individual and municipal planning are handicapped by uncertainty over the future. No one can forecast how long housing or municipal facilities may be required. No one can say how long the towns will last, how long the people will stay." William Lougheed Associates, op. cit., p. 84.
20. Queen's University, Institute of Local Government, Single-Enterprise Communities In Canada, by H. W. Walker, Ottawa, Central Mortgage and Housing Corporation, 1953, p. 134.
21. Ibid., p. 139.
22. Ottawa, Parliament, House of Commons, National Housing Act 1954, 1959, (2-3 Elizabeth II, Chapter 23), Section 17.
23. Gord. Perkins, "Tulsequah Progress Report," The Cominco Magazine, vol. 13, No. 12 (December 1952), p. 21. Three prefabricated apartments were built at the Tulsequah Mill Camp.
24. W. C. Wonders, "Parasite Communities in Newfoundland," Community Planning Review, vol. 3, No. 1, 1953, p. 27.
25. Claude Langlois, "Our Mining Towns: A Failure?" Community Planning Review, vol. 7, No. 1 (March 1957), p. 54.
26. Lash, op. cit., p. 44.
27. Revised Statutes of the Province of Quebec, 1941, Chapter 246.
28. Statutes of Quebec, 1-2 Elizabeth II (1952-53), Chapter 24.

29. Elliot Lake Improvement District has an area of 396 square miles. R.N. Percival, "New Towns for Ontario," Town and Country Planning (Feb. 1957), p. 82.
30. Lash, op. cit., p. 45.
31. At the new town of Thompson, Man., the International Nickel Co. of Canada, Ltd., requested the Metropolitan Winnipeg Planning Commission to prepare the town planning scheme and zoning by-law.
32. Services: roads, water, sewer, street lighting, power distribution; facilities: schools, townsite offices, fire stations, community hall, and private hospital.
33. Statutes of Alberta, 1956, Chapter 39.
34. Statutes of British Columbia, Company Towns Regulation Act, Chapter 14, 1919.
35. Langlois, "Our Mining Towns: A Failure?" op. cit., p. 53.
36. Queen's University, op. cit., p. 73.

CHAPTER III

THE CASE FOR THE PLANNED NON-PERMANENT COMMUNITY

The history of mining areas is spoiled countryside and shack towns, and to have avoided that is a remarkable success.

Norman Pearson

Government authorities, and to a large extent, the resource development companies, have come to recognize the deficiencies of the "boom" town and the company town. The discussion in the preceding chapters has shown that the mining community is a product of private enterprise activity, is dependent upon a non-renewable resource activity, and has been, and is being planned, as a permanent urban community.

Planning And The Mining Community

Initially, planning for single-enterprise mining towns was carried out by resource development companies to realize the benefit of greater plant efficiency through improved work habits of the labour force, the benefit of skilled labour attracted to the town, and in some cases, the benefits in public relations where the model town becomes a company "show place". These benefits are the objectives of a company-prepared plan, whereas, in community planning, they would be benefits derived from broader objectives. Hence, before assessing the planning approaches to new town development, it is essential to understand the nature of the planning process.

The Planning Process

Planning has been described as "the closest approximation we can reach for collective rationalization."¹ Community planning is an activity whereby man acting collectively seeks to achieve a desirable physical environment in a community through the conscious guidance and control of the use of land and facilities. Truly democratic planning would be guided by citizen participation in the setting of goals for community growth and development. However, it was pointed out in Chapter II that no previous population exists to participate in planning new mining towns, and hence, a plan must be prepared for the community.

In planning for the new town, the social and economic forces must be anticipated and value judgements must be made, more so for the new town than for established communities. However, when these value judgements are made in the light of all available knowledge, these value judgements cannot be condemned.

The new community is looked upon as a collection of individuals who require a healthy and pleasant environment in and around their homes. The needs of this community are assessed, and in the light of these needs, objectives are established for the development of the community. Alternative proposals for development are studied, and from these, a community development scheme is prepared to guide the growth of the new town. For successful town development, it is essential that these planning schemes be independent of developments which the community builders can neither initiate nor control.

Planning Administration

The community development scheme is a statement of policy to guide the development in the new town. For the plan to be effective, administrative techniques are necessary to implement the policies.

There are three major administrative tools for achieving the desired community development. First, zoning regulations provide a means of control over private property to protect the community against harmful invasions of buildings and structures and thereby encourage the most appropriate use of land in the new town. Second, subdivision control is very closely related to zoning, and is concerned with the dedication of land for public use and access, the provision of utilities, the regulation of building lines, block design, lot sizes, and street layout with a view to providing the maximum degree of health, safety, comfort and convenience. Third, building regulations are concerned with the standards for the construction of buildings in the new town with regard to public health, safety, and the suitability of buildings for use.

The Value of Planning

Perhaps the best way to illustrate the value of planning and regulation of mining communities is to consider the results of unhampered community development by the laissez-faire approach. The opening quotation of this chapter refers to the prevalence of shack towns and unregulated community

growth throughout the history of mining activity. The discussion in Chapter II verifies this opinion since the nature of mining activity has not been conducive to permanent and stable community development. Because of the uncertainties of mining activity and because of the limited and often unknown life of the activity, the resident population may be unwilling to invest in permanent housing and community facilities because the community may not persist beyond one or two decades.

The squatter community, or shack town, consisting of temporary structures with few utilities and services, has been a common type of settlement in mining areas. The present cities of Rouyn and Val D'Or in Quebec, came into being without supervision and control.² They consisted in the beginning of mean squatter camps. However, as the population of these communities increased, it became imperative to organize them, and to adopt a definite plan of development.

Partial planning and regulation of new town development can be equally as conducive to haphazard development as the "laissez-faire" approach. The new town of Chibougamau, established under the Quebec Law of Mining Villages, is a good example of the tendency of unrestricted growth toward substandard development. The provincial government created the Village of Chibougamau and proceeded to lay out a grid street plan, to install services, and to sell residential lots. There were no other plans or regulations to guide and control the development of the new town. Consequently, the most common type of structure in the new town is the 'shack'.

Hence, community planning for the mining town places emphasis on the creation of a community for pleasant living, for the health, safety and convenience of the residents. It is concerned with the orderly physical development of land, buildings, services and facilities to achieve desired economic and social objectives.

Approaches To Planning Mining Communities

To plan for a model community that embodies the developmental objectives previously outlined without concern for the economic base of the community is to plan in a vacuum. Planning for, and control of physical development are essential but only when consequent to the consideration of the basic economic activity of the community. In this section, the established approaches for the planning of mining communities are discussed

to illustrate the need for a new approach -- "the planned non-permanent community".

Permanent Single-Enterprise Communities

Most of the single-enterprise mining towns in Canada have been planned as permanent communities, that is, the physical development in the community has been of a permanent nature. It was shown in the preceding chapters that many single-enterprise communities which have been provided with modern urban facilities and services and have been "planned" according to the most up-to-date planning principles, nevertheless have ended up as "ghost towns".

The abandonment of communities is not a rational human action. However, it is forced upon the residence of communities when the basic economic activity is terminated. There are community losses in social capital, in housing, facilities, and amenities. Further, there are social costs incurred in the disruption of community life, the loss of friendships, and possibly, changes in human values.

It was pointed out earlier that a resource development company is able to write off the capital investment in the industrial plant. However, the residents may not be able to write off their investments. Further, the residents may have expectations of the community which exceed those of the mining company.

Some writers do not uphold permanent mining communities but favour unplanned single-enterprise communities. St. Georges, in a discussion of the problem of a "village-per-mine", proposes that in view of the uncertainties in mine development, it would not be necessary to provide any services and facilities for the town in the beginning.³ If the mining company suspended its operations, the few houses and shacks erected in the townsite would be the only losses. If the company were successful, the village could then be organized and developed. This proposal does recognize the risks involved in the mining industry, but it has the disadvantages of the laissez-faire approach, promoting shack towns and prejudicing future community development.

It was shown earlier that the development of new towns is under strict control by the provincial and federal governments. The approach of uncontrolled community development is not possible, nor is it desirable.

Rather, permanent mining towns have been and are being developed by resource development companies. This is a rational approach on the part of these companies to realize benefits which, to the companies, outweigh the disadvantages of eventual abandonment of the communities.

Diversification: Regional Centres

One general solution put forward for the planning of new mining communities is to diversify the economic activity on which the community is based. The panacea for all community problems has been diversification of industry to broaden the employment base of the community and thereby to introduce permanence and stability to the community. The strength of the metropolis lies in its broad industrial base and its many opportunities for employment; the strength of the service centre lies in the diversity of functions carried out in the community for itself and for the surrounding rural area.

Thomas Adams wrote in 1917 of the ill features of single industry towns and of the need of "establishing new industries near water-powers and raw materials. . . . Where mining is carried on in the neighbourhood of fertile land, such as in the valleys of British Columbia, there are opportunities for creating healthy and permanent towns."⁴

E. T. Clegg, in the study of dispersed single-enterprise extractive industry towns in southern British Columbia, advocated regional planning of the economic base of these communities to develop permanent communities with a broad industrial base.⁵

In an agricultural region, settlement consists of rural service centres set in a pattern of tributary rural farming areas. These service centres may be located in a pattern dictated by particular topographic features, types of farming, and transportation facilities. But agriculture is a renewable resource activity, and with a given market structure, agriculture will generate permanent and stable communities.

The concept of regional centres, then, is one of permanent settlement. That is, if settlement is to take place, it should develop in locations which will permit permanent community development. But planning for new regions has many difficulties; the element of change was seen to merit special attention by W. E. Hobbs:

Planners are apt to view their work as permanent and this is more or less true in old established and well developed areas, subject always to the general adoption of new inventions, changes in modes of transportation and habits of living; but in a new area, the complexion of things may change very rapidly. The much frequented canoe route of today, with its settlements here and there, may be deserted tomorrow because a railway is built; villages and towns may spring up along a new railway, but the flourishing town at the terminus may be abandoned tomorrow when the railway is extended; the mining town will probably lose its inhabitants overnight when the mine is worked out; while at another point, the village of today will be the town of tomorrow, and the city of the day after. 6

Planning for regional centres means planning for the diversification of the economic base of the new communities, to create stable and permanent employment. This approach implies that diversification is possible, and that additional enterprises other than the resource development company will locate in or near the community. It is possible that additional mining and primary manufacturing activities may develop in the local area and come to use the community. However, as experience elsewhere has shown, the diversification of one-industry communities is difficult. One has only to look at the Canadian gold-mining centres to appreciate the problem. A saw mill locating in a gold-mining community may not be sufficient to maintain the community when the mining activity terminates. Further, the location of markets, the economics of transportation, and the geographic factors of adverse climate and topography are some of the elements against natural diversification. Consideration of artificial stimulation of diversification raises the problem of the role of government in economic development, which, as yet, has not been clarified in Canada.

There is also the difficulty that seldom is the direction and extent of regional development foreseeable in advance in order to plan for diversified economic activity in a new mining community. In partially developed regions, the problem will not be as difficult as in new areas. In regions which offer possibilities for the development of renewable resources, the future regional settlement pattern and economic base may be anticipated. In regions which offer possibilities for mineral

resource exploitation, the very nature of the unseen natural resource renders regional planning difficult, if not impossible.⁷ However, if there were a regional entrepreneur similar to the Wenner Gren interests in the Peace River area of Northern British Columbia, the resource potentialities of an entire region could be assessed, and the development of different resources could be scheduled over time, according to a regional development plan.

Multi-Enterprise Communities: Mining Centres

A third solution to the planning of mining communities has been that of the mining centre to serve several mining operations. Central towns, by grouping the population, have the advantages of creating more populous centres, of assuring a longer community life, of developing commerce, and perhaps occasionally gaining new industries when the regional population increases.

In spite of the advantages of a mining centre over dispersed single-enterprise communities, this approach does not overcome the fact that the basic source of livelihood is limited by the non-renewable resource. A case in point is the new mining centre of Elliot Lake. With the cancellation of contracts for uranium with the Government of the United States, the "boom" period turned to depression. Already, production has been curtailed in the Elliot Lake area. The economic life of many of the mines has been considerably shortened by the failure of the supporting market.

The Alternative: Non-Permanent Mining Communities

The permanent single-enterprise mining community is not considered as a rational approach to establishing new mining communities. Planning for regional centres is the most rational approach where co-ordinated regional development is possible. Planning for multi-enterprise mining communities does induce greater permanency in the communities established, however, the basic problem of the volatile nature of the mineral resource has not been solved. Since these approaches are not universally applicable to mining community development, an alternative planning approach must be available.

The problem of town development in mining regions is focussed in the following quotations from the 1944 report of the Royal Ontario Mining Commission:

It is recognized that mining municipalities are generally established and developed under conditions not found in other than mineral areas, and that the stable economic life of such municipalities depends largely on the success of an industry which in turn, is definitely dependent upon exhaustible natural resources. 8

It must be remembered that construction work in mining communities must have regard to the fact that such municipalities are, of necessity, temporary, and largely dependent on the productive life of the mines. Consequently, construction programmes must be considered in a manner differing from that of more permanent communities. 9

Although the remarks of the Commission refer chiefly to the established single-enterprise mining towns, they apply equally as well to proposed new communities that cannot be planned as regional centres.

The solution proposed in this study is to recognize the limited life of the resource activity and to plan the new mining community in such a way as to enable the community to adjust to both growth, should permanent settlement become possible, and recession, should the basic mining activities terminate. The alternative approach, then, is to plan for non-permanent settlement, to plan for communities that possess permanent urban features but also possess the features of physical mobility and flexibility.

The proposed approach of non-permanent mining settlement would facilitate a flexible pattern of regional settlement. Single-resource development could be undertaken without the results of abandoned communities. If a mining operation should terminate, the community could be transferred in part, or as a whole, to a new site where employment is available. If the economic base of the community should become diversified, the community could continue as a permanent town.

Previous Applications Of Non-Permanence In Communities

The proposed concept of the non-permanent community is a rational approach to the problem of planning for single-enterprise mining communities. However, the concept of mobility and flexibility in communities is not new. It has been employed at one time or another, directly or indirectly, in the structure and siting of North American communities.

Early Communities

The earliest instance of mobility and flexibility in communities in North America is the nomadic Indian community of the western plains region prior to the coming of the white man. The seasonal migration of the animal herds necessitated a certain amount of migration by the Indians. The shelters in the Indian communities were mean structures of skins and vegetation stretched over a pole framework. These dwellings could be dismantled easily and re-erected on a new site.

The white man, in his movement across the continent, also resorted to a mobile type of community. The covered wagon acted as a portable home for settlers as they advanced West. The covered wagon is the forerunner of the present day house trailer.

These early types of non-permanent communities were developed in response to particular cultural and economic needs. The Indian camp was required by the ritual of the hunt; the covered wagon was necessary to move people and their belongings from one region to another. Primitive as these communities were, they do illustrate the early presence of mobility and flexibility in settlement on this continent.

Resettlement

There are also examples of communities which have been relocated, that is, transferred to a new site. The term "resettlement" applies to those communities that have been moved for reasons other than the relocation of their basic industries. In the examples cited below, the relocation of a community has been necessitated by the exigencies of the original site, the termination of the basic industry of the settlement, and the implementation of a government policy of resettlement.

The town of Aklavik, aptly named the "Mud-tropolis of the North",¹⁰ was relocated because of the unfavourable features of the original site. Aklavik was established as a trading post on the banks of the West Channel at the mouth of the Mackenzie River, some sixty miles from the Arctic Ocean. The nature of the land, "a combination of permafrost and silt",¹¹ and the river floods seriously affected building and road construction, sewer and water mains, created a health hazard and restricted the expansion of the community. Between 1954 and 1958, the federal government transferred the community some 40 miles to Inuvik, a new site on the East Channel. The new townsite is one and a half times the area of the old site,

and has ample room for expansion. New buildings were constructed in addition to those transferred from Aklavik; the worst of the old buildings were left behind.¹² It is interesting to note, however, that Aklavik has not disappeared, but still remains as a minor, but thriving community.

The former community of Goldfields, a village in Northern Saskatchewan on the North Shore of Lake Athabasca, was relocated when the local mining operations terminated. The village developed originally as a result of gold mining ventures in the area in 1934. It was incorporated in 1937, and in 1941 had a population of 276.¹³ Labour shortages in 1942 forced the closing of the mining operation, and increased costs after the Second World War along with the low grade of the ore led to the closure of the mining properties. The village was disbanded in 1950, and by the winter of 1952-53, all the buildings were transferred to Uranium City. The buildings were skidded over the ice and frozen ground by tractor train.¹⁴

The community of Burnt Creek, Quebec, was once the centre of prospecting and development work on the iron-ore deposits at Knob Lake. However, a chance drilling operation revealed that directly underneath the townsite, there were more than ten million tons of high-grade ore.¹⁵ Consequently, a new site for the community was sought. The problem was to find a location that was well-drained, reasonably close to the ore bodies and close to a good airfield site. The site selected was some five miles from Burnt Creek, on the neck of fluvio-glacial sands separating Knob and Pearce Lakes, the present Schefferville townsite. The Iron Ore Company of Canada transferred its camp buildings to the new site.

In Newfoundland, a government policy of resettlement has led to the relocation of entire fishing villages. Beginning in 1950, the Province embarked on a programme of population relocation from 1000 small communities to 300 large centres. This present day movement is for centralization of settlement. But house hauling has been a traditional moving operation in the fishing villages. "House-hauling is old hat to the people of Newfoundland. In the old days, it became a festive occasion. In winter, the men pulled the homes over the ice, heaving on the long lines and chanting native folk songs as they pulled."¹⁶ In the article, "A House Goes To Sea," a recent Newfoundland house-moving operation is described. Usually the buildings are moved across the bays and inlets over the ice or floated on rafts of empty oil drums which keep the entire structure above

water. "But in this case the owner figured the sea water would not seriously damage the house which had no plaster work. Within 20 minutes the house was half submerged and from then on it was a slow drag to Red Harbour." ¹⁷

Relocation of Industrial Activity

Finally, there have been cases of communities which have been moved in consequence to the relocation of their basic economic activities. The examples presented are from the fields of construction, logging and mining communities.

Perhaps the most common type of mobile community is that associated with the construction industry. The particular type of settlement which is developed to house the labour force varies as to the nature of the construction work and the expected length of the construction period. For preliminary field work, such as exploration and field survey, temporary tent camps provide adequate shelter and can be readily transferred to a new location. For railway construction projects, the work crews may be housed in railway camp-cars, or in skid shacks which can be easily moved from one work site to another.

For large construction projects, such as dam projects, which require several years for completion, temporary communities with urban facilities have been established. In 1918, model temporary towns were planned for each of the five dam projects in the Miami River Valley in Ohio. ¹⁸ More recently, the Tennessee Valley Authority planned and established several temporary construction towns for the dam projects on the Tennessee River and its tributaries. The TVA went as far as designing and constructing demountable and portable housing for use in its construction towns. ¹⁹ At La Cave on the Ottawa River, the Hydro-Electric Power Commission of Ontario built an elaborate construction camp complete with school house, movies, pool room and four bowling alleys, among other amenities. ²⁰

Temporary accommodation has often been provided by the construction workers for themselves. Separate trailer and shack communities, built by construction employees, develop outside the main company camp. At La Cave, a trailer camp rapidly grew outside the gate of the H. E. P. C. camp. ²¹ Complete trailer construction camps have been built at some of the large dam projects in the Western United States. ²²

In the logging industry, the early logging camps were essentially 'sleep camps' and were located near the woodcutting operations. With the

advent of modern forest management policies the logging camp has become a more permanent urban community. British Columbia once displayed a unique type of mobile logging community. This was the traditional 'floating company-town'. The floating towns are now becoming rare. At one time, timber operators would log a section of the slope of an island or mainland coast by cutting, trimming, and hauling the logs down the slope and forming them into rafts. The bunkhouses, family houses, cookhouse and community facilities were all built on log floats to facilitate movement of the community to the next area to be cut. However, the floating villages are now moving onto land and becoming permanent communities. Holberg, on Quatsino Sound, Vancouver Island, was once the "world's largest floating village."²³ In 1953, Holberg had twelve 'land houses' and fourteen 'float houses'.²⁴

A classic example of townsite relocation accompanying the relocation of the basic industry is the former mining community of Sherridon, Manitoba. The town of Sherridon was located on the Canadian National Railway some 98 miles north of The Pas. The townsite was developed by Sherritt Gordon Mines in 1931. In 1951, the copper zinc orebody was exhausted and the mine was closed. However, the mining company was simultaneously developing a new nickel-copper mine 164 miles north of Sherridon. Instead of letting the houses and other buildings rot and crumble at Sherridon, the company arranged to move "just about everything but the name"²⁵ to the new townsite at Lynn Lake. The plant buildings and homes were mounted on sleds and towed over frozen rivers and lakes by caterpillar tractor trains. Stores, banks, schools, and church buildings were included in the move. Today, of the original population of 200 in Sherridon, only a few railway servicing men, trappers, and fishermen remain.²⁶

NOTES

1. Louis Wirth, "Planning Means Freedom," Proceedings of the Annual Meeting of the American Society of Planning Officials, May, 1947, Chicago, ASPO, 1947, p. 10.
2. Julien St. Georges, "The Question of Mining Villages," Canadian Mining Journal, vol. 67, No. 1 (January 1946), p. 24.
3. Loc. cit.
4. Thomas Adams, Rural Planning and Development, Ottawa, The Commission of Conservation, 1917, p. 38.
5. Clegg, op. cit.
6. W. E. Hobbs, "Planning New Towns In Northern Manitoba," Journal of Town Planning Institute, vol. 8 (August-October 1929), p. 78.
7. A practical example of the problem of development in a mining area is the relocation of the mining village of Pascalis, Quebec, cited in St. Georges, op. cit.
8. Ontario, Royal Ontario Mining Commission, Report, Toronto, King's Printer, 1944, Part IV, p. 22.
9. Ibid., p. 24.
10. Gerald F. Ridge, General Principles for the Planning of Sub-Arctic Settlements, Doctoral Thesis, McGill University, 1953.
11. "Aklavik," Encyclopedia Canadiana, 1958, vol. 1, p. 63.
12. Gordon Robertson, "Aklavik - A Problem and Its Solution," Canadian Geographical Journal, vol. 50, No. 6 (June 1955), p. 205.
13. "Goldfields," Encyclopedia Canadiana, 1958, vol. 4, p. 384.
14. Frank Underhill, ed., The Canadian Northwest: Its Potentialities, Toronto, University of Toronto Press, 1958, p. 21.

15. W. Gillies Ross, "Knob Lake on Canada's New Frontier," Canadian Geographical Journal, vol. 54, No. 6 (June 1957), p. 241.
16. Cyril Robinson and Bert Beaver, "A House Goes To Sea," Weekend Magazine, vol. 10, No. 5 (January 30, 1960), p. 14.
17. Loc. cit.
18. "Construction Camps Model Towns On Miami Flood Works," Engineering News-Record, vol. 81, No. 13 (September 26, 1918), p. 575.
19. Tennessee Valley Authority, Department of Regional Studies, "The Trailer House: TVA's New Approach To Mobile Shelter," Architectural Record, vol. 93, No. 2 (February 1943), p. 43.
20. Queen's University, Institute of Local Government, Single-Enterprise Communities in Canada, by H. W. Walker, Ottawa, Central Mortgage and Housing Corporation, 1953, p. 28.
21. Ibid., p. 29.
22. Ruth C. Kaseman, "Home Means Take-Along Home To Construction Workers," Mobile Life, 1959, p. 8.
23. Queen's University, op. cit., p. 31.
24. Loc. cit.
25. Ibid., p. 9.
26. "Sherridon," Encyclopedia Canadiana, 1958, vol. 9, p. 297.

CHAPTER IV

THE MOBILE HOME TRAILER PARK AND THE CONSTRUCTION VILLAGE - EXAMPLES OF PHYSICALLY MOBILE COMMUNITIES

Permanence comes in the structures of the city, but death comes with it. . . . The permanence of stone and brick, which enables them to defy time, causes them also ultimately to defy life.

Lewis Mumford

If the concept of the non-permanent community is a solution for the development of communities based on a volatile mineral resource, then the problem is how to plan for non-permanence in new towns. Techniques must be discovered to enable town planners and community builders to achieve the non-permanent community.

Communities have traditionally developed in accordance with the physiographic features of the site and situation, the economic functions carried on in the community, and the living-habits of the people. Each community through its characteristic features contributes to the store of knowledge and experience for the development of other communities. Hence, a logical approach to discover techniques for the planning of non-permanent settlement is to study the established types of communities which possess the features of physical mobility and flexibility.

Two types of physically mobile communities are common to North America: the mobile home community, and the Tennessee Valley Authority's construction village. These communities were established in response to distinct economic and social needs. The mobile home community, now becoming part of the residential fabric of metropolitan areas, was originally established to house and service a mobile labour population. The Tennessee Valley Authority's construction village was designed to facilitate relocation of the community to serve new dam construction projects.

Essentially, the physical mobility of these communities lies in the mobility of the structures of the community. Through the technique of prefabrication, the feature of portability has been embodied in buildings. This feature enables the structures to be readily relocated, and permits great flexibility in the siting of the structures.

The Mobile Home

The term 'mobile home' is the modern designation for the house trailer, trailer coach, or trailer. These terms will be used interchangeably in this chapter.

Community planners are generally concerned with the problem posed by trailer living and the large unregulated trailer camps near the fringes of cities and towns. However, this study deals with the trailer as a unique housing unit which in its use in trailer parks and trailer towns may offer techniques of value in the planning of non-permanent mining communities.

The use of house trailers in Canada is not as widespread as in the United States. Consequently, much of the material for this investigation was gained from United States national research reports, studies made by trailer manufacturers associations, and state and municipal trailer studies and zoning ordinances. The study is limited to trailer units which are used as year-round residences, and hence, excludes vacation models.

The Mobile Home and Its Development

The mobile home is a type of prefabricated dwelling; it is a completely furnished housing unit as it leaves the assembly line. However, the presence of wheels differentiates this prefabricated dwelling from all other homes. These wheels enable the home owner to move his entire dwelling when his work requires it or his interests prompt it.

The historic covered wagons of the great westward migration represent the first mobile homes used in North America. These stout but cumbersome vehicles were called Conestoga wagons and prairie schooners, and were pulled by horse or oxen teams.¹ The covered wagon served the pioneers in a dual capacity; as temporary dwellings while travelling, and as a means of transporting personal effects to a resettlement destination.

Thirty years ago, house trailers were used largely as temporary living quarters for vacationers. As early as 1921, tent trailers with collapsible canvas tents permanently mounted on two-wheeled trailer beds, were being produced commercially.² However, the early movable dwellings tents, covered wagons, lean-to-shelters and the like, were used primarily by transients. These dwellings were plain and harsh, and neither regarded nor intended by their occupants as a permanent type of dwelling.

The function of the trailer has gradually changed from a temporary dwelling in the 1930's to a permanent or semi-permanent home in the 1950's. During the depression years of the thirties, many of the earlier house trailers served as low-cost housing for numerous families. The trailer population for 1936 in the United States is estimated at 100,000 people.³ During the war years of the forties, the house trailer served as emergency housing for armed services personnel. It was not until the post-war period that the house trailer became an important part of the total housing stock in Canada and the United States.

Trailer housing provided a ready means of housing a migrant army of workers (with their families) needed to build dams, highways, pipelines, and to develop new mineral deposits and oil fields. In 1951, several large atomic energy plants were built by the United States Government. At the Atomic Energy Commission project sites, as many as 10,000 trailers were moved in to provide immediate housing for the construction and defence workers with their families.⁴ It was at this time that the trailer industry described the use and value of the house trailer as follows:

Use of trailer coaches to mobilize defence plant forces is proving a boon in many ways. It reduces the incidence of exorbitant rent and living squalor; it eliminates needless waste of taxpayers' dollars in the erection of shoddy temporary dwellings at inflated prices; it provides for speedier housing of workers and their families; it boosts morale of workers who may keep their families with them in pleasant surroundings; it reduces absenteeism and work-force turnover; it reduces the severe drain on local economies that result from over-rapid development, of poorly built homes requiring water, sanitary systems, roads and sidewalks; it prevents the eventual appearance of ghost-towns or slum areas of crumbling structures for when the defence work is done, the mobile home moves away.⁵

The mobile home of today is a comparatively recent innovation, and is a compact, completely urban apartment on wheels. The trend to the permanent use of trailers as residences is shown in the definition of 'mobile home' by the Federal Housing Administration of the United States:

Mobile Home: a movable living unit designed for year-round occupancy, sometimes termed a trailer house.⁶

In 1951, less than one per cent of the completely equipped mobile homes in the United States were used for vacationing.⁷ In 1958, in Canada, the Financial Post reported that 75 per cent of all trailers in use were of the permanent mobile home type, and that more and more trailers were coming off wheels and settling permanently on solid foundations.⁸

Although much of the discussion in this chapter deals with the mobile home as a residential unit, the mobile home is not limited to this use. It is capable of adaption to a great number of uses. In both Canada and the United States, the mobile home has been used for such things as classrooms, branch banks, investment offices, health clinics, bunkhouses, cafeterias, and travelling libraries.⁹

Mobile Home Population

In 1959, the estimated population of mobile home dwellers in Canada was 200,000, and in the United States was over 3 million.¹⁰ In the United States, the principal occupational groups which have adopted mobile home living are: craftsmen, construction trades, and other workers (63%), military personnel (20%), retired people (10%), and business men, professionals and others (7%).¹¹ In Canada, the three largest groups of users of mobile homes are construction workers, miners, and oil workers. Construction workers account for 60 per cent of the users in Canada.¹² At Elliot Lake in Ontario, there were some 1500 mobile homes housing miners and construction workers and their families in 1958.¹³ At Atikokan, Ontario, near the iron mines at Steep Rock Lake, more than 100 trailer units are in use to accommodate mining personnel.¹⁴ It can be readily appreciated that many of the users of mobile homes have highly specialized skills, the demand for which requires the worker to move from one job site to another.

Recent studies in the United States have shown that the average trailer dweller is not a transient. An eleven man study group from Harvard and the Massachusetts Institute of Technology reported that "the average trailer never moves 100 miles from where it was bought."¹⁵

Other studies made of the American trailer dweller have shown that the average mobile home family consists of 2.9 persons; that average purchases by mobile home residents total more than \$200 per month, and that the average income of the mobile home family exceeds the U.S. national average by \$1000.¹⁶

The Mobile Home Unit

The mobile home or house trailer was previously described as a unique housing type which combines a dwelling unit with wheels for mobility. The trailer housing industry has had to work with rigid space limitations, and has developed a compact, quality-built type of housing.

The size of the mobile home is regulated by provincial or state statutory limits for sizes of towed vehicles. The largest units being built today are 10 feet in width and 50 feet or more in length. Some manufacturers are producing models with more than one story, and with devices for expanding the living area of the unit.¹⁷

The basic shape of the mobile home is a rectangle. The general layout in the conventional model places the rooms in series with connecting doors or a side corridor.¹⁸

The mobile home is complete in every respect as it leaves the assembly line at the factory. All furnishings, including the major appliances are provided. Much of the furniture is built-in or especially designed for mobile home use.¹⁹

The mobile home contains high performance plumbing and heating systems. Generally, mobile homes do not have self-contained water systems but must be connected to municipal or other auxiliary water and sewer systems. Some units have been manufactured with internal septic tanks. Heating is by oil or gas-burning furnaces controlled by house-type thermostats; some units boast forced air underfloor heating systems. It was reported that at a large mobile home colony in Tok, Alaska, where temperatures drop to sixty-below, heating in the mobile homes is by thermostatically-controlled oil heaters and that fuel bills rarely exceed ninety dollars a year.²⁰

In general then, it may be stated that the mobile home is an acceptable dwelling unit.²¹ It is smaller in size than conventional housing, but compares favourably with most small apartments. It is a quality-built structure, and it possesses many features of conventional housing.

Mobile Home Communities

The mobile home community is known by several names: trailer court, trailer park, mobile home court, and mobile home park. The trailer community will be referred to as a mobile home park in this study

in keeping with the modern designation of mobile home.

Function of the Mobile Home Park: In the recent past, the mobile home park was permitted in only the commercial and industrial districts of cities and towns in North America, or else they were not permitted at all within the municipal limits. The increased size and the change in function of the mobile home from that of a temporary dwelling to a permanent or semi-permanent home have changed the function of the mobile home park. The mobile home park has become increasingly residential in character to the point that some parks are now located in high density residential areas and are referred to as "horizontal apartment houses."²²

The basic function of the mobile home park is to provide a site with sewer, water, and electrical service connections in a pleasant residential environment. In addition, the mobile home park may offer recreational facilities, laundries, shopping centres, and other urban services and facilities.

Site Planning: The planning principles employed in the design of mobile home parks combine those in single-family subdivisions and those for multi-family projects with common facilities and managements. However, because the mobile home is a portable structure requiring adequate space for maneuvering, the interior circulation, sanitation facilities, and site requirements differ from those in other residential areas.

In Canada and the United States, provincial, state, and municipal regulations for mobile home parks establish the maximum density of mobile homes per acre of approved site. They also establish rules for their spacing, access and driveways, fittings, hardstandings, ancillary buildings, water supply and sewerage, the scale of provision of sanitary, laundry, drying facilities and refuse collection. In addition to these regulations, the Federal Housing Administration in the United States prescribes minimum standards for the construction of mobile home parks which must be satisfied in order for a park management to qualify for guaranteed loans for park development. Both the Canadian Mobile Home Association and the U.S. Mobile Home Manufacturers Association are encouraging the development of mobile home parks with high standards of design and services by making available to prospective park owners design details and park plans.

In general, the modern mobile home park is well located, close to a good shopping centre, fronts onto a highway or hard-surfaced road, and is served by local bus lines. The park is well laid out in individual lots having an average area of 2420 square feet.²³ Each mobile home is parked on its lot in such a manner as to facilitate movement into or out of the site. In many cases, paved roads and sidewalks provide access to the individual lots. Concrete patios, street lighting, sewer and water services and outlets for electricity, and possibly for telephone and television, are provided in the park.

The major characteristic of the mobile home park are as follows:

(a) All the facilities are planned for development in single ownership. The streets, sewer and water systems are constructed and maintained by the park management. Street lighting, garbage collection, and provision for fire protection are normally handled by the park management. Since the land is in single ownership, lot lines, street allowances and utility easements are theoretically not necessary. However, it is normal practice, and is prescribed by the F.H.A., that the mobile home park is designed along similar lines to the traditional land subdivision, and that all lot lines, street allowances and utility easements are shown on detailed site plans and are located on the ground. (b) The lot area for each mobile home is typically much smaller than for a conventional single-family dwelling. The minimum lot size of 1500 square feet is prescribed by the F.H.A. regulations. The Mobile Home Manufacturers Association believes that a minimum lot size of 3000 square feet is necessary to accommodate the large mobile homes being manufactured today.²⁴ The result is more compact development at higher densities than conventional single-family residential development. (c) The extensive use of landscaping achieves livability in the mobile home park. Lawn areas provide attractive and efficient dust and erosion-deterrent surfaces. Trees provided shade, and this is an important consideration since mobile homes have metal roofs and siding. Hedges and fence planting provide privacy for the individual mobile home owner. In addition, hedges and buffer strips screen utility areas, and act as physical and visual barriers between the mobile home park and the adjoining land uses. (d) The super-block pattern of park layout with mobile home lots arranged in courts and double tiers along streets provides a cohesive residential unit. In addition, it reduces the paved areas and hence, street costs. It reduces the amount of grading, destruction of existing trees, and avoids blemish of other natural site features. The F.H.A. regulations state that for a site plan, "a grid-iron layout or other regimented, unimaginative type of site planning is not acceptable where it would result in a

monotonous, unattractive development, such as on a level unwooded site or on a large project."²⁵

Park Administration and Development: The mobile home park is a residential district under single management and development. It may be considered to be analogous to an apartment house, the park management acting as landlord renting to tenants. However, the analogy is limited in that the tenants are mobile home owners who may remove their dwellings, whereas the apartment dweller rents a dwelling unit which remains on the land when he moves.

The park management may act in several roles besides that of landowner. The management may act as postmaster, or may provide commercial goods and services for sale to the park residents. These activities are in addition to the role of civic administrators in providing services, utilities, landscaping, and community facilities.

In the history of park development, private entrepreneurs have provided the bulk of the mobile home parks since it has been a profitable enterprise. More recently, municipalities have entered the field of mobile home parks. Municipalities are going into business for themselves and are establishing mobile home parks run by civic authorities.²⁶

The uniqueness of the mobile home, that is, its being a dwelling unit on wheels sited on rented land, has posed problems for park operators in municipal taxation. The problem stems from the time when the mobile home was not considered a home and was not taxed as such. The mobile home has only recently become occupied on a year-round basis. Consequently, in some areas, the park manager is taxed for the park as a whole, and he in turn recovers part of the tax through the monthly rentals in the park. In other areas, the municipality levies a monthly fee on each mobile home owner. However, this is incompatible with the existing forms of taxation applied to the other dwellings in the municipality.²⁷ The Mobile Home Manufacturers Association supports the principle that:

...the mobile home owner and the mobile home park operator should pay their fair share of the cost of local police and fire protection, schooling and other community services....this reasonable share of governmental costs should be determined for mobile home residents on the same basis as for other residents of the community....²⁸

The mobile home parks that are being developed today range in size from the minimum economic number of 40 mobile home units to upwards of 150 units. Quirke Lake near Elliot Lake, Ontario, has a mobile home park accommodating 300 mobile home units.²⁹ In Sarasota Bay, Florida, approximately 160 acres have been divided into 1500 mobile home sites, each of 40 feet by 60 feet.³⁰ The cost of developing these mobile home parks ranges from \$1000 to \$1700 per trailer space.³¹ It can be readily appreciated that a large capital investment is involved in the development of a mobile home park.

The Demountable House

The demountable house is a prefabricated building, which, as the name implies, can be removed from its foundations. Like all prefabricated structures, it is a rationalized approach to the construction of buildings. However, it does not differ as greatly as the mobile home in both functional design and use in residential districts. The demountable house does possess the feature of portability but to a lesser degree than the previously discussed mobile home.

It is important to distinguish the term 'temporary housing' from 'demountable housing'. The former refers to substandard or minimal standard structures which are erected for short-term use. The latter refers to housing units which can be removed at the end of use on one site, either for transfer to other more permanent sites, or for breaking up into a number of parts with some salvage value. It is inherent in the concept of a demountable structure that it be made to a high standard of performance, that it be constructed of inter-locking sectional panels, or panels fixed to a light structural frame.

In the field of demountable housing, the United States has made several valuable contributions. An investigation was made of the technical literature and periodicals concerning the technique of demountable construction and its use in community development. However, the study is by no means as comprehensive as that of the mobile home. Consequently, the section which follows is limited to the work of the Tennessee Valley Authority in the development of 'sectional housing' and 'trailer housing' for the TVA dam construction villages, and to the more recent work of the Massachusetts Institute of Technology in the design of structures using plastic structural panels.

The TVA Sectional House

The Tennessee Valley Authority (TVA) required extensive housing for the construction workers on its many hydro-electric dam projects in the Tennessee Valley. The TVA considered making good portable houses for its construction villages as an alternative to building mere shacks.

In 1934, the TVA architectural section proposed a scheme for the building of a house which could be separated into four or five sections each of such dimensions that it could travel safely by truck and trailer over highways from the factory to the site, and from one site to another. After considerable experience in transporting conventional housing by barge on the Tennessee River, the TVA staff developed what is known as the sectional house.

The sectional house was designed in sections that bolted together like the slices of a loaf of bread, each section being of such width that it could be transported over the highway without a special permit. The sectional house technique was first used experimentally in 1939 on tourist cabins.³² In 1940, sectional units were ordered in quantity and transported by truck to the TVA dam sites. The house sections measured $7\frac{1}{2}$ ft. by 22 ft. by $9\frac{1}{2}$ ft., were of wood frame construction, and weighed some three tons.³³ The sections were built on assembly lines, and left the factory complete with all electric, heating, and plumbing equipment installed, and arrived on the site even with light bulbs and screens.

During the early 1940's, several variations of the sectional house were made for war and construction workers' housing. Dormitories, recreational and other accessory buildings were constructed as sectional units.

In placing the sectional units together on the site, originally rails and jacks were employed to shift the section from the truck to a foundation prepared in advance. Later, the housing sections were assembled with the aid of a boom crane which lifted the sections into position on the foundation. The sections were then bolted together, utility connections made, the furniture unpacked, and within a few hours of the arrival of the sections, the house was ready for occupancy. It is significant to note that through the use of sectional housing units, on-the-site labour in house building was reduced to as little as 5 to 10 per cent of the total direct labour.³⁴

The sectional house was one answer to TVA's need for shelter for construction personnel which could be removed to subsequent projects with

minimum inconvenience and waste and yet with speed, and which would avoid aggravating the original housing shortage at remote project sites by additional crews engaged in shelter construction.

The TVA Trailer House

The sections of the earlier demountable units designed by the TVA while towed behind trucks in transit bore a striking resemblance to the mobile home. In 1942, TVA began experimenting with sectional house designs which recognized the house section as a trailer and used certain aspects of trailer construction. Consequently, TVA turned to the trailer manufacturing industry for construction and transportation methods to develop the TVA 'trailer house'.

The trailer manufacturers supplied TVA with information concerning typical chassis, structural and equipment features. After some experimental designs, the undercarriage was definitely separated from the structure itself and became merely a means of transport.

The most critical deviation of the TVA trailer house from traditional trailer construction methods was that whereas the trailer is a structurally complete unit, the trailer house is made of slices which become complete only when assembled with their mates. The shell of the conventional trailer possesses great rigidity due to its shape and all-round continuity. The structural shell of the trailer house had to be made rigid through the use of stressed-skin principles of plywood panel construction. During transit, the matching sides of the house sections were closed up with tarpaper and battens.

In the design of the trailer house, TVA made an effort to maintain the characteristics of traditional houses. Only such deviations were permitted as were absolutely required for mobility. It is a significant fact that many of these trailer houses were trucked as far as 600 miles.³⁵

The TVA Construction Village

Since there was no possible conversion or re-use value for many of the villages that TVA was to build for its construction workers, and since TVA did not wish to encourage shack towns with their attendant disadvantages, TVA planned its construction villages for physical mobility. In order to build mobility into these villages, TVA employed the demountable sectional and trailer house.

The traditional procedure in construction camps is to scrap the villages at the end of their period of usefulness. The structures are either sold for their salvage value, or else left to rot and disintegrate. The TVA decision was to build planned portable communities. It was reasoned that benefits not only to the workers but also to TVA (in the increased efficiency of the labour force) could be obtained from an orderly construction community with urban facilities, constructive outlets for leisure time, and the presence of families. Through the use of the demountable housing technique, TVA saw advantages in the ability to transport houses just as construction equipment was transferred, from project to project.

The TVA villages, although not as elaborate as the planned permanent town of Norris that was built by TVA, possessed all the features of urban communities. However, they were essentially company towns. TVA owned the land on which the communities were built; TVA owned and rented all the buildings; TVA administered the community, and TVA provided the employment for the resident labour force. Such a situation was unavoidable in view of the non-permanence of the construction villages. TVA accepted the challenge offered by the construction village, and through the use of portable housing and skillful site planning, TVA achieved livability and an urban environment.

The Sandwich Panel Design

Since 1954, the Department of Architecture of the Massachusetts Institute of Technology has been investigating plastics in an effort to help develop the unique potentials of this versatile material for use in building construction. The concept developed at M.I.T. was to design a building with prefabricated panels made of a core of relatively low density material laminated between and reinforcing two thin, stiff skins, a sandwich panel. Made of plastics, these panels would be light in weight, easy to ship, and easy to handle and erect.

An experimental design of a school structure employing this concept was undertaken at M.I.T. in 1958. The resultant plastic school house design was tailored to the standard manufacturing methods currently available, and hence, was not a school for the future. The school house was so designed as to be easily expanded, readily converted to new needs, and can be taken apart, moved to a different site, and quickly re-assembled.³⁶

Should this new plastic sandwich panel be successful and economic to mass-produce, the M.I.T. design will in essence be a fulfillment of one of the approaches suggested by Hugh Antony in 1945 to provide new housing in Britain:

To do this, full advantage must be taken of mass-production methods to reduce costs. Such a plan can only be successful if the construction is based upon a system of high performance house-sections which are erected 'meccano-wise' on site and are capable of being dismantled, renovated and re-erected either as a new house of the same shape or a different shape (the need of this flexibility is important), or for use in other types of building such as farms or schools. By achieving this high salvage value in re-use, it might be possible to combine high efficiency and good quality with a reasonable financial background. 37

NOTES

1. Donald O. Cowgill, Mobile Homes: A Study of Trailer Life, Philadelphia, University of Pennsylvania, 1941, p. 2.
2. Elon Jessup, Motor Camping Book, New York, G. P. Putnam's Sons, 1921, pp. 137-146.
3. "Old Timers To Be Honoured At Florida Show Nov. 24-28," Trailer Topics Magazine, vol. 18, No. 11 (November 1954), p. 78.
4. C. Borth, "Rolling Homes Gather No Mortgages," Readers Digest, vol. 61, No. 336 (October 1952), p. 62.
5. Mobile Home Manufacturers Association, Homes For The Mobile Population, Chicago, The Association, October, 1951, p. 10.
6. United States, Federal Housing Administration, Minimum Property Requirements For Mobile Home Courts, Washington, D.C., G.P.O., January, 1957, Section 2102.
7. Mobile Home Manufacturers Association, op. cit., p. 11.
8. V. Lunny, "Branch Office On Wheels: New Mobility In Business," Financial Post, vol. 52, No. 25 (June 21, 1958), p. 25.
9. Larry McKittrick, "Uses Galore For Today's Modern Mobile Homes," Mobile Life, 1959, pp. 30-31.
10. Canadian Mobile Home Association, News Release, Toronto, The Association, July, 1959; Mobile Home Manufacturers Association, 1959 Mobile Home Fact Sheet, Chicago, The Association, 1959.
11. Canadian Mobile Home Association, op. cit.
12. Lunny, op. cit.
13. Loc. cit.
14. Loc. cit.

15. Quoted in: Robert J. Stinson, "Mobile Homes - Low Cost Family Shelter," Engineering News-Record, vol. 160, No. 3 (January 16, 1958), p. 45.
16. Mobile Home Manufacturers Association, 1959 Mobile Home Fact Sheet, pp. 1-2
17. Taylor W. Meloan, Mobile Homes, Homewood, Illinois, Richard D. Irwin, Inc., 1954, p. 47, (Indiana University School of Business Study No. 37).
18. For additional information, see: Cliff Wilmath, "The Inside Story," Mobile Life, 1959, pp. 26-29.
19. Loc. cit.
20. Canadian Mobile Home Association, op. cit.
21. "The mobile home is a bona fide living unit. Although there is a great range of quality, by far the majority of modern mobile homes meet or exceed the applicable standards of minimum housing codes." This quotation is taken from the extensive study of the mobile home by Ernest R. Bartley and Frederick H. Blair, Mobile Home Parks And Comprehensive Community Planning, University of Florida, Public Administration Clearing Service, March 1, 1960, (Studies in Public Administration, No. 19).
22. Mobile Homes Research Foundation, Today's Mobile Home Park Important To Your Community, Chicago, The Foundation, 1959.
23. Quoted in: M. K. Powers, Suggested Procedures For The Establishment Of A Mobile Home Park, Chicago, Mobile Home Manufacturers Association, 1959.
24. Loc. cit.
25. United States Federal Housing Administration, op. cit., Section 2401-05.
26. The Municipalities of Elliot Lake and Atikokan, Ontario, Grande Prairie, Alberta, and Kimberley, B.C., are reported to have established municipal mobile home parks. "Industry and Association

- News," Mobilehomes and Trailers, vol. 5, No. 7 (July 1959), p. 33.
27. R. D. Duke, The Taxation of Mobile Homes, (Bureau of Business Research Report No. 12), East Lansing, Michigan State University, School of Business and Public Service, 1955, p. 2.
 28. ASPO, The Changing Function of Trailer Parks, (Information Report No. 84), Chicago, The Society, March, 1956, p. 15.
 29. Canadian Mobile Home Association, News Release, p. 2.
 30. Stinson, op. cit., p. 49.
 31. Canadian Mobile Home Association, op. cit.
 32. Tennessee Valley Authority, Department of Regional Studies, "The House Trailer: TVA's New Approach to Mobile Shelter," Architectural Record, vol. 93, No. 2 (February 1943), p. 49.
 33. Burnham Kelly, The Prefabrication of Houses, New York, John Wiley and Sons, Inc., 1957, p. 37.
 34. Loc. cit.
 35. Kelly, op. cit., p. 37.
 36. Massachusetts Institute of Technology, Department of Architecture, Plastic Structural Sandwich Panels In An Elementary School, Cambridge, Massachusetts, The Institute, September, 1959.
 37. Hugh Antony, Houses: Permanence and Prefabrication, London, Pleiades Books, Ltd., 1945, p. 64.

CHAPTER V

THE NON-PERMANENT SINGLE-ENTERPRISE MINING COMMUNITY

The solutions we seek for our cities must be based upon economic realities. They must also be infiltrated with a new spirit.

Hilberseimer

The task of new town development is more than a mere residential development; it is more than a method of housing the employees of a mining company. It is not the objective here, however, to set out a complete and detailed solution for the problem of establishing and developing non-permanent new towns. Previous investigators of extractive industry communities have tackled the principles for planning new towns. Rather, it is the objective here to set out some principles which can be used in conjunction with these previous planning principles to apply in the special cases where permanent mining towns cannot be established.

This chapter deals with the concept of the non-permanent single-enterprise mining community, the features of the physical community, and the general principles and policies for achieving the non-permanent community.

The Concept

The approach of planning for non-permanent mining communities was introduced in Chapter III. The concept of the non-permanent mining community is one of single-enterprise mining communities planned for physical mobility and flexibility. New mining communities would be established as single-enterprise communities but would be planned to accommodate several mining enterprises should the need arise. The single-enterprise community necessarily brings to mind the attendant disadvantages of the one-industry town. These disadvantages may be reduced, if not eliminated, through the application of principles and policies for achieving non-permanence in the community, proposed in this and in later sections of this chapter.

The fundamental principles of the concept of non-permanent settlement are physical mobility and flexibility. These principles are discussed below in the light of the study of mobile communities in Chapter IV.

Physical Mobility

In theory, a non-permanent community would be a completely portable community which could be established on one site, picked up, and moved to a new site as conditions dictate. The community would contain modern urban facilities and services, and would provide a desirable living environment. Physical relocation of the town would be speedily accomplished with a minimum of inconvenience and expense to the residents of the town. The buildings would be mobile or capable of being readily made so; the services and utilities would be capable of reclamation and re-use in a new townsite.

It is obvious that such a community is not possible. Even if complete physical mobility were technically possible, the concept would find little acceptance if it were not based on economic reality. The time, labour, and capital investment necessary to relocate a community must be a major consideration. With present day conventional construction materials and techniques, it is almost certain that the costs of town relocation, both in dollar value and in inconvenience, would exceed the cost of establishing a completely new townsite.

The study of physical mobility in settlement in Chapter IV indicates that it is possible, however, to build physical mobility into the structures of a community. Through the technique of prefabrication, a structure can be made completely mobile as in the case of the mobile home, or portable as in the case of the demountable house. Mobility did not appear to adversely affect the function of these structures. The feature of physical mobility was found to be a valuable reserve factor in permitting the structure to remain permanently on one site or to be readily relocated.

The study also showed that physical mobility was limited to the structures in the communities examined. Community services and facilities were fixed to the site, and remained behind when the community was relocated. However, the study indicated that an administrative sub-structure of single land ownership and development, and of land leasehold was basic to the physical mobility that was achieved in these communities.

The foregoing techniques indicate what is possible in physical mobility to achieve non-permanence in settlement. Only a limited degree of physical mobility is possible, and this is chiefly through the use of mobile or portable structures. Community utilities and facilities are

relatively fixed. And basic to this revised concept of physical mobility are the principles of unified development and control of development to facilitate and preserve the non-permanence of the community.

Flexibility

The principle of flexibility is an integral part of the concept of non-permanence in settlement. The feature of flexibility is essential to enable the physical community to adjust to the changing economic, social and physical environment.

The non-permanent community will be no exception to the fact that few communities remain stable or static in size and composition. The principle of flexibility must therefore be built into the community through the use of a flexible development scheme. The scheme must provide space and a program for orderly expansion, contraction, or shift in character of the community, while maintaining balance in all the basic facilities.

The mining community will expand to the extent that the basic resources will permit development. Although planned as a single-enterprise community, the non-permanent community must be capable of expansion to accommodate such functions as transportation and storage, minerals exploration, and additional mining activity. However, should the basic mining activity terminate, the community must be able to adjust to a decrease in population and/or complete relocation; should the economic base of the community become permanent, the community must be able to remain as a permanent community.

This flexibility in community size, structure and location necessitates physical mobility in the community. In fact, physical mobility is a precondition for flexibility. Flexibility in the siting of structures both within the same community and in a new townsite, flexibility in the grouping of the structures, and flexibility in the type of housing accommodation to suit the family life cycle -- these are all necessary and can be achieved through the feature of mobility in the building of the community.

The Physical Community

The preceding discussion has brought into focus the concept of the non-permanent single-enterprise community. This section deals with the features of the physical community which were implied in the earlier discussion.

Structures

It is essential that all structures in the community be of a mobile nature. Temporary structures have no place in the non-permanent community. By definition, they are substandard structures; they are also immobile. Experience in Canadian town development has shown that temporary structures have a way of becoming permanent. The temporary structure is therefore undesirable and incompatible with the concept of non-permanence in settlement.

Unless mobility is initially built into a structure, the structure is essentially permanent. The technique of prefabrication was shown to be a method of introducing mobility and portability. The mobile home was shown to possess unique mobility; the demountable house was shown to be portable but considerably less mobile than the mobile home, with some designs requiring complete dismantling. Further, these structures offered great flexibility in site location. They were shown to be quality-built, to have a high performance level, and to serve year-round use as dwellings, dormitories, shops and community buildings.

The use of these particular prefabricated units is not directly prescribed here. Rather, they serve to illustrate what is possible and desirable in the structures of the non-permanent community. The mobile home and the demountable unit embody the desired principle; the actual design employed will depend upon the technique and the materials used.

It is well to recognize that a portable structure by its very nature must be smaller than buildings constructed in the southern urban areas with conventional methods. In reality, this poses no problem since housing in northern areas have tended to be smaller in size, primarily for economy in heating during the winter months. Further, according to Hilberseimer, size is not wholly dependent on area, but also a matter of proportion.¹ Granted this principle and the attendant economies, smaller housing can indeed be made acceptable.

Utilities

The moment that the standard of housing is raised, no matter how slightly, above the temporary accommodation provided in a camp, there are services and utilities that must be provided and the cost carried by the community. It was shown in Chapter IV that even in communities

where portable housing was employed, reliance was still placed on utilities provided in the conventional manner.

Sewage disposal, a supply of potable water, and provision of electrical power are of vital importance to any urban community. They are demanded by city dwellers. Single-enterprise communities in the past have been endowed with a high level of services and utilities. These must be provided in the non-permanent community as well.

Water, unless piped to the housing site, must be carried and stored in household reservoirs or obtained from a household well. Sewage disposal, unless effected by a collection and disposal plant, must be by privy and cesspool or septic tank and field tile. Lighting, unless by electricity, must be by lantern or gas lamp. Therefore, unless a community system of services and utilities is provided, the community is similar to a temporary camp without benefit of modern urban conveniences.

However, the provision of modern conveniences brings immobility to the community. Fixed pipelines, pole lines, and utility plants all spell permanence when conventional methods are employed.

Technological advances may be made in sewage disposal. For instance, such devices as the AST (Atomized Suspension Technique) sewage treatment process offers some interesting potentialities.² It was reported that an AST reactor is being developed to handle wastes from a single household. However, household units, whether they be the AST type or a portable septic tank, will require disposal of fluids to either a field drainage system, or to a sewage collection system.

Buried utilities are definitely less accessible than boxed surface utilities. The latter method of installation of utilities is used in some modern northern communities where the presence of bedrock or permafrost prohibits burial of service lines. In these cases, the utilities may be considered to be amenable to the concept of mobility. However, with conventional materials, the re-use of these utilities is greatly dependent upon the capital expense required to recover the materials, and the length of useful life remaining in the materials. It is possible that technological advances in materials and techniques will permit greater mobility and flexibility in utility systems than is presently attainable.

In accordance with the principle of flexibility, the utilities provided in the non-permanent community must be designed to accommodate expansion, contraction or even permanence in the community. This latter requirement, in addition to the preceding limitations, indicates that the provision of utilities in the non-permanent community can differ little, if any, from the present methods of servicing communities.

Site Plan

The major feature of the physical design of the non-permanent single-enterprise community will be its compact framework. The proposed use of smaller, portable structures should permit the provision of smaller residential lots in the community. This means a higher residential density and a more compact development than presently found in Canadian communities. This, in itself, may be desirable, for as various persons have noted, the new northern communities have been built on the wrong concept. In particular, this criticism has been made of Kitimat³ and Elliot Lake.⁴ Town development at higher densities is considered desirable in areas of rugged terrain and adverse climate, and in isolated communities.

An important consideration in the community design is the successful integration of physical mobility in the buildings with the physical site, with without the loss of an urban environment. Much depends, of course, on the design of the structures in the community. There must be, however, a sensitivity for the physical features of the site, and a knowledge of how they may be used to advantage in community design.

The road plan should take a form that is suited to the topography. Desirable site features should be preserved, and utilized to create a unity of building and site, and community and setting. Landscaping and grouping of buildings should be employed to create livability, as was achieved in the mobile home community. In general, the new communities should not be mere subdivision transplants from the southern more temperate zones to northern wilderness settings.

It is possible that the non-permanent community may find its greatest use in northern mining regions where natural vegetation may be lacking. In these cases, much will depend on the actual building designs and the grouping of buildings in order to achieve livability.

In order to build flexibility into the framework of the community, the site plan should permit staged development. Such a plan would facilitate expansion through orderly extension of community services and utilities. Conversely, it would ensure orderly contraction through staged relocation of the structures, while maintaining a balanced, compact community. This process may be achieved through the use of subcommunity units grouped around a town centre. The actual size of these units will vary with site conditions and the anticipated community population. Such units should be of an intimate scale, with a possible size range of 20 to 50 single-family dwellings per unit.

Achieving the Non-Permanent Community

The preceding discussion of the physical community presented several proposals for the components and structure of the non-permanent community. However, there remains the question as to how to achieve the desired development. In this section, principles and policies are proposed for the establishment, development and operation of the non-permanent community. The objective of reduction, if not elimination, of the disadvantages of company dominance and paternalism in the single-enterprise community is inherent in these proposals.

Planning

Planning must precede and continue through the developmental and operational life of the non-permanent community. This is essential to the creation and preservation of desirable, orderly development, and to the continuity of non-permanence in the community.

Studies of population size, the possible functions and the spatial needs of the community are basic in planning for a new town and hardly need mention here. These studies precede the selection of the site and the preparation of a community development scheme.

Planning should not be left to the resource development company as is the practice in most single-enterprise towns. In order to ensure a high standard of community planning and development, with as little stigma of the "company town" as possible, and to ensure proper provision for and continuity of non-permanence in the community, planning for the new town should be carried out by a competent planning staff.

It is suggested here that the planning of new non-permanent mining communities could best be carried out by a regional planning agency. Since the non-permanent community is based on resource development -- one aspect of regional planning and development, the regional planning agency is the best suited agency for this task. However, in the absence of regional planning agencies, the provincial planning staff should perform this function. The agency must be familiar with the place, the people, the problems, the nature of the economic activity, and the regional patterns of development.

In order to make planning truly a part of the community as a continuing function, a resident planner should be assigned to the community. The resident planner would act as a development officer and be concerned with the implementation of the planning scheme as well as with the revision of the scheme when necessary. The resident planner would also act as chairman of a Board of Administrators, the authority responsible for governing and developing the new community. The Board will be discussed in a later section on organization in the non-permanent community.

Land Ownership

Land ownership is a key tool, in conjunction with mobile structures, for achieving non-permanence in settlement. In the concept of non-permanent settlement, land can merely serve as a platform on which the community is developed and community life takes place. The land cannot be sold, nor can it acquire value. The basic function of land is to assist capital to develop resources.

Land values under private ownership represent large capital investment. They also represent unearned returns as benefits from improvements to adjacent parcels of land. Where land is in private ownership and has acquired this value, the physical mobility and flexibility in town development are reduced, if not made impossible. Not only do inflated land values act as a deterrent to desirable physical development at the desired time, but also, inflated values have the connotation of permanence and continuity of the same or a higher use.

The principle of land leasehold must therefore be an integral part of the non-permanent community. In the mobile home community and the TVA construction villages, single land ownership and land rentals facilitated physical mobility.

A policy of land leasehold is therefore proposed for the non-permanent community. Such a policy would permit town relocation by eliminating the conflict with private land interests, and it would facilitate community adjustments, those including expansion and contraction. Leases would in effect be for an indefinite time; however, they would include provisions for an upward renegotiation of the contract to be made by the Board of Administrators at certain intervals. Leases would terminate in the event of town relocation and the land would revert to the Crown.

In all probability, new mining communities in Canada will be developed on Crown land. As was stated above, in the relocation of these communities, the land in the townsites would revert to the Crown. Hence, it is proposed that the ownership of land in the non-permanent community should remain under the Crown.

The non-permanent community should be incorporated under special provincial or federal legislation as a "leasehold corporation" with jurisdiction over a specified land area. The corporation would be empowered to subsequently lease land in the community.⁵

Home Ownership

The principle of individual home ownership is proposed for the non-permanent community. In Chapter II, it was pointed out that the role of the resource development company as landlord makes for poor labour relations, and that many mining companies are following policies of promoting individual home ownership. This policy should be utilized in the non-permanent single-enterprise mining community. The role of the mining company is properly that of mineral exploitation. The pre-eminence of the mining company may be reduced in the community through private home ownership, a policy which in all probability would be accompanied by community pride on the part of the residents of the community.

To relieve the mining company of the need to provide new housing in the community, housing should be provided and administered by the Board of Administrators. The Board would be responsible to contract for delivery of homes to the townsite, their sale, rental and/or repurchase within the new town. A repurchase scheme is essential to permit population mobility in isolated mining communities.

Housing could serve as an effective device in achieving the desired community development scheme. The placing of housing under some form

of municipal control would ensure a continuity in the provision of housing, as well as maintain a high standard of performance in the type of structure permitted in the community. Housing, therefore, should be one of the administrative functions of the Board of Administrators.

Organization

Continuity of administration and control are essential to the success of the non-permanent community. The organization of the government and administration of the new town is therefore an important consideration.

The incorporation of the community as a leasehold corporation was discussed under a preceding discussion of land ownership. The corporation should be established upon application by a mining enterprise, followed by a recommendation of the provincial planning agency. The initial organization for establishing and developing the non-permanent community should be a Board of Administrators. This Board would supplant the mining company as town builder in most mining towns built in the past. The Board should be composed of appointed representatives of the Provincial Government and the mining company concerned. A resident planning officer from the regional or provincial planning agency should act as chairman of the Board. The Board should have five members, two being representatives of the Province, two from the mining company, and the resident planning officer. The Board would not necessarily undertake town development itself, but rather make contracts for the installation of services and utilities, and provide for and administer the construction of buildings in the community. This appointed Board would serve only as a transitional form of organization during the development period of the new community.

Once the townsite is established, the appointed board should be replaced by an elected council. The planning function and the housing function of the Board of Administrators would be absorbed into the administrative structure of the permanent organization. Hence, these would continue through the operational life of the community.

Rather than replace the appointed Board of Administrators in one stage, it is proposed that half of the members be replaced in two consecutive years by elected members. In this manner, the impact of transition would be reduced, and the experience of the appointed members would be passed on to the newly elected Board members. This procedure was carried out

successfully in the Local Administrative District of Yellowknife in the Northwest Territories.⁶

The incorporated municipal area should include more than the townsite proper in order to provide room for growth and to permit control over development in the surrounding territory. Effective extra-territorial control is essential to prevent undesirable squatter communities and to preserve the non-permanence of the community. To control sporadic development in the new town of Elliot Lake, an area of some 396 square miles was set aside as the Improvement District of Elliot Lake. The Elliot Lake townsite proper covers an area of only 8 square miles.⁷ The powers of municipal taxation in the extra-territory will be discussed in the following section on finance in the non-permanent community.

The general principles of organizational structure in the non-permanent community have been outlined. The actual form and scale of the administrative structure will necessarily vary from province to province and town to town.

The powers of the incorporated non-permanent town should be set out in either a mining communities' act of the legislature, a section of the Municipal Act, or the particular acts of incorporation. The provision of a mining communities' act would provide a common basis for establishment of non-permanent communities. A clause should be included in such legislation whereby the status of the community could be changed to that of a permanent community, subject to the approval of the regional and provincial planning agencies.

Finance

At the outset, it is important to recognize that the single-enterprise mining community exists to serve the resource development company. It is therefore reasonable that the mining company should provide the major financial support for the new community. In the following discussion of financing for the non-permanent community, financial policies are set out separately for the two stages of initial development and continuing operation.

Development Stage: In establishing a new town, there are two main groups of necessary investment, these being improvements and housing.

In the new town, the entire sewer, water, electrical, transportation and recreational facilities must be provided within a short period of time.

It is a good policy to have these facilities developed prior to the actual occupancy of the townsite. However, considerable capital is needed for this development. For instance, the cost of municipal facilities for 3000 housing units in the new town of Elliot Lake was reported to be \$23 million.⁸ Based on these costs, a community of 300 houses would require 2.3 million for municipal facilities, assuming the same density of development and level of services.

In the Province of Manitoba, the resource development company is required to supply the initial capital and to undertake the installation of community utilities.⁹ This principle can be applied in the non-permanent town and modified as follows:

(a) Municipal improvements should be installed by a separate agency experienced in town development. The Board of Administrators should make the necessary contract for the townsite improvements with either private contractors or with the Provincial Department of Public Works. In the Province of Quebec, the provincial government has undertaken development work in the new town of Chibougamau.¹⁰

(b) The initial capital outlay for the development of the townsite should be made by the Province. This capital would be paid back, both principal and interest by the mining company over a period of five years, or a period of 50 per cent of the economic life of the proven resource, whichever is the shorter. The capital can then come from the returns of the mining operation rather than pose as a prerequisite to mine and townsite development. A similar policy was proposed for the financing of new mining townsites in the Province of Manitoba.¹¹

The financing of housing in the non-permanent community poses a slight problem. The element of physical mobility provides for the re-use of the buildings, and hence a high salvage value is placed on the housing. However, the absence of land as collateral under a system of leasehold prevents normal financing under the provisions of the National Housing Act. Section 40 of the Act does provide for direct loans to such persons as are not able to obtain loans from private lending institutions. It would appear that the financing of housing in the non-permanent mining community would be done under this section of the Act.

To avoid the company-town environment, the mining company should not provide housing in the non-permanent community, other than a few necessary units for company use. Rather, it is proposed that the

Board of Administrators provide housing in the community. The Board of Administrators would contract for the housing under specifications in agreement with the Central Mortgage and Housing Corporation and the requirements for physical mobility. These units would then be sold to private owners who would either relocate their own houses, or be merely leased to the residents should the residents so desire.

Operation: Once the townsite is established, there will be annual operating expenses in the town. In more permanent communities, the revenue to pay for these expenses comes from: land sales, land taxes, licences and fees, provincial grants, and possibly, municipal enterprises. However, in the non-permanent community, the revenue will in the main be restricted to leases and provincial grants. In addition, the municipality will also receive payment from the mining company in lieu of taxes, should the mine plant lie outside of the incorporated area.

The non-permanent community would qualify for the provincial grants-in-aid for schools and social welfare. It will also obtain some revenue from the sale of utilities and services. The community will receive a contribution from the mining company under one of the following suggested methods:

(a) By extending the powers of taxation of the municipality to cover the physical plant of the mining company.

(b) By charging the mining company a flat annual rate per company employee living in the community.¹²

(c) By setting up a formula for annual payments to the community as a percentage of the town's operating expenses, after the costs of schools and operation of utilities are deducted.¹³

It is not the purpose here to discuss in detail the merits of each of these methods, but rather to point out that there are methods by which the single-enterprise community may obtain revenue to defray the annual operating costs.

NOTES

1. Hilberseimer states that: "If we want to create spaciousness in a comparatively small room, we must think of the size, shape, and arrangement of the windows; of the size and particularly the height of the furniture and its arrangement. Light colours make small rooms seem larger; dark colours make them look smaller. A competent architect can make relatively small rooms look larger." L. Hilberseimer, The New City: Principles of Planning, Chicago, Paul Theobald, 1944, p. 76.
2. "Sewage Atomizer For Every Home?" Financial Post, vol. 54, No. 2 (January 9, 1960), p. 28.
3. Claude Langlois, L'Amenagement Des Villes A Industrie Extractive Du Subarctique, Master's Thesis, McGill University, 1957, pp. 284-285.
4. Norman Pearson, "Elliot Lake: Experiment In Conformity," Town and Country Planning (May 1959), p. 202.
5. It is important to note that there is a problem in the leasing of Crown land, namely, that the Crown cannot be bound by its subjects. Therefore, it must be clearly spelled out in the enabling legislation that leases and community development schemes and regulations shall apply only to Corporate and private interests, and not to the Crown.
6. Queen's University, Institute of Local Government, Single-Enterprise Communities In Canada, by H. W. Walker, Ottawa, Central Mortgage and Housing Corporation, 1953, p. 73.
7. Henry Sears, "Report On Elliot Lake," Journal of the Royal Architectural Institute of Canada, vol. 35 (October 1958), p. 391.
8. Robert J. Stinson, "Mobile Homes - Low Cost Family Shelter," Engineering News-Record, vol. 160, No. 3 (January 16, 1958), p. 47.
9. Manitoba, Department of Industry and Commerce, Economic Survey of Northern Manitoba, by Arthur D. Little, Inc., Cambridge, Mass., 1958, p. 148.
10. Claude Langlois, "Out Mining Towns: A Failure?" Community Planning Review, vol. 7, No. 1 (March 1957), p. 54.

11. Manitoba, op. cit., p. 153.
12. A current policy in the Province of Manitoba. See: Manitoba, op, cit., p. 150.
13. Loc. cit.

CHAPTER VI

APPRAISAL OF THE NON-PERMANENT COMMUNITY APPROACH

A study of this nature is incomplete without an assessment of the shortcomings as well as the benefits of the proposed concept and general approach. Further, since the study has dealt heavily with the physical community, there are obvious weaknesses, primarily in the need for supporting studies in the social implications of physical non-permanence in communities. The limitations and the value of the proposed approach of non-permanent mining communities are therefore briefly discussed in the following sections.

Limitations

In the short space of this study, it is impossible to cover in detail all the questions which would arise in the course of non-permanent community development. Some of these, however, are discussed below.

The first limitation is concerned with the physical mobility in the structures of a community. Essentially, the concept hinges on the re-use value of the structure, that is, relocation as opposed to desertion and eventual disintegration of the structures in the form of a ghost town.

Technically, a completely mobile town is not possible. There may be population mobility, and there may be structural mobility. However, the population of the community require services and utilities and these are essentially fixed to the land on which the community is established. Hence, the non-permanent community is a community of limited mobility.

At present in Canada, there are no standards for the construction and design of mobile or trailer homes. Although the use of the mobile home is not precisely prescribed in this study, this fact is of importance. This will necessarily be the case for any innovation in construction and design. Therefore, there must be an established building code which employs performance standards that will permit the use of new materials and construction techniques. This is a necessary precondition for 'mobile' home construction, as well as for widespread acceptance and use of these structures.

Further, there is no production of 'mobile' homes in Canada except for trailers and various types of prefabricated structures. The 'mobile' home would be a factory-produced structure, and for economy, would be mass produced. Hence, a 'mobile' home industry must be developed prior to the establishment of the non-permanent community, a situation which may call for government participation to initiate the industry.

A second limitation is that the approach of non-permanent communities is valid only where there is staged a co-ordinated regional development. The non-permanence of the community enables it to be relocated to serve new mining activities when previous ones terminate. This demands that there be long range planning for mineral resources such that new mines are brought into production when others expire and thereby requiring the provision of the original town. This is also a pre-condition for the approach, and demands much more co-ordination and co-operation of the mining companies with the provincial governments and the regional planning agencies than exists at present.

Also on the regional level, there is need for a developed ground transportation system. A regional rail and road system is essential for the movement of structures into the region, and over long distances within the region. However, the structures may be moved from one townsite to another by means of skids and tractor train over frozen ground in the winter. A regional road pattern would permit relocation at any time during the year.

A third limitation to the approach is that new mining operations are not necessarily undertaken by the original mining enterprise. There are possible conflicts here in that the employees of one company would not necessarily be hired by a subsequent company, primarily because of: age and health requirements for pension schemes, the scale of mining operation, and differing union membership. However, with the provision of a civic housing agency, the residents would be able to sell their houses and be free to seek employment elsewhere. The new employees would then rent or purchase the house from the agency.

The fourth limitation of the approach is in the sociological area. No account has been taken of the social acceptance of physical mobility in community development. There may be a great problem in successfully integrating physical mobility and flexibility with a socially acceptable

living environment. The social implications of such an approach must be carefully gauged before embarking on a programme of non-permanence. It is known that there is considerable residential mobility today that is population movement within and between communities, especially in single-enterprise communities. Since, the object is not to promote residential mobility or unstable households, it is essential that further study be made of the social implications of the approach. The needs, attitudes, and living habits of the population living and likely to live in mining communities will condition the degree of mobility that can be built into new mining communities.

A further social element that must be considered in applying the concept of non-permanence to settlement, is the ability of a non-permanent community to retain a retired population. Elderly residents may not be able to stay in the community in view of the need for mobility and the relocation of the community. If these people depart from the community, there will not be a normal population cross-section in the community. However, it may be possible for retired residents to own homes in the community and to take active part in the affairs of the community, and to move with the town when it is relocated.

Value

The value of the proposed approach of non-permanent communities is discussed in this section in terms of the benefits to be gained in the fields of economic development, regional planning, and community planning.

One of the major objectives of economic development is to increase production with a resultant increase in opportunities for employment and consumption by the population. The economist would view town development and the provision of housing as contributing directly to income through facilitating development. The provision of good living conditions in a community does not necessarily increase production, and in fact, may absorb capital which could be applied more productively elsewhere. However, the approach of providing non-permanent mining communities does have value in both the long run and short run in economic development.

The provision of a townsite is an essential co-operant resource in making a natural mineral resource an economic resource. In the long-run picture, the approach provides continuity in employment in the mining

industry when used in conjunction with staged mineral exploitation. The approach would permit the maximum utilization of the mineral resources of a region through this staged development of resources. The approach also would permit the entry of mining companies into production without the high initial capital investment required in townsite development, a short-run benefit; and without the waste or loss of capital through the abandonment of the structures of the mining community, a long-run benefit. A community having a high re-use value would free capital that would have been required to build a new community for use in the development of additional mining activity.

The chief value of the approach in regional planning is the provision of a flexible regional settlement pattern. The settlement pattern arising from pure resource development may not be the best pattern for permanent regional development. In mining areas, the unseen resource makes difficult the prediction of trends and location of development, and to plan a permanent town where there is little possibility for a long community life is, by definition, not good regional planning. The approach of non-permanent communities provides a tool for coping with situations where permanent regional centres may not be possible. A non-permanent community would be established to accommodate the personnel of a resource development company. Upon termination of the resource activity, the town would be moved to a new location and re-established or absorbed into a permanent community more favourably situated. Such a tool would avoid the development of a regional pattern of shack towns and eventual ghost towns which has been a common feature of development to date. At the same time, it would permit the development of a desirable settlement pattern. In this way, the extractive industry community need not prejudice the pattern of a permanent settlement.

The value in community planning is chiefly that planning would be extended to all mining communities, and that planning would be a continuing function in townsite administration. Planning would provide the best possible living environment with the elimination of the disadvantages of the Company town. Community planning would be carried out by professional planners experienced in new town development. Through the implementation of a community development scheme, there would be orderly development with the prevention of undesirable townsite and extra-territorial development. Further, the approach of non-permanent communities would permit the development of social contacts within the community which need not be lost when the mine expires since the community

as a whole would be transferred to a new site. The approach would permit the preservation and continuity of these social values and community friendships which would normally be broken and lost with the termination of the mining activity.

BIBLIOGRAPHY

Books

- Antony, Hugh. Houses: Permanence and Prefabrication.
London, Pleiades Books Ltd., 1945.
- Cowgill, Donald O. Mobile Homes: A Study of Trailer Life.
Philadelphia, University of Pennsylvania, 1941.
- Hilberseimer, L. The New City: Principles of Planning.
Chicago, Paul Theobald, 1944.
- Jessup, Elon. Motor Camping Book. New York, G. B. Putman's
Sons, 1921.
- Kelly, Burnham. The Prefabrication of Houses. New York,
John Wiley and Sons, Inc., 1957.
- Meloan, Taylor, W. Mobile Homes. Homewood, Ill., Richard
D. Irwin, Inc., 1954. (Indiana University School of
Business, Study No. 37).
- Michelon, L. C. How to Build and Operate A Mobile-Home Park.
Chicago, University of Chicago Press, 1959 (copyright
1955).
- Robinson, Ira M. New Industrial Towns On Canada's Resource
Frontier. Chicago, University of Chicago Press, 1962.
(Department of Geography Research Paper No. 73).
- Stein, Clarence S. Toward New Towns For America. Liverpool,
Liverpool University Press, 1958.
- Taylor, P. M. From The Ground Up. Toronto, McGraw-Hill, 1948.
- Underhill, Frank H., ed. The Canadian Northwest: Its
Potentialities. Toronto, University of Toronto Press,
1958.

Reports and Pamphlets

ASPO. The Changing Function of Trailer Parks. (Information Report No. 84). Chicago, The Society, March, 1956.

Bartley, Ernest R., and Bair, Frederick H. Mobile Home Parks And Comprehensive Community Planning. (Studies in Public Administration, No. 19). University of Florida, Public Administration Clearing Service, March 1, 1960.

Canadian Mobile Home Association. News Release. Toronto, The Association, January - September, 1959.

Consolidated Mining and Smelting Company of Canada Limited. Fifty-Second Annual Report for the Year Ended Dec. 31. 1957. Montreal, The Company, March 13, 1958.

Duke, R.D. The Taxation of Mobile Homes. (Bureau of Business Research Report No. 12). East Lansing, Michigan State University, School of Business and Public Service, 1955.

Izumi, K., and Arnott, G. R. A Guide For Development: Uranium City and District. Community Planning Branch, Department of Municipal Affairs, Saskatchewan, May, 1956.

Lash, N. H. New Towns and Provincial Assistance. Record of Papers given at the 1956 Conference, Town Planning Institute of Canada, Banff, Alberta. Toronto, Town Planning Institute, pp. 28-31.

Massachusetts Institute of Technology, Department of Architecture. Plastic Structural Sandwich Panels In An Elementary School. Cambridge, Massachusetts, The Institute, September, 1959.

Mobile Home Manufacturers Association. Homes For The Mobile Population. Chicago, The Association, October, 1951.

Mobile Home Manufacturers Association. 1959 Mobile Home Fact Sheet. Chicago, The Association, 1959.

Mobile Homes Research Foundation. Today's Mobile Home Park Important To Your Community. Chicago, The Foundation, 1959.

Powers, M.K. Suggested Procedures For The Establishment Of A Mobile Home Park. Chicago, Mobile Home Manufacturers Association, 1959.

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

William Lougheed Associates. The Gold-Mining Community: A Study of the Problems of Economic Growth. Timmins, The Industrial Commission of the Town of Timmins, April, 1958.

Wirth, Louis. "Planning Means Freedom." Proceedings of the Annual Meeting of the American Society of Planning Officials, May, 1947. Chicago, ASPO, 1947, pp. 3-19.

Periodicals: Author Known

- Borth, C. "Rolling Homes Gather No Mortgages." Readers Digest, vol. 61, No. 336 (October 1952).
- Carlisle, Donald. "Maximum Total Recovery Through Mining High-Grade and Low-Grade Ore Together Is Economically Sound." The Canadian Mining and Metallurgical Bulletin (January 1953), pp. 21-27.
- Carter, E.R.E. "Canada's Position In The Mining Industry." Canadian Mining Journal (December 1959), pp. 74-78.
- Childs, Marquis W. "Company Town." The Forum and Century, vol. 100, No. 5 (November 1938), pp. 255-260.
- Eberts, Edmond H. "Arvida and Kitimat." Canadian Labour, vol. 3 (January 1958), pp. 10-13.
- Edwards, Frank. "Grass Around My Wheels." Mobile Life, (1959), pp. 16-18.
- Erskine, Ralph. "Town Planning In The Swedish Sub-Arctic." Habitat, vol. 3, No. 6 (November-December 1960), pp. 2-6.
- Faludi, E.G. "Designing New Canadian Communities: Theory and Practice." Journal of the American Institute of Planners, vol. 16 (Summer 1950), pp. 143-147.
- Fogarty, Frank. "Trailer Parks: The Wheeled Suburbs." Architectural Forum, vol. 3, No. 1 (July 1959), pp. 127-131.
- Gauthier, P.G. "New Industrial Townsites." Canadian Mining Journal, vol. 70, No. 7 (July 1949), pp. 77-78.
- Gilbertson, F. "Mobile Homes on Boom Trail." Financial Post, vol. 53 (April 18, 1959), p. 8.
- Gordon, Medwin R. and Connell, F.S. "New Towns In Scotland." Town Planning Review (January 1950), pp. 306-314.
- Harkness, Ross. "They've Struck It Rich In Uranium." The Star Weekly (January 5, 1952), p. 2, 8.

- Harrington, Richard. "What It's Like To Live In A Floating Village." The Star Weekly (January 10, 1953), pp. 6, 7, 10.
- Hobbs, W. E. "Planning New Towns In Northern Manitoba." Journal of Town Planning Institute, vol. 8 (August-October 1929), pp. 77-80.
- Humphrys, Graham. "Schefferville, Quebec: A New Pioneering Town." Geographical Review, vol. 48 (April 1958), pp. 151-166.
- Kaseman, Ruth C. "Home Means Take-Along Home to Construction Workers." Mobile Life (1959), pp. 8-13.
- Langlois, Claude. "Our Mining Towns: A Failure?" Community Planning Review, vol. 7, No. 1 (March 1957), pp. 52-63.
- Lash, S. D. "Planning Of Recent New Towns in Canada." Engineering Journal (March 1958), pp. 43-53, 58.
- Lotz, J. R. "Northern Settlements and the Squatter Problem." Habitat, vol. 5, No. 6 (November-December 1962), pp. 2-7.
- Ludlow, William H. "Trailers and Cities." The American City (October 1936), pp. 61-62.
- Lunny, V. "Branch Office On Wheels; New Mobility In Business." Financial Post, vol. 52 (June 21, 1958), p. 25.
- MacInnes, Bruce. "Housing On Wheels." Habitat, vol. 2, No. 4 (July-August 1959), pp. 17-19.
- McCaffrey, G. "Field Office, Bunkhouse, or Place to Live: Mobile Homes Fill The Bill." Canadian Business (August 1958), pp. 80-81, 83-84.
- McCall, C. "Brave New World Of Trailer Living." Macleans Magazine, vol. 7 (January 4, 1958), pp. 10-11, 30, 31.
- McKittrick, Larry. "Uses Galore For Today's Modern Mobile Homes." Mobile Life (1959), pp. 30-31.

- Marossi, Ruth. "Canada's Uranium Crisis." Bulletin of the Atomic Scientist (September 1961), pp. 281-286.
- Menhinick, Howard K. and Durisch, Lawrence L. "Tennessee Valley Authority: Planning in Operation." Town Planning Review, vol. 24 (1953-1954), pp. 116-145.
- Merrill, C. K. et al. "The New Aklavik: Search For The Site." The Engineering Journal, vol. 43 (January 1960), pp. 52-57.
- Newman, Peter C. "Deep River - Almost The Perfect Place To Live." Macleans Magazine (September 13, 1958), pp. 24-25, 64.
- Oberlander, H.P. "Canada's New Towns." Progressive Architecture (August 1956), pp. 113-119.
- Pearson, Norman. "Elliot Lake: Experiment In Conformity." Town and Country Planning, vol. 27 (May 1959), pp. 199-203.
- Pearson, Norman. "Elliot Lake: The Best Planned Mining Town." Canadian Architect (November 1958), pp. 55-61.
- Percival, R. N. "Elliot Lake: Another View." Town and Country Planning, vol. 28 (February 1960), pp. 61-65.
- Percival, R. N. "New Towns For Ontario: Short Study of the Origin and Design Techniques." Town and Country Planning, vol. 25 (February 1957), pp. 80-85.
- Perkins, Gord. "Tulsequah Progress Report." The Cominco Magazine, vol. 13, No. 12 (December 1952), pp. 19-21.
- Phillips, Alan. "Our Wild Atomic City." Macleans Magazine, vol. 70, No. 11 (May 25, 1957), pp. 30-31, 68, 70-71.
- Porter, McKenzie. "Elliot Lake's Glamorous Rise and Bitter Fall." Macleans Magazine, vol. 73, No. 25 (July 16, 1960), pp. 24-25, 37-40.
- Price, G. E. "Modern Housing For Miners." Coal Age, vol. 54, No. 10 (October 1949), pp. 94-95.

- Roberts, Anthony. "Design For The North." The Canadian Architect (November 1956), pp. 20-22.
- Robertson, Gordon. "Aklavik - A Problem and Its Solution." Canadian Geographical Journal, vol. 50, No. 6 (June 1955), pp. 196-205.
- Robinson, Cyril, and Beaver, Bert. "A House Goes To Sea." Weekend Magazine, vol. 10, No. 5 (January 30, 1960), pp. 12-15.
- Ross, W. Gillies. "Knob Lake on Canada's New Frontier." Canadian Geographical Journal, vol. 54, No. 6 (June 1957), pp. 238-245.
- St. Georges, Julien. "The Question of Mining Villages." Canadian Mining Journal, vol. 67, No. 1 (January 1946), pp. 24-28.
- Sears, Henry. "Report On Elliot Lake." Journal of the Royal Architectural Institute of Canada, vol. 35 (October 1958), pp. 391-394.
- Stinson, Robert J. "Mobile Homes - Low Cost Family Shelter." Engineering News-Record, vol. 160, No. 3 (January 16, 1958), pp. 40-45, 47, 48.
- Sullivan, Michael. "Capital Of The North." Habitat, vol 3, No. 3 (May-June 1960), pp. 7-10.
- Sullivan, Michael. "Down North." Habitat, vol. 3, No. 2 (March-April 1960), pp. 11-16.
- Swaminathan, V. S. "Gold Made California." Canadian Mining Journal, vol. 70, No. 7 (July 1949), pp. 74-77.
- Tennessee Valley Authority, Department of Regional Studies. "The Trailer House: TVA's New Approach to Mobile Shelter." Architectural Record, vol. 93, No. 2 (February 1943), pp. 49-52.
- Walker, H. W. "Canadian 'New Towns'." Community Planning Review, vol. 4 (1954), pp. 80-87.

- Walker W. C. "Sunnydale - A Model Mining Town." Mining Congress Journal, vol. 33, No. 6 (June 1947), pp. 40-43.
- Wank, Roland. "Planned Communities: A Speculative Survey of Their Future." Architectural Record (February 1943), pp. 44-48.
- Watts, Noel. "Kiruna: Sweden's Northernmost Mining Town." Geographical Magazine, vol. 28 (1955), pp. 231-241.
- White, Kenneth. "They're Carving New City Out Of The Bush." The Financial Post, Toronto (May 9, 1953), p. 17.
- Wilmath, Cliff. "The Inside Story." Mobile Life (1959), pp. 26-29.
- Wonders, W. C. "Parasite Communities In Newfoundland." Community Planning Review, vol. 3, No. 1 (1953), pp. 27-29.

Periodicals: Author Unknown

- "Canadian Characteristic: A Look At The Progress, Future Of Company Towns." Financial Post, vol. 49 (October 15, 1955), p. 32.
- "Chibougamau Area Gets Attention As Low Cost Facilities Provided." Northern Miner, vol. 41, No. 16 (July 14, 1955).
- "Company Towns, 1956: The Growth Of The Model Community." Time, vol. 67, No. 16 (April 16, 1956), pp. 100-101.
- "Construction Camp Model Towns On Miami Flood Works." Engineering News-Record, vol. 81, No. 13 (September 26, 1918), pp. 575-578.
- "Death In The Rockies." Time, vol. 56, No. 7 (August 14, 1950), p. 32.
- "Frobisher Bay, N.W.T. Federal Government Project For A New Town." Canadian Architect (November 1958), pp. 44-49.
- "Homes On Wheels." Business Week (December 7, 1940), pp. 46-48.
- "How Shall The Trailer Be Taxed?" American City (May 1937), p. 81.
- "How Will The Trailer Home Be Governed?" American City (March 1937), p. 111.
- "How They Planned A New Town In The North." Financial Post, vol. 49 (February 19, 1955), p. 55.
- "Labour and Social Effects of Migration By Trailer." Monthly Labour Review (May 1937), pp. 1189-1191.
- "Makes Trailers For One-Place Use." Business Week (July 17, 1937), p. 32.
- "Manitouwadge: A New Ontario Mining Community." Ontario Planning, Department of Municipal Affairs, vol. 4, No. 2 (1957).

- "Mine Hunting In The Lardeau." The Cominco Magazine,
vol. 19, No. 11 (November 1958), pp. 1-4.
- "New Town of Elliot Lake." Ontario Planning, Department of
Municipal Affairs, vol. 3, No. 3 (March 1956).
- "New Towns: Problems Of Design and Organization."
Journal of Royal Institute of British Architects,
vol. 54 (February 1947), pp. 207-216.
- "Old Timers To Be Honoured At Florida Show Nov. 24-28."
Trailer Topics Magazine, vol. 18, No. 11 (November 1954).
- "Seams Burst In Little Boom Towns." Business Week (October
13, 1951), pp. 70-72.
- "Sewage Atomizer For Every Home?" Financial Post, vol. 54,
No. 2 (January 9, 1960), p. 28.
- "Shelter Bay: Project For A New Mining Town On The
St. Lawrence." Canadian Architect (November 1948),
pp. 50-53.
- "The Falconbridge Story." Canadian Mining Journal, vol. 80,
No. 6 (June 1959), pp. 103-230.
- "The Old and the New Aklavik." The Canadian Architect
(November 1956), pp. 23-28.
- "Trailers: More and More Americans Call Them Home."
Newsweek (August 25, 1952), pp. 70-73.
- "Trend House Of The Arctic?" Financial Post, vol. 48
(October 23, 1954), p. 14.
- "Uranium City: Model Mining Town For Saskatchewan's Rich
Uranium Field." Saskatchewan News, Government of
Saskatchewan, vol. 6, No. 20 (July 10, 1951), pp. 2-3.
- "Welkdom - New Goldfield Town In The Orange Free State."
National Builder, vol. 30 (July 1951), pp. 422-426.
- "We Set Out To Fill A Two Fold Need." Mobile Homes and
Trailers (July 1959), pp. 15, 30.

Government Documents and Reports

Adams, Thomas. Rural Planning and Development. Ottawa, The Commission of Conservation, 1917.

Alberta, Legislature. Statutes of Alberta, 1956. Chapter 39.

British Columbia, Department of Mines. The Mineral Industry of British Columbia. Victoria, Queen's Printer, 1958.

British Columbia, Legislature. "An Act To Make Provision For Access By The Public To Company Towns." The Revised Statutes of British Columbia, 1948. Chapter 63.

British Columbia, Legislature. "Company Towns Regulation Act." Statutes of British Columbia, 1919. Chapter 14.

Canada, Department of Northern Affairs and National Resources. Resources For Tomorrow Background Papers. Problems Of Cultural Adjustment In Relation To Northern Resources Development, by H. B. Hawthorn, pp. 557-605. Ottawa, Queen's Printer, July, 1962.

Canada, Department of Northern Affairs and National Resources. Resources For Tomorrow Background Papers. The Kitimat Region, by N. H. Richardson, pp. 445-454. Ottawa, Queen's Printer, July, 1961.

Canada, National Research Council. Technical Note #302, unpublished report by the Associate Committee on the National Building Code. Ottawa, February, 1960.

Canada, Royal Commission on Canada's Economic Prospects. Canadian Secondary Manufacturing Industry, by D. H. Fullerton and H. A. Hampson. Ottawa, Queen's Printer, 1957.

Canada, Royal Commission on Canada's Economic Prospects. Mining and Mineral Processing In Canada, by John Davis, Ottawa, Queen's Printer, 1957.

Concord, Massachusetts. Ordinances. Municipal Code, Chapter 5, Trailer Parks. Ordinance No. 407.

- Kansas, Wichita-Segwick County, Metropolitan Area Planning Department. A Study and Analysis of Trailer Parks in the Wichita Metropolitan Area. (Report No. 58-2). Wichita, The Department, 1958.
- Manitoba, Department of Industry and Commerce. Economic Survey of Northern Manitoba, by Arthur D. Little, Inc. Cambridge, Massachusetts, 1958.
- Nevada, Reno, Sparks and Washoe County, The Regional Planning Commission. Trailers and Trailer Courts Truckee Meadows Area. Reno, The Commission, 1959.
- Newfoundland, Legislature. "The Trailer and Trailer Park Regulations, 1957." Newfoundland Gazette. St. Johns, Queen's Printer, August 6, 1957.
- Ontario, Royal Ontario Mining Commission. Report. Toronto, King's Printer, 1944.
- Ottawa, Parliament, House of Commons. National Housing Act 1954, 1959. (2-3 Elizabeth II, Chapter 23).
- Quebec, Legislature. "Loi Des Villages Miniers." Statutes of the Province of Quebec, 1941, Chapter 246.
- Quebec, Legislature. "Loi Des Villes Miniers." Statutes of the Province of Quebec, 1952-1953. (1-2 Elizabeth II). Chapter 24.
- San Diego, City Planning Department. Homes on Wheels, Part I. San Diego, California, The Department, March, 1959.
- United States, Federal Housing Administration. Minimum Property Requirements For Mobile Home Courts. Washington, D.C., G.P.O., January, 1957.

Encyclopedia Articles

- "Aklavik, N. W. T." Encyclopedia Canadiana, 1958, vol. 1,
p. 93.
- "Burnt Creek, Quebec." Encyclopedia Canadiana, 1958, vol. 2,
p. 143.
- "Ghost Town." Encyclopedia Canadiana, 1958, vol. 6, p. 363.
- "Goldfields, N. W. T." Encyclopedia Canadiana, 1958, vol. 4,
p. 384.
- "Lynn Lake, Manitoba." Encyclopedia Canadiana, 1958, vol. 6,
pp. 230-231.
- "Sherridon, Manitoba." Encyclopedia Canadiana, 1958, vol. 9,
p. 297.
- "Snow Lake, Manitoba." Encyclopedia Canadiana, 1958, vol. 9,
p. 346.
- "Yellowknife, N. W. T." Encyclopedia Canadiana, 1958, vol. 10,
p. 391.

Theses

Clegg, E. T. Single Enterprise Community of Settlements.
M. Sc. Thesis, University of British Columbia, 1958.

Langlois, Claude. L'Amenagement Des Villes A Industrie
Extractive Du Subarctique. Master's Thesis, McGill
University, 1957.

Ridge, F. Gerald. General Principles for the Planning of
Sub-Arctic Settlements. Doctoral Thesis, McGill
University, 1953.

Correspondence

- Campbell, J. Ed., Director, Division of Reservoir Properties, Tennessee Valley Authority, Knoxville, Tennessee, January, 15, 1960.
- Connelly, A. B. Chief, Engineering Division, Northern Administration Branch, Canada, Department of Northern Affairs and National Resources, Ottawa, February 18, 1960.
- Couillard, Robert G., Chief Information Officer, Central Mortgage and Housing Corporation, Ottawa, September 14, 1962.
- Goody, Marvin, E., Assistant Professor of Architecture, Department of Architecture, Massachusetts Institute of Technology, Cambridge, Massachusetts, January 26, 1960.
- Henderson, David G., Associate Planner, Province of Manitoba Planning Service, Winnipeg, Manitoba, January 25, 1960.
- Hunt, Geo., Chief Information Officer, Central Mortgage and Housing Corporation, Ottawa, January 19, 1960.
- Marchant, Renee, Canadian Mobile Home Association, Toronto, September 24, 1959.
- Ortner, G. S., Assistant Manager, Personnel Division, The Consolidated Mining and Smelting Company of Canada Limited, Trail, January, 15, 1960.
- Powers, Marshall K., Director, Park Division, Mobile Home Manufacturers Association, Chicago, September 15, 1959.