



**A LINEAR DEVELOPMENT
ACROSS
CHURCHILL RIVER**

MASTER THESIS - FACULTY OF ARCHITECTURE
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" As we shape our buildings,
so they shape us."

- winston churchill -

GOAL

To help develop Churchill communities in every field of human activity and to help increase the degree of 'interaction' between people and things and ideas, in order to re-discover a common ~~scale~~ ^{scale} of human needs and value for the people of Churchill.
Ecological 'wholeness' -

This housing and renewal scheme, just like everything else should be, is considered to be part of the ecological wholeness. Individual human-being's identity is always related to his 'introvert' self, to other human-beings, to groups, and to the universe. Similarly, individual dwelling is always related to the family, to other dwelling units, to the community and to the natural

environment. Attempt is, therefore, constantly made at an indivisible interpretation of this total relationship.

Change-

Every age is an age of transition. Longing for stable conditions is an illusion. Industrial, scientific and technological developments have induced an accelerating rate of change (obsolescence) for all existing environmental relationships. So, the method of implementation of the scheme emphasises on coping with the trends towards change instead of basing on the measurement of existing conditions. Also, the realisation of the scheme is looked upon as a process rather than as an end-product.

Humanity, Tradition & Technology-

The continuity of change in space and time provides new dimension to humanity. Different nations' cultures formed at same or different periods of time have great possibility of creating 'diversity and variety' instead of 'conflicts' for humanity. I see positive in technological advances; but only as far as technology is under control. On the other hand, I conceive traditional values not as 'authority', but as inspiring sources on which further development bases. Also, technology makes possible a shift in emphasis from standards of minimum subsistence to standards of maximum performance. The sub-arctic type of 'sheltered-architecture'

though necessary, is not sufficient now. A positively controlled environment is urgently needed to facilitate the development of each individual to the fullest extent of his innate capabilities.

RACIAL DISCRIMINATION

Segregation

Whether we admit or not, racial discrimination does exist in Churchill society today. This is reflected clearly by another fact that all ethnic groups are segregated from one another. Thus, instead of having one integrated and healthy society, Churchill is broken down into 6 unrelated districts: The Flats (Metis & Cree Indians), Jockville (Metis & Cree); Downtown (Whites), Akudlik (Eskimos & Whites), Dene Village (Cheppewan Indians) and Fort Churchill (Whites and Eskimos).

Such a segregation of peoples is not just a happening; it is mainly the result of 'discrimination'.

The whites discriminate the non-whites; and vice-versa. But because the whites are at present in a better political, social, economical and technological position; it is the non-whites who suffer.

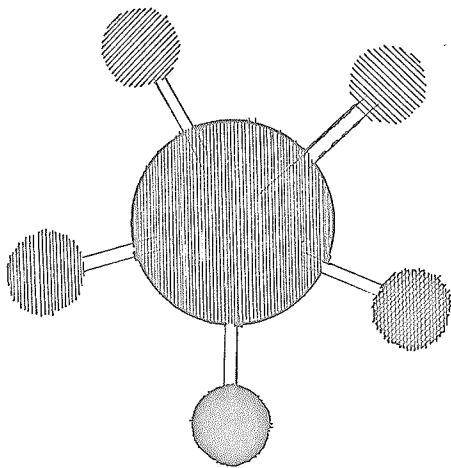
There is nothing more illogical than one's discriminating another man just because the other possesses body characteristics different from one's own (such as 'colour' or hair, eyes or skin). The belief that 'race and mentality' is correlated is absurd. For, comparisons of different peoples have to be made in terms of qualities of people which again have to be made according to individuals; because fundamental differences between groups cannot be assessed at all except on the basis of adequate knowledge of 'variation' within groups. Moreover, those differences

between individuals can provide valid data for assessment only if the individuals have been given 'equal opportunity' in receiving relevant form of education, training, etc.

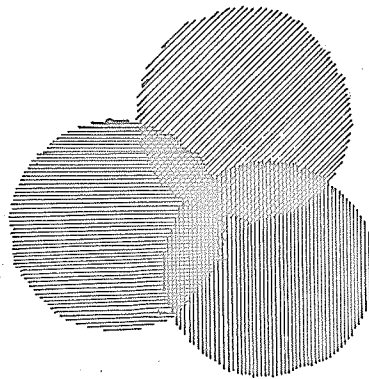
'values' and 'needs' are the other two important 'things' being viewed differently by different peoples. Since values and needs usually appear as the criteria against which goals are chosen; and since they are related to 'standards', there implies 'ought' or 'should' in the concept. Consequently, if a certain value or need is encouraged or prescribed in a certain society (e.g. the prevailing 'materialism' ideals in whites' societies), different values and needs of other societies (e.g. the 'non-materialism' ideals in Indian or Eskimo societies) will be depreciated and any action basing on them will be disapproved. It is of no wonder, therefore, that in Churchill, whose social goals bases on a non-Indian or a non-Eskimo value system, traditional cultures of the natives are not respected. For adapting themselves in a strange society, the native peoples are not provided with 'transitional environment' or 'transitional period'. For their way of life, they usually have to conform to the decisions made by the white man who often leaves them no 'choices and alternatives'. As a result, the education systems, economical assistances, cultural development, social welfare. etc. are usually not suitable for the native peoples. Often, they are superficially and short-sightedly planned, and are actually 'irresponsible'.

SEGREGATION

PHYSICAL INTEGRATION



ARTICULATION



FUSION

Physical Integration

Recently, the Department of Northern Development has been aware of the necessity of introducing some form of integration between the Whites and the Eskimos. The 'Eskimo-White' community in Akudlik is the outcome of such an awareness. In this community, the Eskimos are planned on purpose to live together with the whites in the same housing. (see map /)

At first sight, this integration seems to be successful: they are living in an environment much more comfortable and convenient than their old houses, shacks or even igloos. For a deeper look, however, this 'planned' physical integration of two peoples seems artificial. From an ecological point of view, physical integration such as this should be the outcome of natural growth and process. Although this can be guided, it can never be 'planned' and 'enforced'.

Thus this enforced physical integration fails to integrate the peoples together socially and psychologically. Instead, the identity of many elders of the Eskimos' families is lost; the gap between the generations are enlarged as a result of the younger ones being completely caught up in the whites' value system; and the peoples are still basically (socially and psychologically) not 'fused' together.

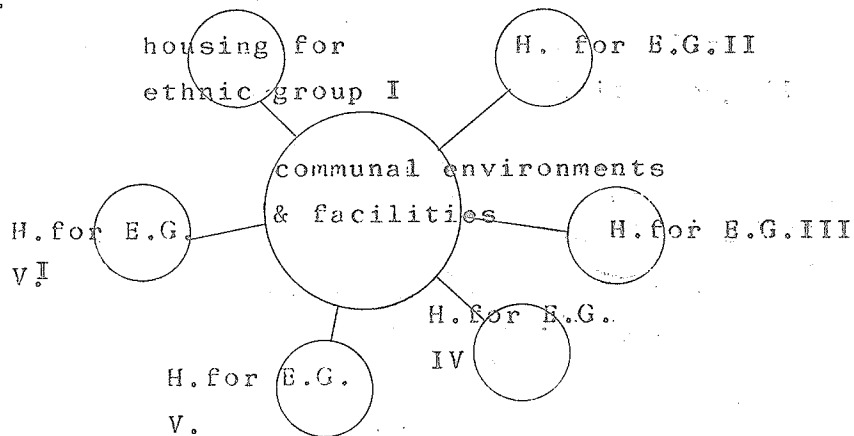
Articulation

To encourage the fusing process between any two cultures, a new approach should be sought out.

I propose therefore a concept of 'articulation' which aims at achieving 3 main objectives:

- 1) to help re-establish the 'identity' of human beings of different ethnic groups in an age of cultural 'fusion' and during the period of 'transition';
- 2) to replace the ineffective and inorganic approach of physical integration (which is planned and enforced) with one that allows 'choices and alternatives';
- 3) to offer equal opportunities to individuals of different ethnic groups to take part in social activities of all sorts.

One particular realisation of this concept in architectural or environmental terms is shown in the fig. below:



This concept allows a 'flexible linkage' which in turn allows individuals to have choices and alternatives in deciding whether or not he would like to 'mix' with individuals or groups of other ethnic backgrounds. Also, it provides opportunities and convenience for people to make such decisions as to when or where the 'inter-action' will take place. In short, this concept provides nothing

place. In short, this concept provides nothing more than the basic human rights which mean equality, freedom, choices and self-decisions.

Fusion

Articulation provides the favorable opportunity for cultural fusions to take root. It serves as a point of departure for further and deeper human contact to be developed.

Discrimination is a form of prejudice which is based mainly on 'misunderstanding', which actually forms the barrier that normally surrounds the self of human beings. Therefore, taking off the 'misunderstanding' barrier surrounding the human beings seems to be the prerequisite for obliterating discrimination. Since misunderstanding between groups or individuals results from the lack of effective communication between them, discrimination can be obliterated only if 'intimate contact' is sustained.

What environment is most suitable for encouraging this form of contact? The answer is one that is the most 'informal'. For, only when people meet one another in informal occasions, can they express themselves freely and easily. And only when they do discuss and exchange their ideas and opinions freely and easily can 'mutual understanding' be attained.

Community halls, churches, schools, museums, libraries, art galleries, restaurants, theatres etc... usually provides suitable informal environments for encouraging informal contact. Children groups, family groups and neighbourhood groups are the 3 basic groups of people

characterised by intimate contact and 'cooperation'. In Churchill, only the family groups still possess intimate contact among its members. Neighbourhood spirit and social interactions between groups, esp. between groups of different ethnic backgrounds are underdeveloped. It is therefore suggested that in renewing or in redeveloping Churchill community, objectives should be guided towards achieving a community atmosphere of good neighbourliness by whatever means available.

I suggested one of the most effective means to achieve such a goal is to encourage the carrying out of the 'cooperative housing schemes'. By this, it is meant that peoples of different ethnic groups or of different social status are encouraged to take active part in building their own homes. All those interested in taking part in the movement can contribute either in form of skill, money or labour; or in form of any mixture of them. Thus, whether one is poor or well-off, or whether one is Indian or White; one is entitled to build oneself a home. Such a proposal is not only feasible but in actual fact, schemes of similar character have long been carried out in most Northern European countries such as Sweden, and Denmark.

The most important effect of carrying such cooperative projects is the achievement in encouraging and forming cooperative spirit among those who have taken part in assisting the planning, programming, implementing, constructing or in maintaining; before, during or after the project is completed. By discussing together, or by working together, 'comradeship' is gradually established among the members. 'Neighbourhoodness' or 'community-

spirit' is created as a result of the daily, informal and intimate contacts sustained among the members. Peoples will know one another better. The 'misunderstanding barrier' and hence the 'racial discrimination' can thus be discouraged. Until then, whether these members are finally physically-integrated in these cooperative housing projects or not does not really matter much. For, the 'seeds' of 'community spirit or neighbourhoodness' have been sown. Physical integration or rather, 'fusion' of the peoples and their cultures is but a matter of time.

POVERTY AND HOUSING

'Poverty' can be defined as the lack of ability to maintain a decent standard of living OR as the state of having one's basic needs exceeding one's means and resources for satisfying them.' If the degrees of poverty are listed as 'poor' (being in want of comforts and convenience of life), 'very poor' (being in want of material necessities of life) and 'destitute' (being in abject condition); the majority of the people in Churchill are living in such poverty as ranging from 'very poor' and 'destitute'.

The reasons for the existence of the 'poor-majority' are many, some of them obvious and many of them difficult to trace out. The general ones, however, may usually be said to be the following:

- 1) lack of education
- 2) having too many children
- 3) being too old and without welfare
- 4) discrimination and unemployment
- 5) drinking too much
- 6) degradation

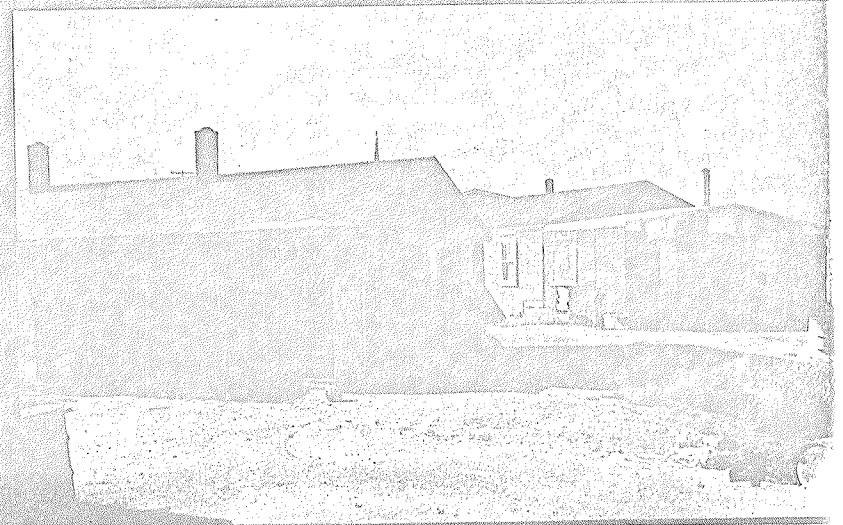
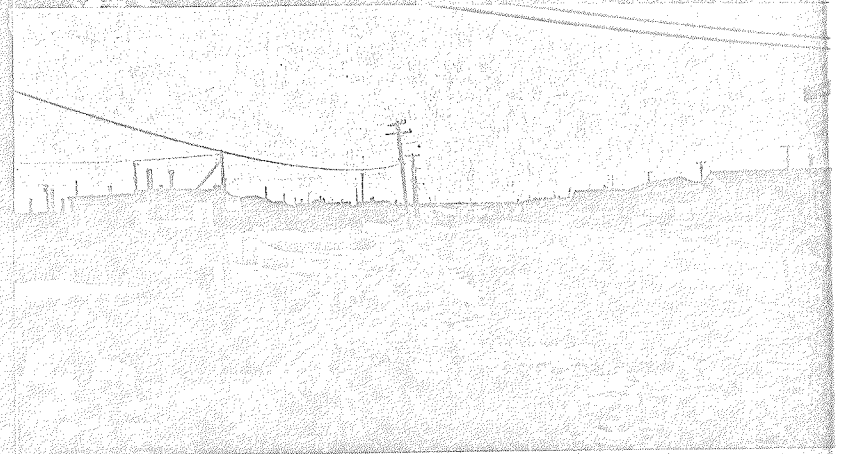
It is interesting to see that out of these 6 basic reasons, only Nos. 5 and 6 concern with the individual's introversion i.e. his attitude and behaviour. Even so, these two reasons are not sufficient or strong enough for blaming those individuals who commit them. For, these two reasons often have 'deeper causes', of which discrimination (in the case of Indians or Metis), unemployment and lack of opportunities are some. The poor have all been shaped by forces and factors of the society and their environments. Thus, it is not only usually true that 'poverty' is not 'sin'; but it is also true that 'poverty' is a 'tragedy'.

It is intended therefore that the housing schemes to be proposed will recreate a human environment for the 'majority-poor' of Churchill to maintain a decent standard of living. I don't pretend to say that the housing scheme can solve all the problems of the poor; but I do intend that it will help solving some of the most urgent ones.

A Home for everyone

The majority of the 'majority-poor' in Churchill are living in the Flats, in downtown, in Dene and in Jockville. They consist of Metis, Cree Indians, Whites, and the Chippewan Indians (Treaty) and some Eskimos. Some of them are working for the Harbour Boards and are employed only during the summer seasons. These are well paid whilst the jobs last. Some work for CN. Some are employed by the private and public enterprises in the town. The average monthly income of those employed is difficult to estimate since many of them are employed on the hour-basis and their jobs are only temporary and seasonal. Hence, although their 'calculated' monthly income may amount to \$400 or \$500 per month, they are actually earning much less each month. Winter employment is another difficult problem, especially for the Indians. On the whole, the income level of the 'majority-poor' in Churchill is low and the employments are of a less-permanent character.

In downtown, because of the high percentage of temporary residents in the area (e.g. many of the employees of the National Harbour Board are brought in during the shipping season and do not stay permanently in Churchill), the demand for accommodation is great.

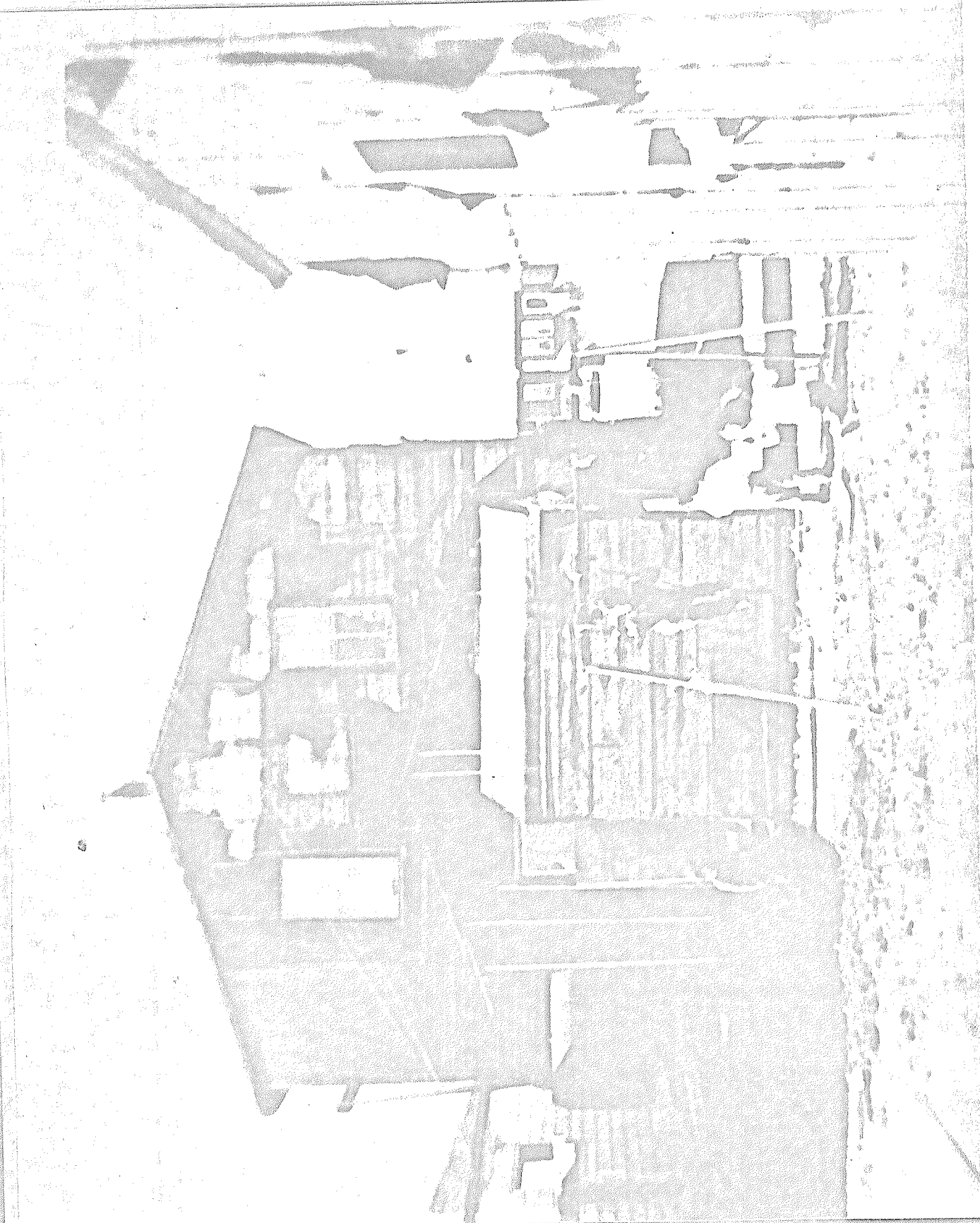


The summer job-seekers attracted by the Research Range and by Pan-Am from south each summer also increases this demand; since the Fort itself does not have sufficient housing to accommodate them, and so they have to seek suitable dwelling units in the townsite. This results in excessively high rents. The general rents are around \$60 to \$80. per month for a 3 or 4 room suite. It is too much for the low-income workers, who therefore have to live in tents, shacks or flimsy and sub-standard houses which are often erected by themselves with cheap building materials and sub-standard constructional technique. Most of these dwellings have been constructed in stages. This has been the usual practice, because of the extremely short construction season, or because of the small sum of money available at the time of starting the construction, to start with a small rectangular unit, adding to this year after year. (see plates 4) Sometimes, even a 'trailer' becomes part of the house-complex! On the other hand, many owners of the better houses try to take advantage of the rising demand of accommodation by converting their buildings to multiple use with little concern for health or planning by-laws; and this too, will help blighting the down-town area.

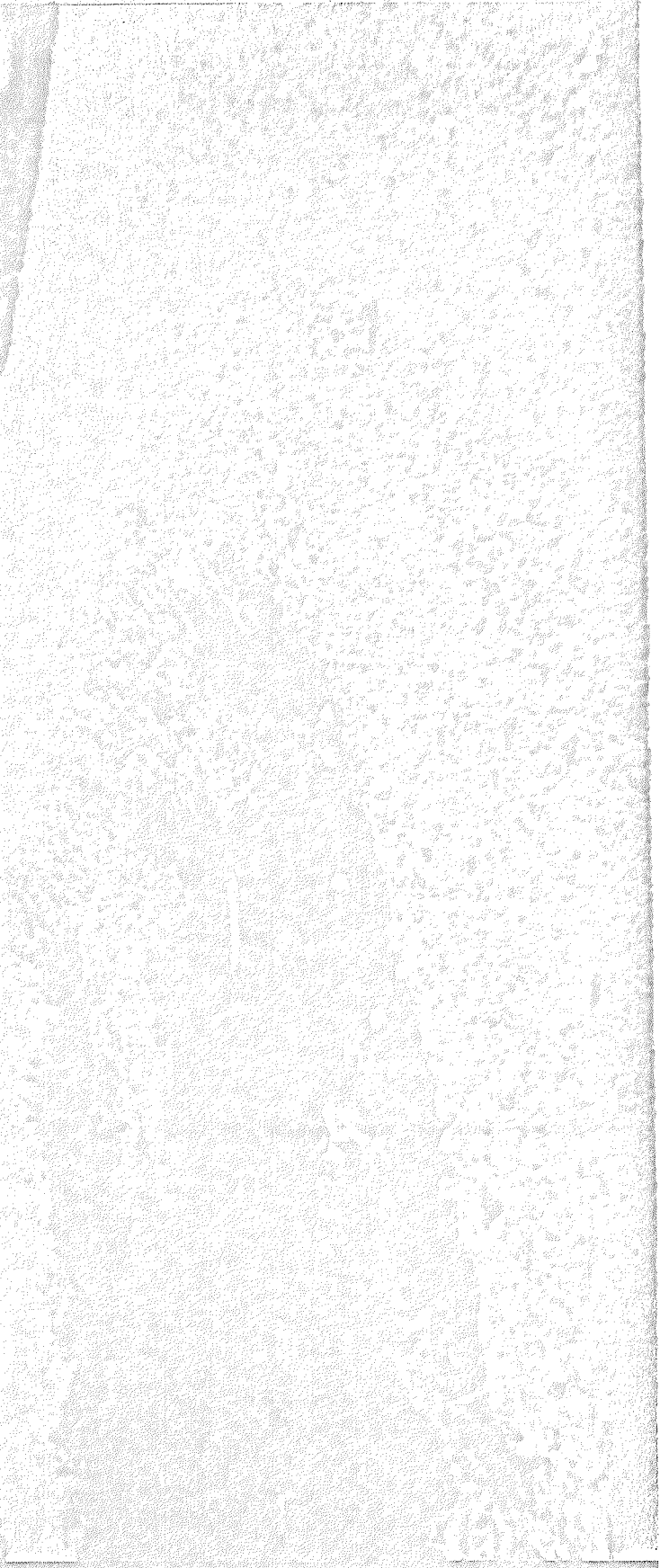
The plates shown on the next few pages give a general impression on the environments in which the 'poor-majority' in Churchill are living. These are their 'homes'! Or, these are their shelters which try to isolate them from the chaos that ever threatens to envelop them?

Churchill can wait no more. The fact that the poor majority in Churchill are not economically qualified by the CMHC lending programmes









makes the poor majority difficult to build themselves new homes by getting loans from the governments. It is ironic to see that those who are most in need of decent homes are those refused by the existing policy. It is therefore proposed that the existing housing policy should be mended such that even the poorest has a right to be supported by the governments financially and technically and to build himself a decent home. This proposal is feasible because:

- 1) as has been mentioned in report I, the governments have in fact long been paying the costs of 'health problems, liquor problems, delinquency etc.' So, it would be just as logical for them to pay such costs in preventive form, since such social pathology is but the 'outcome' of 'inhuman environment';
- 2) if the proposed (see p. 12) 'cooperative-housing' approach is adopted in the Churchill Renewal Scheme, those who are unable to pay for their house in the form of money are allowed to contribute in the form of personal labour.
- 3) with the help of the simplification of building technology and organisation, the quantity production method (industrialisation) will further reduce the cost of the housing projects in Churchill. This proposal of adopting the methods of 'prefabrication' and 'standardisation' will be discussed in a later chapter.

Diversity and Variety

It is always true that of all the strata in society, the poor have the slightest opportunity to experience varieties of social and cultural settings. In Churchill,

the poor majority seldom have chances to participate in any activity or rarely play roles of leadership. They see life rather unpatterned and often monotonous. This is why indifferent or phobias attitudes are so commonly built up among the poor, and especially among the Indians and the Metis who are both physically and psychologically segregated by the whites' society. It is therefore suggested that the housings should be well related to the neighbourhoods' and the community's facilities such that the latter can provide a variety of stimulating experiences for these people in developing their innate potentialities. For, only when they have chances to experience the diversity of human life can they have chances to change their attitudes from indifference or phobia to one which is more positive in their outlook on life.

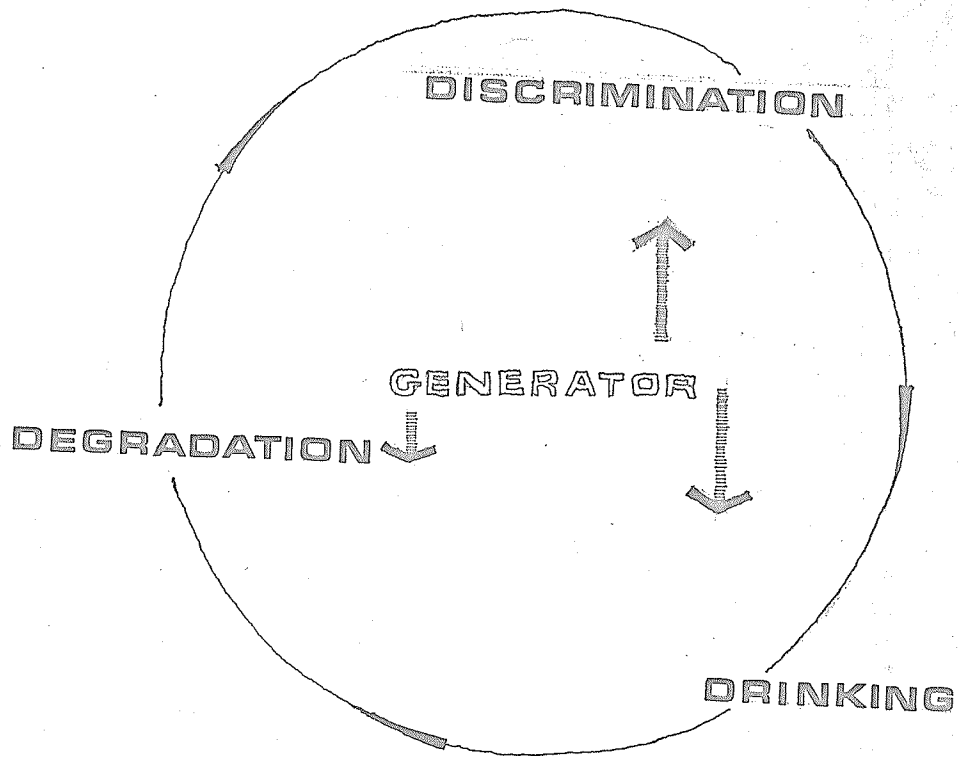
Mixed development

Diversity can further be enhanced by mixing groups of all income levels, or by mixing peoples of different ethnic backgrounds, or even by mixing the socio-economic activities of all sorts. The method of 'articulation' (see p. 9) should be used to facilitate the mixing in the first two cases because of certain social conflicts still existing in Churchill society (e.g. discrimination). In the second case, the mixing can be achieved easily if the attitudes of the people in Churchill on 'home-ownership' and on 'detached houses' can be changed basically from a 2-dimensional zoning-concept of urban development to a 3-dimensional space-approach.

The Indian-Metis Syndrome

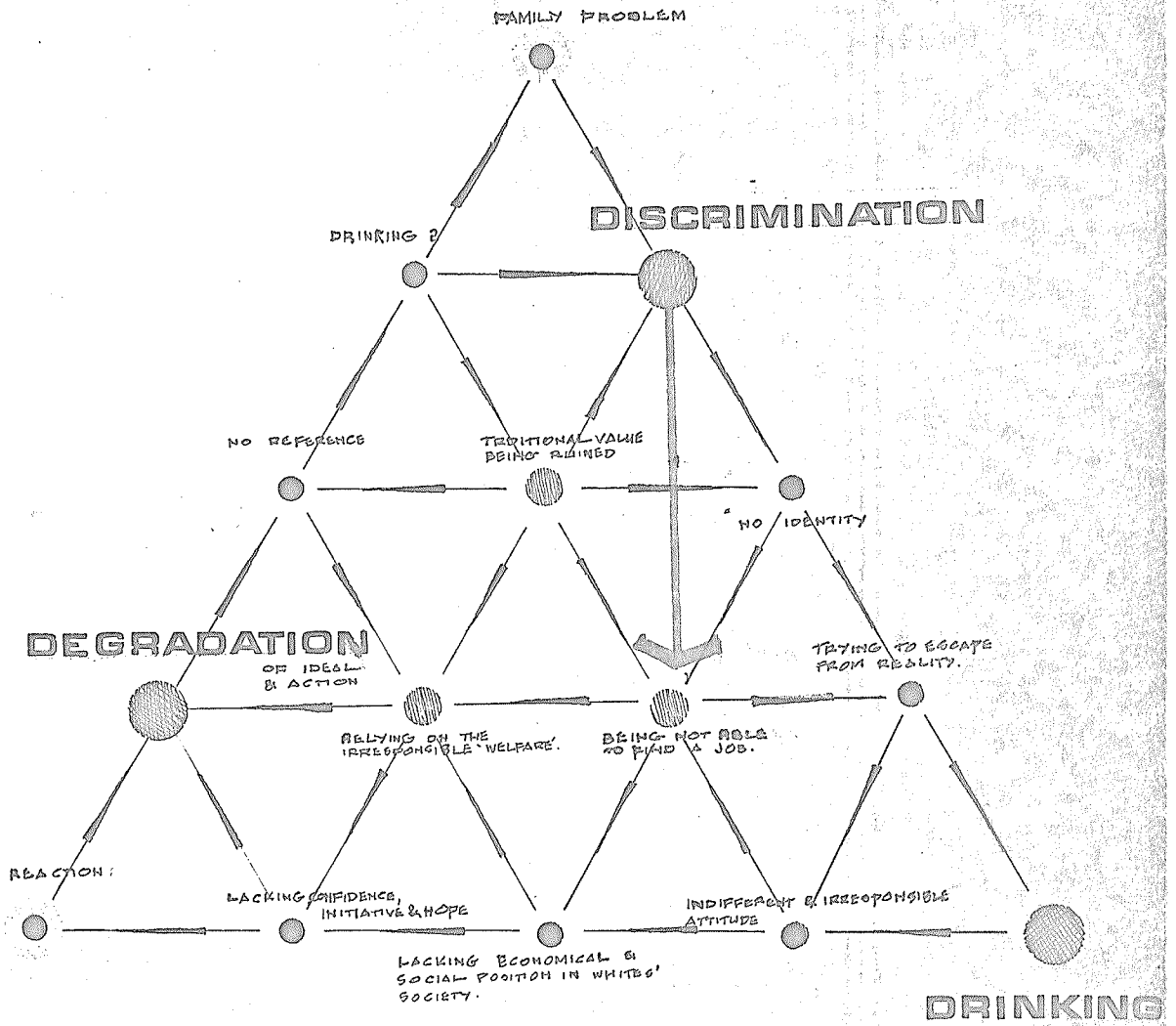
Many of the Indians and Metis in Churchill are leading degraded life. There are many causes for this. One of the most important one can be said to be due to 'discrimination' by the whites, (see. p. 6)

The figs. shown on the next two pages explain how this factor affects the life style of these particular group of natives. The first one shows that once 'discrimination' is generated (usually due to the misunderstanding existing between two cultures and two peoples having much differences in their value-systems) it finally leads to the natives' 'degradation' in their actions and in their ideals, through a transitional stage - 'drinking'. 'Degradation' again induces further 'discrimination' from the whites' society and thus closes the 'gap' and forms a cycle. The next one shows a 'syndrome' which reveals more deeply how these three problems are inter-related. The orange arrow in the fig. shows the most important and the most direct effect of discrimination on the natives ----- their being unable to obtain better jobs in the whites' society. Consequently, they have to rely on the 'irresponsible welfare' programmes (e.g. the Treaty Chippewans) or to look for labour jobs on which they can exercise little autonomy and has small opportunity to influence the conditions of work. (e.g. the Metis in the Flats). In both cases, their life styles are dull and monotonous. So, they finally lack confidence, initiative or even hope and thus try to escape from reality. Alcohol then provides them the means. By now, most of the causes leading to degradation have been created.



CYCLE

THE SOCIO-PSYCHOLOGICAL CYCLE
OF THE INDIAN/METS PROBLEM



SYNDROME
TRIANGULATION-OR-FORCES SYNDROME

Realising the syndrome of the Indians and Metis, it is suggested that the housing schemes to be proposed should be planned to provide jobs (both labour and skilled) for the low-income groups, especially the Indian-Metis. In order to make this plan work more effectively, a year-round 'construction period' is proposed. This is possible if 'prefabrication and dry assembly' method of construction is adopted (jobs in winter being mainly concerned with prefabricating the housing's component elements.)

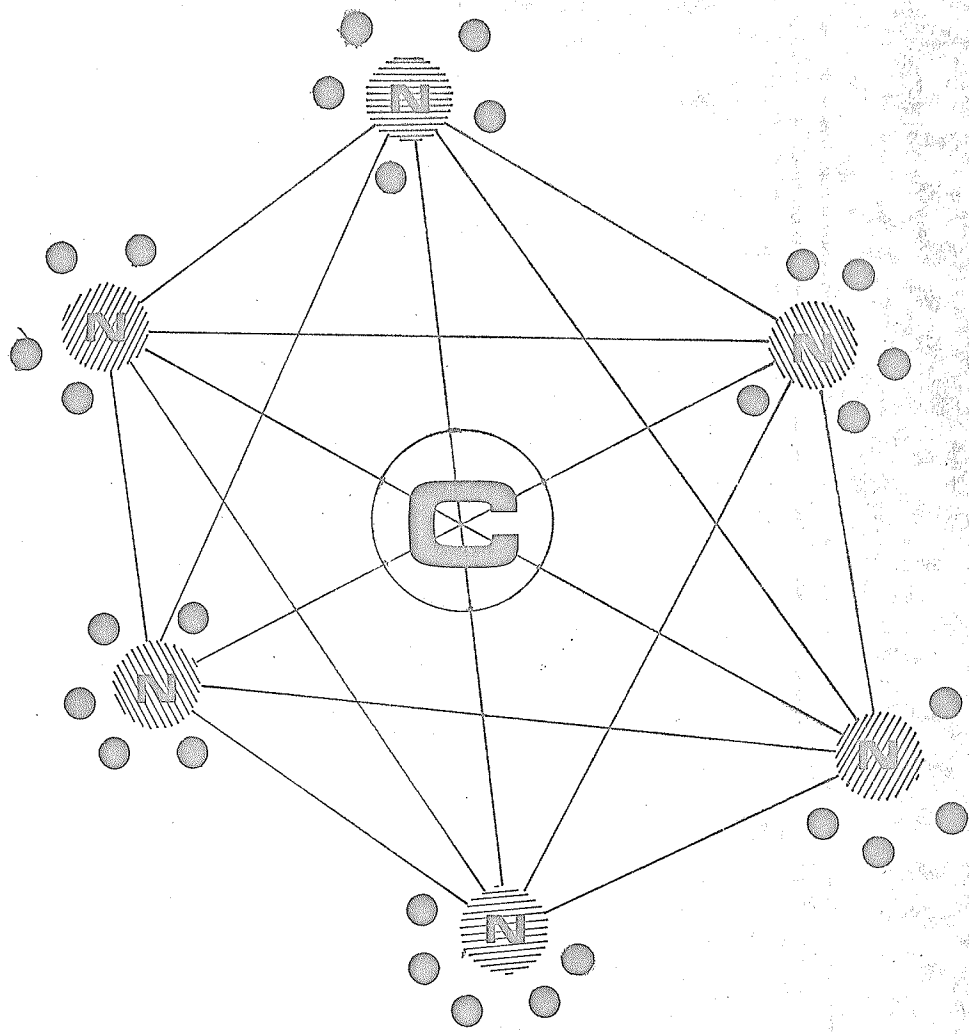
COMMUNITY AND NEIGHBOURHOOD

The Churchill society lacks vitality, not only because slum, blight, poverty, etc. exist; but also because of the lack of community and neighbourhood activities. For, human needs may range from the basic ones as for satisfying 'hunger', through the needs for 'physical and mental security' to 'comradeship, cooperation and love'. Desiring for such a hierarchy of human needs holds true for all. Whether one be a white man, or an Indian or an Eskimo, makes no difference. In fact, most Indians in the past may well be described to value highly the satisfaction for social needs. The Plains Indian (of which the Crees and the Chippewans forms a part) have had their band-units, tribes, clans etc. highly developed in which group-spirit was always considered to be their 'life-momentum'. Their sundances, and their tipis' layout (see fig. V) well reflect their affinity of social gatherings. The white men, on the other hand, also have long been accredited for being socially-orientated. The Greek-agera, the Roman-bath, the Middle-Ages' church, the Renaissance-square...and the contemporary city-hall, the community-centre, the plaza etc have long been contributing to sustaining and developing human contacts in different ages.

Let us look at Churchill, the northernmost and the frontier town of the Province of Manitoba. It stands isolated from other towns in the subarctic or arctic regions. Owing to its unique geographical position, it acts as the metropolis of those regions. Communities located in the Keewatin Region such as Eskimo point, Rankin Inlet, Baker Lake, Chesterfield Inlet etc. all rely

on the Churchill base for sustaining close contact with the south. For years, Churchill has set up an 'urban magnet' in the north; and has actually been attracting peoples from all directions in the regions. Peoples who come to stay in Churchill may have lots of different reasons (economic, social, psychological etc.); but they all have something in common: their hope to live in a better cooperated communal environment where they can secure a better living, have better services, have more comfort, etc.; and their determination to get rid of their hardship they have suffered elsewhere. This is true for the native peoples whose hardships mainly lie in the process of struggling with the harsh natural environment in the arctic region. This is also true for those white men who have come up to the north to escape from their unsuccessful life in the south. It may as well be said that the native peoples come to Churchill to avoid 'physical isolation'; and those white men who stay, 'psychological or social isolation'.

Therefore, the most urgently needed thing called for in redeveloping Churchill is to stimulate the latent community interest of the inhabitants. It is suggested that a well-planned and well-balanced hierarchical form of neighbourhood-system should be introduced. The principle of such a system is suggested by fig. shown on next page. and can be explained as one basing on a hierarchy of intensities of social activities or of forms of human contact. This principle, when applied together with the principle of articulation (see p. 9) to Churchill redevelopment, forms the main conceptual approach in solving Churchill's problems and in achieving higher goals for the peoples there.



HIERACHICAL NEIGHBOURHOOD SYSTEM
C - COMMUNITY CENTRE
N - NEIGHBOURHOOD CENTRE

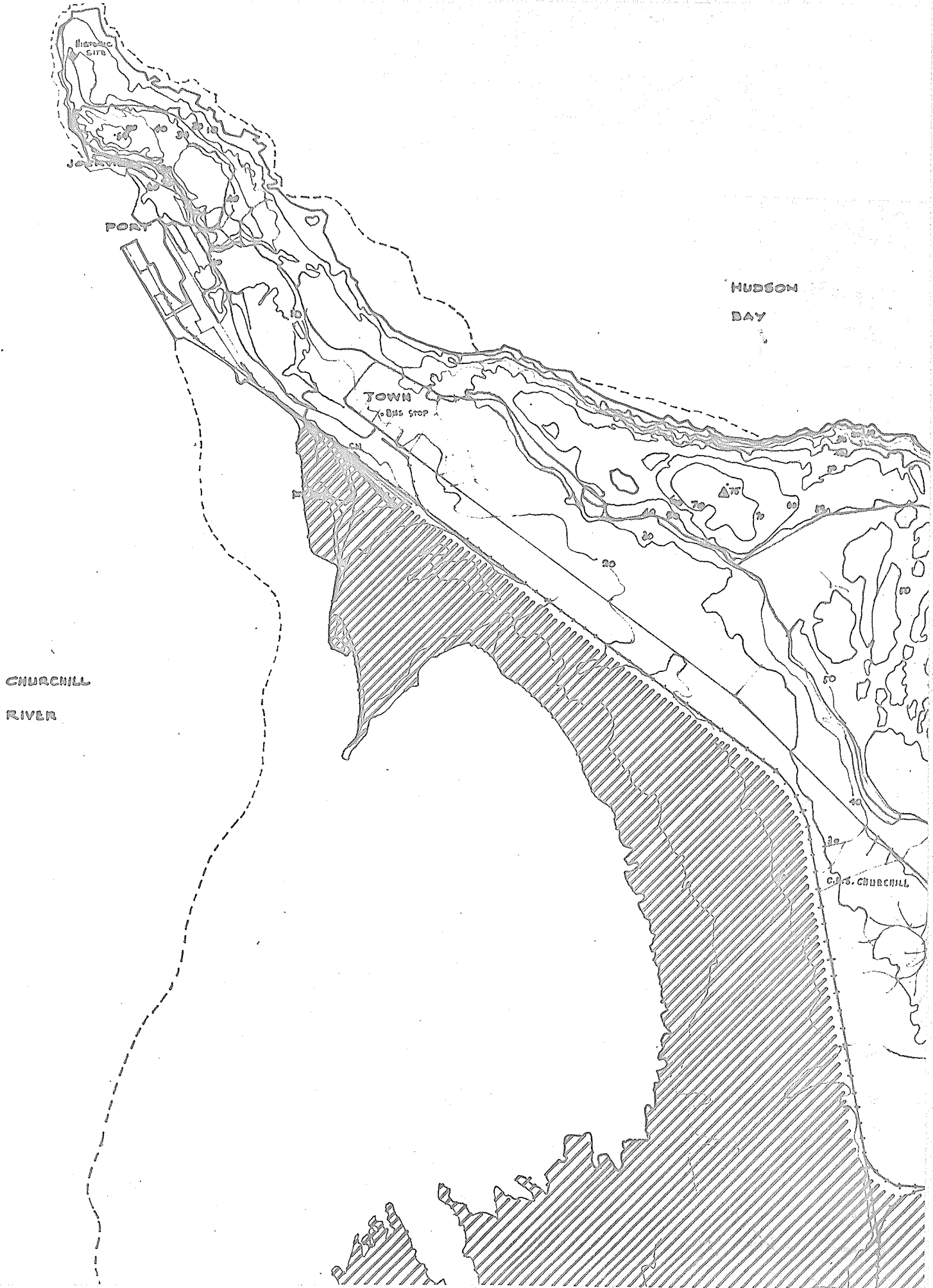
It is usually considered that half a mile is a right distance for one to walk from one's home to the local central districts without being uncomfortably tired. This is suggested to be the design criterion of the neighbourhood unit in this scheme. One thing should be noted, however, that the pedestrians' environment should be climatically well-controlled to offer the possibility for incessant human and group activities to take place. Vehicular traffic should also be segregated from the pedestrians such that even the aged or the children regain their right as 'pedestrians'.

It is very important that human scale should be recreated in the neighbourhood. Rejuvenation of society can never take root in urban areas of large scale; but only in local living space where human measures determine his space and time conception. The social initiative of the people in the neighbourhood would then originate and gradually reach out into a region of wider level.

Since Churchill society is at present highly divided into parts as far as 5 miles apart; and since these segregated communities should be respected in the process of redevelopments 'neighbourhood' approach seems appropriate for achieving the long-term goals ---the ecological fusion of peoples and their cultures. Moreover, neighbourhood units created actually offer 'transitional points' which articulate different levels of human interactions and contacts and enable any organic transformation of the existing communities work more fluently. In short, it makes possible the co-existence of a negative trend of withdrawing from isolation and a positive trend of searching for a new reality.

One practical problem would be raised if the population and its pattern of distribution are studied in relation to the neighbourhood system. For, most of the existing segregated communities have so low a population (i.e. except the Town and the Fort) that none of them is capable of financing on his own the building and maintaining the necessary neighbourhood facilities and services. Small communities such as the Flat, Jockville, Akudlik and Dene Village should combine themselves in one way or another or attach some of them to another larger existing community to form 'neighbourhoods'. The combination of these existing communities to form a new 'neighbourhood unit' may sometimes raise a lot of problems especially when they are located far apart. Ideally speaking, in Churchill scheme, if the Flats and the Jockville communities form with the existing downtown into one neighbourhood unit, the Akudlik and the Dene communities form another and Fort the third; there is a good chance for them to grow into a coherent 'Churchill Community'.

The map on next page shows the probability of such a growth. N1, N2 and N3 are the new neighbourhood units which set up fields of polar induction between N1 and N2 AND between N2 and N3. V1, V2, V3 and V4 are the induced forces which show the tendency of future growth. *FIG. X & map 2* that shows the tendency of 'Linear Growth' of the existing Churchill along the Kelsey Boulevard and within the V-area (i.e. the area north of the local railway line and south of the Hudson Bay) (see map no. 3) confirms the growth pattern. This is important. The location and character of the 'Churchill Community Centre' will rely on it.



Historic Site

PORT

PORT

TOWN

Bus Stop

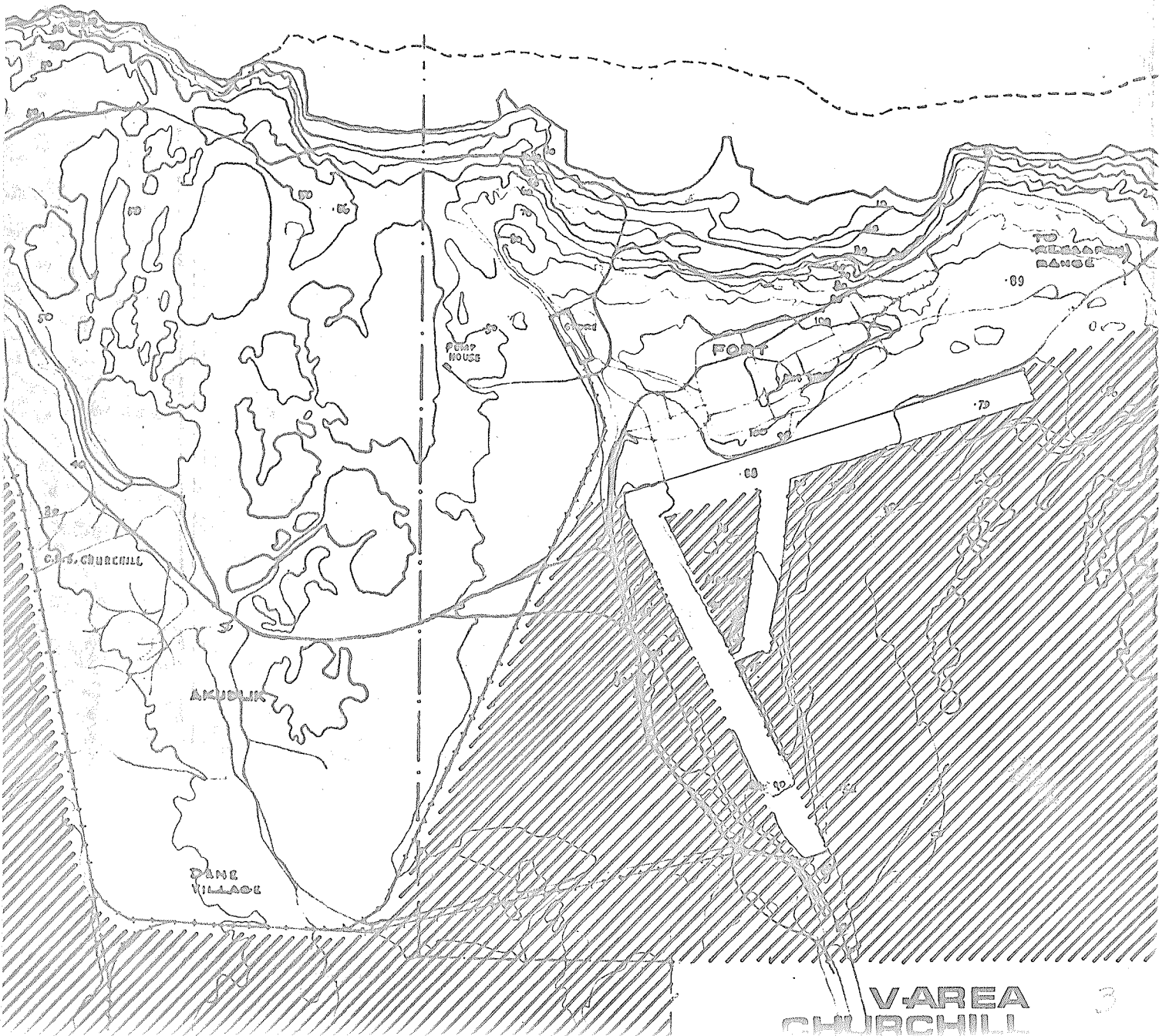
HUDSON BAY

BAY

CHURCHILL RIVER

RIVER

C.B.S. CHURCHILL



V-AREA
CHURCHILL

3

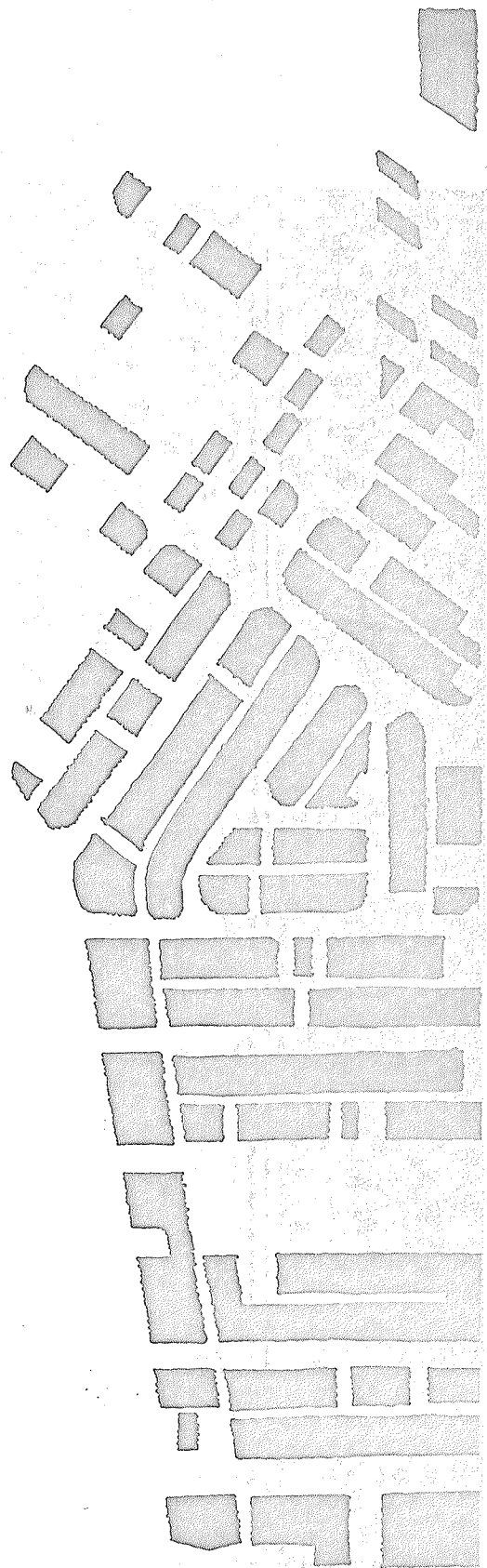
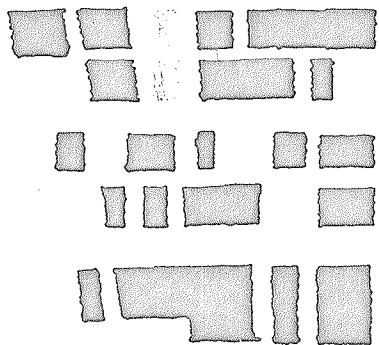
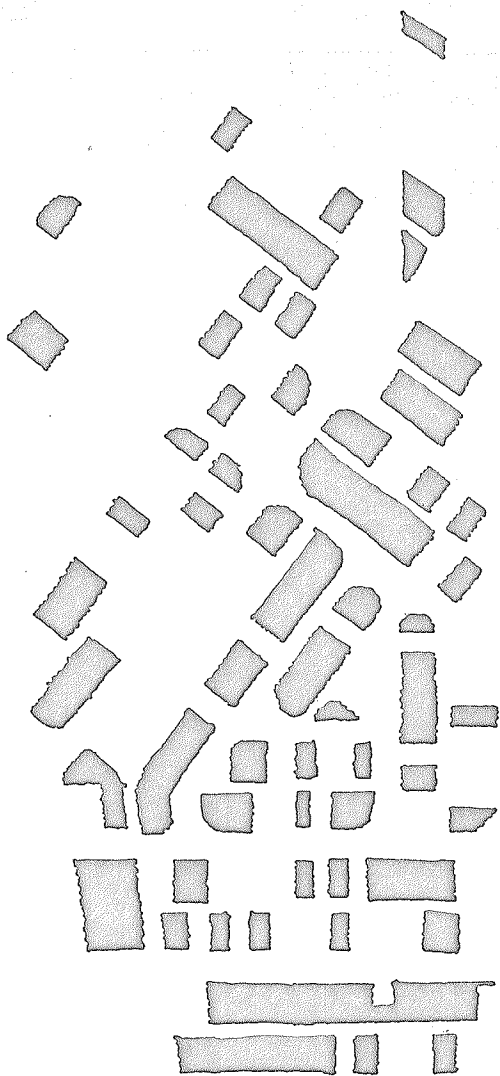
GROWTH SYSTEM
· LINEAR DEVELOPMENT

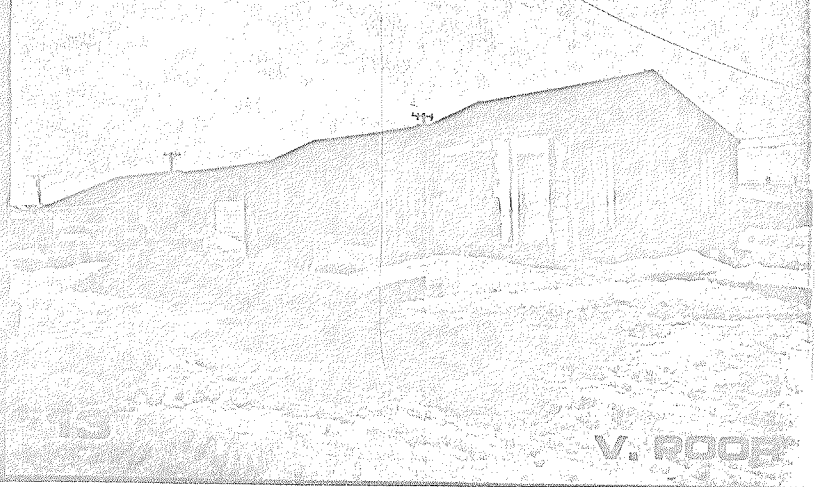
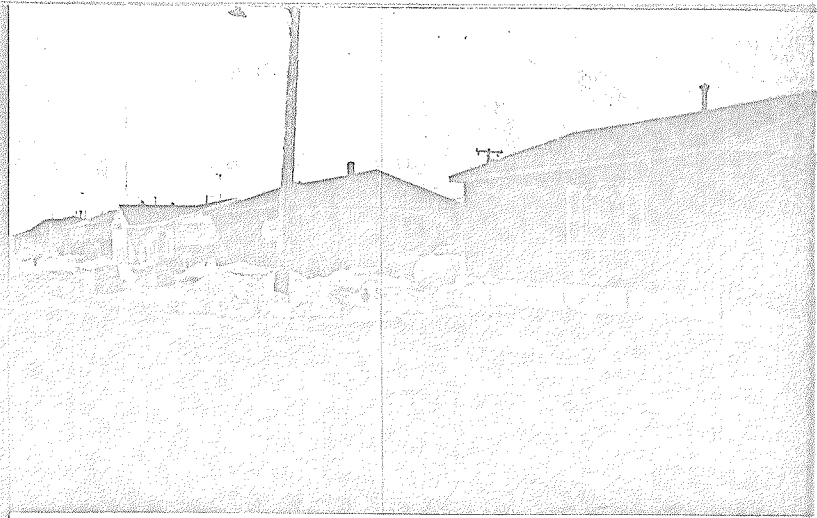
1

2

3







POOR

13

V. ROOF

REHABILITATION

Most of the existing buildings of Churchill (except those in the Fort) are substandard. If buildings are classified into categories according to their existing conditions such as the degree of deterioration, the adequacy of the necessary services and facilities and the age of the buildings; and if such categories range from say 'good', 'fair', 'poor' to 'very poor' (see plates B); it is estimated that over 70% of the houses in down town area and over 95% of the dwellings in Flats and Jockville stand between 'poor' and 'very poor'. A large portion of them are so seriously blighted that restoration for use through rehabilitation seems not practical and economical. The people living in these deteriorated houses should therefore be given the first priority in obtaining a new home in the housing scheme. If, owing to economic, social or implementing problems, a portion of them are unable to be accommodated in the new scheme and have to wait for one or more years before they can get their new homes, it is imperative (whether it is economical or not), on the basis of humanity, that they should be encouraged and assisted financially and technically by the governments and by other public or community organisations in 'rehabilitating' their living environments. To these, grants or loans allotted should be based on 2 considerations: the length of the waiting period and the degree of deterioration of the buildings. The longer the period of waiting means the need of application of the more elaborate form of rehabilitation; and the more blighted the houses are, the more items for improvement and repair are implied.

ACQUISITION AND RE-ALLOCATION

Many of the unsuccessful housing schemes fall down on the ground that the existing houses and inhabitants are often disrespected. The 'scheme' itself becomes the 'end' and human factor is ignored. That is the reason why so many of the schemes work with the so-called 'Bulldozer Approach' with which portions or the whole of the scheme area are cleared at the same time before construction (which in case of large projects may take several years to complete) begins.

To avoid such a mistake, a human-ecological approach should be adopted in Churchill Renewal Scheme. This means that human factor should be rediscovered to be the decisive criterion in the process of renewal; that the new housing projects are considered to be the 'continuation' or the 'offsprings' of the houses demolished; that the new is conceived as complementary to the existing or vice versa; and, which is by far the most important, that this to-be-proposed C.R.S. should never be looked upon as an isolated entity having a definite beginning and a definite end but only as a 'section' or 'portion' in the long process of Churchill's growth. And, the actual renewal process has always been going on: in the past, at the present or in the future whether it be planned and implemented or whether it be just 'evolving'.

With this concept in mind, therefore, people whose houses are to be acquired and demolished should be just as 'well cared' as those (who may or may not be the same people) who have had 'priority' to be first accommodated in the new housings. For these people, a period for psychological preparation is necessary

and should be allowed for, even after negotiations have been successfully made. Moreover, they should be provided with, whether temporary or not, environments (physiological, psychological and social) at least as good as they have had.

REDEVELOPMENT

The Churchill Renewal Scheme is conceived as one which when implemented forms a set of sequential stages in the ecological process of Churchill's growth. The act of renewing is therefore considered to have long been taking place. The CRS proposed will not start it and also will not end it: the scheme is 'open-ended'.

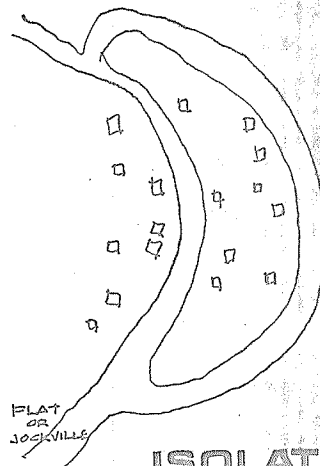
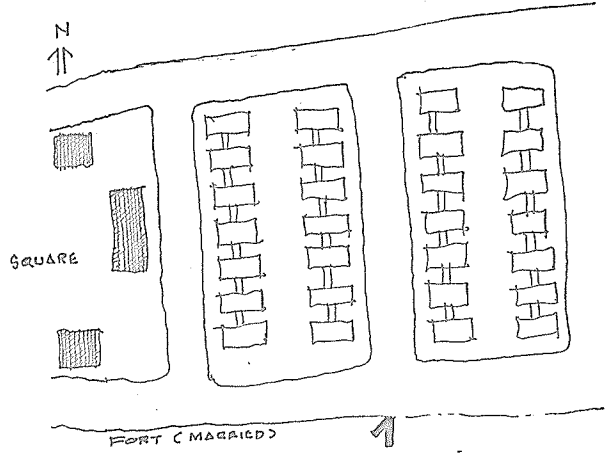
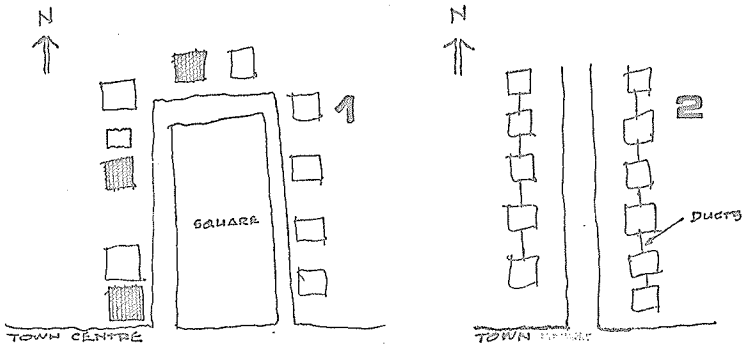
The implementation of this scheme certainly will take a period of time, perhaps of several years. In order to lessen the degree of obsolescence of the scheme and to increase the flexibility of its preparation technique, a two-step approach is used. The first step is to prepare an 'overall scheme' which lays down a general framework of proposed goals and methods of implementation. This framework is highly flexible and can be adjusted. The 2nd step is to prepare a 'detailed scheme' for the 1st-stage 'scheme area' chosen. Then, the 2nd detailed scheme is preparedan so on.

1st-stage 'scheme area' proposed

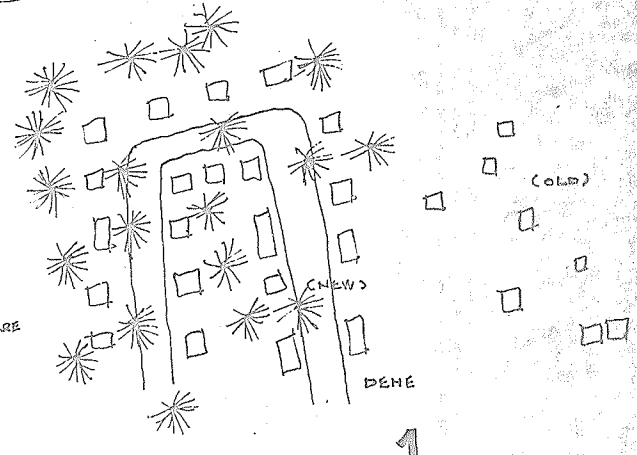
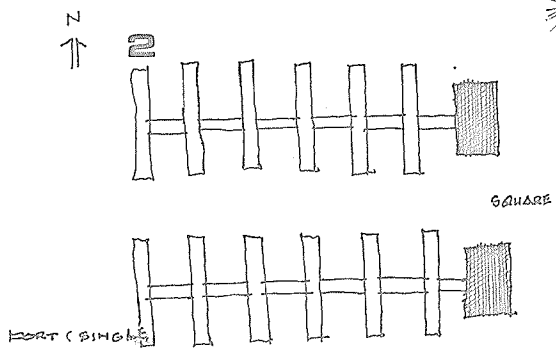
This scheme area to be developed in the 1st stage should be:

- 1) one whose necessity for renewal is most urgent;
(e.g. where the blighting trend is the most influential)
- 2) one showing no economic viability if left undeveloped;
- 3) one having the most functional obsolescence; lacking 'vitality' or 'intense social activities'; and having 'ethnic' or 'class' segregation.
- 4) one most lacking welfare considerations.

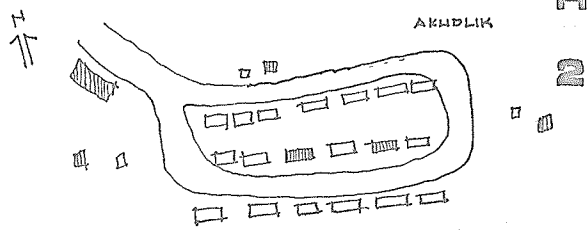
DETACHED HOUSES



ATTACHED HOUSING



DETACHED HOUSING



In order to set up a 'priority' for development, the 6 existing communities of Churchill are compared with one another; basing on the criterior shown on p. 31. The results are then considered together with the suggested 'ideal neighbourhood arrangements' described on p. 26.

Blighting influence

The blighting influence is greatest in Flats, and in Jockville. Dwelling are mostly shacks. Many of the families are living in overcrowded condition. Services are poor since there are no power-supply, no piped water system, no sewage system and no telephones. The local bus system does not provide services for these area.

On the other hand, the Fort and Akudlik have very few or practically no slum areas. The building conditions are good. Although housings in these two communities are not sufficient, overcrowdedness do not occur. (Those who cannot find accommodations here flow into downtown) Services are excellent: piped water, flush toilets, telephone, central heating, hydro services, and bus.

The downtown and the Dene Village stand in the middle. Both of them enjoy bus services, power-supply, some new housing, and some other services.

Economic viability

The Fort community bases their economy on the development of the Rocket Research Ranges which is one of the most actively runned establishments of its kind in North America and is financially supported by the Federal Government.

The downtown bases its economy partly on the Port's Development , partly on local service-industry, partly on Federal agencies located there, partly on private commercial enterprises and partly on tourism.

Flats and Jockville base their economy on the seasonal Harbour jobs and on more permanent labour jobs in CN. Tourism may have some bearing on the future growth of the whale-plant and motel located in the Flats.

Functional obsolescence, lacking vitality

Judging by the future growth-trends of the whole region; viz. the 'Linear development' (see map 2) and the 'Polar-Induction Growth-Pattern' (see map 4); Flats and Jockville will most probably suffer from isolation, since most future development will probably follow the Kelsey Boulevard from the Town to the Fort.

Only Fort provides a wide range of community facilities which sustain intense social activities among the people. Those provided by downtown and by Akudlik are far from being adequate.

Suffering from discrimination or segregation

Best deal of all are those whitemen living in the Fort. The worst is being the Crees and the Metis in the Flats and Jockville.

Welfare consideration

Fort and Akudlik are best cared for by the Federal Governments or agencies. The ignored ones being again the Flats and Jockville.

	BLIGHT	ECONOMY	FUNCTIONAL OBsoles- CENCE	VITALITY	DISCRIM- INATION	WELFARE
FORT	X	X	X	X	X	X
AKUDLIK	X	XXX	X	XX	XX	XX
DENE	XX	XXX	XX	XXX	XXX	XX
TOWN	XX	XX	XX	XX	XX	XX
FLATS	XXX	XXX	XXX	XXX	XXX	XXX
JOCKVILLE	XXX	XXX	XXX	XXX	XXX	XXX

(after considering with other important factors:)

- see p. -


1	2	3
Town	Akudlik	Fort
Flats	Dene	
Jockville		

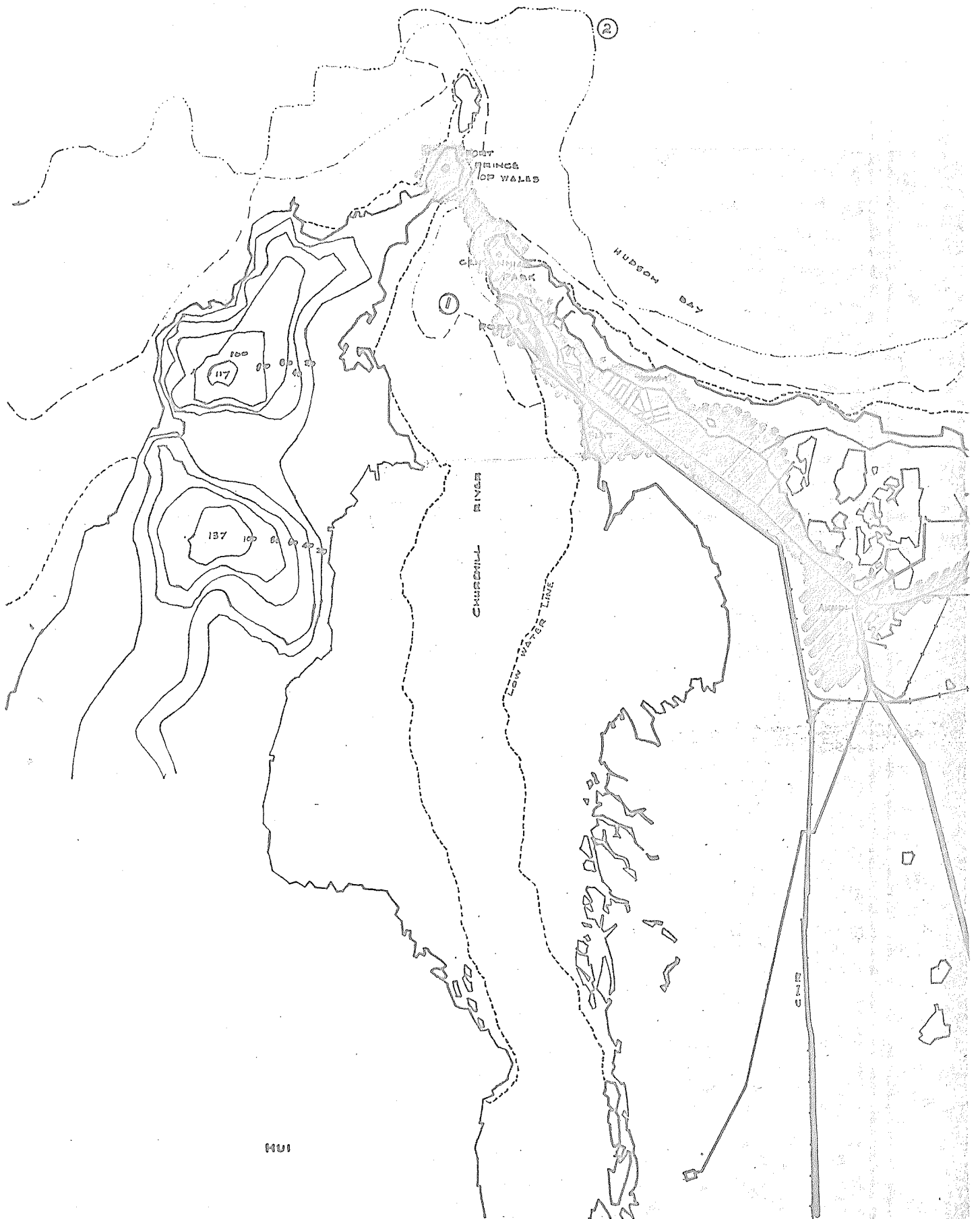
MAN, TECHNOLOGY AND NATURE

Natural environments in the sub-arctic and in the arctic regions have offered much difficulty and hardship to those peoples (e.g. the Eskimos) living there. The severe wind, the extremely-low temperature, the tree-less and the permafrosted muskeg...etc. are still the main forces that shape the life style of the arctic or the sub-arctic inhabitants.

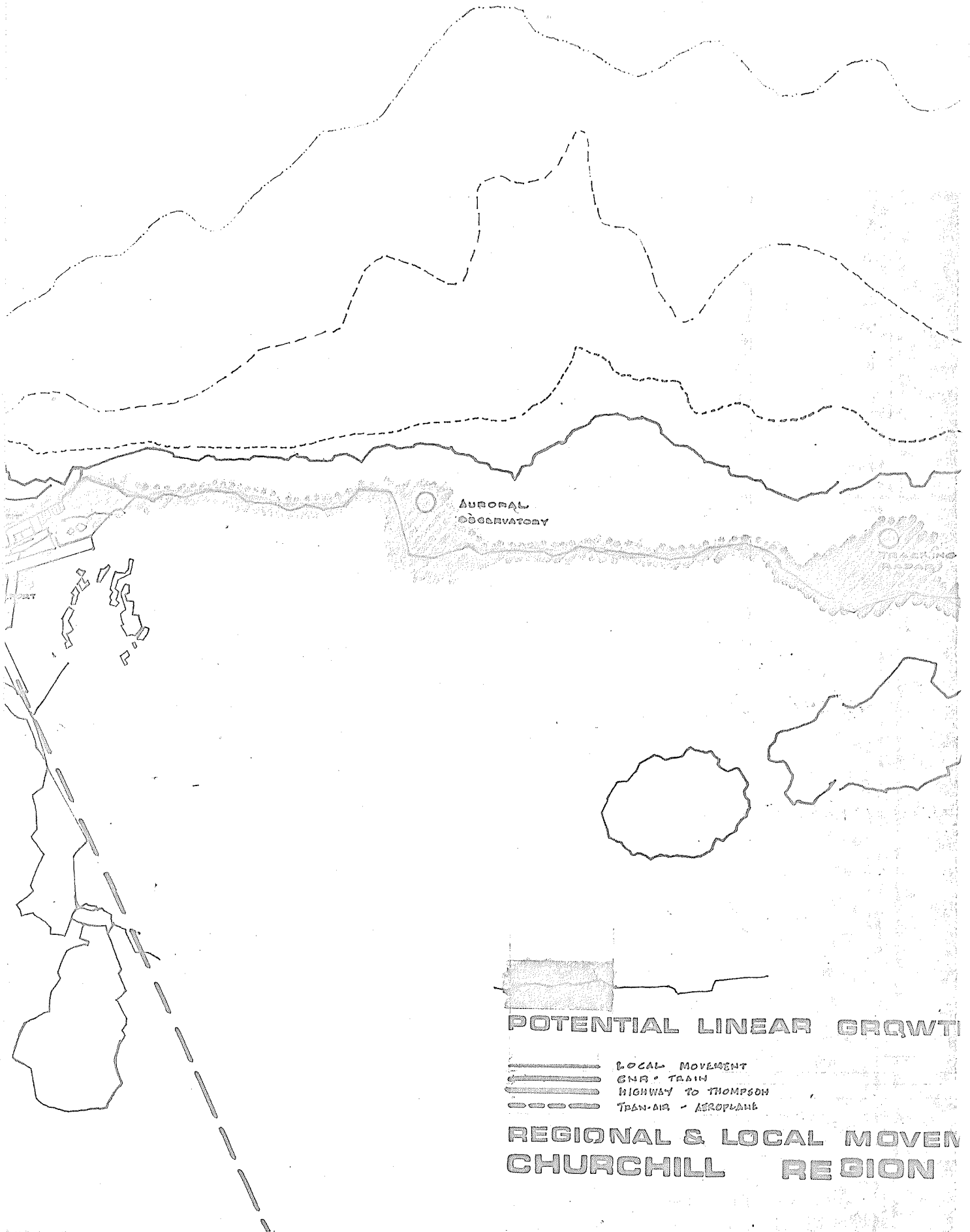
With the advance of human technology, the harshness of the arctic environments can be much reduced. For, man knows how to create sheltered environments within which he controls local conditions. He has made use of his innate capability instead of adapted biologically to his environments.

Technology is therefore conceived as a positive tool to shape the Churchill environments.

ENVIRONMENTAL CHARACTERISTICS (OR PROBLEMS)	POSSIBILITIES (OR SOLUTIONS)
<ul style="list-style-type: none"> 1. Severe Wind-chill 2. Extreme coldness (snow & perm. frost.) 3. Bright summer nights Dark winter days Low sun angles Northern light Snow glare 4. Tree-less Flatness Vastness of space Isolation 	



6401

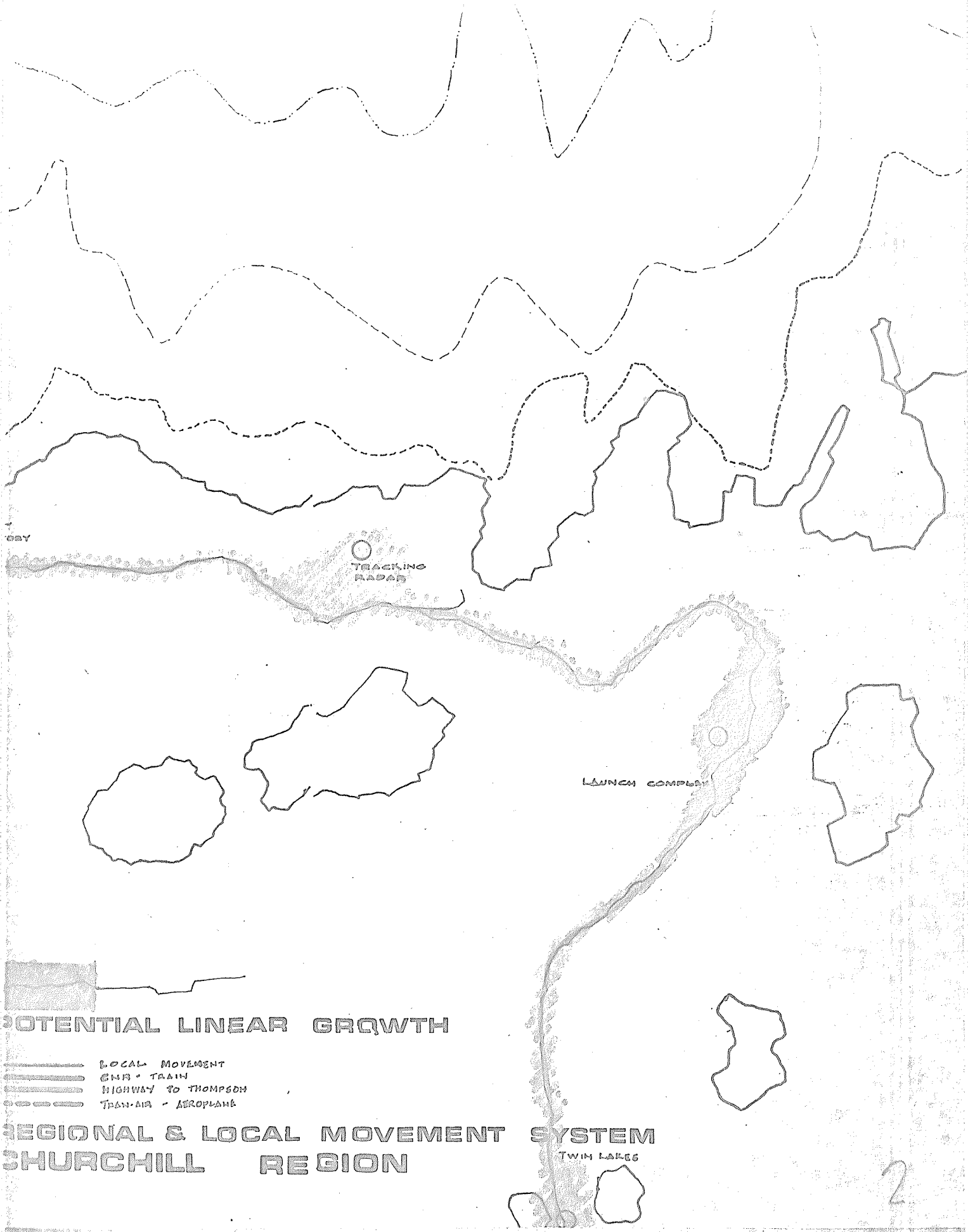


AURORAL
OBSERVATORY

POTENTIAL LINEAR GROWTH

- LOCAL MOVEMENT
- - - - GNR TRAIN
- /// HIGHWAY TO THOMPSON
- - - - TRAN-AIR - AIRPLANE

REGIONAL & LOCAL MOVEMENT
CHURCHILL REGION



POTENTIAL LINEAR GROWTH

- LOCAL MOVEMENT
- ==== GMR - TRAIN
- HIGHWAY TO THOMPSON
- - - - TRAIN-AIR - AEROPLANE

REGIONAL & LOCAL MOVEMENT SYSTEM
CHURCHILL REGION

TWIN LAKES

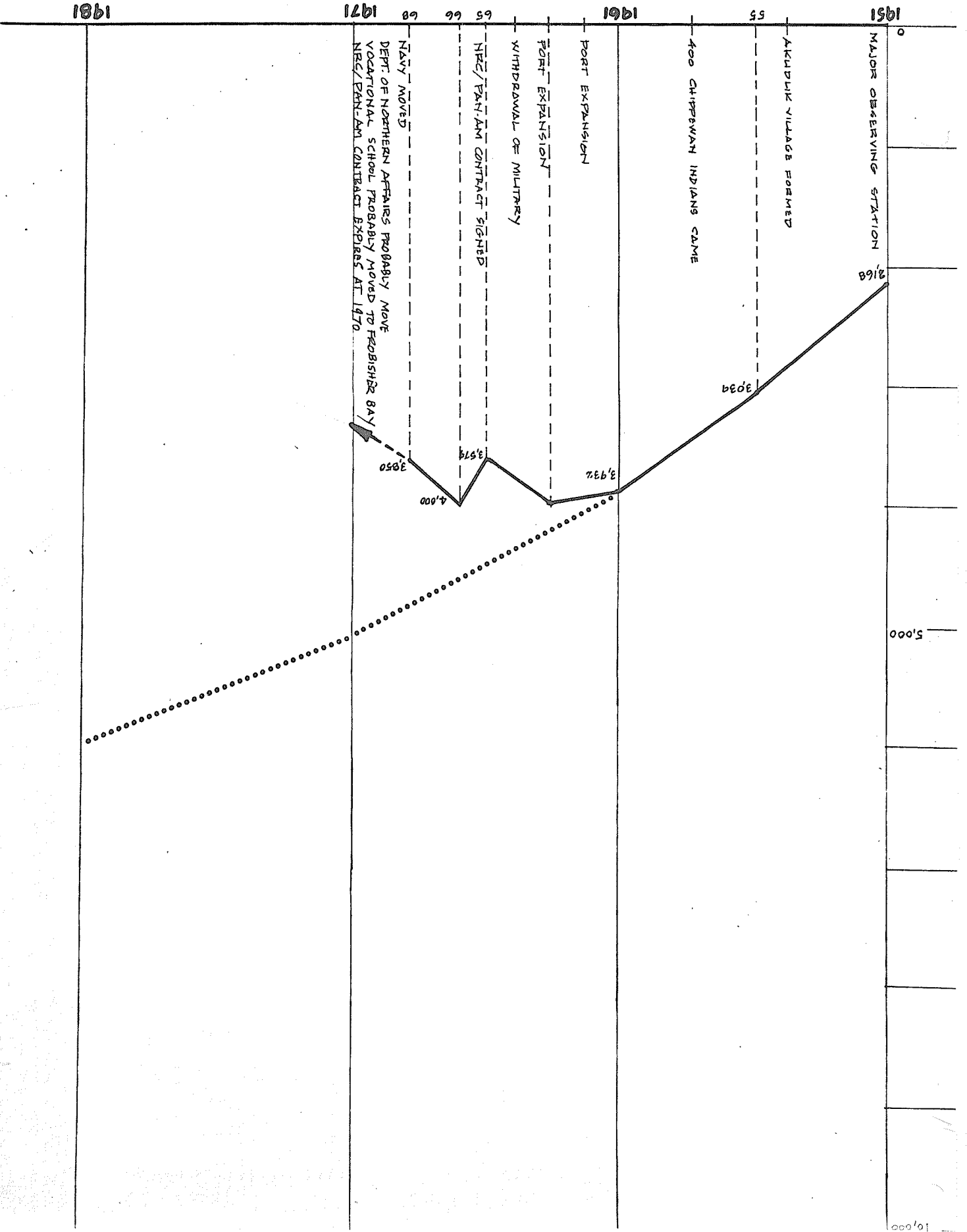
- SERVICE CENTRE
- RECREATION CENTRE
- INDUSTRIAL CENTRE
- TRANSPORTATION CENTRE

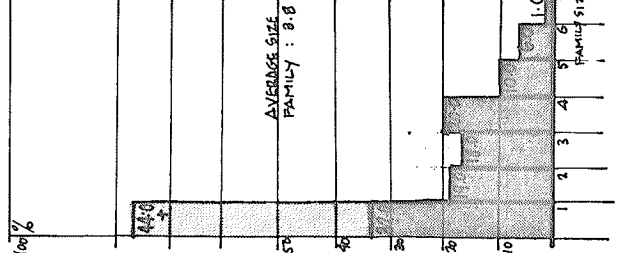
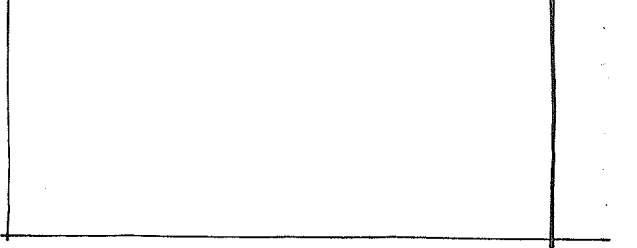
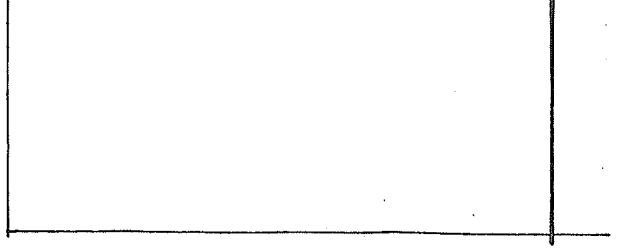
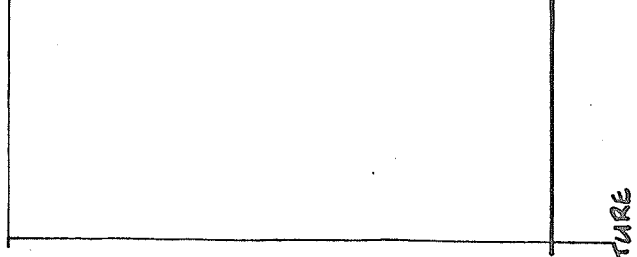
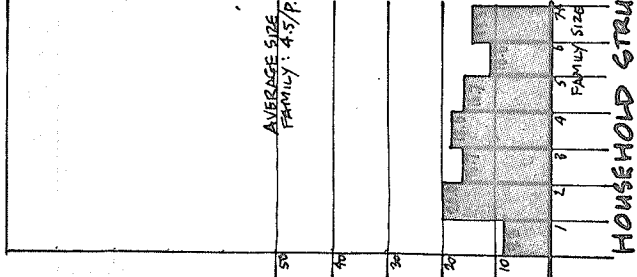
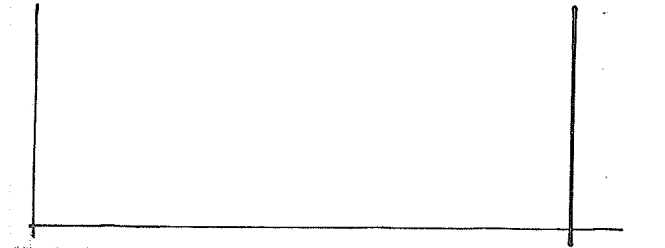
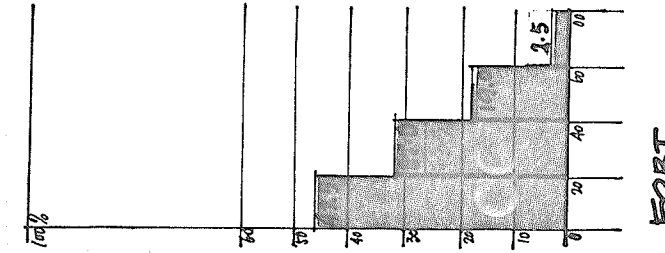
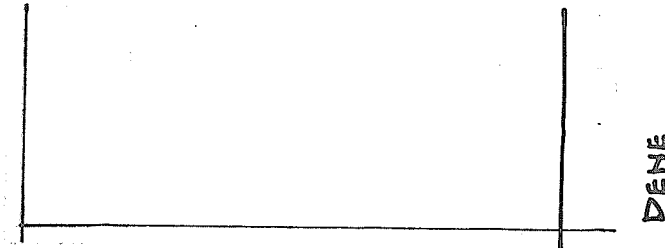
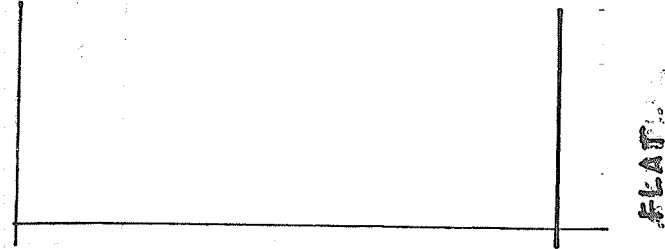
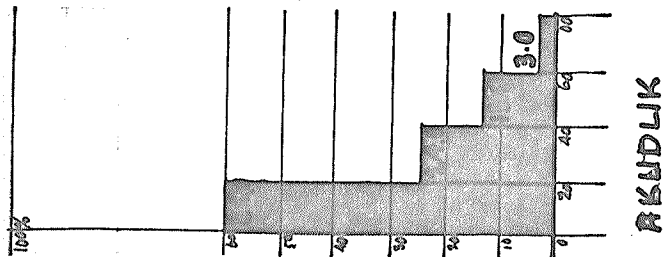
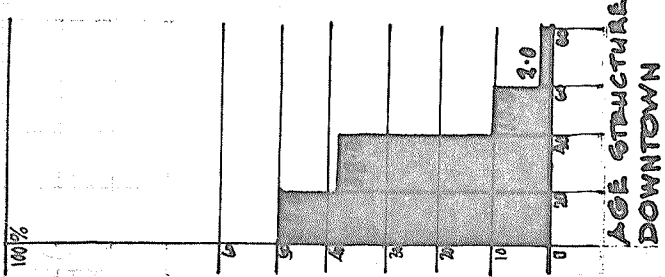
RESOURCE	LOCALITY					
	THOMPSON	LYNN LAKE	CHURCHILL	RANKIN INLET	BAKER LAKE	CHESTERFIELD IN
SEA	INTERNATIONAL					
	COASTWISE					
			6			5
LAND	ROAD					
			4	3	6	
	RAIL					
	5	4	6			
AIR	10	8	12	6	4	2
RIVER / LAKE	2	4	8	6	12	10
HUDSON BAY			12	12	6	12
MANITOBA / KEEWATIN BOUNDARY ; MINERAL / OIL ZONES	10	2	12	10	4	6
MIXED - ETHNIC - GROUPS COMMUNITY	10	8	12	6	6	6
ARCTIC / SUBARCTIC (CLIMATE)	10	10	18	10	10	10
LAND / SEA ; MOUNTAIN / PLAIN						
POPULATION	36	24	30	12	18	6

... .. AIRPORTS AND REGIONAL CENTRES

... ..

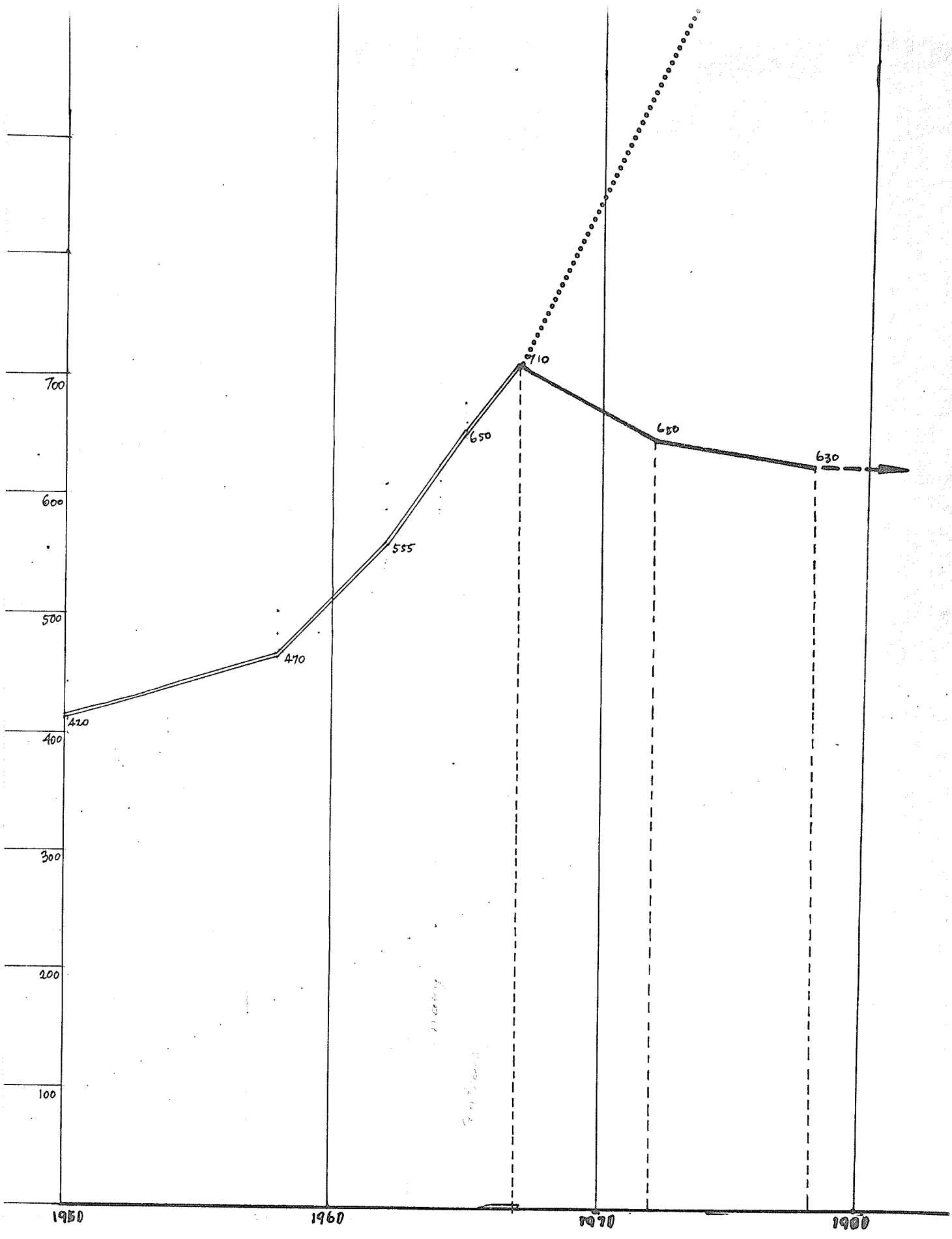
GRAPH 4 POPULATION TREND





dotted
 solid
 horizontal lines
 vertical lines
 dormitory

CHART 5 AGE-HOUSEHOLD-SEX STRUCTURE CHARTS

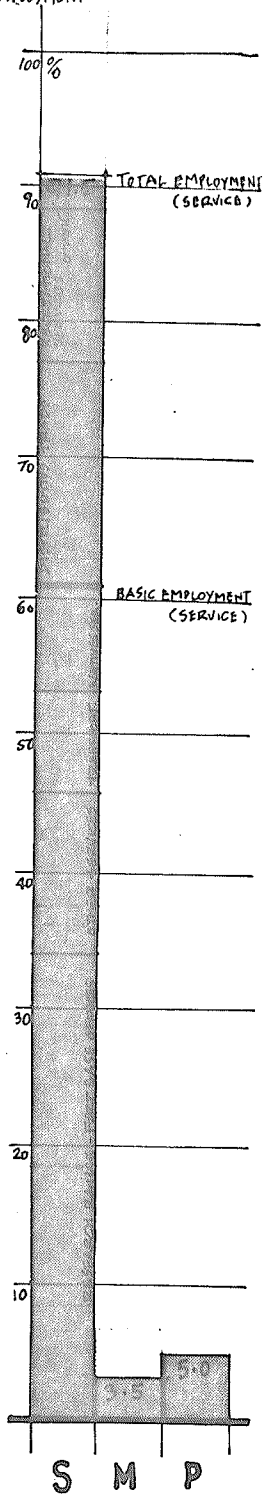


GRAPH 9

ECONOMIC TREND

FROM TABLE 16, M. JONE'S REPORT.

TOTAL EMPLOYMENT



TOTAL EMPLOYMENT

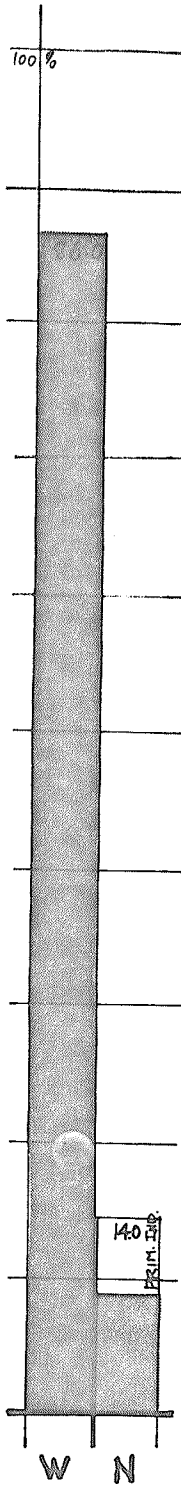
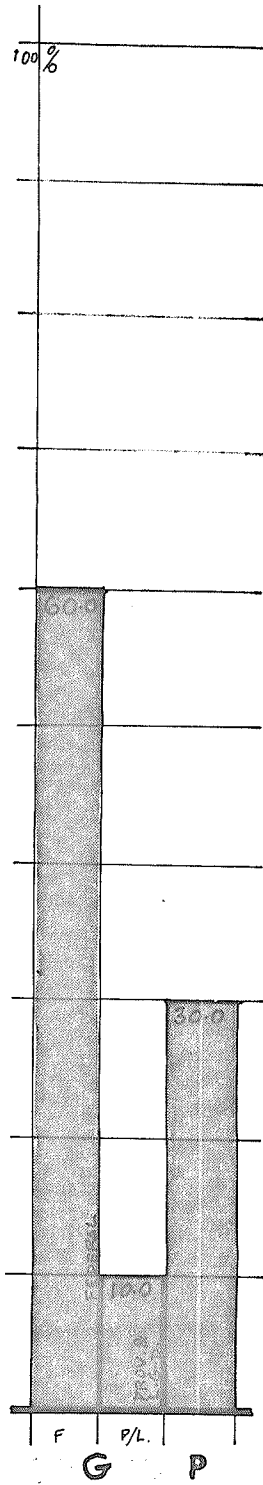


CHART 10

S SERVICE INDUSTRY
 M MANUFACTURE INDUSTRY
 P PRIMARY INDUSTRY

G F FEDERAL GOVERNMENT
 G P/L PROVINCIAL/LOCAL GOVT.
 P FREE MARKET

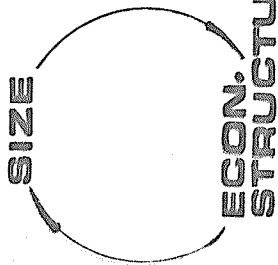
W WHITE
 N INDIANS/ESKIMO/METIS

CHARACTER	GROUND COND. (PERMAFROST)	SIZE / EXPANDABILITY	ENVIRONMENTAL CONDITION		ACCESSIBILITY						PROXIMITY TO (EFFECTIVE DISTANCE)		OTHERS	CONCLUSION
			WIND	LANDSCAPE (TREES FLATHERS)	AIR	RAIL	WATER	PROPOSED HIGHWAY	WATER SOURCE	INDUSTRIAL REGION	RECREATION SPOTS			
SITE DEFINITION & IDENTITY														TOTAL MARKS.
			4	2			1	2	1		1	2		13
														MOST SUITABLE FOR HEAVY INDUSTRY
4	5	4	1	1		1	2	1		1	2			22
														"
2		5	1	2		2	2	2		2	1			17
														"
3	5		1	2				2		1		1		18
														"
6		6	3	3				2		1		2		23
														MOST SUITABLE FOR RESORT & RECREAT.
5	6	6	3	3				2		2		2		27
														"
6	6	6	1	1		1	1	6		6	2	2		36

(EXISTING IND. / FLAT GROUND, PREVAILING WINDS, PRESSURE SPRING OF TOWN, READY HERE NOT SUITABLE)

(WIND-SHELTERED SPOT TREES GROWING AREA)

(SLOPING & SHELTERED TREADED AREAS)



A. DETERMINANT-RESULT CYCLE

1976:

15,000 POPULATION

B. SIZE

**THEORETICAL SHOPPING POPULATION:
(TOWN + HINTERLAND)**

20,000

C. TOTAL POPULATION AFFECTING THE RANGE OF SERVICES PROVIDED

	RESORT TOWN Assumed. (%) SOURCE: BACKBURNING	Churchill TOWN	
CHILDREN	22.0 %	39.6 %	+17.6
RETIRED	7.8	2.5	-5.3
OTHER NON-WORKERS	33.6	9.3	-24.3
TOTAL OCCUPIED	36.6	48.7	+12.1
PRIMARY	0	2.4	+2.4
MANUFACTURING	4.9	1.7	-3.2
SERVICES	31.7	44.6	+12.9
CONSTRUCTION	3.1	3.1	± 0.0
PUBLIC UTILITY	1.0	5.5	+ 4.5
TRANSPORT & COMMUNICATIONS	2.5	4.2	+ 1.7
DISTRIBUTION	7.3	2.9	- 4.4
FINANCE & BANKING	1.5	.01	- 1.5
ADMINISTRATIVE	2.8	21.0	+18.2
PROFESSIONS	5.5	.01	- 5.5
MISCELLANEOUS SERVICES	8.0	8.3	+ 0.3

1700 CHART 16

$$\frac{\text{T.S.P. (HINTERLAND)}}{\text{T.S.P. (TOWN)}} = \frac{5,000}{15,000} = 33\% = R_1$$

(LOW! COMPARED WITH THE RANGE:
 MAX. $R_1 = 119.9\%$
 MIN. $R_1 = 44.9\%$
 SOURCE: P.37 MID-WALGES.
 BRITISH CENSUS, 1951)

$$\frac{\text{EXCESS OF SERVICE JOBS}}{R_1} = \frac{+12.9\%}{33.0\%} = 0.39 = R_2$$

(LOW. COMPARED WITH THE RATIO:
 0.59 WHICH IS CONSIDERED TO BE
 MODERATELY GOOD.
 SOURCE: BRITISH CENSUS 1951)

IN COMPARISON, BECAUSE OF THE SPARSINESS OF POPULATION DURING THE 1ST 5 YRS. PERIOD = 1971-76 IN THE HINTERLAND, R_1 AT CHURCHILL MAY BE AS LOW AS 33% (OR EVEN LESS IF THE KEENWANN-HUDSON BAY EXPLORATION OF MINERALS & OIL BEARS NO RESULT & IF THE PRESENT OUTMIGRATION OF THE ESKIMOS THERE CONTINUES).
 UNLESS THEREFORE SOME IMPORTANT OTHER SERVICE BASE CAN BE FOUND, IT IS INCONCEIVABLE THAT THE MARKET FUNCTION ALONE WILL SUSTAIN THE LARGE SURPLUS OF JOBS. ENGAGED IN PRODUCING SERVICES FOR EXPORT (i.e. + 12.9%).

PROPOSED ADDITIONAL SERVICE: RESORT FUNCTION (TOURISM / RECREATION)

APPROPRIATE, BECAUSE IT:

1. MAKES EXTENSIVE USE OF UNSKILLED LABOUR (ESKIMO MEN & INDIA METS & WORKERS WHO COME TO CHURCHILL & MAY THEN BALANCE AT LEAST TO A CERTAIN EXTENT THE UNBALANCE MAINTAINED BY THE UNEMPLOYED.)
2. MAKES EXTENSIVE USE OF WOMEN WORKERS (WHO COME TO CHURCHILL & MAY THEN BALANCE AT LEAST TO A CERTAIN EXTENT THE UNBALANCE MAINTAINED BY THE UNEMPLOYED.)
3. MAKES SOME SEMI-RETIRED PEOPLE (65-65) ABLE TO TAKE SEASONAL JOBS WHEN BETTER WEATHER COMES THEREFORE ATTRACTING RETIRED PEOPLE TO COME BACK OR TO GO TO CHURCHILL. (COMPARATIVELY FEW)

IT IS ALSO INCONCEIVABLE FOR A PLACE LIKE CHURCHILL TO RELY ITS LARGE SURPLUS OF SERVICE JOBS ON RESORT FUNCTION ALONE. FOR, IT NEEDS ALMOST 150,000 (MIN.) ANNUAL VISITORS JUST TO SUPPORT A RESORT TOWN WITH 10,000 POPULATION.

SOME COMPLEMENTARY FUNCTIONS (SERVICE) :

REGIONAL RESEARCH INSTITUTE

APPROPRIATE BECAUSE IT :

1. ACCORDS WITH THE PROPOSALS BY MANY NORTHERNERS OF ESTABLISHING IN FUTURE A "NORTH-WESTERN UNIVERSITY."
2. WOULD BRING ~~CONSIDERABLE~~ DIRECT EMPLOYMENTS.
3. IS GOOD TO GO WITH RESORT FUNCTIONS.

ON THE OTHER HAND, MERELY BASING ON 'SERVICE' OR 'SERVICING-INDUSTRY' IS NOT SUFFICIENT.

- FOR, THE FACT THAT THE NEW TOWN WILL HAVE TO MAKE ITS LIVING BY EXPORTING GOODS/SERVICE TO OTHER PEOPLE OUTSIDE THE PROVINCE REGION (SINCE: HINTERLAND IS SPARSELY POPULATED (71-76 EVEN THE RESORT FUNCTION/RESEARCH INSTITUTE / TOURISM/ RETIREMENT ARE BUT SUBSIDIARY ONLY)

PROPOSED ADDITIONAL ECONOMY BASE: MANUFACTURING INDUSTRY

MISCELLANEOUS (10.2%)

OFFICES	SKI CENTRE	REGIONAL RESEARCH INSTITUTE	LIVESTOCK RAISING (INDOOR
SHOPPING	YACHT CLUB	NATURAL SCIENCE	/ EGG PRODUCTION
RESTAURANTS / CANTEENS	GOLF CLUB	SOCIAL SCIENCE	SLAUGHTER
CONSTRUCTION	RESORT HOTEL		PROCESSING
TRADES / INDUSTRIAL SERVICES	WHALING / FISHING	ADMINISTRATIVE OFFICES	CANNING
OTHER	GAME-BIRDS HUNTING	AIR TERMINAL	TANNERY
	ZOO (NORTHERN CHARACT.)	-CANTEENS-	FURRIERY
	TOURS - HISTORIC SITES	-HOUSING-	CLOTHING
	PORT	HIGHWAY	
	ROCKET-RANGE	TRANSPORTATION CENTRE	LIGHT ENGINEERING
	FOLK-ACTIVITIES	OTHERS	ELECTRICAL IND.
	ART GALLERY / MUSEUM		METALGOODS
	OTHER INDOOR RECREAT. FACILITIES AS EXISTING IN FORT & IN TOWN:		CHEMICALS
	BOWLING-ALLEY CURLING HOCKEY SKATING BASKETBALL BASEBALL ETC. (INDOOR RECREATION CENTRE)		INDUSTRIAL-DESIGN GOOD

ALTHOUGH CHURCHILL'S VISION OF ~~TOGETHER~~ POTENTIAL MAKES IT CAPABLE OF DEVELOPING HEAVY INDUSTRY, LIGHT INDUSTRIES THAT FULFIL THE REQUIREMENTS LISTED BELOW ARE THOSE MOST APPROPRIATELY INTRODUCED DURING THE 1ST 5-YR. DEVELOPMENT (7)

1. IT SHOULD BE ABLE TO CREATE HIGH & STABLE INCOME
2. IT'S RAW MATERIALS SHOULD HAVE A HIGH-VALUE-BI RATIO;
3. IT SHOULD HAVE RECENTLY A HIGH GROWTH RATE OF SALES & EMPLOYMENT
4. IT SHOULD ALSO HAVE A HIGH PRODUCTIVITY. (THIS ENCOURAGES LARGE SCALED PLANTS; WHICH, IN A SMALL CENTRE LIKE CHURCHILL, SEEMS TO HAVE THE EFFECT OF DOMINATING THE FIELD OF EMPLOYMENT TO AN UNDESIRABLE DEGREE. ON THE OTHER HAND, CHURCHILL IS BY 71-76 STILL UNPREPARED TO GROW TO A SIZE LARGE ENOUGH TO PERMIT SUCH LARGE FACTORY TO BE ESTABLISH WHILE NOT OVERBALANCING THE STRUCTURE OF EMPLOYMENT. THE WAY SEEMS TO BRING MAKE THE MORE EFFICIENTLY-OPERATED LARGE-SCALED FACTORY TO PRODUCE A "VARIETY" OF PRODUCT (RELATED FIELD).
5. IT SHOULD BE ABLE TO EMPLOY A LARGE NUMBER OF FEMALE WORKERS OR JUVENILE. (THE FORMER NOW BEING IN DEFICIENCY WHILE THE LATTER WILL BE IN LARGE SUPPLY, FROM PROJECTION)

TOTAL EMPLOYMENT	3,777
LABOUR FORCE EXISTING (15-65)	1,568
	<hr/>
EMPLOYMENT FOR IMMIGRANTS	2,209

EXISTING POPULATION	4,000
NATURAL GROWTH (EXIST.)	1,000
(IMMIG.)	1,000
IMMIGRANTS (assume 2.5 ^{imm} / _{family})	5,500
RETIRED (based on 7.8%; chart 16)	1,000
	<hr/>
	12,500

PLAN: FOR 15,000

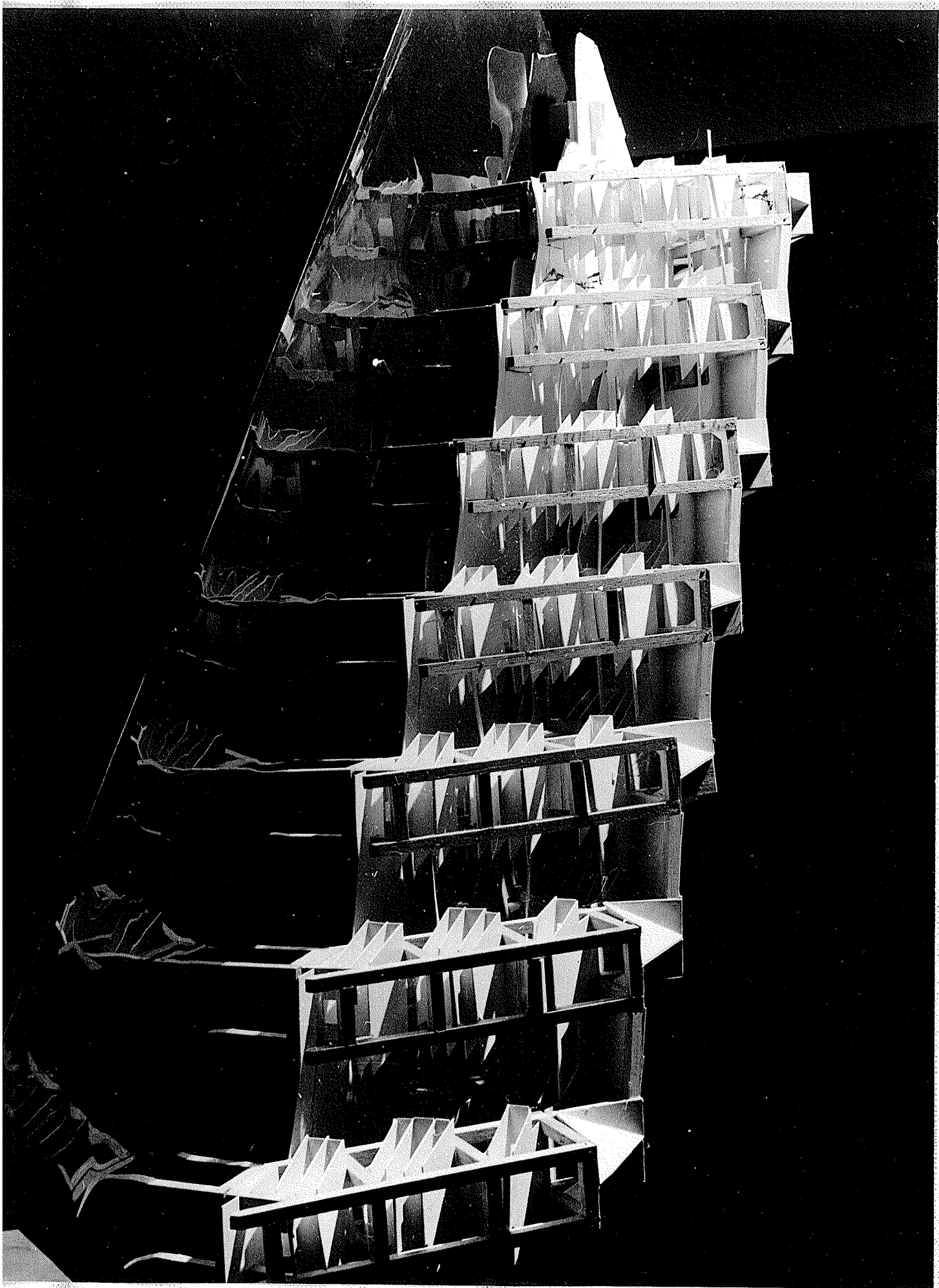
375			56,400		FURNITURE/CLOTHES	MANUFACTURING
100			5,000		HANDICRAFT	
100			12,000	↓	FACTORIES	
600			30,000		LIGHT ENGINEERING	
400			20,000	↓	BUILDING MATERIALS	
2,500			(500,000)		TRANSPORTATION EQUIP.	
	1				(MINERAL/OIL REFINERY)	SERVICES
	7:3	21,400			CENTRE + SITES	
	6:4	120,000			OFFICES (WHOLESALE/RETAIL) SHOPS (RETAIL)	
	7:3	171,000			OFFICES	
	/				OFFICES (SEE WHOLE/RET)	
	/				OFFICES (SEE WHOLE/RET)	
	1 (for each)				PUMP HOUSE/HYDRO ETC.	
	1				AIR TRAIN TERMINALS HELICOPTER	
	1				CONSTRUCTION	
					MISCELLANEOUS	
	1				TECHNICAL COLLEGE (VOC)	EDUCATION
	1				SENIOR HIGH	
	3				JUNIOR HIGH + PRIM	
	1				SPECIAL (ESK/IND.)	
	6				NURSERY + INFANT	
	2				YOUTH CLUBS (YMCA)	PUBLIC SERVICES
	1				MULTIPURPOSE HALL	
	3				LOCAL HALLS	
	1				HOSPITAL @ 200 beds	
	2.5				CLINICS	
	1				LIBRARY (OR MAIN)	
	3				CINEMAS	
	1				PUBLIC BATHS	
					LOCAL PARKS	
					LOCAL PLAYGROUNDS	
					REGIONAL PARK	RECREATION
	1				SPORTS FIELD	
	1				INDOOR SPORT CENTRE	
	185				1 (B + L) SPACE	W.F. (Foot) cases/mis. comp.
	44				1B + 1L	
	333				X-B + 1L + 1D	
	183				1 (B + L)	
	31				1B + 1L	
	300				X-B + 1L + 1D	
					1 (B + L)	
					1B + 1L	
					X-B + 1L + 1D	
					1 (B + L)	
					1B + 1L	
					X-B + 1L + 1D	
					1 (B + L)	E. (Foot) cases/mis. comp.
					1B + 1L	
					X-B + 1L + 1D	
	50%	1890			1 (B + L)	CW
	20%	1280			1B + 1L	
	30%	1150			1B + 1L	

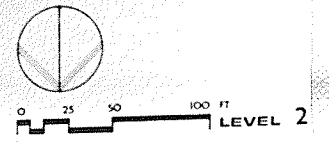
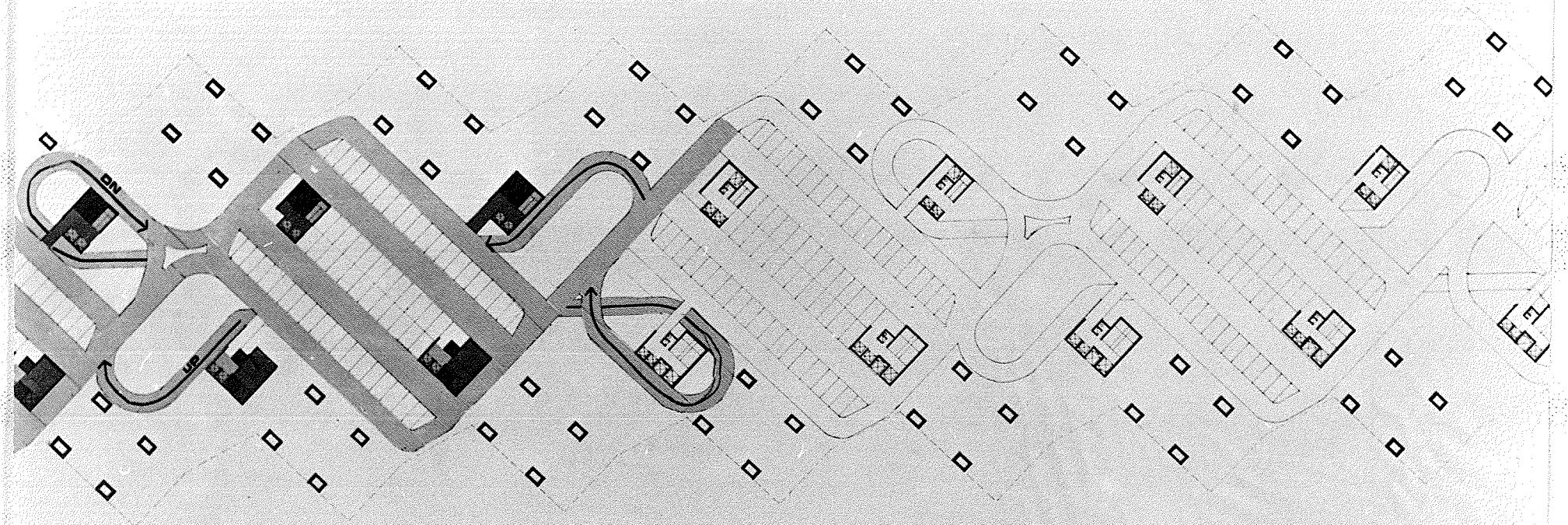
CENTER
FUNCTION

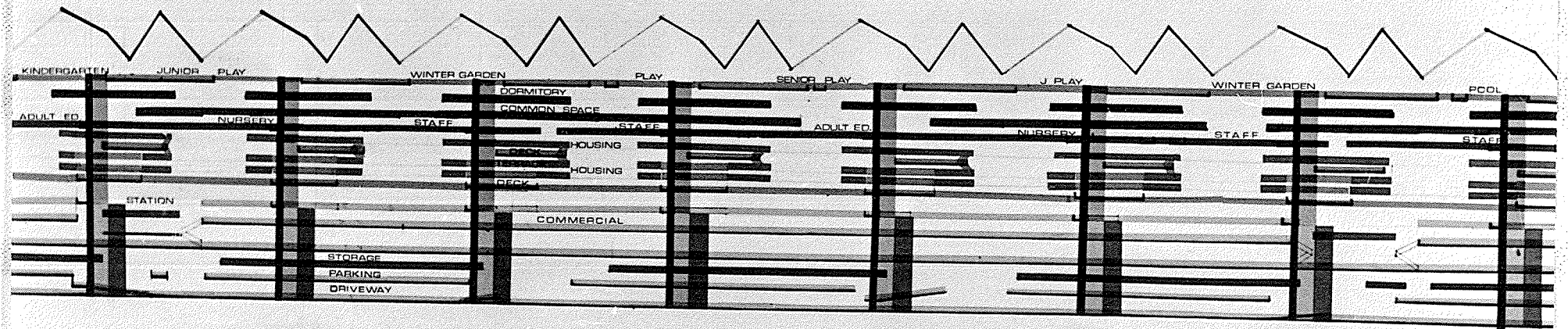
COMMUNITY

FUNCTION

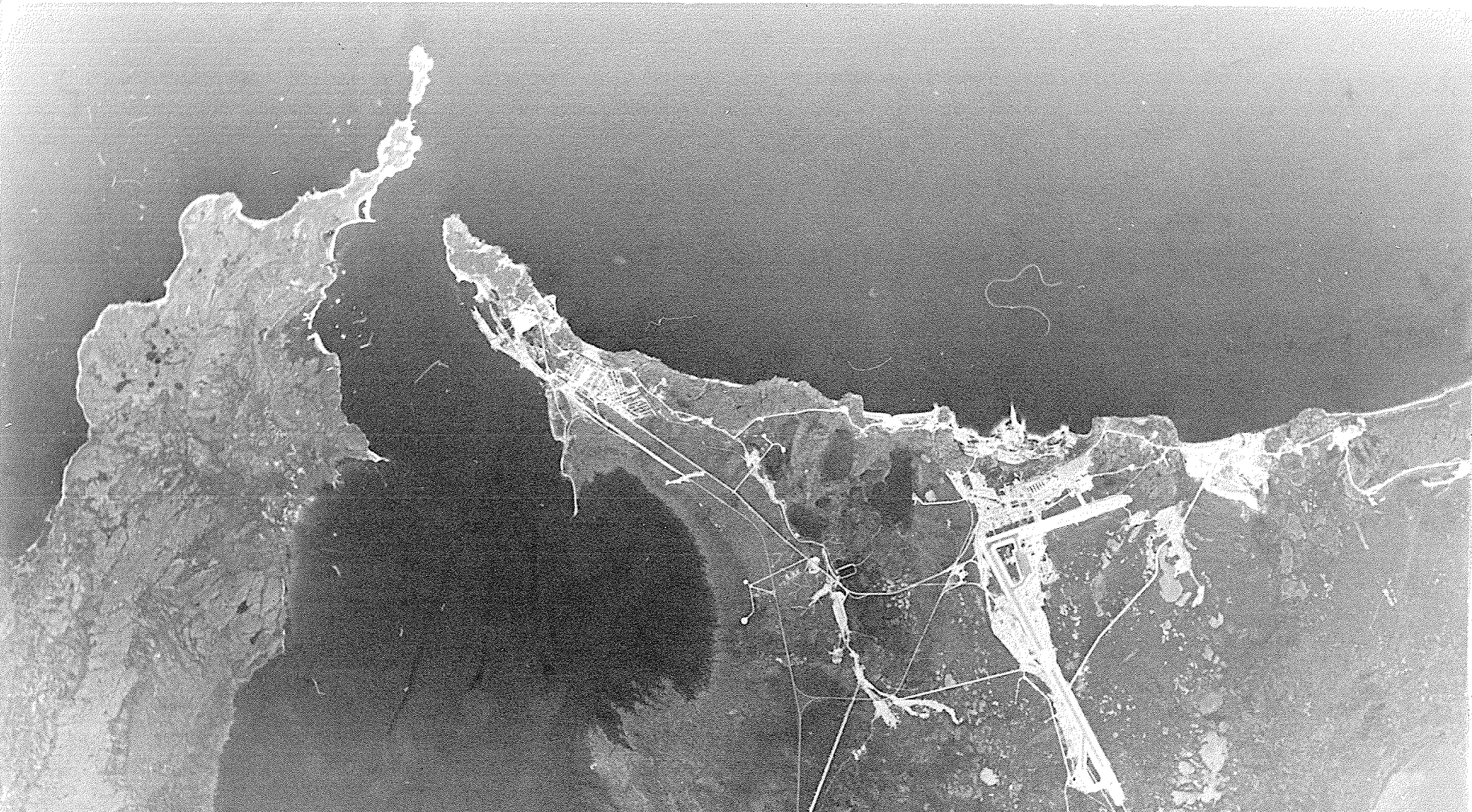
CENTER FUNCTION	HOUSING & SERVICE		INDUSTRY		MANUFACT.		MISCI
	C. FACILITY	RESORT	MARKET	MARKET	INDUSTRY	INDUSTRY	
	by employer						
META	HOSPITAL 50 150 200	HOUSING ADMINISTRATION 20 5 25	SKI CENTRE 30 5 35	SHOPPING CENTRE: DEPT-STORE 10 40 50		LIVESTOCK 70 30 100	(OFFICE) DPW 400
META	TECHNICAL COLLEGE/RESEARCH CENTRE 40 10 50	CLINIC 15 15 30	YACHT CLUB 30 15 45	SUPER-MARKET 15 15 30		FURRIERY: CLOTHING, TANNERY, SHOE-MAKING 70 60 150	NRC/ 250
META	LIBRARY 10 5 15	NURSING SCHOOL 30 30	GOLF CLUB 20 20 50	SHOPS 280 90 300		INDIAN/ESK. HANDICRAFTS 20 20 50	DIA/DND 10
META	SWIMMING POOL 10 0 10	PLAY AREA 25 0 5	RESORT/HT. HOTELS 40 40 80	RESTAURANTS 10 40 50		LIGHT-ENG. INEERING (electrical, metal, chemical) 80 40 120	DOT 90
META	CINEMA 15 15 30	INFANT SCHOOL 0 30 30	WHALENG & FIGHTING 20 0 20	TRADE-INDU. SERVICES: AUTOMOBILE 70 10 80		Miscellaneous OIL/MINERALS MINING SUPPLYING INDUSTRY 80 20 100	RCMP 10 14
META		PRIMARY SCHOOL 40 20 60	GAMEBIRD 5 0 5	MATERIAL & CONSTRUCTION 100 0 100			POST-OFFICE 40 40
META		COMMUNITY HALLS 3 2 5	ZOO 7 3 10	MISCELLANEOUS 90 10 100			PORT 15 200 5
META		PUBS 15 15 30	HISTORIC SITE SEEING 6 4 10	OFFICES 30 10 40			AIR-TERM. 40 10
META		YOUTH CLUBS 5 5 10	ART-GALLERY MUSEUM 8 4 12	INSURANCE FINANCE 7 3 10			CF 45 5
META	CHART 22	BRANCH LIBRARIES 5 5 10	MISCELLANEOUS 25 25 50	WHOLESALE/IMPORT-EXPORT 35 15 50			DND 5 45
META				PROFESSIONAL 35 15 50			CMTB 10 90
META	125 180 300	108 127 235	191 126 317	512 248 860	330 190 520	1165 475	
META	2431 1346 3777						



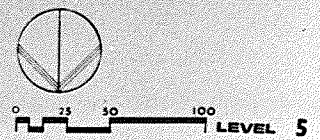
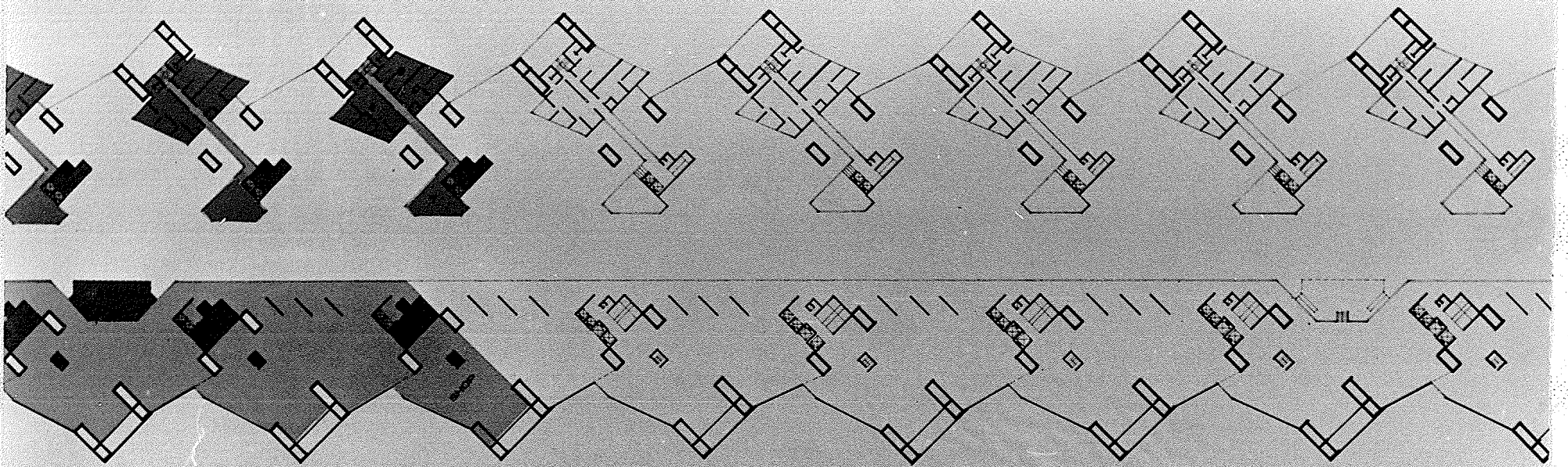


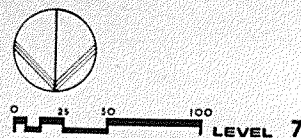
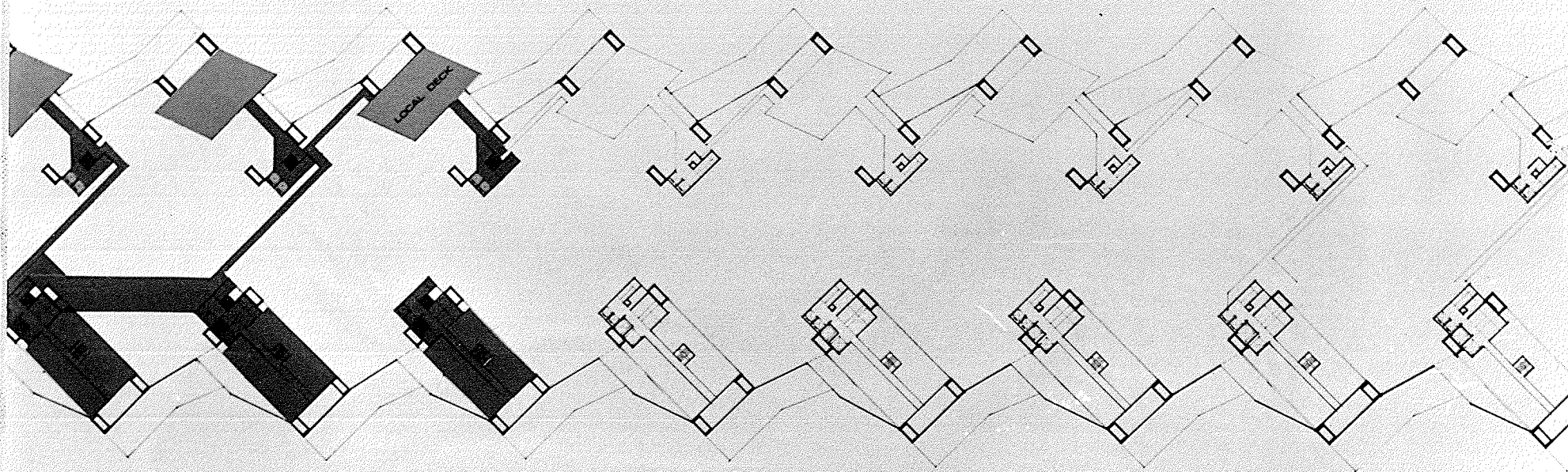


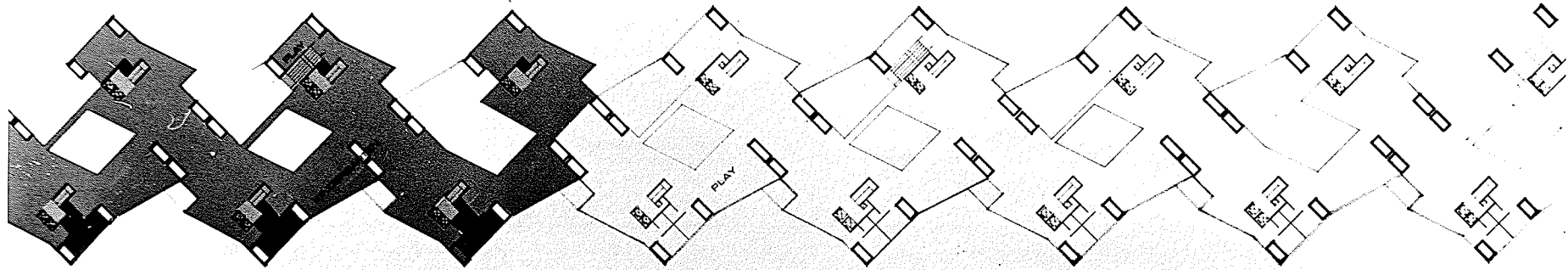
0 25 50 100 LONGITUDINAL SECTION



LINEAR DEVELOPMENT FOR CHURCHILL RIVER







0 35 50 100 ft LEVEL 14



0 1000 2000 ft
LAND USE
N

RIVER

CHURCH HILL

Hudson Bay

PARK

BAY