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Canada

CULTURAL APPROACHES TO NATIVE CANADIAN HOUSING:

AN EVALUATION OF EXISTING HOUSING PROJECTS

IN CREE COMMUNITIES IN NORTHERN QUEBEC

A Thesis Submitted to
the Faculty of Graduate Studies and Research
in Partial Fulfilment of the Requirements
of the Degree of Master of Architecture

© GHADER AFSHARI-MIRAK
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Abstract

This thesis examines social and cultural influences on housing and community planning in the native reserves of Canada. Architects and planners have tended to ignore the socio-cultural legacy of native people for a variety of unjustified reasons: insufficient local research and study, lack of understanding or appreciation, and the inability to successfully accommodate ancient experience in the problem-solving process; approaches and techniques which may well be adapted to the contemporary context are typically overlooked. Where reference is made in housing and planning reports to socio-cultural issues, no recommendations are given as to how to interpret or apply them.

The study bases its analysis on three key terms: culture, community, and living patterns. These concepts are examined in a case study of Cree natives living on four Quebec reserves: Chisasibi, Mistissini, Nemaska, and Waswanipi. The thesis describes indigenous Cree housing; evaluates the existing housing projects built recently by the government and Cree Housing Corporation; details housing and planning problems; and presents conclusions and recommendations.

Résumé

Cette thèse examine la nature et l'amplitude des aspects sociaux et culturels d'habitation et de planification communautaire dans les réserves d'autochtones du Canada. Architectes et urbanistes ont tendance à ignorer les aspects socio-culturels des autochtones pour une variété de raisons non justifiées : recherche et étude locale insuffisante, manque de compréhension ou d'appréciation, et l'inhabilité d'adapter des expériences anciennes à nos normes modernes. On peut trouver des indications de l'importance des aspects culturels et sociaux dans plusieurs rapports d'habitation et d'urbanisme; cependant, aucun de ces rapports démontrent comment interpréter ces aspects dans la planification et le design des communautés autochtones.

Cette étude se base sur l'analyse de trois termes clés : *culture, communauté* et *modes de vie*, et examine ces concepts par une étude de cas des autochtones Cree au Québec. Culture décrit les coutumes; communauté représente l'unité spirituelle et modes de vie dépeint dimension physique de la vie autochtone. Cette thèse documente la forme de la maison indigene Cree, revoit les problemes contemporains d'habitation et de planification, détaille les approches de design d'habitations conventionnelles, et présente des conclusions et recommandations.

Acknowledgements

Abbreviations

CHC   Cree Housing Corporation

CMHC   Canada Mortgage and Housing Corporation

CRA   Cree Regional Authority

DINA   Department of Indian and Northern Affairs

DIAND   Department of Indian Affairs and Northern Developments

             (the acronym later changed to DINA)

HBC   Hudson's Bay Company

ISP   Income Security Programme

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[1] Figures without reference are drawn by the author of thesis.

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INTRODUCTION

Since the arrival of Europeans, there has been ongoing conflict between Euro-Canadians and natives over the lands and resources of Canada. Interventions by non-natives have led to significant environmental changes in the region, and consequently have profoundly affected the native way of life. For instance, the construction of airports, factories, roads and hydroelectric projects has caused a reduction in both the size and productivity of hunting and trapping territories. The diminished stock of game such as beaver, moose and caribou has irrevocably altered the nature of socioeconomic activities. By the 1950s, only 30 percent of natives were able to make their living by hunting and trapping, while the rest were forced to search for jobs in the mining and forestry industries (Salisbury , 1989, p.7). Rising discontent amongst natives led them to apply constant social and political pressure to the federal government, forcing it to assist natives with their economic and housing problems on the reserves.[1]

As a means of addressing these problems, the Canadian government initiated a series of housing programmes in the 1950s. In these projects, no plumbing, sewage or electrical services were provided. The prefabricated housing models designed a decade later were a little larger and more accommodating, with basic plumbing (water storage tanks) and electricity. However, these projects remained rudimentary at best and lacked community consultation, site analysis, or technical and climatic considerations specific to the northern environment. The planning approaches dictated by the government laid emphasis only on technological aspects, which were based on Euro-Canadian standards.[2] Power lines and other municipal services were introduced into the settlements: the Northern Canada Power Commission would install a diesel generator for electricity, followed by poles for the wires, and oil storage tanks. Water delivery required trucks, which needed garage and maintenance facilities, not to mention a road system for vehicles. Thus it became necessary to develop a community superstructure that coincided, not with native practices, but with those of the rest of the country. These incremental changes to the reserves occurred without even a rudimentary land-use plan and the result was an often haphazard and inefficient use of land (Deirmenjian and Jones, 1983, p.5).

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[1]A reserve is "a tract of land set aside for the use and benefit of a band, the legal title to which is held by the Crown." (Simon et al., 1984, p.120)

[2]The term Euro-Canadian standards in this context refers to conventional housing and planning approaches, methods, land-use, by-laws and building codes, which are implemented throughout Canadian urban and rural areas, and are designed according to the cultural and social needs of Canadians of European origin.

By the 1970s, despite the efforts of the federal and provincial governments and the Department of Indian Affairs and Northern Development (DIAND), houses on the reserves were deteriorating and residents were in need of government subsidies for renovations and new houses. The housing production rate and services were far below the national average. 11,000 new houses were required and 9,000 needed repair. One in three native families lived in crowded conditions. Less than 50 percent of natives' houses were properly serviced, compared to a national level of 90 percent (Figure I-1) (Simon, et al.,1984, pp. 49-51).
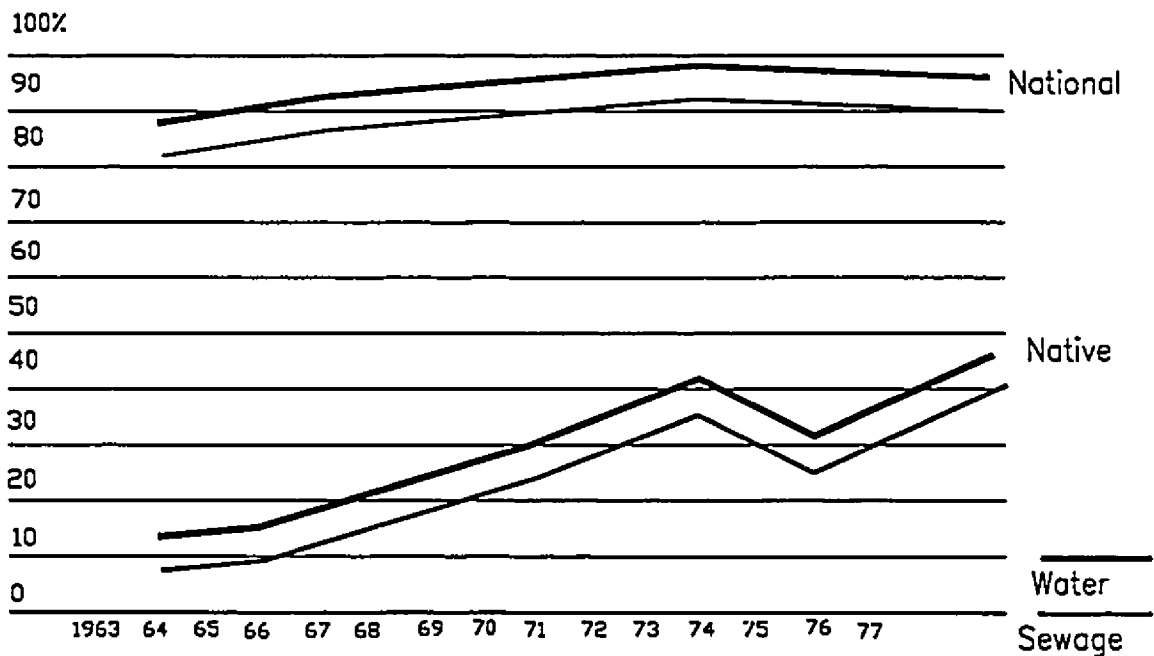
FIGURE I-1: The rate of serviced housing in native communities compared to the national level, (Source: DIAND.1980 in Simon et al., 1984, p.49).

By the end of the 1970s, band councils had increased their control over planning and housing projects.[3] Funds were available to improve housing conditions and to design new communities for relocated residents. Housing and planning consultants were hired by the band councils, but results remained unsatisfactory; consultants' designs rarely reflected an understanding of the socio-cultural context and the new projects did not meet the residents' needs and aspirations.[4] Although certain planning reports executed by consultants paid lip service to cultural aspects of design, questions such as "why are the cultural aspects important," "what are they," and "how can they be used in design," were not addressed.

Until now, the emphasis in housing design and community planning has been on health, climatic, economic and technological issues. In many cases, housing standards are questionable. It is incomprehensible that, despite various studies done by government institutions, government architects and planners have not even attempted to adapt to the prevailing climatic conditions of the north. As A. Koerte mentions: "It is one of the ironies of western man's behaviour in a given environment, that despite all his impressive knowledge and technological expertise, he often builds comparably less well than so-called primitive people, who were unaffected by such technology" (Koerte, 1974, p.22).

As with other Canadian native groups, the nine Cree bands of the James Bay region have housing and planning problems. Prior to the 1970s, the Cree, for the most part, were politically passive. By the 1970s, a series of political and socioeconomic changes within the region empowered the Cree to more effectively control their own affairs. These changes constituted an emergence from their preexisting rural society. The Cree did not want to live in the conditions that the governing authorities had imposed on them. In April 1971, the Quebec government announced the James Bay Hydroelectric project. This project was a scheme to dam or divert all the major rivers of James Bay and build power dams, which would have an installed capacity of up to 14,000 megawatts (Salisbury, 1989). In the initial provisions for the project, no consideration was given to the aboriginal rights of the Cree and Inuit people. Neither was any consideration given to the effects of the hydroelectric and other development projects on the environment and wildlife of the region, upon which the Cree income was dependent. From 1971 to 1981, the Cree fought the project in the courts, negotiated with the Quebec government, built and staffed a local administrative structure

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[3]A band is defined as a "body of status Indians recognised by the government for whose benefit, land and money have been set aside and held by the government" (DIAND in Simon et al., 1984, p.120).

[4]There are prevalent confusions about the term socio-cultural. Some of the theoreticians are opposed to the use of the term because they believe the social and cultural terms can not be integrated. In other words, they consider social as opposed to the cultural and vice versa. This author agrees with the use of the term socio-cultural with the full awareness that the hyphen is no symbol of integration.

and successfully organised their political presence. The area is now legally recognised as the homeland of Cree in the James Bay Agreement.

Notwithstanding this achievement, the built environment of the Cree reserves did not, and still does not relate to their social and political context. Although the regional planning standards and housing provisions were controlled by the Cree Housing Corporation (CHC), and the construction of the houses and infrastructures was carried out by the Cree Construction Company, planning and housing problems still exist on the reserves. The planning norms continue to be based on Euro-Canadian standards and do not correspond to the living patterns of the Cree.[5] Some of the housing problems relate to the lack of socio-cultural awareness of the designers, and others are mostly associated with economic considerations, which limit the production and quality of housing on the reserves.

Currently, a recognition of the appropriateness of the traditional medical and agricultural practices of natives is emerging. Even the legal system is beginning to accommodate native Canadian traditions (Simon, et al., 1984, p.2)(Shkilnyk, 1981a and 1981b). But in the field of housing, traditional native architecture and community design, whose success had been proven through generations, has been ignored. If one does not allow these achievements to reassert themselves and be made applicable to contemporary conditions, the problems associated with native housing and community planning will remain.

Anthropologists and sociologists have conducted many studies on traditional and contemporary native ways of life (Chance, 1968)(Salisbury, 1989). However, there is little literature on the cultural and social aspects of housing and community planning. Exceptionally, Elizabeth Anna Brabec wrote a Master's thesis about the cultural aspects of community planning for the Burwash native people (Brabec, 1984). The same thesis with slight changes was published by the CMHC in 1984 (Simon et al, 1984). Peter Shaw's thesis discusses user participation in native town planning (Shaw, 1982). Moreover, the cultural aspects of housing, in comparison with the planning aspects, have received little attention. This thesis attempts to bridge the gap that exists in the field of native housing.

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[5]The term living patterns, in this context, is defined as the cultural, social, and economic activities of a group which create a lifestyle specific to that group.

THE THESIS

Limitations and Assumptions

Three basic assumptions are made in establishing the conceptual framework.

1- There are links between the central values of a culture and its built environment. Cultural values are important for the development of a built environment. An inappropriate built environment results in "environmental stress" and a loss of identity for the inhabitants.

2- Because of their nature, cultural concepts are not readily amenable to quantitative methods of data collection. Consequently, nonstatistical techniques will be used throughout the thesis.

3- The study considers environment as a significant source of social pathology. This is not to suggest "environmental determinism," which views users as playing no significant role in the design process.

Thesis Questions

The thesis responds to three main questions.

1- What are the social and cultural concepts that influence housing and planning of native communities?

2- How do residents alter their house layouts and what kind of additions and alterations do they make, and why?

3- Have the projects designed by the government agencies and consultants been successful in providing socially and culturally appropriate housing for natives?

Goals and Objectives

The present study is meant to serve as a resource for the formulation of future projects designed for the reserves. It is intended for the increasing number of concerned researchers and professionals involved in the planning of housing projects in Quebec and throughout Canada. The main goal of the thesis is to study the relationship between culture and housing in Cree communities. The research has two main objectives: (1) to assist planners and architects in the comprehension of the significance of the interaction between cultural groups and their built environment, and (2) to study the living patterns of Cree natives in Quebec in relation to their housing.

Methodology and Organisation

The research rests upon a qualitative analysis based on observation and interpretation, rather than a quantitative, scientific approach. It employs concepts from anthropology, sociology and psychology, concerning the behaviour, attitudes, myths and symbols of natives, to frame the research. The methodology of the thesis is divided into two parts: a literature review and a field study. The theoretical part of the thesis regarding culture, space, place, time, and so on, is based on the literature review. The gathering of information regarding existing housing projects required a field trip to the Cree reserves, from August to September of 1993. The field survey included (1) gathering graphic information on sites through photography and s etching, to supplement and verify conformity with planning documents, and (2) interviewing individuals, band councils, chiefs and local authorities to gain their perspective on housing issues. The thesis is organised in six chapters.

Chapter 1 reviews the concept of culture and built environment, since many inadequacies stem from a misunderstanding or ignorance of socio-cultural issues.

Chapter 2 focuses on the concept of 'community' among the natives of Canada. Community is a key factor which may be used to analyse native planning issues and problems. It is futile to visualise native communities in terms of their social characteristics, therefore a holistic approach, integrating social, spiritual and physical aspects is necessary.

Chapter 3 introduces the Cree communities of northern Quebec--the case study of the thesis. One of the intents of this chapter is to illustrate the impact of living patterns on Cree housing. These patterns are studied in terms of their social and domestic components.

Chapter 4 focuses on housing and planning issues related specifically to the four Cree villages of Chisasibi, Mistissini, Nemaska and Waswanipi. In this chapter, the housing and planning criteria of the villages are described, the planning of the housing groups is discussed, and the planning problems are outlined.

Chapter 5 reviews both vernacular and contemporary Cree housing forms. In this chapter, both proposed and existing housing projects of the reserves are examined, and the housing problems are outlined.

Chapter 6 concludes the thesis and presents recommendations for planning and housing.

CHAPTER 1
CULTURE AND THE BUILT ENVIRONMENT :
AN OVERVIEW

Until recently, culture was the virtually exclusive domain of anthropologists. It was only after the 1960s that architects and planners saw fit to factor the culture of potential inhabitants into architectural and urban design. The built environment, or more specifically, the housing form of pre-interventionary native reserves, is densely encoded with cultural values and a distinctive view of the cosmos. Native culture revolves around a network of myths, rituals and 'teachings'. This chapter studies culture and the built environment as they relate to native communities. In addition, it reexamines the perceptions of time, space, place, sense and identity, as anthropological concepts related to housing and environmental planning.

1.1. CULTURE

1.1.1. The Concept of Culture

Culture has always been a contentious issue for anthropologists and social scientists. There are many definitions of culture. Edward B. Tylor defines culture as "a complex phenomenon which includes knowledge, belief, art, custom and any other capabilities and habits acquired by man as a member of society" (Tylor in Reid, 1988, p.12). The Webster's New Collegiate Dictionary (Second Edition, 1983) defines culture as "the integrated pattern of human behaviour that includes thoughts, speech, action and artifacts and depends upon man's capacity for learning and transmitting knowledge to succeeding generations".

Amos Rapoport argues that all definitions of culture fall into three categories: the first defines culture as a way of life typical of a group, the second views it as a system of symbols, meanings and cognitive schemata transmitted through symbolic codes, and the third defines culture as a set of adaptive strategies for survival related to ecology and resources (Rapoport, 1980, pp.45-46). Although these three definitions seem conflicting, they are complementary. Rapoport concludes that culture is about a group of people who share a set of values, world views, images or schema, and lifestyles, which create a system of rules and habits.[6] In this definition, 'world views' are the ideas and choices of a group of people, 'values' deal with the relative importance assigned to various elements,

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[6] Amos Rapoport proposes that culture is too broad a term to be useful in design, but cultural analysis should begin at the level of dwelling activity (Rapoport,1970, P. 226).

'images' or 'schema' embody the values and lead to certain specific choices, and 'lifestyle' consists of manners, rules, choices, roles and allocations of resources as they are used in relation to the built environment (Rapoport, 1980, p.14, 20).

Some scholars describe culture as something materialistic and related to the physical attributes of human beings (material culture). The proponents of material culture believe that social and economic systems are the basis of a culture in a specific time and place. Bill Risebero, an architectural historian who writes within a European Marxist tradition, argues

> Material condition--that is, social system, political institutions and culture in general, including art and architecture--are dependent ultimately on the way a society earns its living. Modern architecture and design must thus be seen in this context of, and defined by, the modern economic system, a system which began in effect with the great revolutions of 18th and 19th centuries brought the bourgeoisie to power, creating a new world society based on industrial production (Risebero, 1989, p.11).

According to Risebero, the primary fact to be established in the understanding of a culture is the existence of individuals and their consequent relationship to a social system. When the material conditions of a society change, related changes occur within the culture. In his view, as long as exploitative and unjust social system exist in a society, its culture will remain corrupt.

Other scholars believe that culture is composed of ideas, concepts, and ways of looking at the world (cultural evolution). The proponents of cultural evolution believe that cultures adjust in spurts to both the geographic environment and the social influences of neighbouring peoples over a particular period of time. They introduce the idea of an overall process of slow evolution, which cannot be imposed from outside. A. Murdock, a proponent of cultural evolution, writes : "As life condition changes, traditional forms cease to provide a margin of satisfaction and are eliminated; new needs arise or are perceived and new cultural adjustments are made to them" (Murdock in Kluckohn and Stroofbeck, 1962, p.12). The proponents of cultural evolution express a view that assumes a linear development of technological and scientific thoughts.

To sum up, culture implies a set of abstract ideas transferred from one generation to the next by the means of symbolic language. The foundation of culture is based on "values" that are in turn considered significant bases for understanding other cultures. Values are a part of the world view of society and assign relative importance to various elements. They provide foci for the patterns and organisation of cultures.

1.1.2. Time

Objects, events, sounds and rhythms exist in nature beyond our control, but time and space are human creations. Past, present and future are created by each individual. Time gives order to events and events happen within the framework of time. The habitability of a specific environment is related to the concept of time, which is culturally experienced. In Western societies, time is linear - a sequence of events from morning to night, yesterday through today to tomorrow, and from birth to death (Brabec, 1984, p.14).

Different perceptions of time exist among indigenous peoples around the world. For instance, the Sioux have no words or expressions for being late, waiting, or wasting time.[7] Anthropologist Paul Bohannan has reported an entirely different handling of time for the Tiv (Bohannan, in Brabec, 1984, p.14). They point to the sun to indicate a general time of day, and observe the movements of the moon as a determinant of time. For the Tiv, time is like a capsule. There is a time for visiting, cooking, working and so on. When one is in one of these times, he or she can not shift to the other. The Hopi acknowledge no past, present and future tenses in their language.[8] "The Zuni measure time in the line of geographical descent with an emphasis on cyclical qualities of time." [9](Brabec, 1984, p.14)

Canadian natives have yet other means to measure time. The calendar of the Grassy Narrows, as recently as forty years ago, was determined by the "time of the moon", and an animal symbolised each month (Shkilnyk, 1981a, p.110).[10] A. Maria Shkilnyk indicates that the calender of the Ojibway had thirteen lunar months in a year.[11] The reference points for the Ojibway were the seasons, whose cycle dictated their economic activities. Other natives of Canada used different names for the months. The people of Berens River named the spring months according to the birds which made their appearance in the area at that time. For example, Eagle, Goose and Loon were the names for March, April and May. A similar naming system was used by the Grassy Narrows (Shkilnyk, 1981a, p.110).

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[7]Sioux natives, today, reside mostly on a dozen of the United States of America's government reservations, nine of them in South Dakota (Nabokov, 1989).

[8] The Hopi are a group of North American natives who reside in northeastern Arizona (Nabokov, 1989).

[9] The Zuni are a group of North American natives who live in Western New Mexico (Nabokov, 1989).

[10]'Grassy Narrows' is a group of Ojibway natives who reside in Northwestern Ontario--Canada, south of "Big Island".

[11]Ojibway natives were historically located in Northwestern Ontario and Manitoba, including the Chippewa of Michigan, Wisconsin and Minnesota -- also called Chipewayan (Simon et al., 1984, p.120).

1.1.3. Space

Space, a key aspect of the built environment, has a broader meaning than three-dimensional physical space. It is a boundary that separates a living thing from its external environment. Beginning with a simple cell and ending with a human being, every organism has a detectable limit which marks where it begins and where it ends. Different types of spaces exist: human space (e.g., the womb), artificial space (e.g., the interior of an atomic pile), designed or non-designed space. Designed space, in turn, is ordered according to a set of rules and reflects some ideal environment. Two possibilities of designed space are the abstract geometric space (e.g., the modern cities of North America) and sacred space, which is made distinct from profane space by using some cosmic model or prototype to make it habitable (Lynch, 1961, pp.74-75).[12]

Another category of space is behavioural space, which is demarcated by given individuals or groups. Edward T. Hall, who studied territorial behaviour, indicated that "the behavioural influence of territoriality is universal, but its expression is dependent on the cultural perception of space and time". He recognised space as an important factor in cultural contact. As an example, he referred to the traditional settlements of the Middle-East, in which the houses were often built around the courtyards located next to the alleys, and were hidden from the view of outsiders. This built form was unusual for the western missionaries who worked there (Hall, 1959). The built environment is based upon a culture's patterning of its spatial proxemics [13] (Brabec, 1984, p.13).The other example of spatial proxemics is the concept of privacy in Japanese culture in which there is no word for privacy. This is not to say that the concept of privacy does not exist among the Japanese. They prefer crowding in certain situations. Sleeping close together in a room on the floor, which they call Japanese style, is not considered crowded.

Similarly, Canadian natives have their own notions of space. In traditional native settlements, every family had its own area of land. The land was not owned as in the Euro-Canadian concept: it was held in trust for the "creator", to be cared for by the family (Brabec, 1984, p.61). This notion of land ownership and the perception of space were linked with clan territoriality.[14] According to the interviews conducted by Elizabeth Anna

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[12]China and India furnish us with the most developed examples of cosmic models. In the city of Madurai in India, for instance, the city shape, temples, rites, location of activities, main roads and even the bus routes are all matched in symbolic forms (Lynch,1982, p. 75).

[8]Proxemics is the study of relationship between social structures and space, particularly buildings and their placement, transportation modes and their demands on human beings (Hall, 1961).

[14]A clan is a group within a tribe whose members believe they share descent from a common ancestor (which may be human or mythical); individuals receive clan membership through their mother or fathers' line, and generally cannot marry within their own clan (Nabokov, 1989, p.425).

Brabec, if the family ceased to use or care for the land over a period of years, the land would become public property and would be used by the entire band, or could be reallocated to other families in need of it. In the surveys conducted by government agencies in the 1920s, there are indications of "empty" lots between houses. From the perspective of the residents these were not empty lots but portions of a family's territory (Brabec, 1984, p.62).

Clan-based residential patterns dictated the pattern of the old reserves. In order to ensure privacy and separation, there were wide distances between the clans. A site plan of three clan areas usually had a circular layout. The logic behind the circular layout was to have sufficient warning of any strangers' approach. There was a very clear line of vision at the old reserves to protect [against] unwanted visitors. Each house had a line of vision to the water as well, to know who was coming to visit. It was very important to the people of Grassy Narrows to have this security, and all the houses on the reserve were located strategically (Shkilnyk, 1981a, p.101).

1.1.4. Myths and Teachings

Mythical thinking, for natives, is a means of grasping the power of life in a holistic and absorbing manner. The myths are an assertion of an original, greater and more important reality through which the present life, fate and work of humankind is governed and the knowledge of which provides humans, on the one hand, with motives for ritual and moral acts, and on the other, with directions for their performance (Long, 1963, p.43).

'Primitive culture' was the label that western colonialists gave to the cultures of non-Europeans. Consequently, when dealing with colonised cultures, the goal was usually to subsume them beneath the imposed culture of the colonisers. Thus, "non-Europeans have been forced into an *adapt or die* situation and their myths, termed fanciful imaginings, are ridiculed, educated away or merely ignored." (Long,1963, p.42) In today's western society, with its emphasis on rationality and logic, the term myth has become a synonym for falsehood. Scholars such as Charles Frazer believe that myths have no place in reality. He writes, "you will find savage man enmeshed in a nightmare of magic, wizardry, taboos and superstition.... A creature of such fears and terrors that you will wonder that he kept his sanity" (Frazer in Long,1963, p.42). In most anthropological studies, a myth is considered distinct from a legend or folklore: legends deal with historical events and fantasy, while myths deal with the gods. Recently, in North American native studies, the term "teachings" has been used in place of myths (Brabec, 1984, pp.18-19).

Native teachings encompass all myths, some spiritual and some symbolic. They record and interpret the traditions and ceremonies of the people and represent their attitudes and values. Teachings have been presented to the listeners at several different levels. Level One is the superficial level with a readily apparent story and its related imagery. Level Two is the symbolic message level, where the listener must read between the lines. Level Three is the deep structural level, a profound spiritual level, where the listener and healer communicate with gods by abstract nonphysical devices (Brabec, 1984, p.19). The translation media vary in each community. An example of the interrelationship of the three levels is provided by Charles H. Long (1963, p.8):

> If we find a case in which worshippers venerate stones, we should not presume that because of ignorance, fear and pre-logical mentality, the worshippers are confusing their god who is animate, powerful and dynamic with the inert and immobile stone. On the other hand, we should not assume that the worshippers are simply using the stone to represent a deity who has no intrinsic relationship with his mode of manifestation.

In the above example, the stone is not the complete deity, but through the stone that deity makes itself known in a symbolic manner. If one accepts the stone as being the deity, one only sees the superficial aspects. So if it is assumed that all stones are sacred, one would be making a gross assumption based upon the superficial imagery of the teaching (Brabec, 1984, pp.18-19). The third level, that of the deep structure, demands an in-depth study of native theology, which is beyond the scope of this thesis.

In traditional native cultures, any building, including a house, embodied not only the social order, but often their view of the cosmos. Many narratives tell of a "Distant Time" or a "Myth Age" when a "First House" was bestowed upon a tribe as a repository for their emerging culture (Nabokov, 1989, p.38). There was a metaphoric correspondence between dwelling and cosmos: "Indian peoples held the ritual power to renew their cosmos through rebuilding, remodelling, or reconsecrating their architecture" (Nabokov, 1989, p.38). The dwelling was symbolically at the centre of the universe and was divided into three zones: the "Sky-world", the "Earth" and the "Underworld". The soul of those to be born emerged from the sea -- the underworld, whose chief being was the Whale. The social and personal life of people took place on the Earth. After death, they were buried in a grave box near the forest, which was associated with the Sky-world and its chief being--the Thunderbird. This is known as the Indian cosmic house (Figure 1-1).

Native mythology also determined construction techniques and taught the proper way of collecting building materials.[15] The phases of construction and the prayers to be uttered

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[15] Sometimes a myth was recited before construction began (Nabokov, 1989, p.38).

were regulated by the myths. The house and the materials that were used in its construction were considered to be alive. The orientation of the house or village was based on both the tribal mythology and climatic considerations. The orientation of the village reflected the directional order in the universe and signified the progression of man's life through it. The north, south, east and west had only climatic significance, while the axis of the "cosmic house" had symbolic significance.
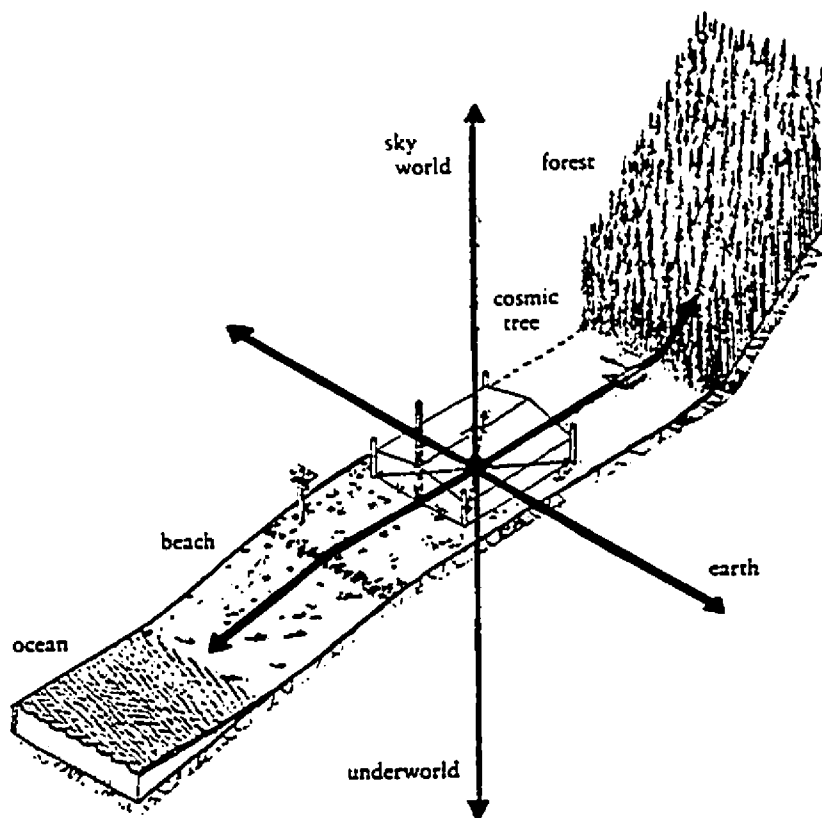
FIGURE 1-1: The symbolism of dwelling as the centre of the universe (Source:Nabokov,1989,p.39).

1.2. THE BUILT ENVIRONMENT

Amos Rapoport defines the built environment as the result of interactions between *Man*, his aspirations, social organisations, world views, way of life, social and psychological needs, individual and group needs, personalities and fashions, and *Nature*, which includes physical aspects, such as climate, site, materials and structural laws (Rapoport, 1969a, p.13). The components of the built environment are not only the physical and geographical, but also the operational, perceptual and behavioural. Rapoport, about different types of built environments, writes:

> Within the physical or geographical built environment there is an operational environment within which people work and which in turn affects them. Within the operational environment is the perceptual environment of which people are conscious directly and to which they give symbolic meaning and within that the behavioural environment of which people are not only aware but also elicit some behavioural response (Rapoport, 1977, p.12) .

Scholars have referred to several factors that influence the formation of the built environment. Among these factors are culture, climate, the technological limitations of the environment, lifestyle, economy and religion. In the vernacular built environment, for instance, any change in built form is based on cultural inferences. Rapoport, by giving examples of sites in similar climates where the house form nevertheless varies, concludes that socio-cultural factors are the most important ones in determining the built environment (Rapoport, 1969a, p.3). He introduces the concepts of "criticality" and "choice", which are effective in the formation of settlements. Where physical-environmental factors such as climate, technology, materials and economy are minimally determinant, house forms and settlement patterns are highly varied.

Literature indicates five aspects which influence the built environment.
1- *Family structure* is determinant in the formation of the built environment. For instance, amongst the Manjas of Ubangi (Africa), who practise polygamy, each wife has her own house. The man visits a different wife each day and does not have a house of his own. In this case, the concept of the extended family requires a specific housing type.
2- *Sex roles* affect the house form, as in some cultures particular parts of the house are considered the woman's domain. In Islamic cultures, men and women have their own territories in the house.
3- *The degree of privacy*, both internally and externally, varies in different cultures. The Japanese house with extreme external privacy but little internal privacy is in contrast with the North American single family house with less external privacy but high internal privacy.
4- *Types of meeting places* are especially applicable to nomadic and semi-nomadic people.

In some cultures the house is a meeting place, in the others, the street, cafe, bazaar or the public bath fulfil this function. In the traditional Iroquoian settlements of Quebec, the "long-house" was the designated meeting place. In contemporary Iroquoian reserves, the house or school still performs this role.

5- *The relationship to the land* is also applicable to nomadic or semi-nomadic people, as well as cultures engaging in hunting or gathering. Hunter and gatherer natives of North America spend much of their time on the land (in the bush), away from the house or settlement (Vakil, 1983, p.16).

1.2.1. Place

There is little differentiation between the terms place and space. Space is an abstract concept, defined as a place when it conveys a distinct character to the user. Norberg-Schulz defines place as being "a totality made up of concrete things having material substance, shape, texture and colour. Together they have environmental characteristics which are the essence of place" (Norberg-Schulz, 1979, p.21). Place is a complex integration of nature and culture, which develops in a particular location and is linked by the flow of people and goods. Luckerman indicates six major characteristics of place (Luckerman, in Brabec, 1984, pp.27-28) :

1- Location is described in terms of internal characteristics (site) and external connectivity to other locations (situation).

2- Place involves the integration of elements of nature and culture. This clearly implies that every place is a unique entity.

3- Although places are unique, they are interconnected by a system of spatial interactions and transfers.

4- Places are localised; they are parts of larger areas and are the foci in a system of localisation.

5- Places are emerging or becoming, so they have a distinct historical component.

6- Places have meanings; they are characterised by the beliefs of man .

Modern men and women believe that science and technology have freed them from a direct dependence on place. This isolation is, however, inherent in North America's native communities, where identification with the land has been repressed and a sense of belonging to any particular place lost. C.G.Jung pointed out that where basic human needs, such as the dependence on place, were repressed or neglected, their specific energy disappeared into the unconscious and formed an ever present and potentially destructive

shadow to the conscious mind: "His God and his demons have not disappeared at all; they have merely got new names. They keep him on the run with restlessness, vague apprehensions, psychological complications, an insatiable need for pills, alcohol, tobacco, food- and, above all, a large array of neuroses" (Jung, 1964, p.8).

1.2.2. Sense and Identity

Sense is defined as the material substance, shape, texture and colour in a specific built environment. Kevin Lynch defines sense as the degree to which the settlement can be clearly perceived and mentally differentiated and structured in time and space by its residents and the degree to which that mental structure connects with their values and concepts-- the match between environment, our sensory and mental capabilities, and our cultural constructs (Lynch, 1982, p.118). A place affects us through our senses-by sight, touch, smell, and sound. The quality of a place is a result of these sensual attributes as well as the cultural context of the perceiver. The *sense of a settlement* means the clarity with which it can be perceived and identified, and the ease with which its elements can be linked with other events and places in a coherent mental representation of time and space and that representation can be connected with non-spatial concepts and values. Sense depends on spatial form and quality, but also on the culture, temperament, status, experience, and current purpose of the observer. Thus the sense of a particular place will vary for different observers, just as the ability of a particular person to perceive form varies for different places (Lynch, 1982, pp.131-132).

The simplest form of sense is *identity*, in the narrow meaning of that common term: "a sense of place". Identity is the extent to which a person can recognise or recall a place as being distinct from other places -- as having a vivid, or unique, or at least a particular character of its own (Lynch, 1982, p.131). Identity, whether personal, communal, or ethnic, is an important force in the lives of any people. Identity asserts a person's place in the world, a place either physical or abstract to which he or she belongs (Brabec, 1984, p.74). One's home and childhood landscape are identifiable settings. A good place is accessible to all the senses, makes visible the current of the air, engages the perceptions of its inhabitants. Place identity is closely linked to personal identity. "I am" here supports "I am." (Lynch, 1982, p.132)

1.3. CONCLUSION

As culture affects attitudes, values and perceptions of a social group, it also influences the built environment. In return, a built environment is capable of affecting those people who live in it. Therefore, there is a cyclical (or interdependent) relation between culture--which includes attitudes, values, myths and rituals-- and the built environment, which includes place, sense and identity. To design a new built environment for a group of people within a culture, it is necessary to comprehend the culture, traditional built environment, past, present and potential future of those who will inhabit it.

Native beliefs and mythology challenge our assumption that an objective world exists independently of our own creation. Native people's perceptions of time, space, place, sense and identity are different from those of non-natives. Their reality contains important information for ordering human settlements in space and for guiding individual experiences in time. Natives' conceptions of time and space also satisfy certain everyday requirements in the pursuit of livelihood and in the preservation of their social order.

To deal with housing issues and planning problems of native reserves, professionals must understand the concept of "community" among native people. Social bonds such as kinship ties and family structure determine the lifestyle of native people. How these social bonds relate to housing and planning issues? What are the types of native communities? The following chapter focuses on these questions and issues.

CHAPTER 2
THE CANADIAN CONTEXT : NATIVE CONCEPTS OF COMMUNITY

Natives of Canada are classified into three major groups: *status natives* with treaty rights, *non-status natives*, and *Inuit (Eskimos)*. Because most of the housing and planning problems involve status natives, the thesis deals with this group. As of December 1970, there were 250,781 status natives in Canada and approximately two-thirds of them lived on reserves. In 1980, the Department of Indian Affairs and Northern Development reported that there were 2,242 separate parcels of reserve land, a total of approximately 16,000 km^2 (DIAND, 1980). In 1961, the average band size was 350 persons, and in 1979 this size increased to 525 (McDowell, 1989, p.43).

As discussed in Chapter 1, the built environment is a physical phenomenon which involves the social and cultural aspects of human beings. The sense and identity of a group of people are inextricably related to the built environment. In Canadian native reserves, the spatial organisation of settlements contributes to the concept of community, and forms the context within which people make their social decisions.

2.1. TYPES OF NATIVE COMMUNITIES

Social scientists have recognised three universal attributes in any built environment: bio-physical, social and cultural. These attributes are determinant in the formation of social groups and in the division of labour based on age, sex and status. Furthermore, to live together, all groups need delineation of their rights, obligations and privileges. In modern sociology, this system is called a "social system." The cognitive organisation of a society juxtaposes patterns of relationships in such a manner as to enable people to make generalisations about past events and express predictions about future events. This cognitive organisation of an individual and the standards by which he/she perceives, predicts, judges and acts are defined as a "cultural system." Social and cultural systems establish the basis of a "community." (Chance, 1968, p.14)

A Euro-centric application of the concept of community is at variance with that of natives. In Euro-Canadian culture, community refers to a physical network comprising a town, village or suburb (Simon et al. p.57). The 1983 Webster Dictionary defines community as "a locality, district or city where people reside". James T. Lemon indicates that in western culture, being close to neighbours is prerequisite to the sense of community (Lemon, 1978). As the distance between neighbours increases, the sense of community decreases. Being part of a hunting and gathering society, Canadian natives reestablished their community several times a year. The community, as socially defined, was associated with more than one settlement or site. Therefore, there was no sense of belonging to a specific site or area. A. Maria Shkilnyk indicates that in Ojibway reserves:

> Community was not bound by notions of year round residence in a specific village. On the contrary, the "community" was the ebb and flow of families over a territory without exact geographical limits, the movement between winter trapping grounds and summer residence on the old reserve, the alteration between the times of gathering and the times of dispersal.... This movement gave communal life its ever changing form and character, while other linkages and ties gave "community" its meaning (Shkilnyk, 1981b, p.50).

Scholars of native studies have isolated three main aspects of native community: the social, spiritual and physical (Trigger, 1968) (Shkilnyk, 1981a and 1981b) (Simon et al., 1984). For natives, physical proximities are not as important as social and spiritual bonds. The physical aspect of community is interconnected with the social and spiritual. A. Maria Shkilnyk found, that in the old Grassy Narrow reserves the organisation of space was intimately related to the social order; the social order was, in turn, connected to the conceptions of property and land-use, and to hunting and trapping as a means of livelihood (Shkilnyk, 1981b, p.43).

2.1.1. Social Community

The social aspects of native communities are defined by three basic precepts: the sharing ethic, community leadership, and family structure (Simon et al., 1984, pp.72-80). Although these precepts seem not to be related to the physical forms of community planning, they do influence it. Understanding these precepts will help planners to design communities in harmony with the native way of life. It will be shown that in contemporary reserves, social concepts such as sharing ethic, kinship ties and family structure have not been satisfactorily addressed.

SHARING ETHIC

In traditional hunting and gathering societies, the sharing ethic was vital for their survival. When a group of natives went hunting, not all of them were successful. At night, when they gathered in the hunting lodges, they would share the game. The band council had the responsibility to ensure that no one was without food, and special care was provided for widows, orphans and disabled people.[16] The concept of sharing still exists in native communities. A common aspect of sharing has been noticed by J.C.Simon who found that on the Ojibwa reserves "it seemed that no matter what time of day one visited, there was always food to be offered to a visitor" (Simon et al., 1984, pp.72-74).

COMMUNITY LEADERSHIP

In traditional native settlements, in which leaders were chosen on the basis of group consensus, all band members were considered equal with respect to the right of decision-making. The selection criteria for a leader included personal qualifications such as good hunting and trapping skills, superiority in religious power and being respected by the band members. In Ojibwa reserves, similar qualities were required from a band leader. "One of the prerogatives of a leader was to speak, but when speaking he did not purport or even presume to speak on behalf of his people without first seeking their guidance and their opinions upon the matters to be discussed" (Johnston, 1976, p.79). Following the increase of government interventions in the 1940s, the forms of leadership changed. The chief today holds very few of the traditional responsibilities of council. Members of bands requiring assistance go directly to government representatives or the welfare office. Since chiefs are elected mainly because of their ability to relate to government officials, they rarely hold the full respect of their band members (Bishop, 1974). In contrast with previous circumstances, "this effectively restricts him [chief] from helping people with their problems, since within the new social structure his concern is now seen as interference and is resented" (Simon et al., 1984, p.79).

FAMILY STRUCTURE

The nature of hunting and trapping societies demanded a family structure based upon kinship.[17] Migratory native groups had a communal life and lived in hunting groups that contained two or three families in addition to other individuals. Except on the few

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[16]Based on author's interview with the chief of Mistissini Band - September 1993.

[17]Lewis H. Morgan (1965, p. xv) was the first anthropologist to make an efficient distinction between "family" and "household". A family is a kinship group. A household is a local group. In almost all societies of the world the local group known as the household or domestic group is based on some combination of kinsmen-- some part of the extended family. But that fact does not make family and household the same thing. They have different defining characteristics.

occasions during the year when people would gather to celebrate, the family groups were independent from the rest of the band. Kinship ties were the bases of social and spatial organisation of the families. Land was distributed to the families so that each band had its own territory. In Ojibwa reserves this feature became an integral part of the spatial form of the community and it was not until the government promoted year-round, permanent, and highly concentrated reserves that this spatial form changed (Shkilnyk in Simon et al.,1984, 74-75).

A. Maria Shkilnyk (1981a) documented the family structure in contemporary Ojibway reserves and J.C.Simon (1984) described the social problems of Grassy Narrow reserves. Both studies indicate that the meaning of community, as it existed in the old reserves, has not been restored in the new reserves. The structure and form of native communal life has been destroyed. Families in need of help rely on the government, not on the members of their community. Consequently, social bonds are weakening and people do not feel responsibility or goodwill toward their bands.

2.1.2. Spiritual Community

Traditionally, communal life was closely related to spiritual precepts, which revolved around three central ideas: the circle, fire and the land. It is imperative that architects and planners recognise these concepts.[18]

THE CIRCLE

The circle, in native cultures, constitutes a comprehensive understanding of life and the world. It symbolises the "Creator", who is responsible for maintaining the circle in harmony with the world. Although the circle is made up of many different parts, none can stand on their own and must join to make an integrated whole. In old Ojibway reserves, the community was linked to a circle composed of multiple elements, all of which interconnected to produce the life of the community. "Time is seen as being cyclical, with future and past equating to circle." (Simon et al., 1984, p.85) Joseph E. Brown indicates: "Time [is] understood in terms of the circle, that is cyclical and reciprocal. The seasons of nature, the span of a life, human or non-human, are understood in a cyclical manner and are reexpressed formally in architectural styles reflecting the cosmos through a rich variety of ritual or ceremonial forms and acts." (Brown, 1982, p.4)

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[18]A detailed analysis of spirituality of Ojibway people can be gained from Basil Johnston (1976 and 1982) and Norval Morrisseau (1965).

FIRE

Fire symbolises the light and the life of native people. In Mistissini reserve, for example, the sacred fire leads people back to the traditional ways, to live in harmony with the earth. It is precisely this symbolic fire which "according to spiritual leaders and the teachings is in danger of going out," that native people hope to strengthen by returning to traditional ways (Simon et al., 1984, p.86). "We put part of the food and tobacco in the fire. In this way we give it back to the outside, where it comes from. Tobacco also goes to the outside. Long time ago the old man established these traditions", says Sam Blacksmith, a hunter of Mistissini (*Cree Hunters of Mistissini*, National Film Board, 1972). Inappropriately, architects and planners have attempted to translate the symbolic significance of fire into the physical manifestation of a fire-pit at the centre of new communities and thus have misunderstood that fire is perceived as a natural rather than manipulatable phenomenon.

THE LAND

Native people of Canada regard themselves as the custodians of the land, which is to be used during their lifetime, and which must be passed onto their children. Basil Johnston in *Ojibwa Heritage* writes:

> Even we were certain that our lives, like those of the White Men, would be enriched by the sale of out land- do we have the right to surrender it ? If we give away the land, we are giving away the rights of our children, because the land is a gift of the Great Mystery to our people... To relinquish that gift to another would be like rejecting it. Our land was a gift to those who have gone and whose bones are interred within the earth, to those present whose feet stand yet upon the trails, and to those still to come. The ownership of our land rests with the whole tribe for as long as the tribal fire burns. When our generation passes, ownership comes to the next generation. That is the way it has always been. And that is the way it ought to be (Johnston 1976, p.169).

Similar perceptions of the land exist among Cree natives of northern Quebec. John Blacksmith, a Mistissini hunter says:

> I have been hunting in this land for 30 years. The land has been given to me. After the old man who hunted here died, I have hunted on it and looked after it very well, and I hope that one of my family will do same.... It is quite ridiculous, this idea of the white man that a person can own all of the earth, and everything that's under it, and every thing that moves on it."
> (Cree Hunters of Mistissini, National Film Board, 1972)

A sense of identity and security is gained from the land, "without the land, the community would feel adrift; with the land they have a home" (Simon et al., 1984, p.88).

For natives, nature is not considered wild and in most native languages there is no word for wilderness. The Mistissini Cree respect the environment, the trees and animals. For them, the metaphysics of the earth and nature has a strong meaning: all things revert in an elemental way to nature. The Cree regard themselves as an integral part of the environment and accept all natural phenomena. Sacred places and mythical themes are experienced through landmarks such as a rock, a grove, a mountain or a spring. Every particular form of land is experienced through the oral traditions of myth as the "locus of qualitatively differentiated spirit beings.... In this way the land and the lives of the people are made meaningful, since they cannot conceive themselves apart from the land" (Brown, 1982, p.12).

Recently, architects and planners have attempted to literally translate the concept of circle to the site plan of communities (Figure 2-1). However, sacred places may not be artificially created in this manner; their location may only be determined intuitively. As J.C. Simon indicates: "In a traditional settlement it is highly inappropriate for an outsider to ask about the spiritual places of a community, although the strength of this taboo varies between communities" (Simon et al 1984, p.87). The location of the sacred fire and sites must be chosen only by a spiritually strong member of the group.
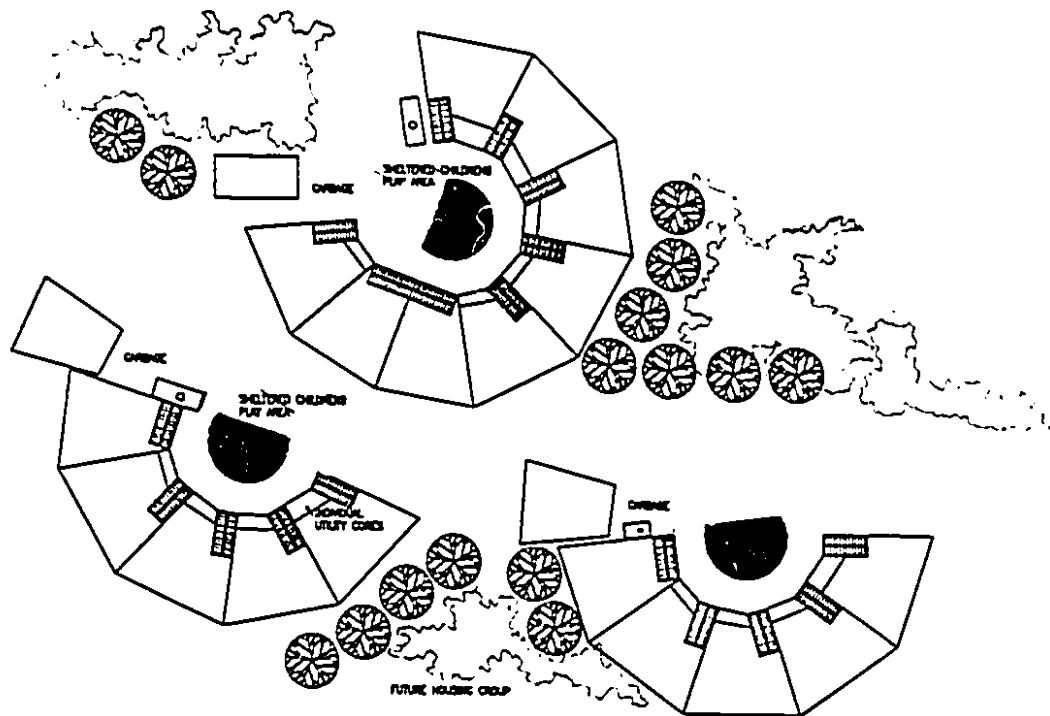
FIGURE 2-1: The design concept of Kennedy and Smith Associates (1967) translated the native concept of "circle" literally, and designed site plans with circular pattern.

2.1.3. Physical Community

In urban Canada, settlement patterns are related to density. In native communities, due to both the population and the large land holdings, settlement patterns are not related to density. "People per acre" is not the main criterion for determining housing density. What is ample distance in one culture is not experienced in the same way by another. Moreover, what is considered as high density for one native group is not necessarily deemed crowded for another. A more appropriate typology of settlement patterns is revealed in the survey that Kennedy and Smith Associates conducted in various native communities (Kennedy and Smith, 1967, p.20). Four physical patterns of settlements become evident: compact, cluster, split (or scattered), and linear (Figure 2-2).

Compact Settlement

O ▬ ▬ Housing Groups   Cluster Type Settlement   Split or   Linear Settlement

⸘⸘⸘⸘⸘⸘⸘⸘ Shoreline   Scattered Settlement
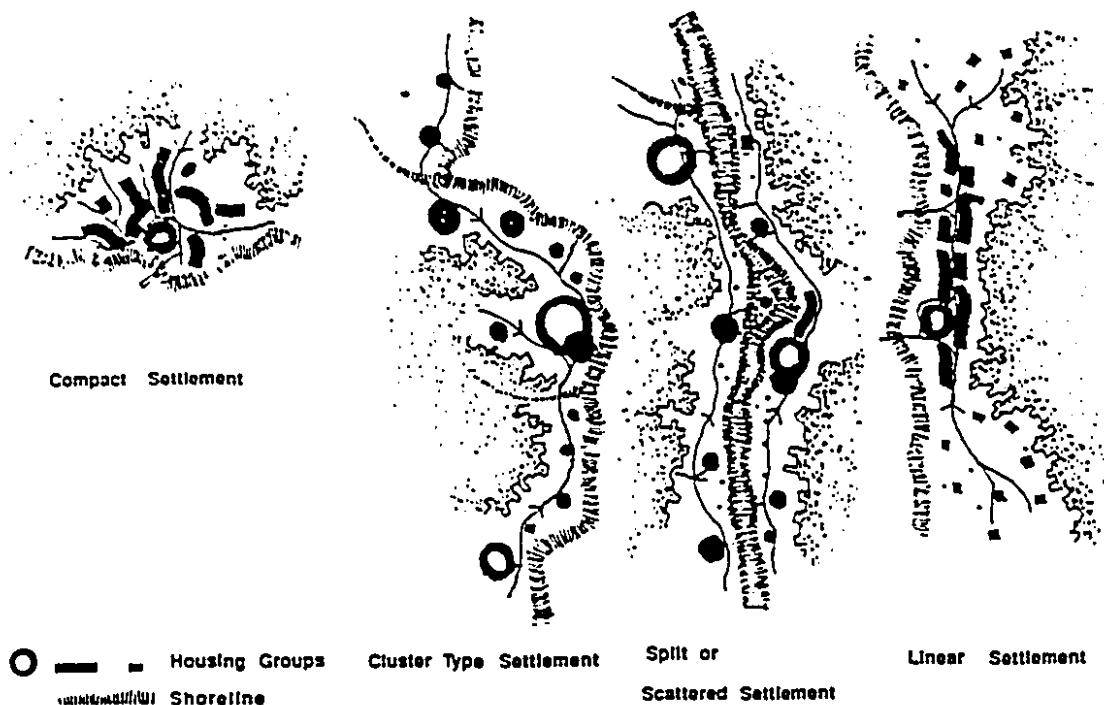
FIGURE 2-2: Four settlement patterns found in traditional native communities of Canada: compact, cluster, split (or scattered), and linear (Source: Kennedy and Smith Associates, 1967, p.20).

In traditional Cree reserves, the split (or scattered) pattern was the common one. The Cree still prefer this pattern. The main reason for this preference is that the privacy of residents is better preserved. Where the layouts of the settlements were not dispersed, the Cree altered them. The Fort George reserve demonstrates a good example of natives' intervention in their settlement pattern. In the early 1950s and 1960s, a number of houses were designed and built by the Department of Indian Affairs and Northern Development (DIAND) in Fort George. The aerial photos taken in 1980 shows that a number of pedestrian paths and vehicular roads have been added. New tepees, shacks, storage, and houses have been built in a dispersed fashion. Figure 2-3, illustrates site plan of Fort George extracted from aerial photos.
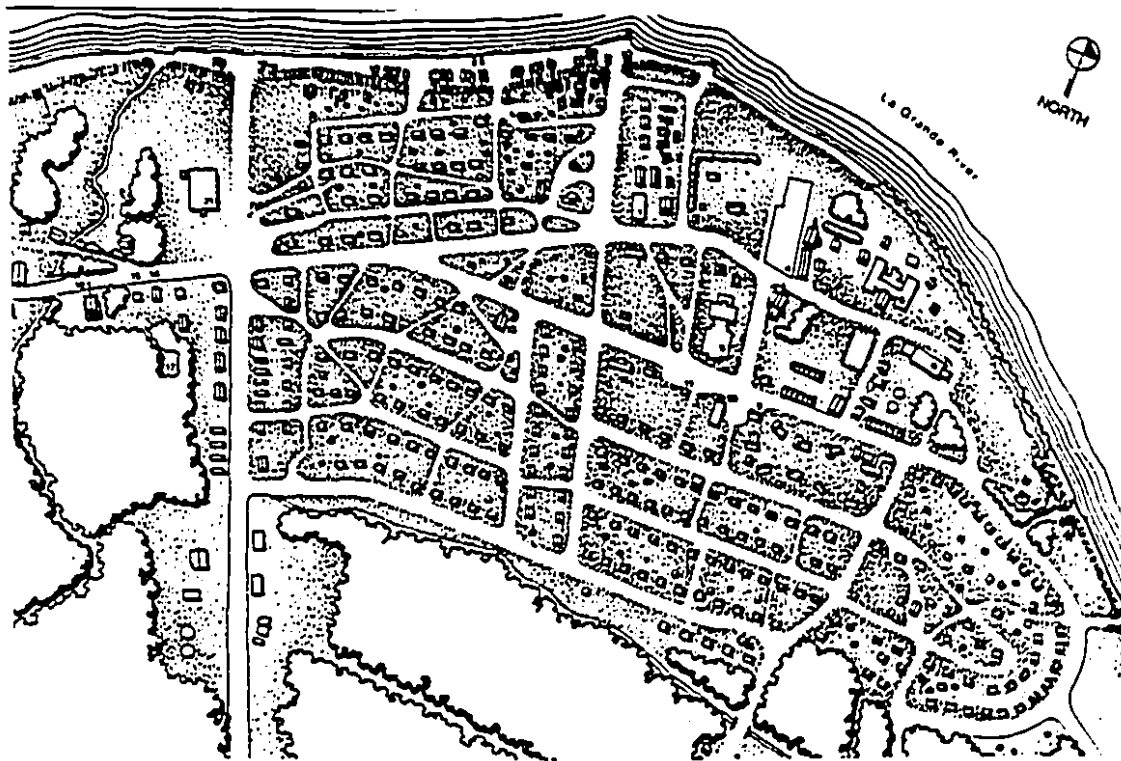
FIGURE 2-3: Plan of the old Fort-George, with paths created by people crossing streets and residential yards (Source: Anderson, Covo and Corsillo, 1981).

Access to nature and the preservation of sacred sites were important aspects of site planning in traditional Cree settlements. The settlements were located in places where easy access to rivers and hunting grounds was possible. Although recently the dependence upon these grounds has decreased, they still have a great impact on the formation of settlements. Sacred sites dictated the selection of settlements. Sacred sites existed as an objective communal reality. Rivers and bridges were considered holy places. Trees and stones took on a power through which people could connect themselves to their own past. In the new reserves, the psychological significance of sacred sites is often ignored. These sites are usually bulldozed, developed and changed without any regard for these simple but fundamental cultural matters.

2.2. CONCLUSION

If architects and planners are to design communities which comply with the native way of life, their role should be as facilitators translating the goals and wishes of people. Planning goals should respect but not misuse the symbology of the land, the circle and fire. Consequently, in order to suit the particularity of the native lifestyle, Euro-Canadian planning and housing standards and the basic assumptions associated with these should be changed or re-addressed.

The problem of community and environmental disorder is, to some degree, common in most native societies of Canada. However, different native communities are characterised by specific housing issues and planning requirements. Because of this variety, a study of native housing is greatly facilitated by focusing on one group, to be explored in detail.

The Cree communities of northern Quebec have some housing and planning characteristics which are common to other native communities of Canada. First, most Cree reserves have experienced relocation. Secondly, most houses in Cree reserves have been built and subsidised by government agencies or designed by consultants hired by the Bands. Thirdly, the planning of villages, such as Chisasibi and Nemaska, has been executed through community consultation and user participation. In short, Cree villages serve as good examples for a case study of native housing and planning.

CHAPTER 3 :
CREE COMMUNITIES OF NORTHERN QUEBEC

Before 1940, the Cree population of northern Quebec was dispersed over a 240,000 km² area for most of the year, gathering food, and meeting cash needs by selling fur products and game. People lived in multifamily hunting groups of about twenty persons during the winter but joined together in r·vable housing (tepees) adjacent to trading posts, such as Fort George and Mistissini, for the summer. After the 1950s, the Cree reserves faced social and cultural changes. Houses were equipped with radios, television sets, and refrigerators. Dog-teams, once widely used, were replaced by snowmobiles. Teenagers began listening to records and dressing in clothes that resembled those of their North American counterparts. Richard Salisbury about the contemporary Cree villages writes:

> As one approaches villages, however, dramatic changes appear, with road upgraded and even paved. Entering any village, there is an immediate sense of affluence, almost every house being new, of new stores with plentiful stocks of goods, of confidence and activity in band offices, and of people who are busy, and involved in matters of personal concern. There are indeed bush camps with tents and tepees in the summer, but the products of the bush are prepared in the bush and not in the village; fish can be frozen, rather than being smoked in a tepee; hunters can leave the settlement in the morning by truck or by snowmobile and hunt fifty miles away by afternoon. Cree is still the universal language for all age groups, though now a majority understand English, and a hundred or more understand French. The Cree people themselves have changed little (Salisbury, 1989, p.63).

This chapter introduces the Cree communities by describing their history, economics and relocation issues. The social and cultural changes of the last few decades created new living patterns which influenced housing components. These social and domestic living patterns, and housing components are discussed in sections 3.2. and 3.3 of this chapter.

3.1. BACKGROUND

3.1.1. The Area

The Cree natives of Canada are classified in two large groups: *Plains Cree*, who live from the middle of the Labrador Peninsula westward to the prairies, and *Woodland Cree*, (Swampy Cree or Muskegon) including the bands around the southern part of Hudson Bay in northern Quebec (Jenness, 1986, p.12). The Woodland Cree live about 640 to 1300 km north of Montreal, halfway between James Bay and Lac St. John. Their population is 7000 and they live in nine bands scattered across the region. These bands are: Chisasibi, Eastmain, Mistissini, Nemaska, Ouje-Bougoumou, Waskaganish, Waswanipi, Wemindji and Whapmagoostui (Figure 3-1).

3.1.2. History

Before 1803, the Cree lived in small villages and hunting camps and had little social interaction with European settlers.[19] Most of the Cree bands were founded in the 19th century, as the fur trade developed and expanded. Cree villages were supplied from the sea with imported goods and could receive furs brought down by canoes from the huge hinterland (Salisbury, 1989, pp.16-18). Local Cree used to transport the winter fur harvest down to the coastal posts in massive freighter canoes during the early summer, returning upriver with the trade goods needed to supply the post and outfit the next winter's hunt.

The first Cree reserve was established on the island of Fort George in 1803, as a result of a rivalry between the Northwest Company and the Hudson's Bay Company (HBC). By siting the post on the island, the Northwest Company intended to intercept and buy furs from the Cree hunters before they headed south 220 km to the HBC post at Eastmain. In 1852, the Church Missionary Society of London established the Anglican Mission in Fort George. The Anglican Mission and the HBC have served as the two dominant sources of both social and cultural change in Cree communities. In addition to satisfying residents' religious needs, the Anglican Mission also provided health and educational facilities. The first Anglican school opened in 1907, and remained the principle educational establishment of Fort George until the Department of Indian Affairs and Northern Development (DIAND) took over this task in 1963.

The Cree population of James Bay has always been subject to natural cycles of abundance and famine, especially in relation to the size and migration patterns of caribou herds. In about 1912, the caribou herds disappeared from the region. This was followed in the late

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[19]For the historic and economic information presented in this chapter, the author is indebted to Richard Salisbury, whose in-depth research has been a valuable source of information (Salisbury, 1989).

1920s by a sharp decline in the beaver population. Between 1930 and 1936, the HBC closed its smaller posts in the interior of the James Bay region. This forced the Cree to travel to Fort George for their provisions. After the Second World War, the fur trade declined and fur prices decreased. Fur trade was no longer profitable for either the hunters or the Hudson's Bay Company. In 1971, the trade posts of Waswanipi and Nemaska were closed, largely because the supply of these areas could more easily and cheaply be arranged from the towns and rail-heads in Abitibi, where Val-d'or was becoming the regional centre (Salisbury, 1989, p.16).

The year 1948 marked the end of the dominant period of the HBC, when the DIAND began a programme to distribute food to those in need. The role of the federal government steadily became more pronounced until the mid-1970s, as housing, facilities and services were increasingly supplied by the federal government's funds. During this period, Fort George's role as a major regional centre for people, for federal and provincial government administrative offices, and for health, education and commercial services became firmly established. In 1964, the Quebec government set up the Direction Général du Nouveau Quebec and played a more active role in the affairs of the Cree people. Beginning in the 1960s, the federal government began to transfer educational and housing programmes to each band council as part of their overall policy to address the demand of band members for increased control over their own affairs.

3.1.3. Economics

The participation of the Cree in a cash economy is for the most part a phenomenon of the last three decades. Previously, the Cree did conduct trade with non-natives and a certain amount of cash did change hands. However, cash played only a minor role in the overall economy of the Cree , which was based on hunting, fishing and trapping. While the ability of the Cree to participate in a cash economy has changed relatively little, their needs and aspirations have changed drastically. The usual employment opportunities offered by commercial, industrial, and service operations are not ordinarily available on the Cree reserves. Nonetheless, the Cree participate in a wide variety of local and non-local activities for their livelihood. The kinds of work pursued by natives, to a large degree, are determined by the employment opportunities available in the region, but individual aspirations and cultural adherence are also important factors affecting wage labour participation. There are some job opportunities available to the Cree people. However, the highest paying jobs, such as those in the pulp and paper, mining and industrial sectors, do not exist in large numbers on the reserves. The Cree seeking these types of employment must leave their home communities.

Frequently, unattractive living and working conditions, as well as the reported incidents of unfair treatment of native employees and other forms of harassment, have made it difficult for the Cree to participate in wage labour in a non-native context. In most cases, their participation in a non-native work environment is only on a part-time basis, thereby reducing their potential income. In 1981, only twenty percent of the adult male population were employed full-time, while the remainder were either underemployed or unemployed (Salisbury, 1989, p.20). Part-time employment is preferred by the Cree wishing not to be separated from their families and communities for extended periods of time.

In 1971, forest life provided the main source of livelihood for roughly 45 percent of the families in the area, and 55 percent were supported by full-time wage-work, welfare and government aid, though these proportions varied from village to village (Salisbury, 1989, p. 20). In the decade of 1971-81, the number of Cree hunters increased. This increase was mainly due to the introduction of the Income Security Programme (ISP) in 1970. With this programme hunter and trapper families had more steady incomes than those relying on wage labour. In the first full year of the ISP, in 1976-77, 1012 families or single individuals registered their intention to hunt regularly all winter and received a payment in September to enable them to hunt. Members of these families (incl. 'ing children at school) numbered 3960 individuals out of a total Cree population of 7046. In other words, in the winter of 1976-77, 56 percent of the total population were primarily dependent on hunting and the ISP (Salisbury, 1989, pp.76-77).

Although hunting technology has advanced in the last few decades, the traditional hunting timetable still applies: "the timetable of departure for the bush in the winter is still fixed in terms of winter freeze-up and the need to stock up with meat as soon as possible" (Salisbury, 1989, p.20).[20] Radio communication between hunting camps and villages has provided fixed dates for aircraft to call in, and supplies are more predictable. Snowmobiles, tracked winter vehicles and other off-road vehicles have made it possible to look for game more easily than before. Twenty years ago, it took two or three days for a hunter to inspect a twenty kilometre trapline on snowshoes. Nowadays, with a snowmobile, a trapline of 60 km can easily be visited in a day.

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[20]Boyce Richardson, *Strangers Devour the Land*, 1975, A. Tanner, *Bringing Home Animals*, 1979, and H.A. Feit, *Waswanipi Realities and adaptations*, 1979, have described the hunting and trapping life of Cree natives around the 1970s. Films such as: *Job gardens for Fort George, Cree hunters of Mistissini and The Cree of Paint Hills*, have documented the hunting life of the Cree in wintertime.

3.1.4. Relocation

During the 1950s, the solution of the federal government of Canada to the problem of providing facilities and services to small native communities was to cluster them on reserves and thereby reduce administration costs. This action continued into the 1960s, but by this time the relocations were designed more to overcome the failings of the earlier relocations than to ease the provisions of facilities and services (Shaw, 1982, p. 73). Another reason for occasional relocations was the flooding caused by the James Bay, Hydroelectric Project. Poorly thought-out relocations have always been condemned by the natives, public and intellectuals of Canada. M.J. Landa, an anthropologist who studied the relocation of Easterville community in Manitoba, writes: "The relocation was not only unnecessary but wasteful in terms of human and natural resources expended, and in terms of public expense for the actual physical relocation" (M. J. Landa, in Shaw, 1982, p.74). Many examples of poorly-organised relocations exist in Canada. The relocation of the people of Naskapi to Schefferville in northern Quebec is the most disturbing example (Shaw, 1982, p.77). There have also been many less-dramatic relocations, which are highly suspect in conception and unsatisfactory in results. After the 1970s, there was a shift in the federal government's policies towards relocation, partly in an attempt to increase the responsibilities of communities in controlling their own local affairs.

The relocations of Cree communities came after this major shift in the policies of the federal government. In 1976, a committee including several Cree Band members, anthropologists, planners from the Department of Indian Affairs and outside consultants was designated to study the relocation of the Fort George community. In the relocation of other Cree villages such as Waswanipi and Nemaska similar committees were appointed. Although the relocation of Fort George was carefully studied and the planning was carried out in consultation with the Band members, there were, nevertheless, many problems associated with the new village. The experience of Fort George proves that native people at that time were ill-prepared to deal with these changes in their social and physical environment. Since then, the increasing adaptability of the Cree themselves and their willingness to fight for increased control over their own affairs suggests that future endeavours will be more successful.
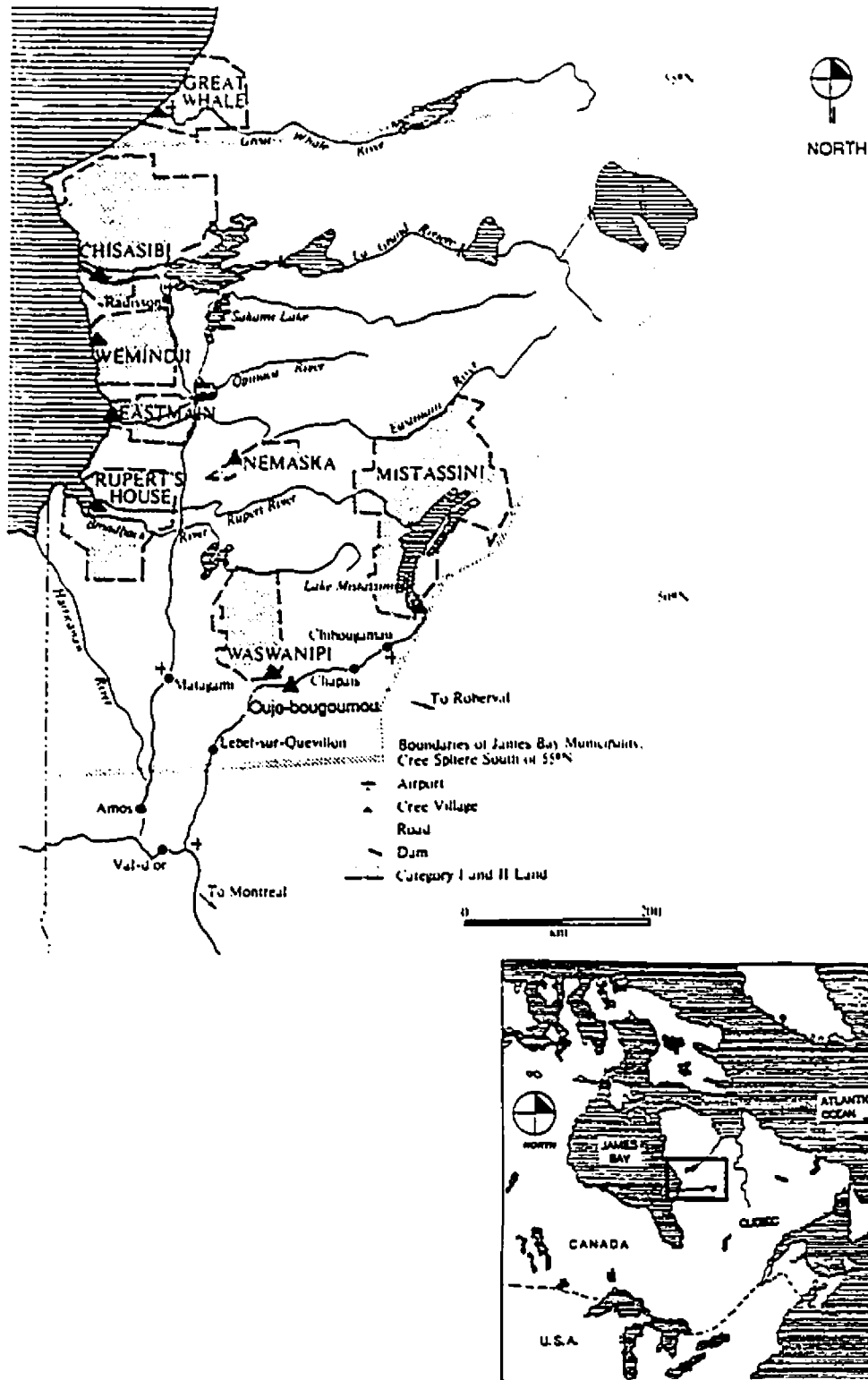
FIGURE 3-1: Cree reserves of northern Quebec: case study area, (after: Shaw, 1982, p.18 and Jenness, 1986, p.11).

3.2. LIVING PATTERNS

In contemporary Cree villages, domestic activities, depending upon their nature, involve individuals, families or other groups of people. Men and women are active labourers in the community, though some tasks fall more to one sex than the other. Although recent social and cultural changes have altered the structure of families, causing traditional living patterns to diminish, the Cree have kept their traditional community spirit. A great variety of domestic activities, such as smoking meat, weaving fishnets and snowshoes, and recanvassing canoes occur within the house and in the yards. Local streets and pedestrian paths, in addition to facilitating movement, become places for work and settings for social interaction. Neighbours help one another and family members participate in domestic activities. The spatial accommodation of household activities promotes different levels of social interaction. The house, in addition to providing space for living and sleeping, becomes a place of work as well as a place in which various aspects of housework can be carried out. Household activities, in order to take place comfortably, need particular locations and settings. Recently-built houses do not allow these activities to occur comfortably. In the following subsections some of the more significant domestic activities are described.

3.2.1. Fur Products and Handicrafts

Being highly skilled hunters and trappers, the Cree are able to provide the primary materials, such as fur and hide products required by their artisans. The design and production of familiar and useful objects are a part of everyday life. Residents prefer to use a corner of their living area or backyard for fur and craft production (Figure 3-2). In the summertime, or when the mild weather permits, the drying and making of fur products and other handicrafts usually takes place in the backyards and frontyards. Fashioning boxes out of birch-bark is also a popular activity, one which is mostly the responsibility of the women, though men sometimes participate. Making birch-bark boxes usually takes place in the backyards.

3.2.2. Weaving Fishnets

Fishing is an important part of family life. The weaving, drying and repairing of large fishnets usually takes place in the yards. The weaving is the responsibility of both men and women. fishing equipment, clothes, boots and other gear need to be stored for short periods during the summer season, as well as during the winter (Figure 3-3).

3.2.3. Making Wooden Toboggans

Toboggans were traditionally used by the Cree for relocating hunting camps and carrying game. A toboggan was usually constructed out of birch or tamarack. Depending on the purpose, the Cree made different sizes of toboggans. The construction of toboggans took place in the backyards as the weather allowed. Though the elderly continue to build wooden toboggans as a hobby, motorised toboggans (snowmobiles) have made them obsolete.

3.2.4. Recanvassing Canoes

Canoes, the oldest means of transportation, are still used in the Cree reserves for fishing, trapping, and carrying game. They require space for storage and repair. It is preferable that canoes be stored in a covered area, such as a garage, warehouse, boathouse, or tent. Recanvassing is an important part of canoe maintenance which is carried out during the spring or early summer. Although women may help in recanvassing canoes, it is usually the responsibility of men.

3.2.5. Games

For the Cree, playing games is an important social activity. In the hunting territories and reserves, large crowds camp together and play games.[21] Because of the lack of designed playgrounds, parks, or sport facilities, children usually play in the backyards, terraces, basements, or on the local roads, where vehicular traffic endangers their lives. Games are not restricted to any age group, and there are different types of games for every group. Playgrounds should be designed as a communal areas accessible to all (Figure 3-4).

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[21]Popular games in the villages are: Shooting Arrows. Sliding Stick. Sliding Game. Stick Hitting Game. Bouncing Stick Game. Playing with Hard Balls. Tossing the Ball. Rolling Game. and Hoop Game (Hungry Wolf. 1973. p.56)
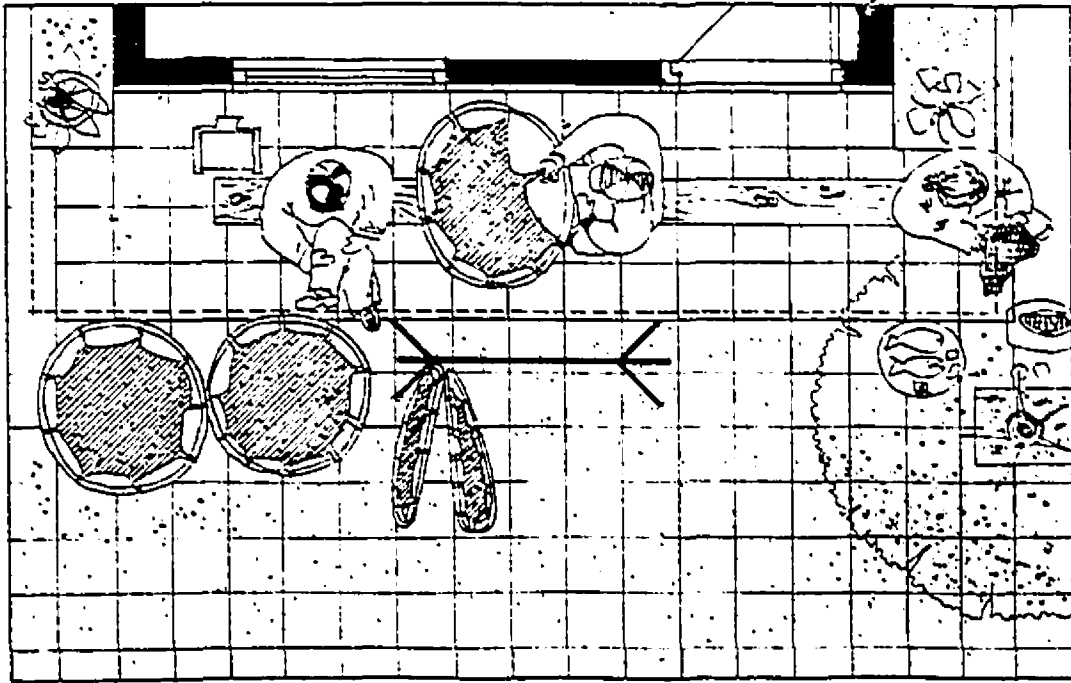
FIGURE 3-2: Preparing fur products in the backyard, (author's sketch, Mistissini, September 1993).
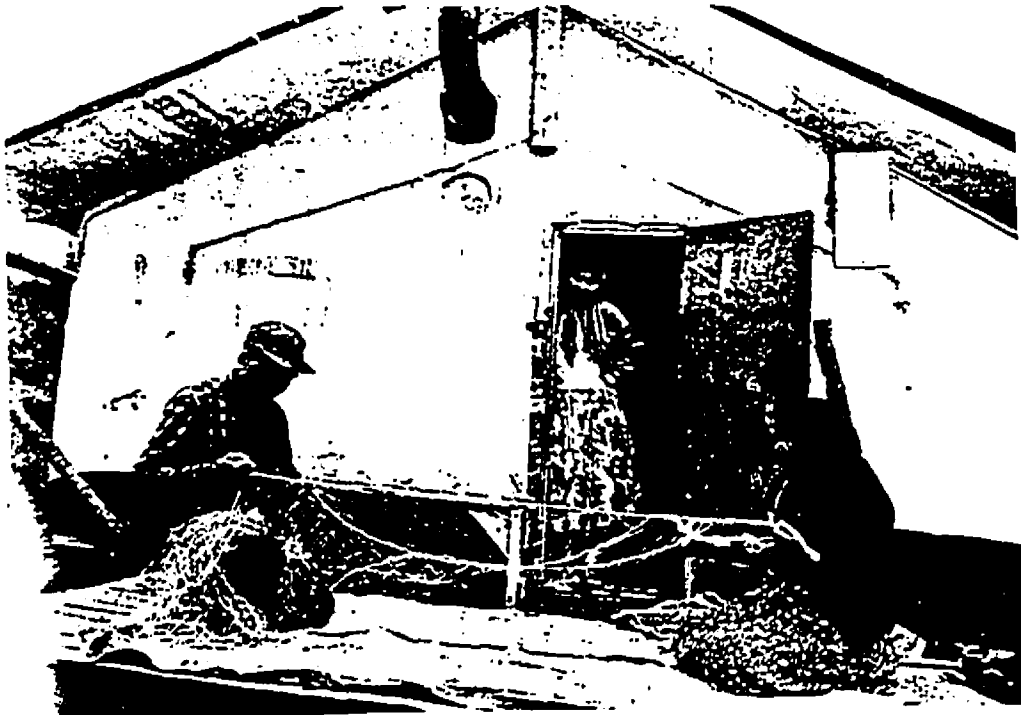
FIGURE 3-3: Weaving fishnets in the backyard, Waswanipi Village, 1967, (source: Marshall, 1987, p.111).
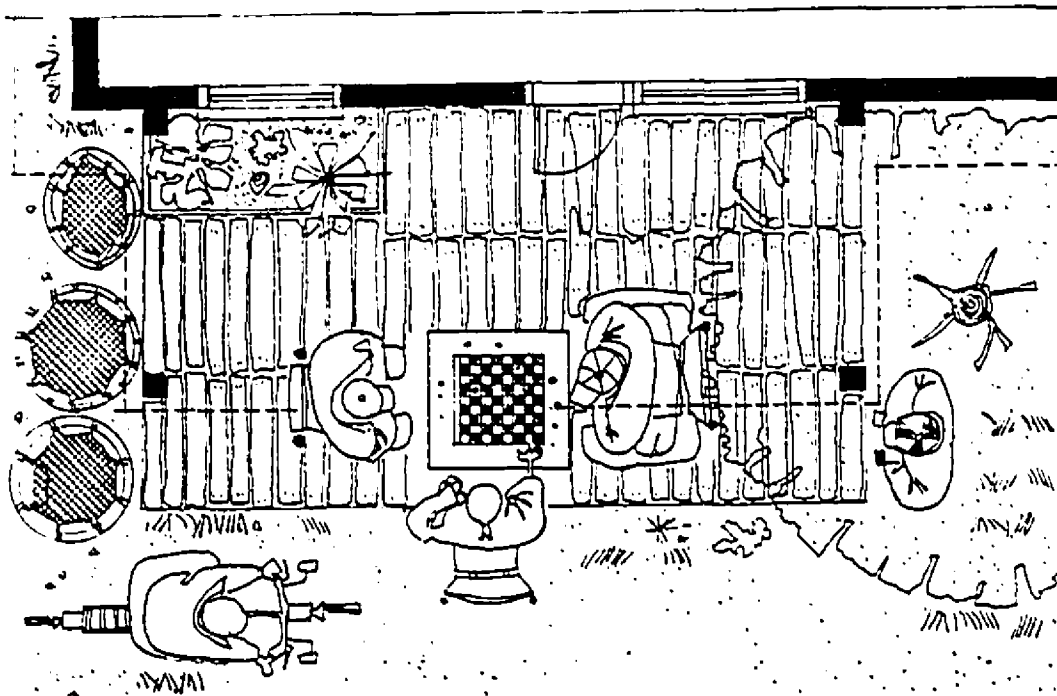
FIGURE 3-4: Playing games in the backyard (Author's sketch. Mistissini. September 1993).

3.3. HOUSING COMPONENTS

Cree families habitually alter the layout of the house to meet changing needs. A living-room can be used as a working area for the production of handicrafts and fur products. A bedroom may be used as a place to store various commodities. Based on its functions, a typical house can be divided into five components: yards, entrance, living, cooking, and sleeping areas. The next few paragraphs briefly describe the nature of activities that take place in these housing components.

A great variety of domestic activities takes place in the backyards and frontyards. These yards are important elements of traditional native housing. Because the new houses built in Cree reserves are usually small, many activities cannot be accommodated inside the house. Therefore, some household activities are transferred from the inside to the outside of the house. The following activities are observed in the yards of houses on Cree reserves: storing vehicles, repairing fishnets, making snowshoes and wooden toboggans, recanvassing canoes, smoking meat, making fur products, and playing games (Figure 3-5).

Houses in reserves usually contain two entrances: the front door, which is beside the street or lane and provides an entrance to the living area, and the back door (or side-door) entrance, which provides access to the basement, storage and kitchen. Residents use the back or side entrance as the main entrance, because it allows easiest passage between the kitchen, interior storage, garage and vehicles outside. Relatives and close friends also use the side-door as the main entrance, since it is the one which the family uses. Some families have locked and sealed the front entrance. In most Cree reserves, residents build an enclosed porch to shelter the entrance in the winter and remove it in the summer. In new housing projects, porches are only enclosed on two or three sides, and do not function as well in the winter (Figure 3-6).

Traditionally, the log-house and tepee were gathering places for family, friends and relatives. The most important space in the house was around the hearth, where communal activities used to take place. Presently, all domestic activities occur in the living-room. The absence of the hearth has reduced the effectiveness of living room. Residents prefer larger living-rooms to smaller ones and in some cases, walls and partitions have been removed and bedroom space has been sacrificed for this purpose (Figure 3-7). They expect the living-room to be large enough to accommodate the traditional activities that took place in the much larger log-houses. Activities that usually take place in the living-room include watching television, listening to the radio, making phone calls, making handicrafts and snowshoes, repairing fishnets, and meeting relatives and friends.

Traditionally, cooking, dining and sitting all took place in a large log-house. Each family member used to participate in food preparation. Cooking was treated as a primary communal activity. The hearth, where food was prepared and eaten, was also the true locus of the home. In extended family situations, one tepee was designated for cooking and smoking meat. Presently, cooking still is an inclusive family activity. Activities that occur in a kitchen include meeting relatives, talking, making phone calls, watching television, listening to the radio, making handicrafts and snowshoes, and repairing fishnets (Figure 3--7).

Architects and designers promote the ideal of one bedroom for each family member. This configuration may not be appropriate for Cree families. A child may feel punished by being made to sleep in a separate bedroom. Up to a certain age, most children prefer to sleep with their parents in the same bedroom. User participation allows residents to determine and question conformity with this ideal.

This chapter described the components of houses in the reserves without reference to any particular village. In the next phase of the study, it becomes necessary to focus on the housing and planning situation of each village. Issues which must be addressed include: the housing objectives and planning criteria of the existing projects, and the degree of their success or failure in achieving their desired goals. The following chapter pursues these issues through the case studies of four Cree villages.
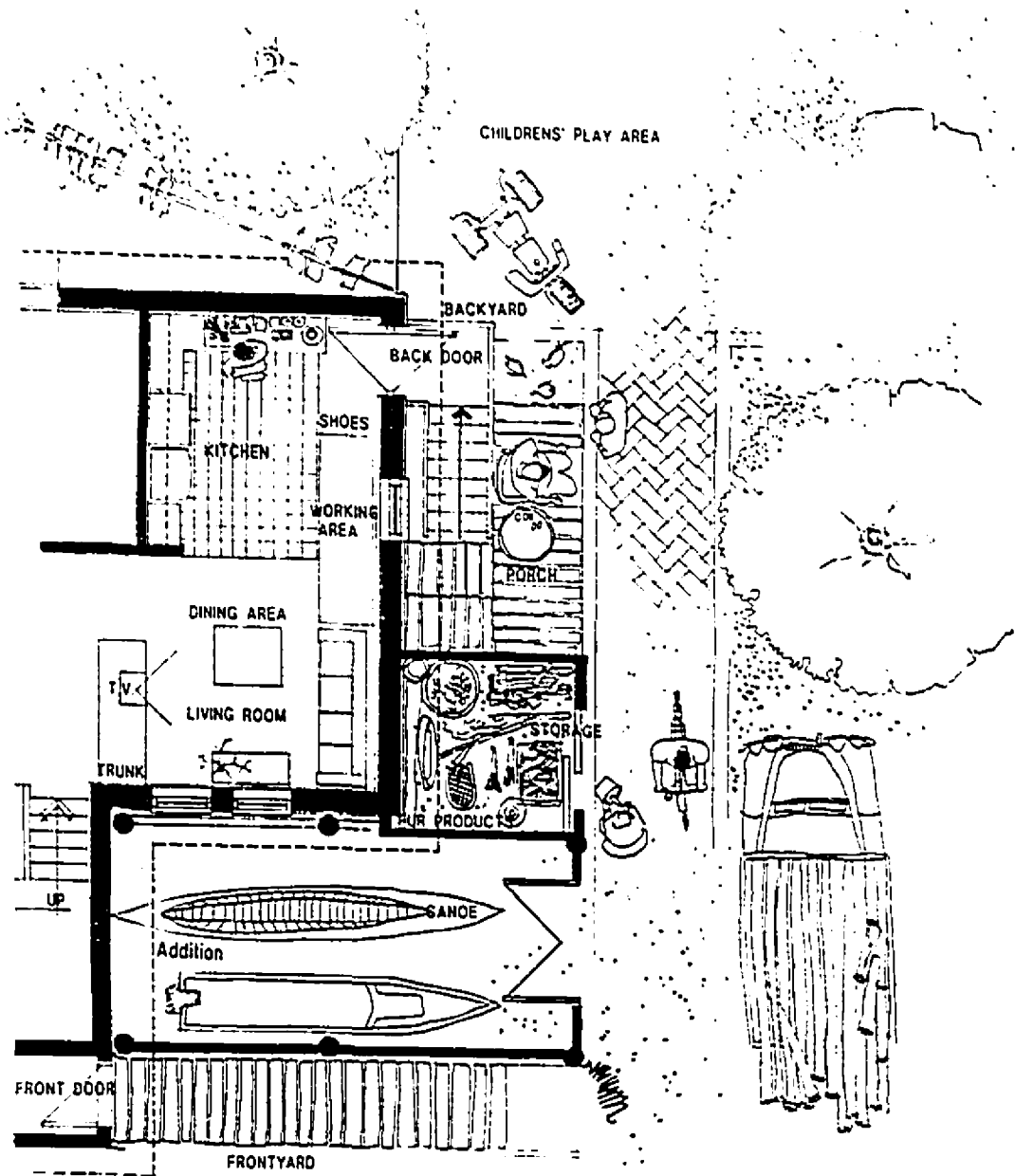
FIGURE 3-5: Activities that take place inside and outside Cree house. (author's sketch, Waswanipi, September 1993).
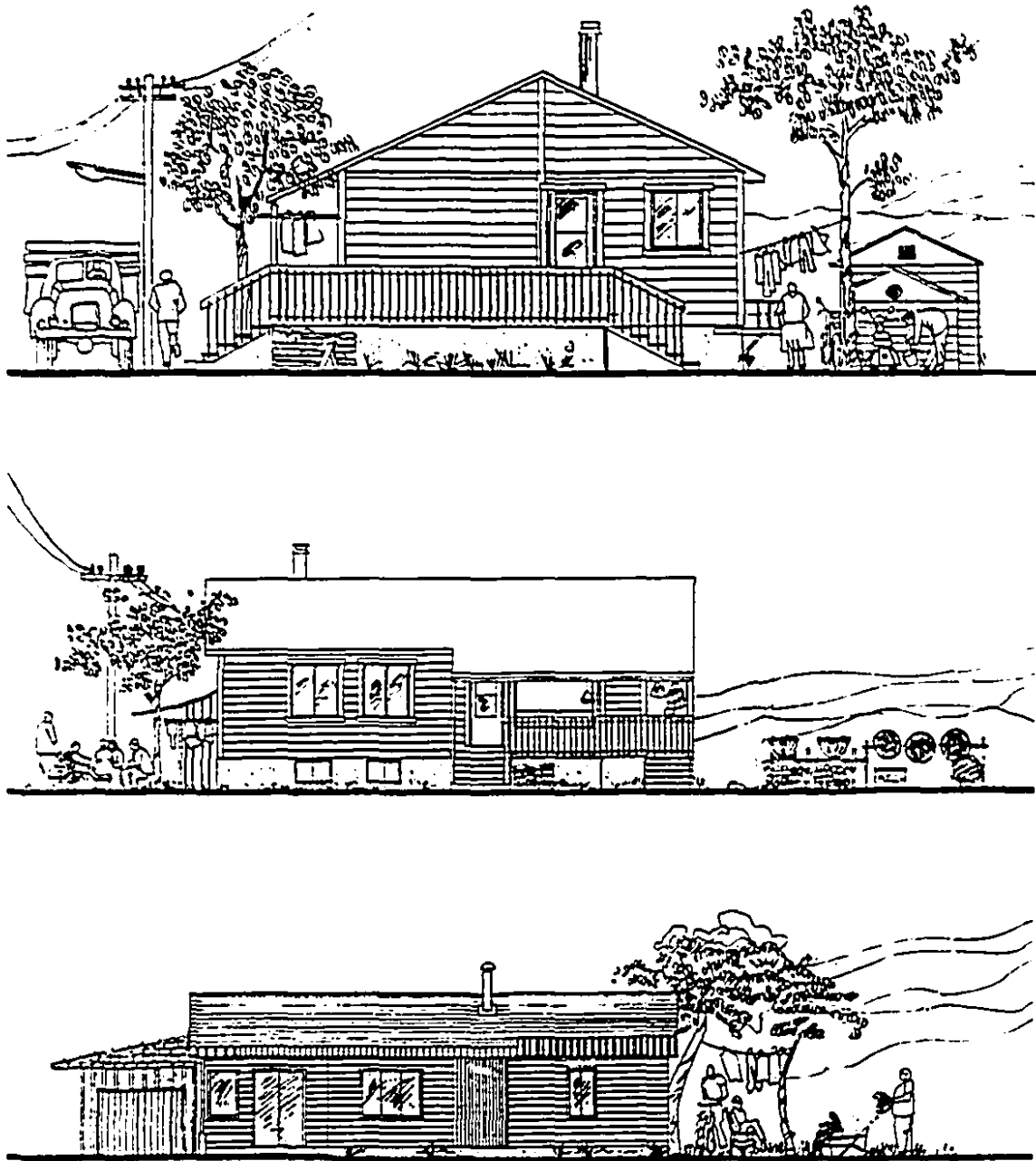
FIGURE 3-6: Elevations of typical houses in Mistissini reserve showing varieties of activities that take place in entrances, porches, terraces and yards (author's sketch based on observations and drawings of the CHC, September 1993).

BOXES

BEDROOM

MIRROR

MASTER BEDROOM

WC UP

BEDROOM

BOXES

DINING AREA

LIVING ROOM

KITCHEN

STUDY

FUR PRODUCTS

FRONTYARD

DN

BACKYARD

CHILDRENS' PLAY AREA

CANOES
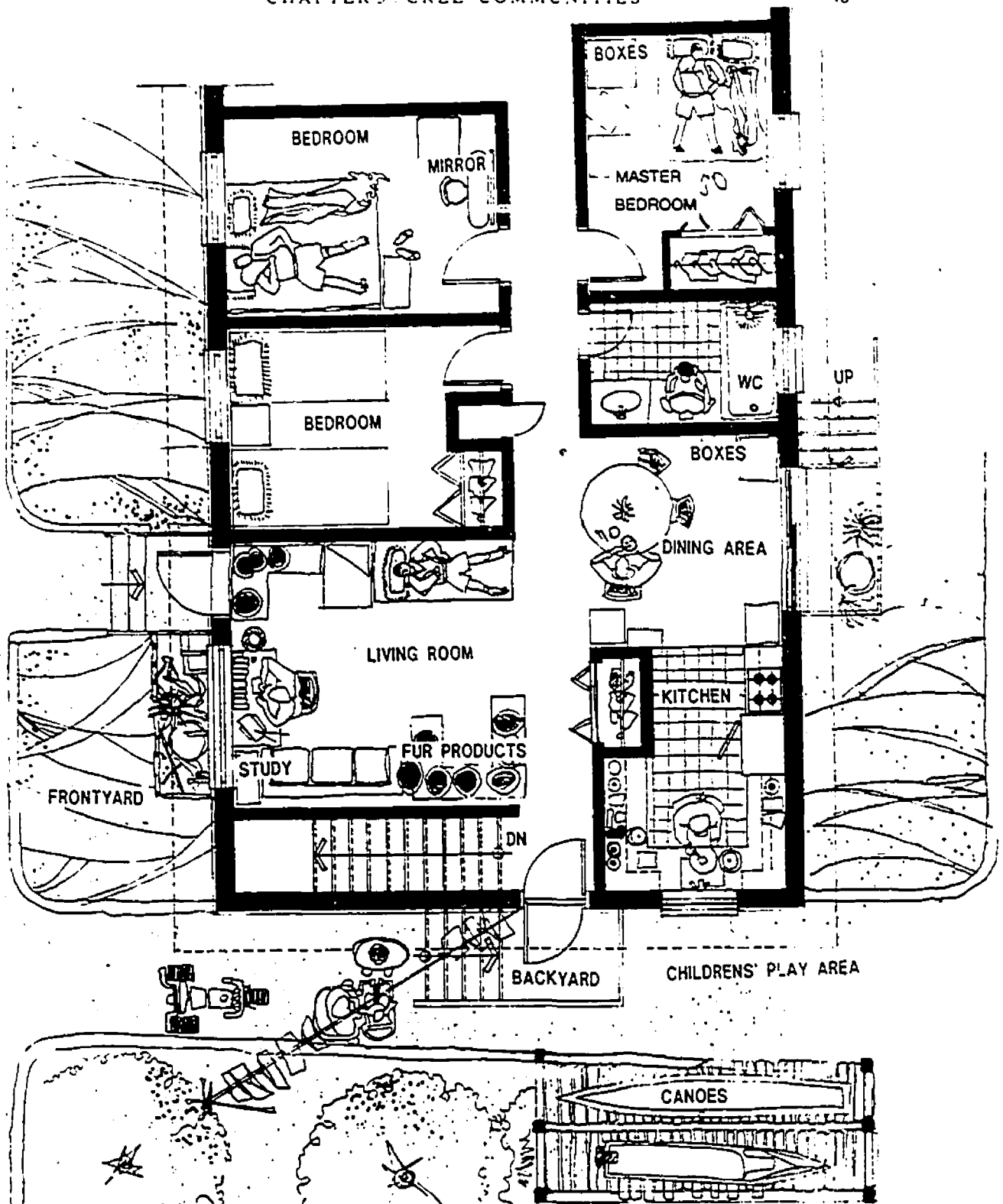
FIGURE 3-7: Plan of a typical house in Mistissini showing variety of activities that takes place in the living-room. kitchen and bedroom (author's sketch based on observations and drawings of the CHC. September 1993).

CHAPTER 4
CASE STUDIES OF FOUR CREE COMMUNITIES

This chapter introduces, as case studies, the four Cree villages of Chisasibi, Mistissini, Nemaska, and Waswanipi; it describes the planning issues, evaluates the conventional planning approaches, and outlines planning problems. The selection of these villages is based on their distinct characteristics. Mistissini is a village in which traditional and new lifestyles coexist, thereby demonstrating multiple aspects of community development. Chisasibi is the first native community in Quebec which is planned in consultation with and participation from a native group--the concept of "identifiable neighbourhood" is explored in its planning. Nemaska provides a good example of houses designed on the "cluster concept." Waswanipi is typical of a relocated native community.

4.1. CHISASIBI (FORT GEORGE)

4.1.1. History
Before 1980, Fort George village, the largest coastal community of the James Bay Cree, was located 900 km northwest of Montreal. It may have been named after George Atkinson Junior, who arrived in September of 1803. Because of the attractive position of this island, the Hudson's Bay Company established its first trading post here. Before the arrival of Europeans in the area, the old village of Fort George was named Chisasibi, meaning "Big River." Fort George played an important role in the Cree economy until the 1970s. In 1940, its population was 750, increasing to 900 in 1960 and 2,000 by 1980. Because of the land erosion and the high water levels caused by the James Bay Hydroelectric project, the community was relocated to its present mainland site (during the summer and fall of 1980). The relocation and construction of the village was undertaken by the Fort George Relocation Corporation. The new town, Chisasibi, is located some 6.4 km upstream of Fort George (Anderson, Covo and Corsillo, 1981, pp. 6-16).

4.1.2. The Planning of Chisasibi
In 1976, the firm of Daniel Arbour and Associates was hired by the Band to develop the master plan of Chisasibi (Figure 4-1). After the exploration of design criteria and the evaluation of existing facilities and services in Fort George and Chisasibi, work on the development of community facilities began. Planning the community facilities involved not only the band members, but also external bodies such as the Hudson's Bay Company, the Cree School Board and Cree Hospital Board (Vakil, 1983, p.87). Community facilities were to consist of a school, an arena, commercial facilities, a hotel, a hospital, churches,

police and fire stations, maintenance buildings, warehouses and a gas station.

The planning of the housing groups began with a survey conducted among the households. The findings were compiled by the consultants and the planning objectives were further defined through additional consultation within the community. Technical considerations and limitations affecting the design of the housing groups -- generally those dealing with site services -- were then considered. The sociological issues were especially sensitive and had to be dealt with carefully. Chisasibi band includes the ethnic groups of Coasters, Inlanders, Inuit and non-status natives.

In Fort George, neighbourhoods were not homogeneous, and both natives and non-natives had indicated that conflicts existed in the village. During the survey of 1977, the consulting firm asked residents whether the natives and non-natives should live together or in separate areas (Shaw, 1982, p.107). About two thirds of all respondents felt that the housing groups should be integrated, despite the fact that Cree and Inuit have the greatest ethnic distinction, and thus a higher tendency for segregation. Another contentious issue was a perceived distinction between existing upgraded houses and that which was newly- built; whether or not the resulting two-tiered society will have negative ramifications for the community remains to be seen.

4.1.3. Housing

During the planning and development of the village in the summer and fall of 1980, about 209 houses were relocated from Fort George to Chisasibi. There were four types of houses to be moved.[22] The layout of the new houses was not different from those of the upgraded ones; they were subject to the same standards and provided the same facilities. Approximately 100 new houses were needed in the new village. It was thought that these new houses would resolve deficiencies found in the existing Fort George houses (Shaw, 1982, p.95).

In 1978, one example of a Cedar Model House and one DINA (Department of Indian and Northern Affair) House were upgraded in Fort George. The DINA House was upgraded in place, while the Cedar house was moved to a new foundation. In addition, a demonstration version of a "Model A House" was built. Each house was fitted with a different heating system and alternative interior finishes to illustrate the range of possibilities available. The features of these houses were assessed in daily use by their occupants. Certain measurable characteristics such as temperature and fuel consumption were also monitored. Other more

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[22] These housing included: 40 DINA Model house, 142 Cedar Model House, 6 Mission House and 21 units built by Waskahegan Corporation. (Shaw, 1982, p.90).

qualitative aspects such as room arrangements, storage space, general livability and functionality were also assessed through interviews with the occupants (Shaw, 1982).

In Chisasibi, the community was involved in the formation of the housing groups. This involvement was most extensive in neighbour and site selection. While the community participated in housing group design sessions, the size and the layout of the cul-de-sacs was dictated more by technical and economic realities such as topography and density. Residents had little involvement in the development of alternatives for the general village plan and site services. In the planning reports the desire of the planning consultants to avoid expensive or time consuming options, or undesirable results, is evident (Shaw, 1982, p.210). In the planning of Chisasibi cultural issues, such as symbology of fire, the concept of circle, land and sacred sites were not addressed.

4.2. MISTISSINI

4.2.1. History
Mistissini was the site of an early Hudson's Bay Company trading post. It was established in the 17th century at the southern end of Lake Mistissini which at that time was an important gathering place for the Cree. Mistissini is located approximately 475 km north of Montreal and 100 km north of Chiobougamau. The land upon which the community is built is located on a steep bank along the western shore. As a commercial centre of the region, Mistissini offers a variety of services to hunters and trappers living in the nearby hunting grounds. In 1987, the population of Mistissini was 2060 persons. Because many families share houses, it is necessary to understand the composition of households.[23] As shown in Table 4-1, 101 households are made up of two or more families. Therefore, the average household size is 5.7 which is higher than the Canadian average of 2.9 (Daniel Arbour and Associates, 1989a, pp.5-11).

4.2.2. The Planning of Mistissini
The first master plan of Mistissini was prepared by Gaston St-Pierre et Associés during 1979. The plan contained 284 housing units and communal facilities. As with other Cree Villages, a main street (Amisk Street) accommodates all commercial and institutional facilities. A boulevard surrounds the village and loop roads accommodate the residential units (Figure 4-2). In the planning objectives prepared by Gaston St-Pierre et Associés there is no utilisation of existing open areas and vacant lots. There is also no indication of socio-cultural aspects of design, such as sacred sites, kinship ties, and family structure.

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[23]Family refers to any person(s) over the age of 25 years either single or married, with or without children. Household refers to any group of people living within the same house.

In 1982, Daniel Arbour and Associates took over the responsibility of redeveloping the Mistissini master plan. The new master plan basically followed the planning principles developed by Gaston St-Pierre et Associés (Figure 4-2). In the new site plan there are five land-uses: residential, commercial, institutional, industrial-municipal, and recreational (Daniel Arbour and Associates, 1989a, p.1). Commercial enterprises include a grocery store, a Hudson's Bay Company store and a restaurant. Most commercial facilities are located close to the main street. Institutional and administrative facilities include a band office, a combined police and fire station, a health centre, three schools, a post office, several churches, and numerous institutional residences, such as youth group homes. Most of these facilities are located near the main street or within the town centre (Figure 4-2).

NUMBER OF FAMILIES[1] LIVING IN SAME HOUSEHOLD[2]	NUMBER OF HOUSEHOLDS (FAMILIES)	%
1 2 3 4 5 6 7	261 (261) 75 (150) 19 (57) 4 (16) 1 (5) 1 (6) 1 (7)	52,0 30,0 11,0 3,0 1,0 1,0 1,0
TOTAL	358 HOUSEHOLDS (502 FAMILIES)	100,0
AVERAGE HOUSEHOLD SIZE (Families per Household)	1.4	
AVERAGE HOUSEHOLD SIZE (Persons per Household)	5.7	

TABLE 4-1 : The household composition in Mistissini village. (source: Daniel Arbour and Associates, 1989a, p.10).

4.2.3. Housing

In 1987, there were a total of 327 houses, of which 109 log houses built during 1962-75 were considered for immediate replacement (Daniel Arbour and Associates, 1989a, p.1). At that time, the total number of families in Mistissini was 502, and the housing deficit was 284. The total cumulative housing requirements expected over the next fifteen years is 637 (1987-2002). This figure includes the above deficit of 284 units. That means that 38 houses per year should be built.[24] Currently the number of houses built per year does not exceed fifteen.

As in other Cree reserves, the predominant housing type in Mistissini is the single family detached house. About 30 percent of households are made up of two or more families who share the same house. Therefore, semi-detached houses and apartments are not appropriate housing types for natives. The main problem associated with the semi-detached units is the residents' lack of privacy. Wapachee, a band member of Mistissini, comments: "Because people were not impressed with semi-detached units, the Band has stopped building them. While heat efficient, the common wall between the units did not prove to be as sound proof as promised. They did not want to live with other people's noise" (Chicoine, 1990, p.72). Despite the fact that it has been encouraged by the Cree Housing Corporation authorities, apartment housing is not favoured by Mistissini residents.[25] Nevertheless, the Band administration is planning to build 50 new apartment units in 1994.

4.3. NEMASKA

4.3.1. History

The old Nemaska village was established in the late 1800s. It was located approximately 120 km east of Waskaganish on the Rupert River east of James Bay. People's income was restricted to revenues from traditional activities such as the fur trade which relied on the Hudson's Bay Company store. The closing of the HBC store in 1972 caused many people to abandon the village and most families went to other Cree reserves such as Mistissini and Rupert House (Daniel Arbour and Associates Inc., 1980, p.2). The other death-knell for the village was the construction of the James Bay Hydroelectric project. The project destroyed the wildlife of the region and caused the rise in water levels of the rivers bordering the Nemaska village. During the negotiations leading to the James Bay and Northern Quebec Agreement in 1971, the right of Nemaska Crees to return to their territories was established. In 1977, the Nemaska people reconfirmed their decision to

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[24]This figure includes the houses required for the institutions such as hospital employees and teachers.

[25]Based on interviews with Band members conducted as part of this research in Mistissini, September 1993.

relocate the village to Champion Lake and selected a site where they would establish their community. The new reserve is located approximately 710 km north of Montreal, and 30 km north of Rupert River (Figure 4-3).

As of January 1986, the population of Nemaska was 358. The average family size is 4.9, and the total number of families is 75. The majority of 75 families are composed of three, four and five members. The total number of houses is 62. As presented in Table 4-2, there are thirteen households which are made up of two or more families. The average size of households is 5.9, which is considerably higher than the Canadian level of 2.9 (Daniel Arbour and Associates, 1989b, pp.2-9).

4.3.2. The Planning of Nemaska

In 1977, the firm of Daniel Arbour and Associates was hired to develop the master plan of the new community. As illustrated in Figure 4-3, the present plan of Nemaska is based on a main street (Main Road) onto which the housing clusters are attached. The intersection of Main Road and Lakeshore Road form the nucleus of the Nemaska town centre. Community facilities, which are grouped in the town centre, include a band office, nursing station, school, canoe rack, church, store, gas station, municipal garage, water reservoir, and pumping station (Daniel Arbour and Associates, 1989b, p.9). The school and playgrounds are grouped together. Because of the danger associated with proximity to the water, these facilities are located as far as possible from the lake.

4.3.3. Housing

The housing stock in 1986 consisted of 63 units of which 59 were considered suitable. From 1979 to 1986, over 51 additional housing units were built by the Cree Housing Corporation. According to Daniel Arbour and Associates, from 1986 to 2002, a total of 68 units will be required to meet the housing needs of the community (1989b, pp.15-16). All of these houses, except a residence for elderly couples, are located in clusters attached to a main road which parallels the shoreline (Figure 4-3). Based on the interviews conducted by Lucie Chicoine, it seems that the cluster concept has worked well for the community (Chicoine, 1990).

NUMBER OF HOUSES	NO. OF FAMILIES LIVING IN SAME HOUSE
49	1
13	2
TOTAL 62 houses AVERAGE HOUSEHOLD SIZE 5.9 persons per house	

TABLE 4-2: The household composition in Nemaska village. (source:Daniel Arbour, 1989).

4.4. WASWANIPI

4.4.1. History

Before 1974, Waswanipi residents had no villages of their own and lived inland in several small settlements within the traditional Waswanipi territories. In November 1974, an agreement was reached between the Waswanipi Band and "Indian and Northern Affairs Canada", that established a new community 500m north of the Waswanipi River near the Val-d'or - Chibougamau road. This community is located approximately 450 km north of Montreal (Figure 4-4). In December 1986, the population of Waswanipi was nearly 756, or 193 families (Daniel Arbour and Associates, 1989c, p.7). As shown in Table 4-3, there are 28 households made up of two or more families. The average household is 6.1, and the average family size is 3.9.

4.4.2. The Planning of Waswanipi

The first master plan of Waswanipi was prepared by Gaston St-Pierre et Associés in 1975. The site plan was designed in the form of a loop road (Poplar Street) with public spaces in the centre (Figure 4-4). The village includes 192 housing units and a range of community and educational facilities. The infrastructure of the village includes a municipal sewage lagoon, a power substation and a Telebec transmission tower (Daniel Arbour and Associates, 1989c, p.1).

The master plan was officially revised in 1977 by the firm of Daniel Arbour and Associates. In the revised plan, the commercial centre of the community is located at the intersection of Poplar Street and Auto-route 113. The town centre includes two stores, a post office, a Cree band office, and a municipal garage. Future building projects include an arena, a cultural centre, motel, office building, shopping centre, warehouse, health centre, and a police station. Because of additional areas required for residential expansion and the new town centre, the community master plan was revised for the second time in 1986 (Daniel Arbour and Associates, 1989c, p.2). At this time (1994) a high-school and primary school are the only facilities in the town centre.

4.4.3. Housing

In 1986, the number of family units in Waswanipi was 192 and only 125 houses were suitable for habitation (Daniel Arbour and Associates, 1989c, p.15). The housing deficit in 1986 was 86. During the period of 1987-2001, 170 housing units (including the current deficit) are required.

NUMBER OF HOUSEHOLDS	NUMBER OF FAMILIES LIVING IN SAME HOUSEHOLD
96 (+ 36 outside families) 23 3	1 2 3
TOTAL 124 households[1] AVERAGE HOUSEHOLD SIZE[2] 6.1 persons per household	.
(1) Not including the 36 families outside the community, who are to move to Waswanipi within a few years. (2) Based on a total population of 756, even though this includes people not yet living in Waswanipi. This is warranted for planning purposes to highlight the need for new houses.	

TABLE 4-3 : The household composition in Waswanipi village. (source : Daniel Arbour, 1989c, p.9).
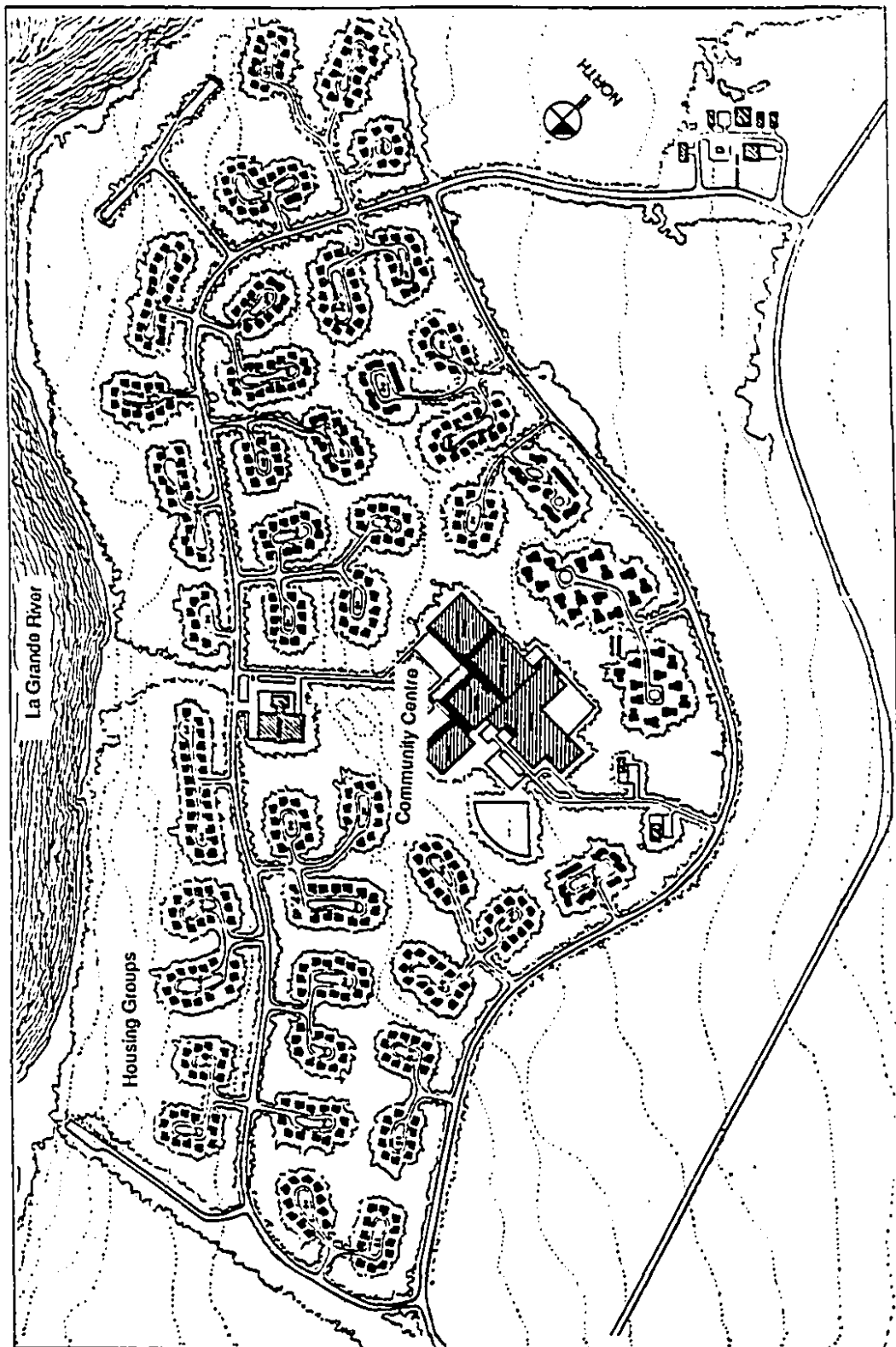
FIGURE 4-1: Site plan of Chisasibi. (after: Daniel Arbour and Associates, 1983).
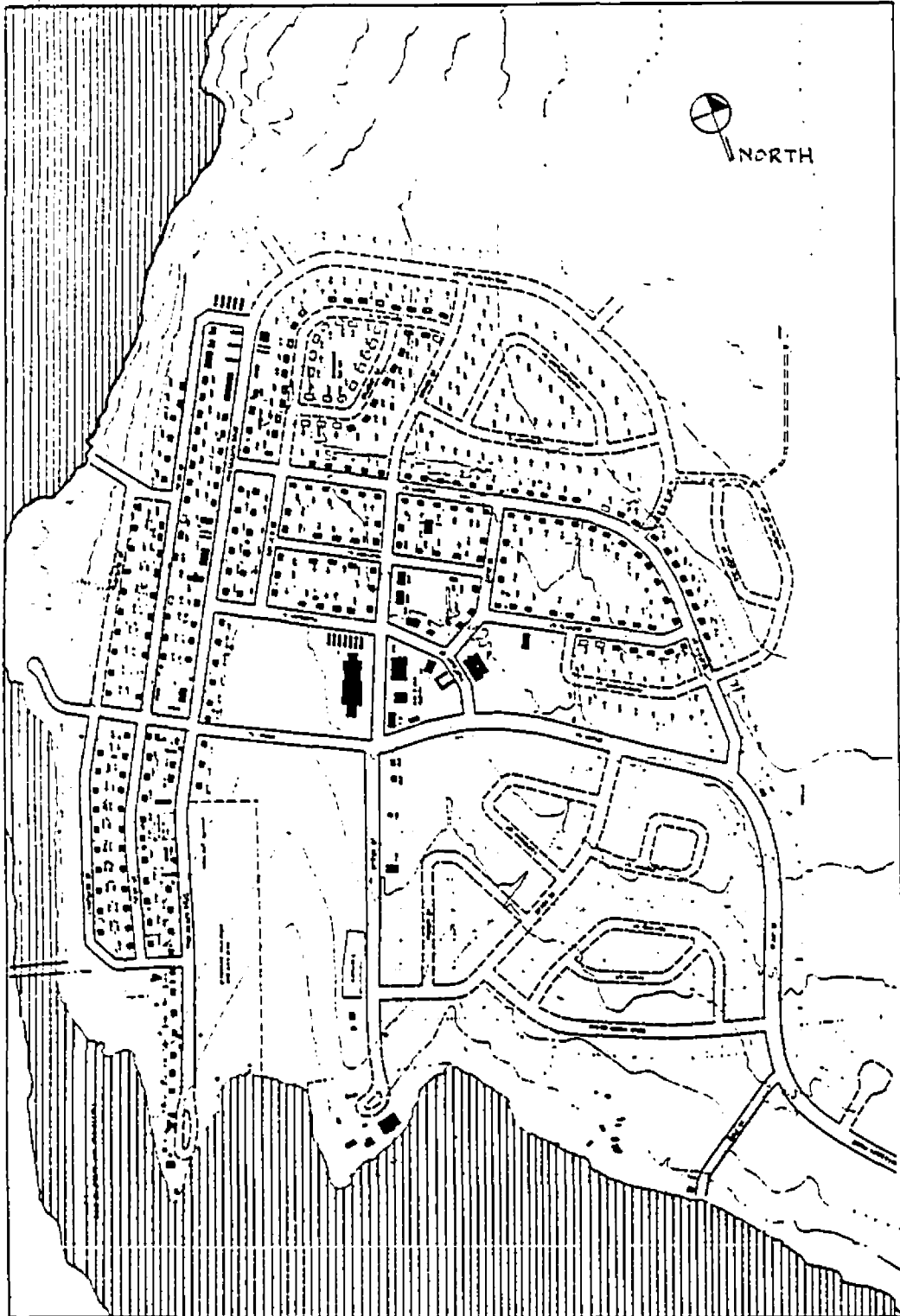
FIGURE 4-2. Site plan of Mistissini. (after: Daniel Arbour and Associates. 1989a).
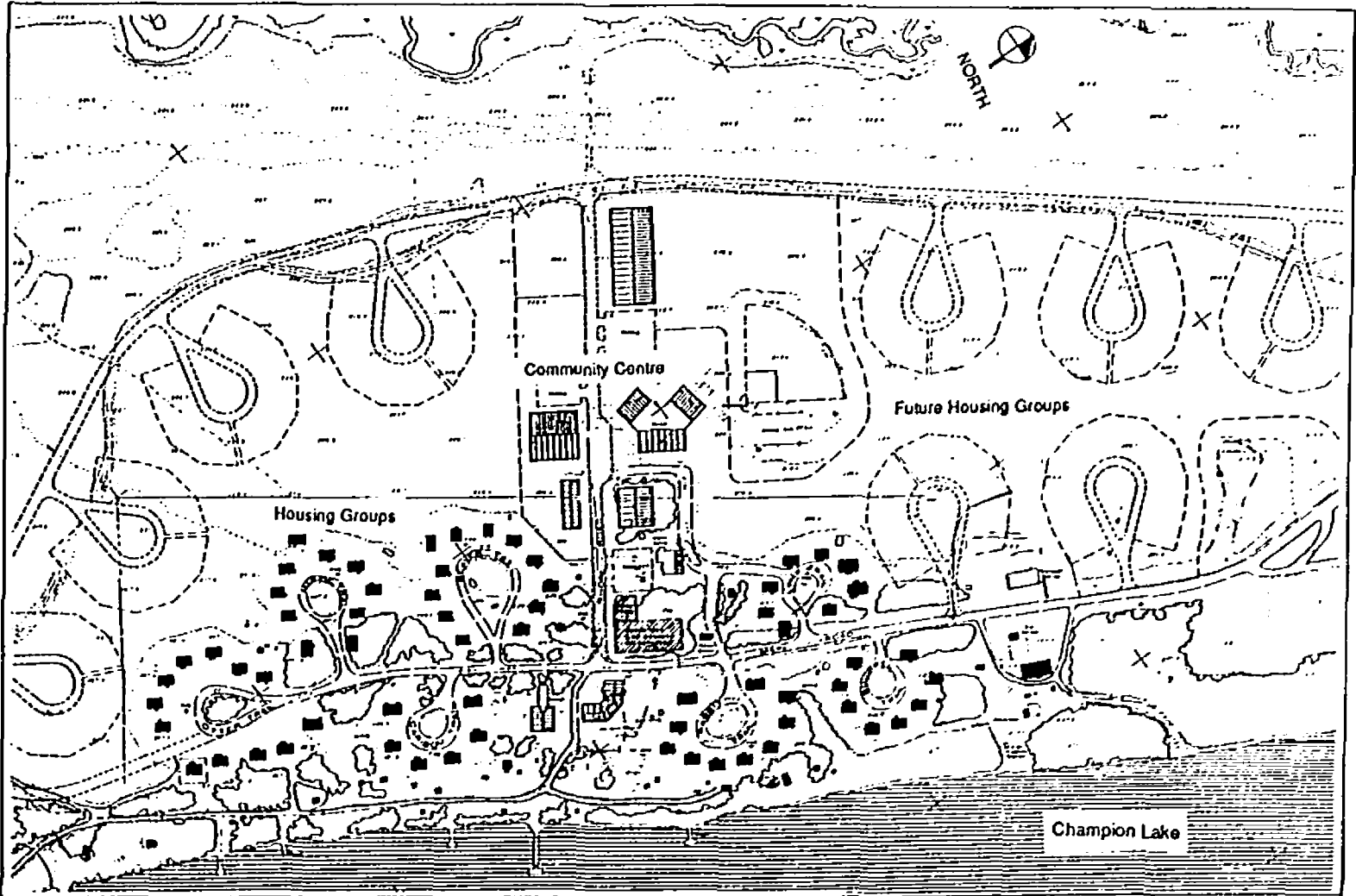
FIGURE 4-3: Site plan of Nemaska, (after: Daniel Arbour and Associates, 1989b).

NORTH

Community Centre

Future Housing Groups

Housing Groups

Champion Lake
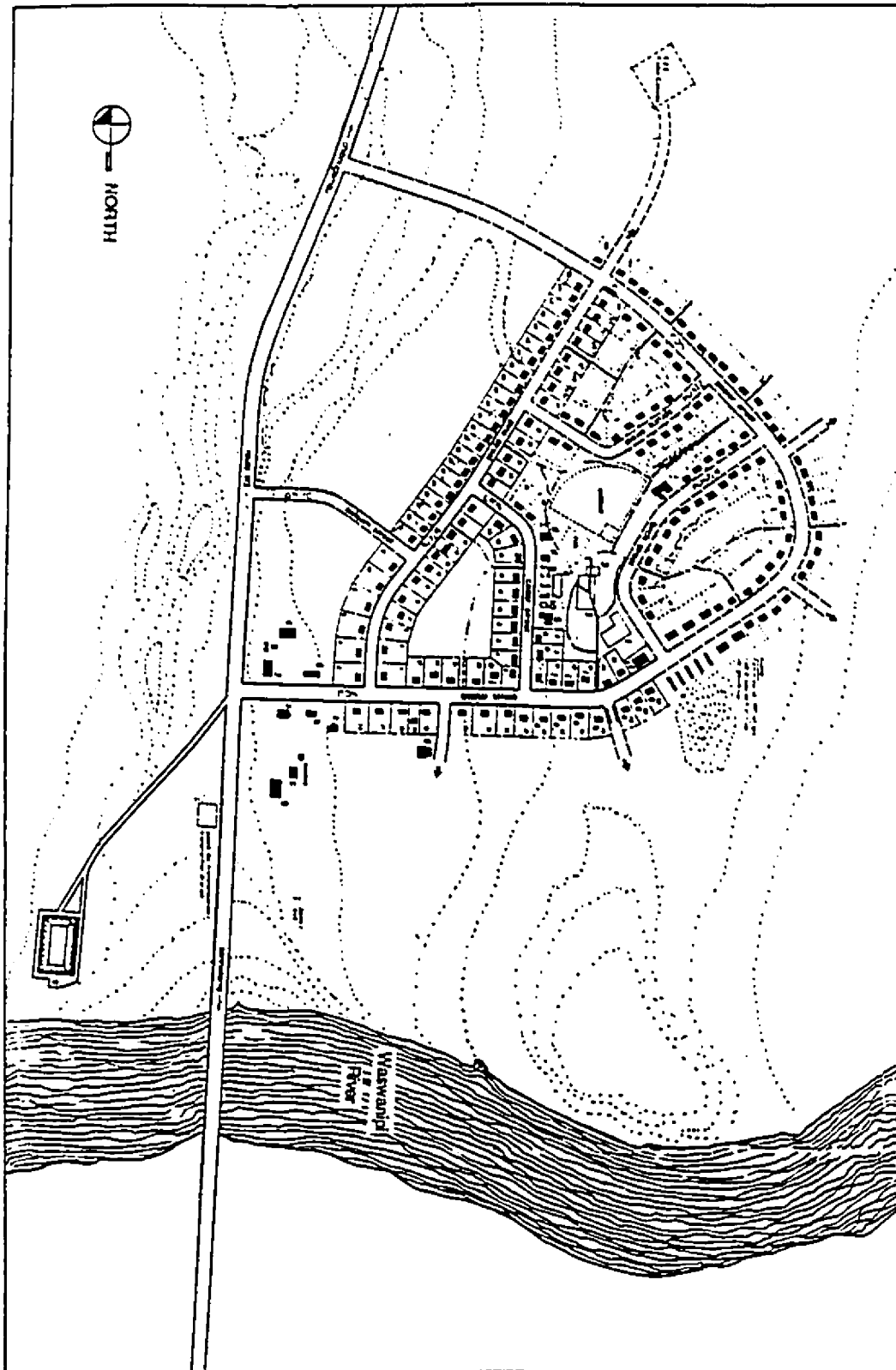
FIGURE 4-4: Site Plan of Waswanipi, (after: Daniel Arbour and Associates, 1989c).

4.5. HOUSING ARRANGEMENTS

There are a number of residential arrangements often repeated in a serial way in Cree reserves. These arrangements are derived from suburban Canadian design concepts. They are developed based on the position of buildings and vehicular circulation, rather than the pattern of landscape. Three arrangements are common in Cree reserves: street-front, cluster, and loop arrangements.

4.5.1. Street-front Arrangement

The most common arrangement in Canadian native reserves, including Cree reserves, is the street-front arrangement, in which houses, whether single family detached, semi-detached, rows, or apartment, are simply lined along both sides of streets based on a grid system. In this arrangement, access to houses is easy, orientation is clear, and there is little ambiguity in the plan. However, this arrangement is monotonous, exposes houses to street noise and traffic hazards, and does not promote social interaction. A site planning problem associated with this arrangement is that it is designed on a grid system and may require major modifications to the natural topography; this arrangement does not respect the landscape of northern environment.

To overcome the problem of lack of social interaction that exists in conventional street-front arrangements, Daniel Arbour and Associates introduced two alternatives (Figure 4-5). Alternative 4-5a is an infill housing design for the existing block in which a common area is designated for each housing group. Alternative 4-5b is a new housing block design in which the width of the blocks has been increased in order to provide a larger common area. This central area accommodates neighbourly interactions, domestic and social activities, communal storage and tepees. Alternative 4-5b provides an intimate group feeling and lacks the conventional hierarchy typical of most suburban streets. The conventional hierarchy of urban streets begins with the loop, cul-de-sac, or minor streets which give access to the houses. The minor streets lead to the collector where local centres are located, and the collector empties into the major artery, built for heavy flows.
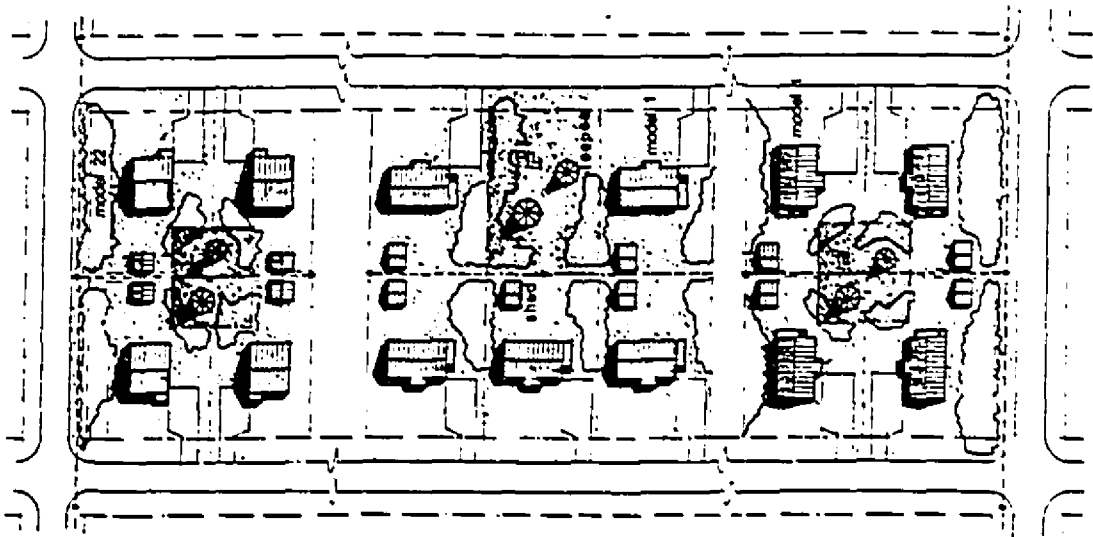
FIGURE 4-5a: An infill housing design for the existing block in which a common area is designated for each housing group (Source: Daniel Arbour and Associates, 1988).
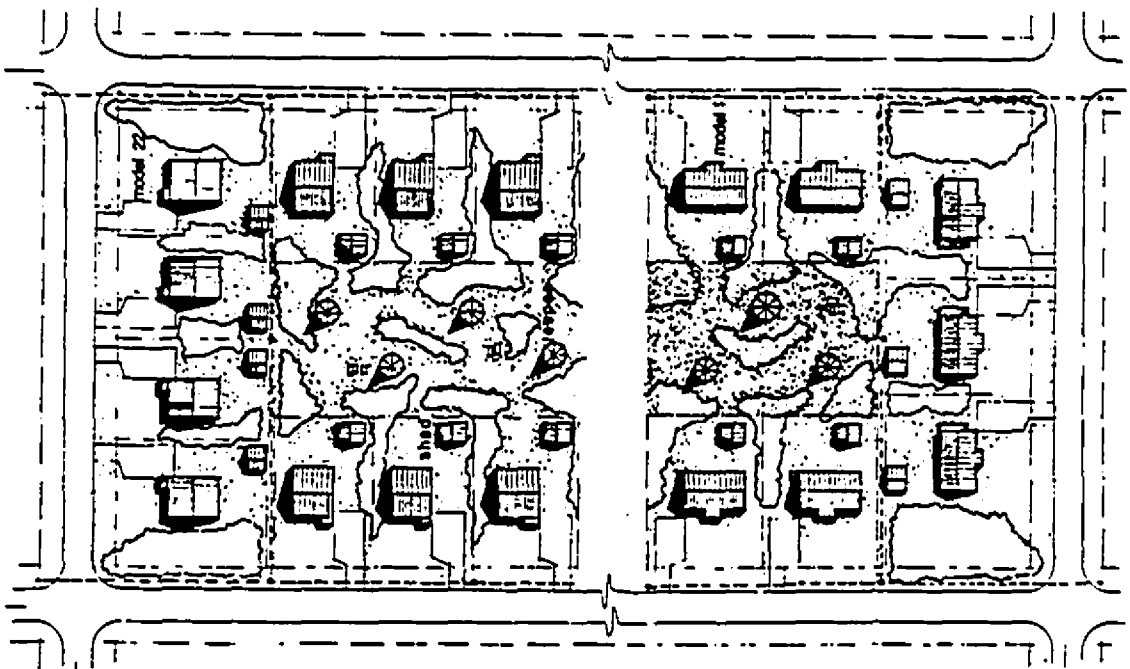
FIGURE 4-5b: A new housing block design in which the width of the blocks has been increased in order to provide a larger common area (Source: Daniel Arbour and Associates, 1988).

4.5.2. Cluster Arrangement

An alternative to the street-front arrangement is the cluster designed by Daniel Arbour and Associates. This arrangement was developed in consultation with the Band councils and community members of Chisasibi and other villages. In this arrangement, houses face inward toward a common open space (court). The cluster arrangement promotes neighbourly interactions and provides pleasant enclosed spaces. However, the vehicular circulation in the court hampers pedestrian use (Figure 4-6). Therefore, it is suggested that the vehicular circulation pass by the court in some indirect fashion, or be excluded from it.

Another problem associated with the cluster arrangement is the number of houses in a cluster. In the traditional Cree settlements, the number of houses in a hunting camp or clan was usually four or five, while in this arrangement, twelve to fifteen houses constitute a cluster. Other advantages and disadvantages of the cluster arrangement are:

ADVANTAGES

1- Cluster arrangement creates an intimate group feeling.

2- It provides easy supervision of children playing in the central court.

3- It allows easy access to the court from all houses.

4- Treed areas can be preserved between clusters, acting as a wind shelter.

5- Houses can be oriented various ways within the cluster.

DISADVANTAGES

1- The court is separated from the houses by a roadway, creating a conflict between children's play and vehicular circulation. In addition, this arrangement isolates the central court from the residences.

2- This arrangement requires deep setbacks and a wide turning radius for the road[26].

3- The loop road creates problems with vehicular circulation and snow removal (Figure 4-6).

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[26] "On the basis of the experience in Chisasibi, the Chief had a number of other recommendations. He recommended to the audience that the cluster arrangement for residential housing has certain disadvantages: its shape makes it difficult for snow removal in the winter and difficult for the school bus to negotiate turns."--Interviews with Chief James Bobbish, Chisasibi, (Chicoine, 1989, p.36).
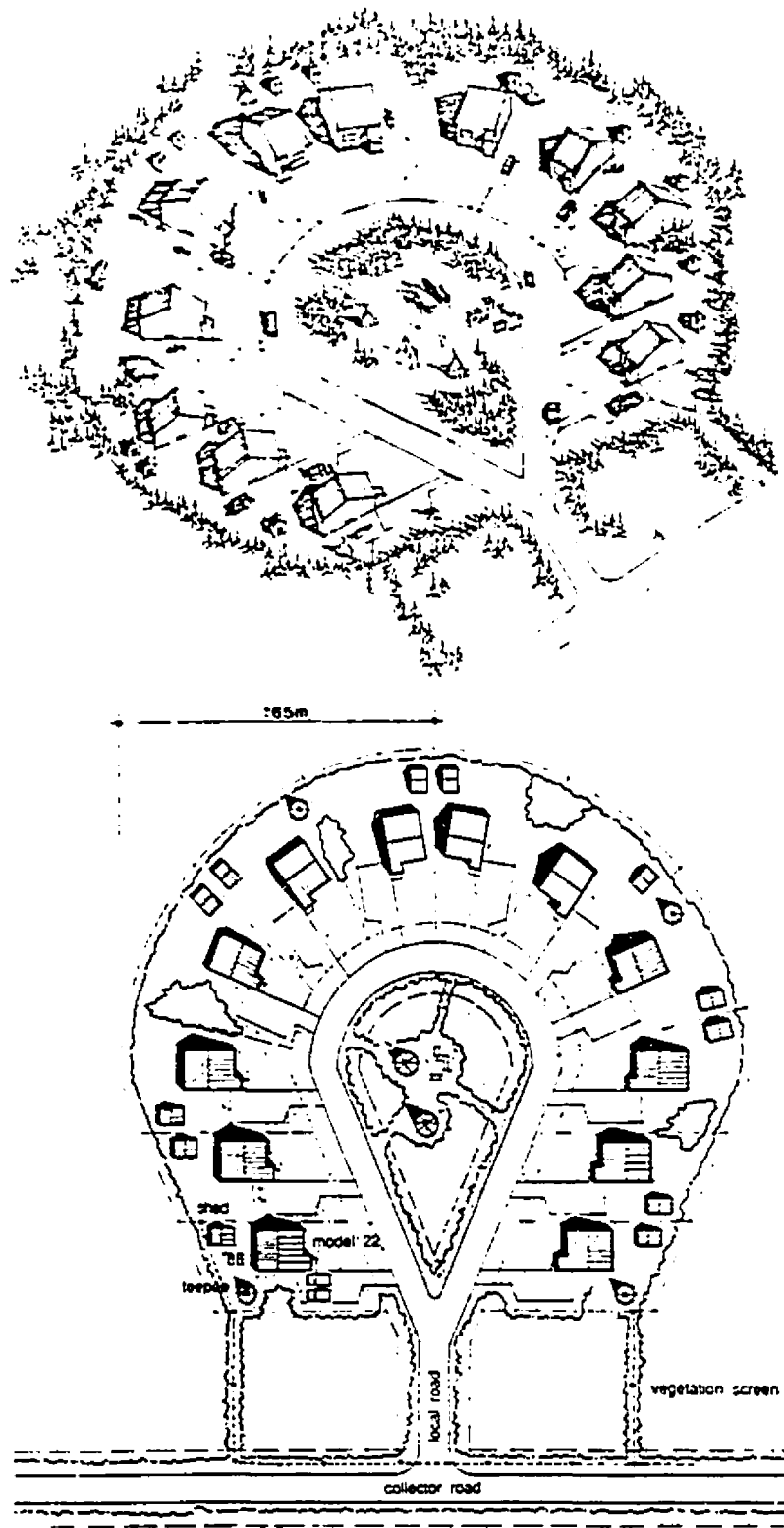
FIGURE 4-6: Housing layouts, cluster arrangement (Source: Daniel Arbour and Associates, 1989a).

4.5.3. Loop Arrangement

The loop arrangement is an adaptation of "neighbourhood units" developed in the urban United States, and it does not seem to apply in Cree reserves. According to the 'neighbourhood units' doctrine, houses should be grouped in neighbourhood units of 2000 to 5000 people, insulated from through traffic, and self-contained with respect to all daily facilities except workplace (Lynch, 1962). This concept usually centres about the elementary school, and includes such devices as superblocks and neighbourhood centres. However, most native communities are not organised socially in such units, and their life does not centre about the elementary school. Nor would it be desirable if they were confined to such self-contained areas, with all the implications of local isolation and lack of choice .

Compared to street-front arrangement, the loop and cluster arrangements increase the density, but complicate the infrastructure system of the street. The loop arrangement tends to look best on fairly flat ground. However, slopes may compromise the visual unity of the space, and a court or cul-de-sac lying downhill from the approach gives the terminal buildings a peculiar sense of inferiority. In addition, the loop arrangement raises practical problems of surface drainage and the flow of utilities (Lynch, 1962). In the loop arrangement designed by Daniel Arbour and Associates 21 to 25 houses are grouped together which is more than the number of houses in a traditional Cree camp. Other advantages and disadvantages of the loop arrangement are:

ADVANTAGES

1- The court is enclosed by a group of houses and allows social interaction for those centrally located houses.
2- For the inner part of the loop, the vehicular circulation is separated from pedestrian movement.
3- The cost of infrastructure is lower than that of the cluster arrangement (Figure 4-7).

DISADVANTAGES

1- Houses located on the inner part of the loop have locational advantages over the houses located on the outer part.
2- The loop arrangement does not allow flexibility in the orientation of the houses.
3- There is no visual contact between the outer houses and the central communal area.
4- In both loop and cluster designs, the site preparation does not follow or respect the contours of the land; each site is excavated and bulldozed, thus clearing away trees and other natural features.
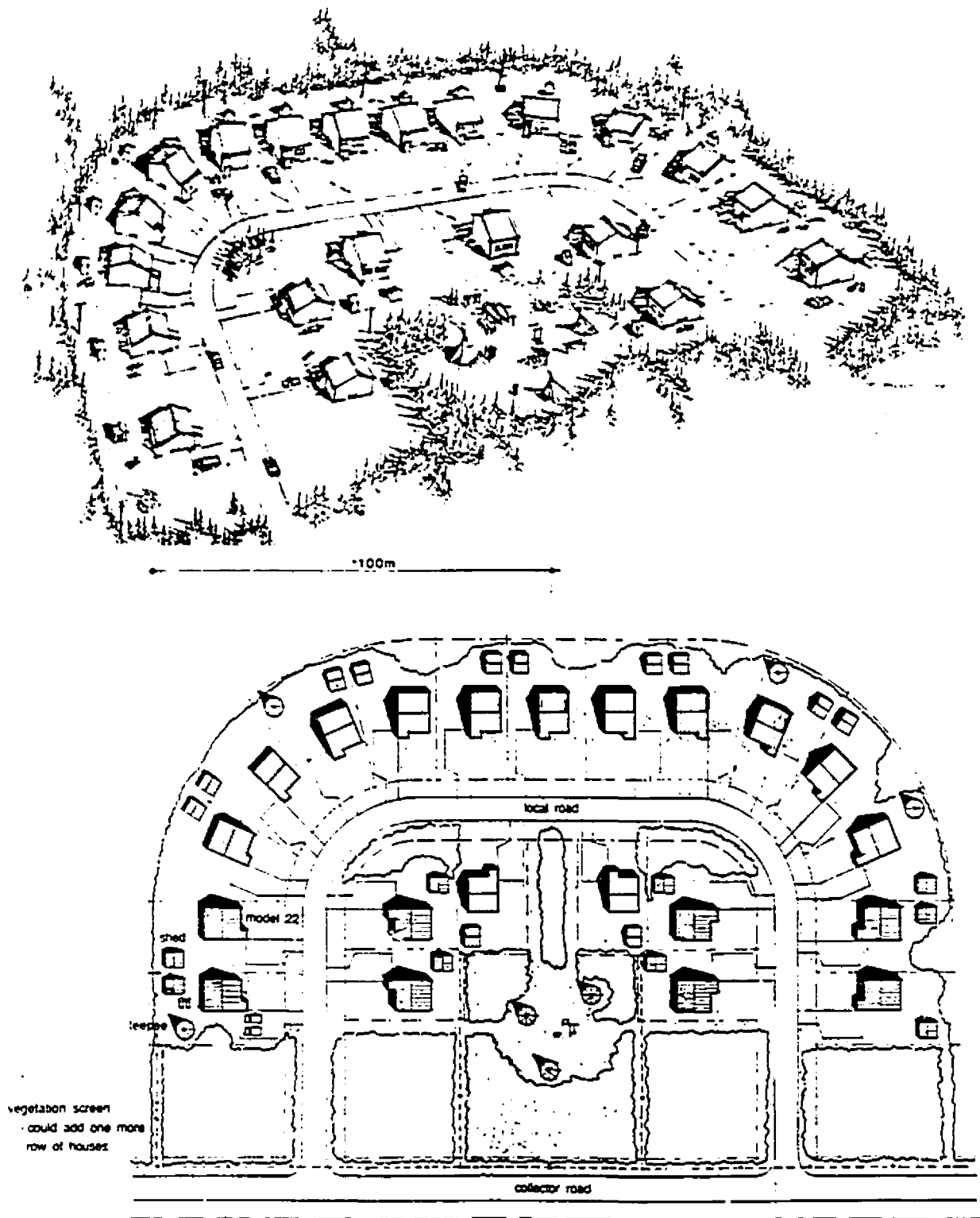
FIGURE 4-7: Housing layouts, loop arrangement, (source: Daniel Arbour and Associates, 1989).

4.6. PLANNING PROBLEMS

The Cree reserves suffer from many problems associated with planning methodologies and land-use guidelines. Some of these problems are related to the physical aspects of planning and others are related to the social aspects. Four types of distinct planning problems common in Cree reserves may be identified:

NO DEFINITION OF KINSHIP

In the old reserves, spatial arrangements based on kinship were the most striking feature. The plan of an old reserve had a free form without grids or overt geometric patterns, but with focal points such as village stores. Each house belonged to a specific clan. The current planning regulations, guidelines and by-laws do not respond to family structures. The clustering of houses is not designed according to kinship ties. Neighbours are not being selected based on kinship ties and housing groups are not reflecting tribal hierarchies and family structures.

INAPPROPRIATE CONCEPT OF OPEN SPACES

The projects designed by government agencies and consultants hired by the Cree Bands have suburban qualities. The formal housing developments are conceived as a complete whole, in which individual houses are monotonously laid out and surrounded by large areas and wide roads. Open spaces, cleared of bushes and trees, are available for public use. These public areas fail to support the development of relationships among neighbours, and do not encourage social interaction. Traditionally, meeting and socialising spaces were important and combined various levels of social activities. Amos Rapoport in *Human Aspects of Urban Form* (p.105) emphasised that traditional native planning achievements, which were based upon hierarchy of space, low density and a scattered layout, were violated by the government's closely spaced housing projects. Privacy, socialising, grouping and movement had significance for the natives, and all were rejected in the planning of new reserves.

Dealing with vast communal areas and open spaces has been a problem for the architects and planners involved in the planning of Cree reserves. The proposal of Daniel Arbour and Associates, for instance, sets aside these areas as playgrounds for children. In average, a quarter acre per thousand people is required for playgrounds, serving 6-12 age group (Lynch, 1962, p.142). These areas are much larger than the required areas.

INAPPROPRIATE ZONING REGULATIONS

Before 1950, there were no zoning regulations implemented on the reserves. After 1950, the applied zoning regulations were based on Euro-Canadian standards and were not suited to native concepts of community. In the current land-use system, each zone, such as commercial, residential, institutional, green area, and the like, is separated. As one enters any reserve, one sees the band office, schools, shops and gas-station located beside each other in a manner resembling the suburban plazas of Canadian cities. Recently, planners have introduced mixed land-use in North American suburbs and rural areas, which has proved to be successful in many cases. If planners consider the social and cultural aspects of a specific client group, they could experiment with mixed land-use in native communities. However, it is futile to import any zoning regulation from a non-native context without changing and adapting it to the physical environment of native communities. The application of any planning by-law or regulation also requires delicate consultation with band members.

In the planning of Cree reserves, native and non-native residential areas have been segregated. In Fort George, Cree houses were located in the southern portion of the reserve, while Inuit and non-status natives' houses were situated mostly in the northwest. This type of land-use is not desirable for natives. In various interviews and consultations in Chisasibi, Nemaska and Waswanipi the residents have asked for mixed residential land-use.

LACK OF USER PARTICIPATION

Any community designed by non-natives runs the risk of being inappropriate. User participation reduces this risk. As in other North American native communities, the Cree traditionally used to design and build their own villages. In contemporary native reserves, participation in the decision-making process at both the design and construction stages would allow natives to meet their spatial needs and cultural aspirations, providing them the option of choosing a more suitable housing form. Lucie Chicoine writes:

> Chief James Bobbish of Chisasibi recommends listening to the consultants but not necessarily taking all of their advice. Community members should be involved in every aspect of decision-making concerning the relocation, from the most technical to the more mundane. All sectors of the community should be involved in the planning process. All families should identify where they would like to live, where the commercial centre should be, and where the industrial park should be located (Chicoine, 1990, p.75).

Compared with other native groups, the Cree played an important role in the planning of housing for the new villages. However, consultations at different stages in the process were not equally implemented. For instance, in Chisasibi, while the community was

involved in the establishment of design criteria for the village plan, they had little involvement in the development of actual design alternatives for the village. They had a strong role in the planning of housing groups and identifiable neighbourhoods, but little involvement in the development of Chisasibi's site plan.

CHAPTER 5 :
A REVIEW OF EXISTING HOUSING PROJECTS

This chapter focuses on Cree housing and begins by describing the vernacular housing forms. During the last three decades, a number of housing projects were developed by the government of Canada and consultants hired by Cree Bands. A review of these projects is conducted in this chapter. The chapter presents housing problems in the reserves and summarises the housing typology.

5.1. VERNACULAR HOUSE FORMS

Like other North American native groups, the Cree designed their houses and arranged their settlements according to patterns and principles passed from generation to generation. Housing was not the only building type designed by the Cree. They designed specific structures for sleeping, working, playing, dancing, formal decision-making, making fur products, smoking meat and honouring the dead. To analyse any vernacular built form, scholars suggest studying the "modifying factors" that influence the native architecture (Rapoport, 1969a)(Nabokov, 1989). These modifying factors are: technology, climate, social organisation, culture and economy. The following two sections describe vernacular Cree housing in these terms.

5.1.1. The Cree Tepee

The tepee was the most popular form of traditional shelter for the Plains and subarctic natives, including the Cree. Canadian scholar Ted J. Brasser argues that tepees grew out of two traditions: the old shorter tents that existed at least 5000 years ago and possibly developed into the four-pole framing system; and the northwestern woodland conical tent, that used three poles, which was brought to Quebec by the Cree around 1600 (Nabokov, 1989, p.150).

The structure of a tepee was made by tying the top ends of the supporting poles (three or four) together and standing them up. Additional poles (15 to 20) were placed against the tripod or tetrapod thus formed (Schoenauer, 1992, p.16). The number of poles usually depended on the size of tepee. A tailored caribou hide was placed on the pole skeleton and was staked or weighted down with stones all around the bottom edge. A hole was left at the crossing of the poles to allow smoke from the interior fire to escape (Schoenauer, 1992, p.16). An old woman usually tailored the hides and made them ready. She would measure them out into the desired shape, using the hind quarters for the top. She would then cut the

hides and sew them together. Men and women shared the process of putting a tepee together: the men prepared the frames, while the women usually assembled the hides and fixed them to the frames (Hungry Wolf, 1973, p.65). In the winter time, robes were hung from the inner side of tepee poles, stretching from the ground to the top. Hay, cut with knives, was stuffed in along the bottom. The fireplace was always in the centre.

5.1.2. Log-House

For a period of six months every year, Cree hunters lived in the bush. They lived in hunting groups and every group had its own territory which varied from 600 to 1800 km². Each hunting group included two or three families. In the summer, the families would move to Mistissini or one of the other reserves. A hunting camp was usually built from tepees, shacks or log-houses. During the construction of log-houses, the families would live in the tepees until the permanent log-house was built. Up to sixteen people, usually four families, lived in a log-house, each occupying its own corner of the log-house. By the end of March, the log-house would be abandoned and by June, all the families would have returned to the reserves from their own hunting territories (*Cree Hunters of Mistissini*, National Film Board, 1972)(Figure 5-1).

The log-house was made entirely of materials gathered from the forest. For building a log-house, the best trees were selected and gathered from as far away as a quarter of a mile. More than 100 trees were used in the construction of a log-house. The top of the roof was left open a distance of about one metre to allow the maximum amount of light to enter. Spruce boughs were laid on the floor and renewed every two weeks so that the log-house would always smell fresh. The lifespan of the permanent log-house depended on the location and the type of tree used in the construction. It varied between 25 and 50 years, but 75 year-old log-houses were not uncommon. The manner in which corners were fashioned identified different types of log-houses. For instance, if the end of logs were rounded, the log-house was called a "round-log-house". Four types of log-houses were common: peeled, rounded, squared, and squared on three sides.

While travelling to different hunting camps, the Cree were very careful about the creation of the 'same place' in every camp. The Cree told of a supernatural woman who travelled ahead of the hunters to set up their tents and prepare camps- so that no matter where they moved, it was as if they were staying in the same place. In that way relationships among tribal members were preserved and people found a measure of privacy and peace within spaces that most Euro-Canadians today would find too exposed and too cramped.

Social rules regulated the sleeping, eating and living places within the log-houses. In Mistissini, for instance, age, sex and martial status determined the sleeping assignments. If more than two families lived together, higher-status families slept nearest the door, and no man slept beside a woman who was not his wife (Nabokov, 1989, pp.32-33)(Figure 5-1).
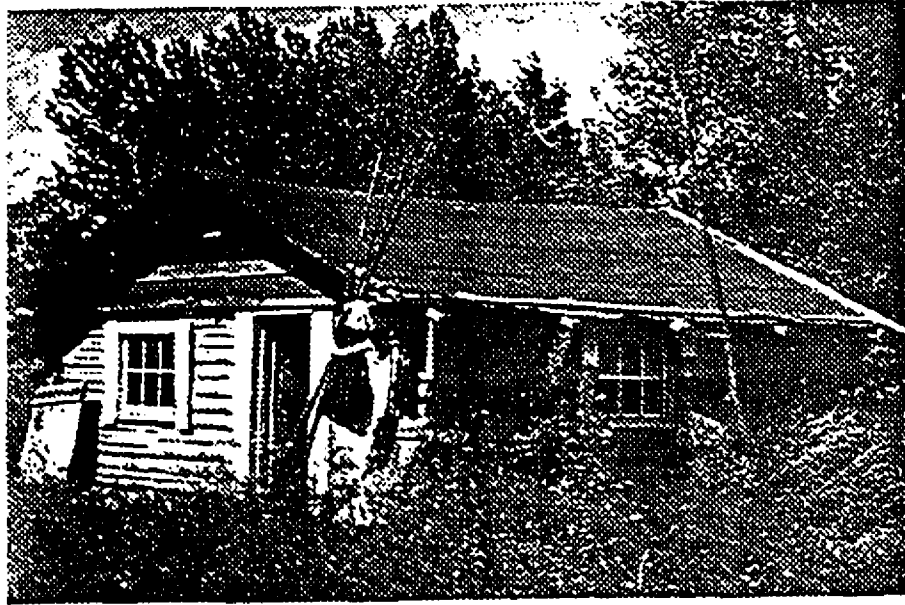
a. View of a hunting lodge in Mistissini (Date: September 1993).

Scale : 1/150

Individual camp

Multifamily winter house plan
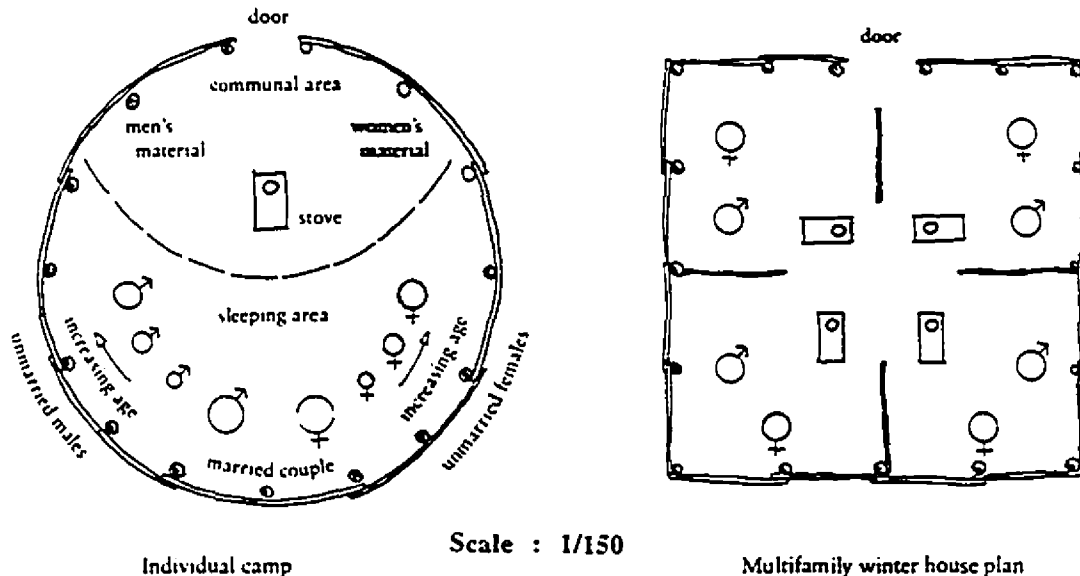
b. Plans of two traditional hunting lodges in old Mistissini. (Source: Nabokov, 1989).

FIGURE 5-1: In the old Cree reserves, social rules regulated the living and sleeping places of each family member. (source: Nabokov, 1989, p. 33).

5.2. CONTEMPORARY HOUSING

5.2.1. Projects Built by the Government

Before the 1960s, any Cree village included structures built by the Hudson's Bay Company, the Anglican Church of Canada, or the government as well as private houses. About half of the population lived in log-houses built by the Department of Indian and Northern Affairs (DINA). The rest lived in canvas dwellings and tepees in summer, and hunting log-houses in winter. Since the 1960s, government intervention in Cree housing increased and different housing projects were built by institutions such as the Canada Mortgage and Housing Corporation (CMHC) and the DINA. By 1980, the modern style house had almost completely transformed the villages. Within the two decades of 1960-1980, a number of housing projects were developed, built, renovated and demolished. The following subsections describe and assess the different housing projects built by the government.

TRAILER (MOBILE) HOME

Trailer, or more grandly, "mobile home" is a complete living unit on a structurally integrated steel undercarriage and mounted on wheels. It is not permanently fixed on a foundation and therefore it does not need to conform to all the codes and regulations which apply to conventional housing. Trailer homes have many substantial advantages for the small family: they are inexpensive; they can easily be bought and sold; the buyer knows exactly what he is getting for what price; they are compact and easy to maintain; they can follow the family wherever it goes; and they have the glamour of newness (Lynch, 1962)(Figure 5-2).

Two fundamental problems of mobile homes are the need for privacy, and for usable outdoor space which is aggravated by the very small size of the unit. In Cree reserves, the close rows of trailer units look into one another's windows, creating privacy problems. Outdoor spaces are not provided to accommodate domestic activities, and the only usable outdoor space is a tiny patch of ground before the door. A third problem of mobile homes is *impermanence*, which raises many serious community problems. On the one hand, the impermanence of the trailer park reflects the family mobility to be found in many native societies today, and on the other hand, this mobility is more sharply expressed. Many native societies have been nomadic, and yet their communities have been strong and their attachments to the land firm. Mobile homes do not create that sense of attachment to the land, landscape and community which is required by natives. Because of this impermanence, mobile homes did not acquire popularity in Cree reserves. In Mistissini, for

instance, out of 22 units built in the early 1960s, only five units today remain. The rest have either been sold or converted to conventional houses.

There are many deficiencies in the existing mobile homes in Cree reserves: vestibules, terraces, garages, and storages do not exist; entrance doors directly open to the living-room which cause cold air drafts in winter; and the narrow frontage of mobile homes makes their interior space jammed. To overcome these problems, after mobile homes are delivered to the site, residents build vestibules, garages and storages.

Investigations conducted as part of this study suggest that the prefabrication and subsequent shipping of dwellings is more costly than local construction using ordinary wood frame techniques. Because of the benefits derived from stimulating the local economy and creating a sense of personal pride and achievement in the dwelling, government authorities prefer local construction.

Scale
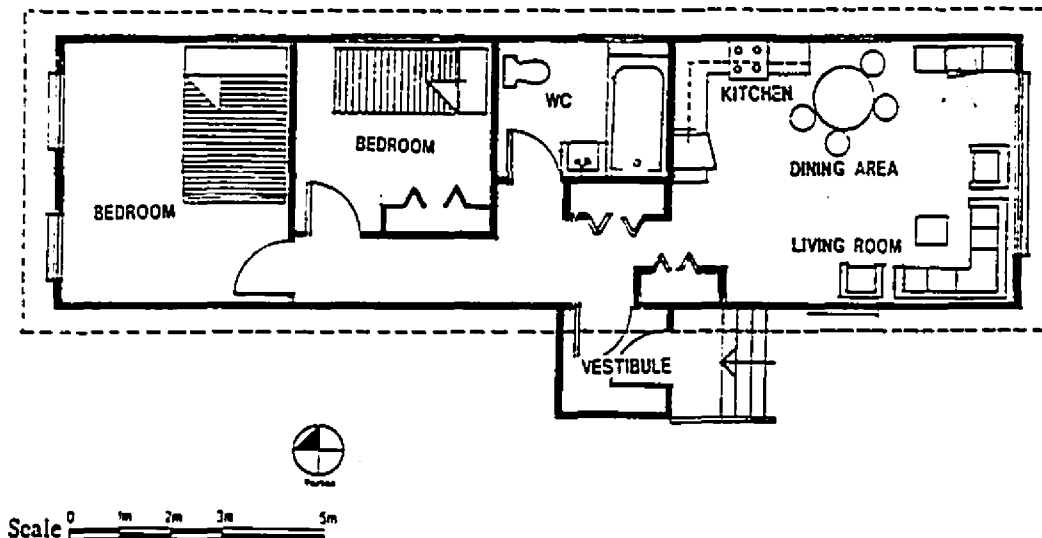
FIGURE 5-2 : Plan of a typical mobile trailer home in Waswanipi (Author's sketch. September 1993).

"DINA" HOUSES

During the 1960s, the DINA built a number of modern houses in the Cree reserves of Mistissini, Chisasibi and Nemaska. These houses were 7.3m by 9.75m, and timber-framed with wood siding. They stood on plain concrete spread footings installed at about 1.5 m below ground level. DINA houses had full basements (2.4 m high), but no slab. The basement walls were made of unreinforced concrete blocks. The internal partitions subdivided the house into three bedrooms, a living-kitchen area and a bathroom (Figure 5-3). Since the houses were not connected to water or sewers, no bathroom fixtures were installed. All houses were provided with electrical power and oil heating by hot air distribution.

Figure 5-3 illustrates the present condition of a DINA house in Mistissini. Additions and alterations made by residents demonstrate that the DINA houses are not properly designed for the Cree families. Terraces, gardens, storage spaces, shacks and tepees are examples of additions. Three problems are associated with the DINA houses:

1- The entrance doors open directly to the living areas.
2- There are no entrances to the backyards from the houses.
3- The DINA houses lack adequate storage space.

CEDAR MODEL HOUSES

The Cedar Model house is based on an L shaped plan with two entrances and a basement. The front door is protected by a vestibule which provides access to the basement. Since fishing and hunting clothes are changed in the basement and easy access is maintained from outside, the design of Cedar houses has advantages over the other housing types. The L shape of the plan has created a corner which permits household activities such as growing vegetables and weaving fishnets. (Figure 5-4).

The construction of the Cedar Model houses is similar to that of the DINA houses. The only difference is the construction of walls. Instead of the conventional 51 by 102 mm framing, the Cedar house wall is constructed of 2 layers of 41 m a cedar planks placed vertically on the outside and horizontally on the inside of the house, with insulation sandwiched in between.

The side doors of Cedar Model houses open directly into the kitchen, creating a draft and contributing to heat loss in the winter. The location of the kitchen is desirable for residents and accessible from all parts of the house. Additions and alterations also take place in the Cedar Model houses. Figure 5-4 illustrates the typical additions and alterations in a Cedar house in Mistissini.

5.2.2. Projects Built by the Cree Housing Corporation (CHC)

As mentioned previously, after the 1970s, consultants were hired by Cree bands and the CHC to design a number of housing projects. Among the implemented projects are the Model A House (1978), Bo Plex House (1978), the CHC Model-I (1979), the CHC Model-II (1980), Model 21 (1984), Model 22 (1985), Row Houses (1985), Model 22 (1986), Model 95 (1979-1987), Model 87-90, Model 87-10 Elders, Housing Model 1990 and Model 1992. Plans of some of these projects are provided at the end of this chapter.

"MODEL A" HOUSES

The Model A house was designed and built by the CHC in 1978. Three alternatives were recommended: Alternative A, without a basement, but with a large compensating extension on the ground floor; Alternative B, with a full basement, which would be partially finished with one bedroom; and Alternative C, which would provide for a small extension of the ground floor with an unfinished basement (Shaw, 1982, p. 104). In the process of consultation, Alternatives B and C were rejected by residents. Alternative A later was renamed Model A House.

The construction of the Model A houses began in Fort George and Mistissini. Some of these model houses were produced by upgrading existing houses. This upgrading and construction was based on previous consultations and planning reports commissioned for this purpose (Shaw, 1982). The purpose of the Model A housing programme was to allow the community to visit and to propose modifications to the houses. Figure 5-5 illustrates some of the advantages and disadvantages of a Model A house, and Figure 5-6 indicates typical additions and alterations.

"BO PLEX" HOUSES

Bo Plex houses were introduced to the community by the CHC in 1978, and were designed by an architectural firm hired by the band. Perhaps Bo Plex houses are the least appropriate housing type built in the villages. Bo Plex houses have three entrances: front, side and back, which all open directly to the living room and kitchen. Most residents hav : locked the front door and use the back door. Since the main entrance has shifted to the back door, most domestic activities have also shifted to the backyard. For instance, cars are parked, storage sheds are built and little vegetable gardens are grown in the backyard (Figure 5-7).

In the Bo Plex house surveyed by the author, ten persons live together (Figure 5-7). The residents complained of the lack of storage and working areas. The closet located between

the kitchen and living-room restricted the available working space and residents were planning to remove it. This is an isolated example of a wider trend. Because of inappropriate insulation and vapour barrier materials used in the foundation and basement walls, the basement is cold in winter and is not usable.

5.2.3. Evaluation of Housing Objectives

In the design of new housing projects by Daniel Arbour and Associates (1989a), six objectives were identified:

1- To determine the socio-cultural needs and desires of the Cree people and to interpret these in terms of the space management in the design of the houses.

2- To search for a methodology that would directly involve the residents in the design process.

3- To determine the patterns of activity that could serve as a base for housing design.

4- To increase the participation of the Cree in the construction of the houses.

5- To analyse the different construction methods possible and find appropriate and economic solutions to the technical problems.

6- To build a model house according to the above mentioned objectives and determine, during a period of one year, to what extent objectives 1, 3, 4 and 5 had been achieved (Zrudlo, 1975).

Peter Shaw claims that all the objectives of the study were successfully met in the design of the houses, for example, the construction and evaluation of a model house (objective 6)(Shaw, 1982, p.102). However, the present conditions of the houses reveal that not all the objectives were met. The following is the author's evaluation based on observation, interviews with residents, and discussions with the members of the CHC (Mistissini):

1- With respect to Objective 1, no attempt was made to explore the socio-cultural needs of the Cree in the design of the model houses. Concepts, previously described, such as those of sacred sites, circle, land, kinship ties and family structure, were not explored.

2- Objective 2 was not met, because the involvement of the residents was not extended beyond planning to include the design of houses. Residents were mostly involved in the planning of the grouping of houses such as the cluster and loop arrangements.

3- The model houses lacked ample space to accommodate various domestic activities. The additions and alterations made by residents demonstrated that model houses did not fulfil the needs of the residents and therefore, Objective 3 was not properly met (Figure 5-6).

4- A weak aspect of the participatory structure was that the consultation was done only with the employed residents. This means that economic status of the participant influenced the process of consultation. Youths and elderly people were eliminated from the process (Figure 5-5). Chief James Bobbish of Chisasibi, on this issue, said:

> Only Band employees were involved in planning the relocation, we did not consult the youth or the elders. As a result of not involving the youth, they have defaced the new buildings for they have never felt as if they belonged. Both the youth and elders felt that the old Fort George was their town... try to anticipate the needs of all the groups who will be part of the community. And most of all, think of all these things not just in terms of present conditions, but also in terms of the future. And keep in mind the different types of people the community will be comprised of: the trappers, the students, people who work in offices and the older people (Chicoine, 1989, p.70).

5- Objectives 4 and 5 were not met, since most houses still suffer from construction and technical problems such as poor heating and ventilation system, lack of proper vapour barriers and the use of inappropriate and cheap insulation materials.

6- By definition, objective 6 can not be achieved until other objectives were fulfilled.

5.3. HOUSING PROBLEMS

The Cree reserves suffer from many problems associated with housing. Some of these problems involve social issues and others are related to design concerns. Four distinct types of housing problems may be identified:

INAPPROPRIATE HOUSING TYPE FOR THE EXTENDED FAMILIES

Traditionally, the Cree lived in extended families. In contemporary native communities there are many extended families in which three generations live together. Although younger generations prefer to live independently, there are many cases in which married couples live with their parents or grandparents, maintaining strong family relations. There have been cases in which young people, having found jobs in the urban centres, preferred to remain unemployed, in order to stay with their families.

For extended families the home and its environs are where much of the daily activities are centred. Children play in and around the home. They also seek out companionship and interactions with children and adults of neighbouring homes. Working adults stay at home, raise children, and participate in household activities. Grandparents occupy the family's home environment even more fully. To facilitate the activities of extended families a housing type is required which satisfies these special needs.

A single family detached building is very easy for extended families to manage, provided the house is occupied on a more or less continuing base (Newman, 1975). Semi-detached houses may be appropriate provided neighbours are from the same family and share kinship ties. Apartments and walk-up buildings are the least appropriate and do not provide the flexibility that is required for extended families. In Cree reserves, a large number of extended families live in semi-detached houses and apartment units and they usually complain about the "neighbours' fighting."

INAPPROPRIATE HOUSING TYPE FOR THE ELDERLY

Elderly people, like extended families, tend to centre much of their daily activities in and around the environs of the home. They tend to seek out the companionship of other elderly. Therefore, it is not surprising that many elderly seek residential environments which are occupied by other elderly. The building type selected for elderly residents should therefore be one which facilitates the interaction of neighbours. Except walk-up apartments, all residential buildings are suitable for the use by the elderly; as the retired elderly grow older, the problem of climbing a flight or two of stairs can be severe. Row-house environments

facilitate access to the ground and to neighbouring families.

In most Cree reserves there are no elderly residences. Because the elderly have no desire to move to urban centres, there is an urgent need for accommodation that can provide greater convenience and security for them. The elderly people of the reserves live with their families. In some cases living close to the families provides benefits such as babysitting and assistance with household chores. Because of strong family and community ties, many young families wish to remain in the community to take care of aging parents or grandparents. This fact limits the mobility of young people, and their ability to seek more promising jobs is restricted.

NO POSSIBILITIES OF EXTENSIONS AND ADDITIONS

The additive character of vernacular housing, as seen in log-houses and tepees, permits physical expansion and contraction to accommodate normal cycles of family growth. In contemporary Cree reserves, house extensions are an integral part of the Cree living and working environment. Areas in front or at the back of houses are used for the convenient expansion of indoor domestic activities. Limited living space and the high utility value of house extensions have made additions very popular. These additions, depending on the type of house, acquire different shapes, sizes and functions. Some people build a tepee in the backyard, others build a shed and/or small storage area, and some use the attics and crawl spaces under exterior stairs and balconies. The plans presented at the end of this chapter illustrate additions and alterations in different housing projects in Cree reserves.

It is unfortunate that new housing projects designed by architects frequently do not permit changes or additions of any kind. It is necessary to develop an affordable housing type which permits users to adapt their dwellings to evolving family needs.

SHORTAGE OF STORAGE

The shortage of storage space is an almost universal problem in Cree reserves. "Any size of storage is small for a native house", says John Bennek of the Mistissini Housing Department. Although slightly exaggerated, this statement dramatises the need for storage space. In families for which hunting and fishing are the major sources of income, the need for large storage areas is obvious. Tents, shacks and small log-houses have been built beside the houses. Almost every family own snowmobiles and canoes, which need covered storage spaces. Winter clothing, boots, tools, and similar types of fishing and hunting equipment also need covered storage areas. Closet space is insufficient and open shelves

and sheds are nonexistent. Because of limited storage space, houses tend to be cluttered. As shown in Figure 5-6, Model A House in Mistissini, a bedroom has been converted to a storage room. In Figure 5-4, a tepee is added to a Cedar house to be used as a storage.

Children up to 10 years old prefer to sleep with their parents.

Wooden or cement platform made by residents for canoes and fishing boats.

The kitchen location in this design has advantages over the others, since the kitchen is integrated with living area and is easily accessible.

STREET

Originally this space was designed as cold storage, now it is used for storing fishnets, chainsaws, boats and winter clothes.

Household activities such as weaving fishnets, making snowshoes, and handi crafts take place in this corner of living room.

Scale

Additions built by residents

FIGURE 5-3: Additions and alterations by residents to a DINA house, (source of plan: the CHC, and observations of the author in September 1993).

Wooden or cement platform made by residents for canoes and fishing boats.

Grass

Entrance door opens directly to the living room and it allows infiltration of cold air in winter.

BACKYARD

The tepee is used as storage for hunting and fishing equipment in summertime; and for activities such as smoking fish and cooking.

KITCHEN

DINING

BEDROOM (PARENTS)

BEDROOM

W C

BEDROOM (CHILDREN)

LIVING ROOM

Wooden stands used for recanvassing canoes in summertime.

TEPEE

Tepee Door

STORAGE AREA OF FUR PRODUCTS

BEDROOM

GARDEN

FRONTYARD

CHILDREN'S PLAY AREA

COLD STORAGE

VESTIBULE

Wooden deck built by occupants to ease access to the yards.

Scale

FIGURE 5-4: Existing condition of a Cedar Model House. (observation date: September 1993. source of plan: the CHC).

Because some household activities take place in bedrooms, narrow corridors leading to bedrooms are neither functional nor desirable.

Entrance door opens directly to the living area and it allows infiltration of cold air in winter.

This area is the most useful area in the house, because it is accessible to all parts of the house. It is suggested that the washroom not be located in this area.

The basement is used as a changing room for winter clothes or for storage of hunting and fishing equipment; consequently easy access to the basement from entrance is significant. This design has advantage over other types, in which the basement access is not located near the entrance area.

The kitchen location in this design has advantages over the others, since the kitchen is integrated with living area and is easily accessible.

Washrooms located on the centre of the house are not properly ventilated. Therefore, they should be located on exterior walls, where ventilation by window is possible.

There is no vestibule to protect the entrance.

BEDROOM

MASTER BEDROOM

BEDROOM

BEDROOM

MECH DUCT

WC

LIVING ROOM

DINING AREA

KITCHEN

COLD STORAGE

PORCH

Scale 0 1m 2m 3m 5m

FIGURE 5-5: Plan analysis of a Model "A" House in Mistissini, (observation date: September 1993, source of plan: the CHC).

Wooden terrace built by occupants as an extension for domestic activities.

This bedroom is used as storage area.

Under the staircase, piles of wood and construction materials are stored.

Household activities such as repairing fishnets, making snowshoes, and producing fur products take place in this corner of the living room.

This bedroom is occasionally used as the guest bedroom.

This corner of the living room is used as a sleeping area for a young family member.

Vehicles such as snowmobiles, trucks, and hunting and fishing equipment are stored in the shacks built by residents.

This wall has been removed and the bedroom is used as living and sleeping area.

Scale   0   1m   2m   3m   5m

Additions built by residents

FIGURE 5-6: Additions and alterations to a Model "A" House in Waswanipi. (observation date: September 1993. source of plan: the CHC).

Vehicles such as snowmo-
biles, trucks, and hunting
and fishing equipment are
stored in the shacks built
by residents.

STORAGE
and GARAGE

Entrance door opens di-
rectly to the living area and
it allows infiltration of cold
air in winter.

Terrace built by residents

This door is used as the
main entrance, since it is
close to the garage, back-
yard and kitchen. It is
wider than other doors.

The closet door has been
removed.

WORKING
AREA

KITCHEN

BEDROOM

WC

Changing hunting and fish-
ing clothes takes place in
this corner.

DN

Entrance door opens di-
rectly to the living room
and it allows infiltration of
cold air in winter.

BEDROOM

BEDROOM

LIVING AREA

To enlarge the living area,
the residents are planning
to remove this closet.

The main entrance door is
locked by residents and
the back and side doors
are used instead.

Scale   0   1m   2m   3m   5m

Additions built by residents.

FIGURE 5-7: Additions and alterations to a Bo Plex House in Mistissini. (observation date: September 1993, source of plan: the CHC).

FIGURE 5-8: Existing condition of a DINA House in Waswanipi. (observation date: September 1993. source of plan: the CHC).

COLD
STORAGE

BEDROOM

WC

BEDROOM

BEDROOM

VESTIBULE

BEDROOM

YARD

BOXES

LIVING ROOM

KITCHEN

DINING AREA

CANOES

STORAGE

PORCH

FRONTYARD

CHILDRENS' PLAY AREA

Wooden deck built by oc-
cupants to ease access to
the yards.

Additions built by the resi-
dents.

Vehicles such as snowmo-
biles, trucks, and hunting
and fishing equipment are
stored in the shacks built
by residents.

The kitchen location in this
design has advantages
over the others, since the
kitchen is integrated with
living area and is easily ac-
cessible.

Entrance door opens di-
rectly to the living area and
it allows infiltration of cold
air in winter.

Scale

FIGURE 5-9: Existing condition of a Cedar Model House in Waswanipi. (observation date: September 1993. source of plan: the CHC).

FUR PRODUCTS

STORAGE

BACKYARD

CANOES

This bedroom is occasion-
ally used as the guest bed-
room.

BEDROOM

BEDROOM

COLD
STORAGE

BEDROOM

CANOES

BEDROOM

WC

VESTIBULE

LIVING ROOM

FUR PRODUCTS
WORKING AREA
BOXES

Wooden terrace built by
occupants as an exten-
sion for domestic activi-
ties.

DINING

KITCHEN

FRONTYARD

Entrance door opens di-
rectly to the living area and
it allows infiltration of cold
air in winter.

The kitchen location in this
design has advantages
over the others, since the
kitchen is integrated with
living area and is easily ac-
cessible.

Washrooms located on the
centre of the house are not
properly ventilated.
Therefore, they should be
located on exterior walls,
where ventilation by win-
dow is possible.

Household activities such
as repairing fishnets, mak-
ing snowshoes, and pro-
ducing fur products take
place in this corner of the
living room.

Scale 0   1m   2m   3m   5m

FIGURE 5-10: Existing condition of a Model "A" House in Waswanipi. (observation date: September 1993. source of plan: the CHC).

Vehicles such as snowmo-
biles, trucks, and hunting
and fishing equipment are
stored in the shacks built
by residents.

Household activities such
as weaving fishnets, mak-
ing snowshoes, and handi-
crafts take place in this
corner of living room.

Wooden or cement plat-
form made by residents for
canoes and fishing boats.

CHILDRENS' PLAY AREA

STORAGE

FUR PRODUCTS

BACKYARD

CANOES

Changing hunting and fish-
ing clothes takes place in
this corner.

FUR PRODUCTS

KITCHEN

YARD

BEDROOM

WC

DINING AREA

CLOSET

DN

BEDROOM

T.V.

LIVING ROOM

WORKING
AREA

BEDROOM

This corner of the living
room is used as a sleeping
area for a young family
member.

FRONTYARD

FRONT DOOR

Children up to 10 years old
prefer to sleep with their
parents.

Entrance door opens di-
rectly to the living room
and it allows infiltration of
cold air in winter.

Terrace built by residents

Scale   0   1m   2m   3m   5m

FIGURE 5-11: Existing condition of a Bo Plex House in Waswanipi, (observation date: September 1993, source of plan: the CHC).

Household activities such as repairing fishnets, making snowshoes, and producing fur products take place in this corner of the living room.

Because some household activities take place in bedrooms, narrow corridors leading to bedrooms are neither functional nor desirable.

Wooden deck built by occupants to ease access to the yards.

The kitchen location in this design has advantages over the others, since the kitchen is integrated with living area and is easily accessible.

Entrance door opens directly to the living area and it allows infiltration of cold air in winter.

The basement is used as a changing room for winter clothes or for storage of hunting and fishing equipment; consequently easy access to the basement from entrance is significant. This design has advantages over other types, in which the basement access is not located near the entrance area.

COLD STORAGE

BEDROOM

BEDROOM (CHILDREN)

BEDROOM (PARENTS)

DINING

WORKING AREA LIVING ROOM

KITCHEN

CHILDREN'S PLAY AREA

Scale

FIGURE 5-12: Existing condition of a CHC House Model 1987 in Waswanipi. (observation date: September 1993. source of plan: the CHC).

Wooden or cement platform made by residents for canoes and fishing boats.

Vehicles such as snowmobiles, trucks, and hunting and fishing equipment are stored in the shacks built by residents.

BACKYARD

CANOES

SHACK

GARDEN

VESTIBULE

BEDROOM

MASTER BEDROOM

WORKING AREA

WORKING AREA

WORKING AREA

BOX

W C

KITCHEN

DINING

SIDE ENTRANCE

LIVING AREA

FIREPLACE

WORKING AREA

CHILDREN'S PLAY AREA

FRONTYARD

GARDEN

This wall has been removed.

Household activities such as weaving fishnets, making snowshoes, and handicrafts take place in this corner of living room.

Scale 0 1 2 3 4

FIGURE 5-13: Existing condition of a CHC House Model 87-90 in Mistissini. (observation date: September 1993. source of plan: the CHC).

The tepee is used as storage for hunting and fishing equipment in summertime; and for activities such as smoking fish and cooking.

Wooden stands used for recanvassing canoes in summertime.

GARDEN

Wooden platform for canoe

This space is designed as workshop, currently is used as storage and a place for changing winter clothes

WORKSHOP

DINING

LIVING ROOM

BEDROOM CHILDREN

BEDROOM (PARENTS)

Working Area

Presently this door is locked

Main entrance door is locked and the back door is used

The kitchen location in this design has advantages over the others, since the kitchen is integrated with living area and is easily accessible

Scale

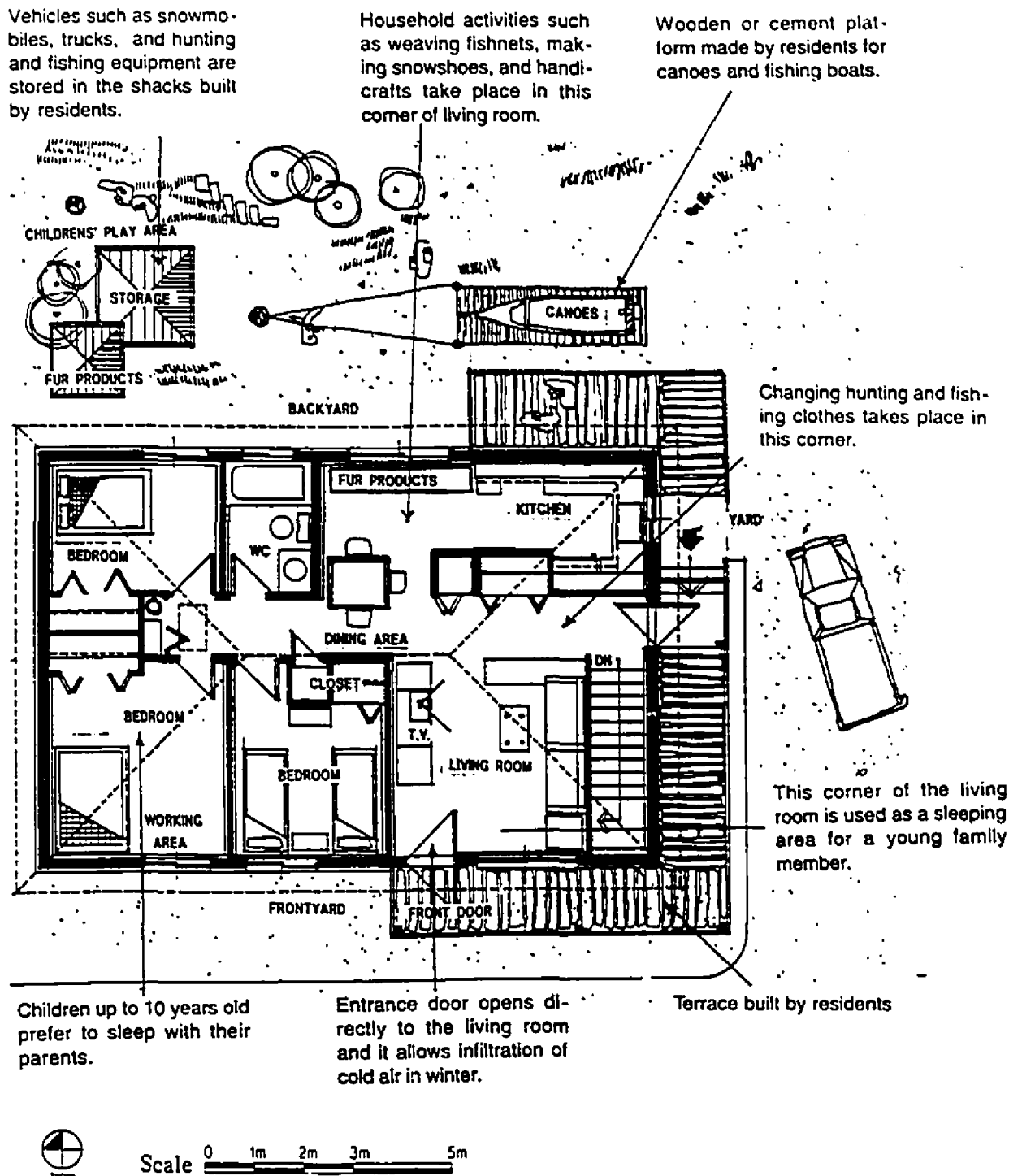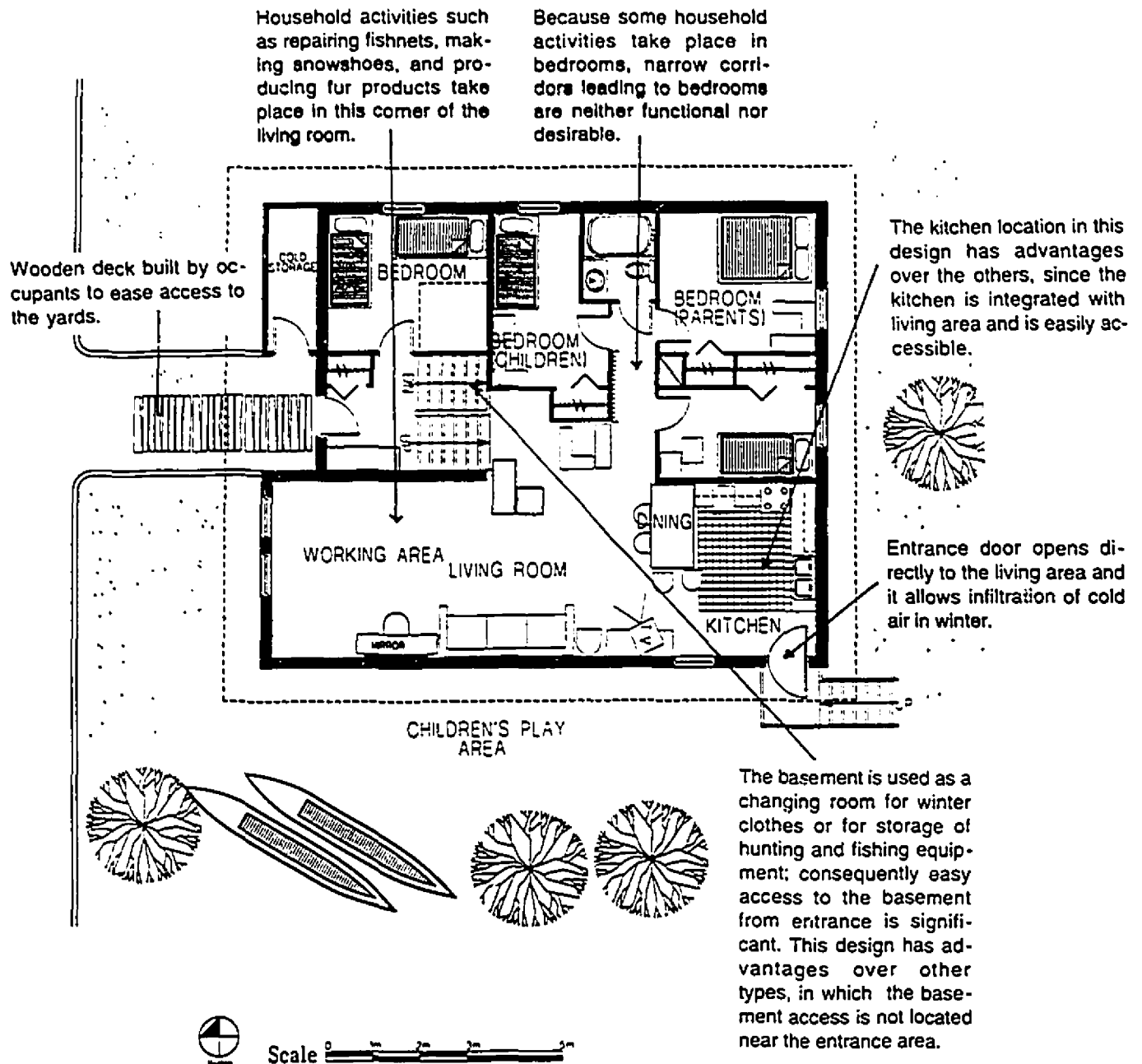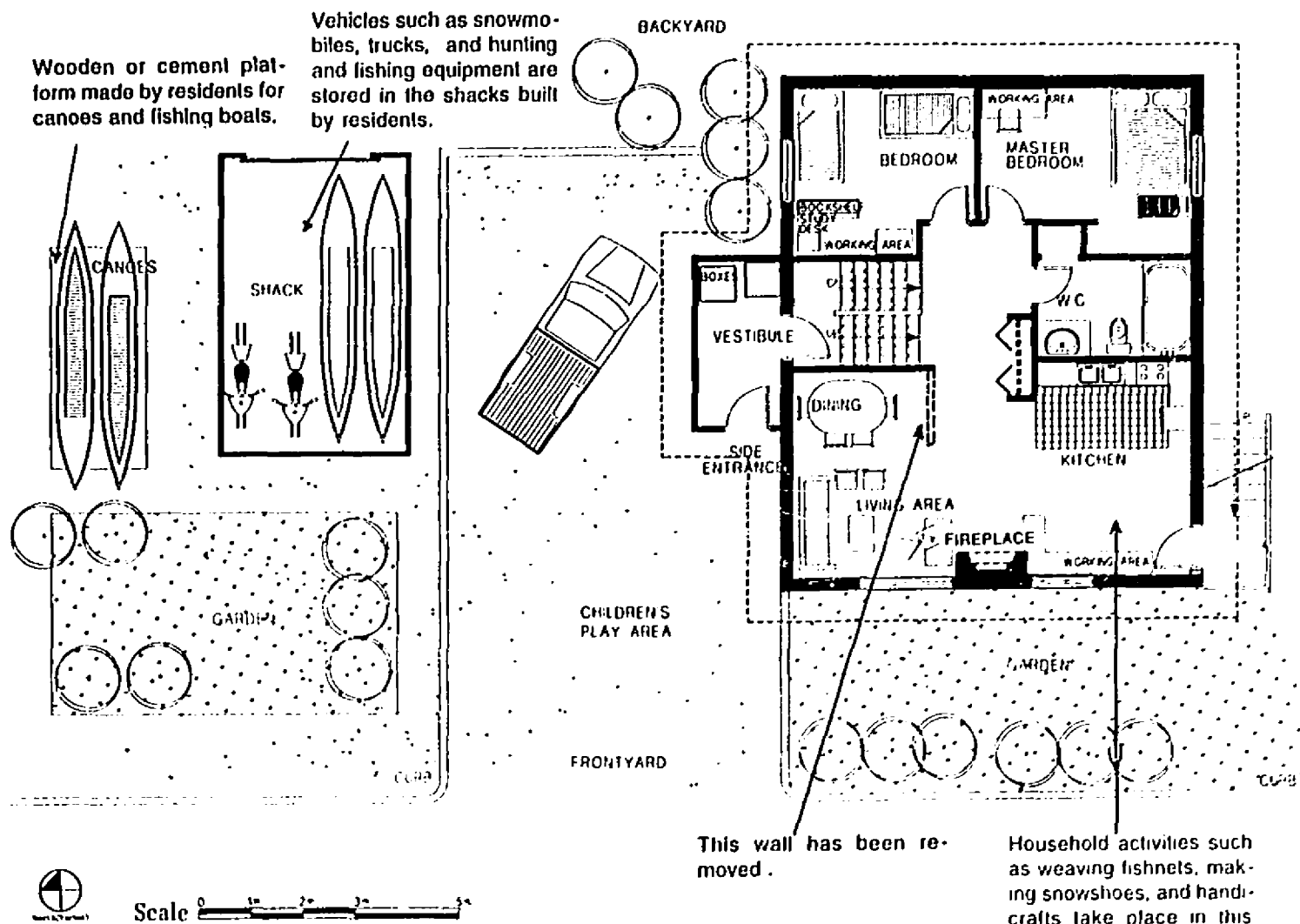**FIGURE 5-14:** Existing condition of a CHC House Model 87-10 in Waswanipi. (observation date: September 1993. source of plan: the CHC).

Wooden or cement plat-
form made by residents for
canoes and fishing boats.

Wooden stands used for
recanvassing canoes in
summertime.

Terrace built by residents

Vehicles such as snowmo-
bile, truck, and hunting
and fishing equipment are
stored in the shacks built
by residents.

The kitchen location in this
design has advantages
over the others, since the
kitchen is integrated with
living area and is easily ac-
cessible.

Household activities such
as weaving fishnets, mak-
ing snowshoes, and handi-
crafts take place in this
corner of living room.

GARDEN

TERRACE

BEDROOM
CHILDREN

KITCHEN

DINING

W.C.

MECHANICAL

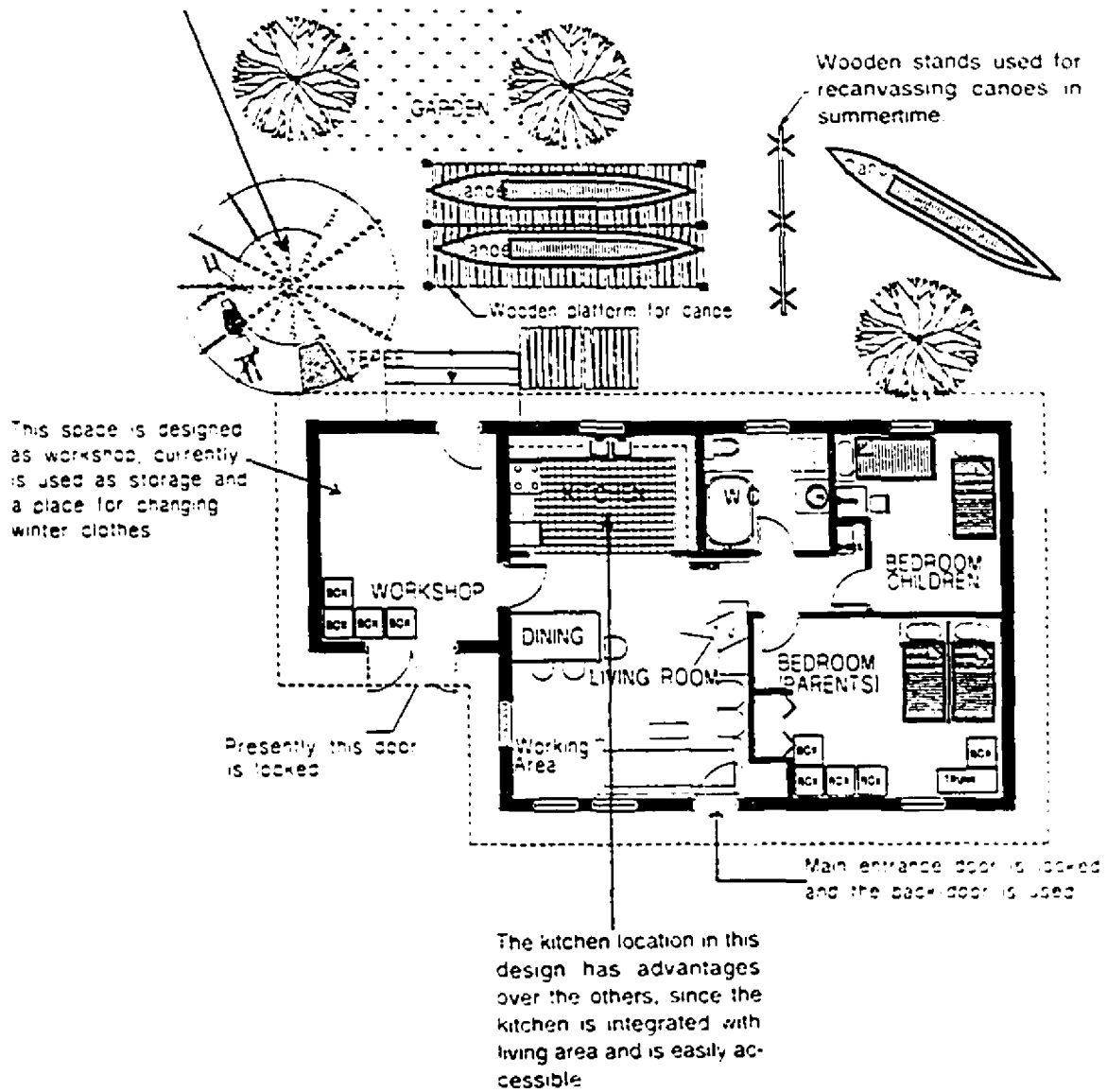BEDROOM
(PARENTS)
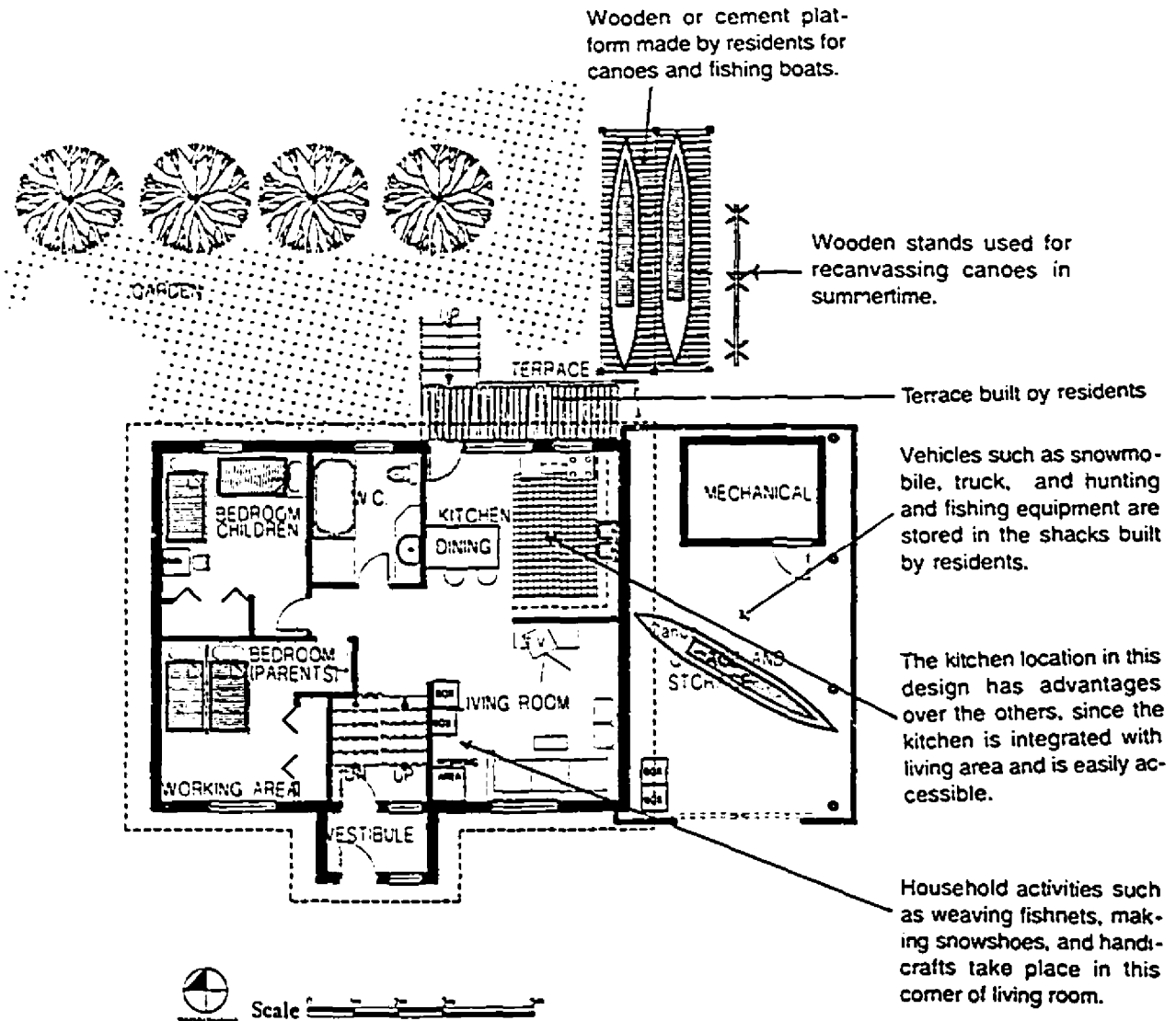
LIVING ROOM

WORKING AREA

UP

VESTIBULE

Scale

FIGURE 5-15: Existing condition of a CHC House Model 1992 in Mistissini, (observation date:
September 1993, Source of plan: the CHC).

CHAPTER 6 :
CONCLUSIONS AND RECOMMENDATIONS

Contemporary native communities in general, and Cree communities of Quebec in particular, are the synthesis of a traditional semi-nomadic society based on communal living and a superimposed Euro-Canadian lifestyle. In the reserves, residents are governed by rules and regulations imposed by the government. Families that were formerly equal in status, rank, occupation and material wealth, find themselves competing for the limited resources offered by the government. Residents depend upon jobs offered by the industries and mines and compete amongst one another for employment opportunities. The indigenous forms of self-help and mutual aid are practically nonexistent. The social and communal attitudes towards private property have altered, and the traditional social equilibrium upset.

One of the intentions of this thesis was to illustrate how the cultural perceptions of native people are different from those of Euro-Canadians and how these perceptions influence the built environment. When culture is not a factor in the creation of a built environment, the result is social disorder and a loss of identity. The case study of Cree communities supports this claim. The social organisation of the old reserves was based on a self-governing system with the codes and laws being enforced by tribal consensus. Socio-cultural changes took place when the semi-nomadic existence of natives was altered to year-round residency. This resulted in changes in the structure of native communities and coincided with a sharp, severe breakdown in their social system.

The argument here is not that social changes always cause problems and therefore must be avoided. On the contrary, social changes are essential to contemporary societies, but they should be continuous and should reinforce the lifestyles of people. Kevin Lynch indicates:

> The good city is one in which the continuity of this complex ecology is maintained while progressive change is permitted. The fundamental good is the continuous development of the individual or the small group and their culture: a process of becoming more complex, more richly connected, more competent, acquiring and realising new powers-- intellectual, emotional, social, and physical (Lynch, 1982, p. 116).

Creating progressive changes at the community level is not possible without the restoration of current education and management systems. Natives have always expressed their desires for sociopolitical self-determination which, in turn, influences the housing and planning issues. A socially and culturally appropriate development demands a socioeconomic system

which is egalitarian, resource-sharing, participatory, frugal and humble.

Based on the discussions presented throughout the thesis, the following planning and housing recommendations can be outlined:

6.1. PLANNING RECOMMENDATIONS

6.1.1. Socio-Cultural Aspects
In the process of planning, designing infill housing, and upgrading villages, planners and architects should consider socio-cultural and religious traditions. The forms of a physical environment can be supportive or destructive to lifestyle, value systems and culture. There are certain sites that carry spiritual and social importance for people. These sacred sites should be preserved. In the cases where the positioning of the sacred sites is in conflict with technical requirements (e.g., sewage and water services), priorities should be given to the sacred sites.

Native people favour an urban or rural space which is loose, continuous and dynamic in nature and is formed by buildings, earth, rock, water, plants, and light. This space must first be imageable (i.e. well structured and vivid in form) and endowed with a pervasive sense of place. Second, it must be conceived as a sequential experience, rhythmically organised, with contrast and variety, yet with strong continuity (Lynch, 1962, pp.84-87). Third, it must be meaningful, highly expressive of the culture and values of the native groups.

6.1.2. Land-Use Patterns
Suggesting a general land-use pattern applicable to all reserves is somewhat difficult. When a predetermined pattern is used in planning, it is often a conventional one, such as the typical Cluster or Loop arrangements discussed in Chapter 4. The planner must explore alternative patterns which allow social interaction. Creating an environment which allows interaction and socialising is crucial in native reserves. Using common entrances and paths, increasing visual contact between paths, providing focal points such as playgrounds, laundries, schools, churches and community centres, are common techniques that may be used to encourage social interaction.

Low density is favoured by most native people.[27] Adaptability and flexibility for future

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[27] As a general guide, 4 to 7 families per Net Acre, or 5 families per Neighbourhood Acre is considered low residential density (Floor Area Ratio of 0.2). In traditional Cree settlements, 4 to 5 families per Net Acre was the common residential density.

changes can be easily maintained by low density residential developments. Cree living patterns and domestic activities require a lower density housing in which land or lots are directly assigned to each building. When dealing with apartment buildings set in open spaces, it is difficult to determine and distinguish the limits of the immediately adjacent land.

6.1.3. Natural Resources

Environmental and landscape design should preserve the existing natural environment. New settlements should be located where indigenous plants and natural resources are available, since natives depend upon them in their daily life. If natural resources are depleted or contaminated, the replanting of trees and cleaning of the contaminated areas must become a priority. Designers should use natural features to create protected and sheltered environments. For example, frequent rocky outcrops and the dominance of water greatly influence the physical character of northern environments and the location of dwellings.

The majority of native communities are located beside lakes and rivers. Living in proximity to these waterways is desired by most residents, particularly the elderly. Land along the water's edge should be preserved for community use. Roads near the water's edge destroy the common usage of it; therefore, a belt of common land immediately beside the water is preferable. This common land could be designed and utilised as common park land extending hundreds of yards beyond the banks. There could be pedestrian paths linking residential and commercial areas to the water's edge.

6.2. HOUSING RECOMMENDATIONS

6.2.1. Flexibility in Housing

As discussed in Chapters 4 and 5, residents, throughout the lifetime of a house, create a number of additions and alterations to satisfy their needs. The changing nature of native families, and consequently of their houses, requires a housing type which is flexible and adaptable. Flexibility calls for an approach in which the applied materials and methods of construction are adaptable to varied conditions and are changeable in each circumstance. Flexibility, as a concept in housing design, is defined as: "the freedom to choose among options or device programmes that fit individual needs and aspirations of the users." Nabeel Hamdi (1991, p.51). Flexibility, as a technology, was introduced in the 1970s (see Rabeneck et al. 1974). Examples of flexible housing technology include: open plans, movable partitions, adjustable shelving, interchangeable windows and doors, and so on.

6.2.2. Fences, Garages and Vestibules

Fences and walls delimit areas and emphasise individualism and urban notions of property, which are not favoured by native people. Fences are physical barriers to achieving the social cohesion required by natives in their residential areas. Creating a 'symbolic barrier' to define zones of transition is a way of avoiding fencing. "As a design tool, symbolic barriers serve the purpose of informing people that they are passing from a public space, where the range of activities is large and not subject to much restriction or control, to more private spaces, where activity is limited to what is considered acceptable by adjacent residents." (Newman, 1975, p.197) A symbolic barrier could be created by hedges and trees in the form of gateways, by play areas for children acting as a buffer zone for each house, by using different materials in pavement, and so on.

Because of the harsh climate of the northern communities, most residents prefer to use a garage to protect vehicles from rain, snow, and freezing temperatures. Open parking and carports are not appropriate in a northern climate. Small parking lots set aside for groups of residents will not be used by them. Visitors might use these lots for a short period of time. Due to climatic conditions, residents prefer to park their vehicles as close as possible to the house. In the case of houses without garages, residents build shelters and shacks in the backyards to protect their cars and snowmobiles. The garage should be designed so that it can be easily converted to a workshop or storage as the residents wish. It should be easily accessible from the outside and need not be heated.

Vestibules should serve both the living area and the basement. A storage room or spare

room near the vestibule would partially satisfy the need for storage space. Fishermen and hunters will come home with dirty winter boots, wet fishnets and hunting and fishing equipments. They need a place, at the first opportunity, to change their clothes into ones suitable for the house. The vestibule and storage space should be provided for this purpose and be separated from the interior circulation of the house.

6.2.3. Construction Materials

Local materials, such as wood, have advantages over imported materials. Wood is the best material in terms of adaptability. It is fairly cheap, easy to work, and can be extraordinarily beautiful; however, it has the tendency to absorb moisture. Timber-framed houses have advantages over the conventionally built stud houses. The average life of a conventionally built stud house is about 75 years, while a timber-framed building can live up to 300 years or more (Brand, 1994, pp. 119-124). Concrete requires high maintenance and is subject to a number of deterioration problems such as: blistering, chipping, coving, cracking, and so on. Brick, as an exterior cladding material, has advantages over concrete and other masonry materials. Bricks last long, are easily replaced, and accept coatings and sealants. Architects can choose different materials for weatherly walls than for other walls. Exterior brick walls can be coated with silicon to block the prevailing winds (Brand,1994, p.119).[28]

6.2.4. Maintenance

On average, 30 percent of Cree families vacate their houses during the winter hunt. When houses are vacant and unheated, water pipes freeze and crack. Broken windows and doors, which are not replaced, admit animals, trespassers, rain and snow. A solution to this problem is to protect windows and doors with protective shutters placed on the outer face of each window and door, and reused annually. In a number of houses in Mistissini, shock-resistant plexiglass was used, but caused visual problems, such as glare, and residents did not favour it. Water pipes buried in the ground are less prone to freezing; exposed pipes should be drained prior to vacancy. These issues make annual maintenance costs in northern communities much higher than those of the Canadian average.

The use of local labour, which benefits the local economy and strengthens social ties, facilitates the construction of houses to a great extent. Construction techniques should not require non-local experts. This factor makes prefabricated and similar housing systems more costly. In addition, the operation of a small sawmill in each community would further support local housing industries.

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[28] Weatherly walls are those located in the direction of prevailing winds.

6.3. FUTURE RESEARCH POSSIBILITIES

This study has explored housing issues on Cree reserves. Regardless, native housing remains a poorly documented field in which historic, socio-cultural, and other factors are often misunderstood. Perhaps the growing participation of natives in federal projects and the national education system will improve the quality of research in this area. Below are a number of issues that fall beyond the scope of this thesis, but remain vital areas of much-needed study.

1- Vernacular Cree housing forms and technologies have not adequately been documented.

2- Researchers have rarely explored traditional urban and rural patterns of native settlements in Canada. It has yet to be seen how these patterns can be applied to contemporary community planning and housing.

3- Post-occupancy evaluations of recent housing projects and relocated reserves are essential to improved future planning and housing.

4- There is a need to study the applications of flexibility and adaptability as new technologies in contemporary native housing.

5- Literature on the durability and maintenance of building materials, with particular reference to northern climates, is inadequate; it would be helpful to compile a catalogue of currently available building materials for this context.

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