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Ecological Anthropology of the Caribou-Eater Chipewyan of
the Wollaston Lake Region of Northern Saskatchewan.

Simon Fraser University

Ph.D.

Dr. H.S. Sharp

December 11, 1979

National Museum of Ethnology

Senri-Expo Park, Suita

Osaka, Japan
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ECOLOGICAL ANTHROPOLOGY OF THE CARIBOU-EATER CHIPEWYAN OF THE WOLLASTON LAKE REGION OF NORTHERN SASKATCHEWAN

by

Takashi Irimoto

B.A., University of Kobe (Japan), 1970
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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY in the Department of Sociology and Anthropology

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December 1979

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Ecological Anthropology of the Caribou-Eater Chipewyan of the

Wollaston Lake Region of Northern Saskatchewan

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This is an analysis of the ecology of the Caribou-Eater Chipewyan of the Wollaston Lake region of northern Saskatchewan. Three major problems are considered: (1) Chipewyan group structure; (2) Subsistence ecology; and (3) the structure and adaptability of the Chipewyan caribou hunting system. The methods of study include: (1) Active participation; (2) Individual tracing and direct observation for a spatiotemporal analysis of human activity; (3) Historical comparison, indirect observation and chronology; and (4) Structural-operational levels of analysis.

The ecology of the Caribou-Eater Chipewyan is described in terms of the seasonal movement pattern, subsistence activities, and time-space use of the subsistence activities. The quantitative data show that various categories of the Chipewyan subsistence activities are organized into a system of activities, called the Chipewyan caribou hunting system. Time and space use is examined in relation to individual variations (age/sex) and the Chipewyan subsistence units.

The three major structuring principles of the systems of activities are shown to be: The temporal sequence of activities, the allocation of activities, and the combination of activities.
The ecological adjustment of the Caribou-Eater Chipewyan is examined from the caribou hunting system viewpoint, demonstrating that the structuring principles of the caribou hunting system are relatively consistent, even though their operation varies in accordance with environmental change.
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Vancouver
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INTRODUCTION

The thesis is an ecological anthropological study of the Caribou-Eater Chipewyan of the Wollaston Lake region of northern Saskatchewan. It is based upon intensive field research between July 1975 and October 1976. The Caribou-Eater Chipewyan, (Etthen-eldili), are one of the Northern Athapaskan Indians of North America. Formerly semi-nomadic, they are now settled in several Canadian sub-arctic communities. In these communities hunting and fishing activities are still a major part of life. This study of the Caribou-Eater Chipewyan provides specific information on the ecology of these big-game hunters of the boreal forest of the Canadian sub-arctic.

Besides being a case study of northern hunters, this thesis attempts to make a contribution to anthropological theory.

In Chapter 1 the major theories and methodologies of ecological anthropology are critically examined to determine their deficiencies. The nature of the study of hunters and gatherers in anthropology is first introduced, and then, after critically examining current use of ecology in anthropology, a different theoretical framework for ecological anthropology is presented. The areas discussed include: problems in cultural evolution; problems of ecosystem
analysis; problems with functionalism and the notion of biological needs; and finally, the overall theoretical framework of ecological anthropology. In this thesis, ecological anthropology is defined as a study of human life in which biological, cultural and environmental aspects are viewed as interrelated parts of a system of human activities. Methodologically more precise and practical aspects of ecological anthropology are described with special reference to the study of the Caribou-Eater Chipewyan. Three major problems are delineated as the subject of this study of the Caribou-Eater Chipewyan. (1) Chipewyan group structure; (2) Subsistence ecology of the Chipewyan; and (3) Structure and adaptability of the Chipewyan Caribou hunting system. The methodologies used include: (1) Active participation; (2) Individual tracing and direct observation (spatiotemporal analysis of human activity); (3) Historical comparative method (indirect observation and chronology); and finally, (4) Structural-operational analysis.

In Part II, the historical background and the natural environment of the Caribou-Eater are described. Chapter 2 deals with the history and the contemporary political-economic structure of Wollaston Lake settlement. In this chapter the history of the emergence of the Wollaston Lake settlement and the formation of the Hatchet Lake Chipewyan
are the major topics. The term Hatchet Lake Chipewyan refers to the contemporary Chipewyan population of the Wollaston Lake settlement. As a part of the historical background of the Hatchet Lake Chipewyan, their classification of ethnic groups and their history of the interrelations is described. Then, the social and economic structure of the contemporary Wollaston Lake settlement is examined. The socio-economic structure of the contemporary Wollaston Lake settlement is described in relation to the ethnic composition and the administrative division of the population. Chapter 3 deals with the natural environment of the Wollaston Lake region. Geographical and climatological features, flora, and fauna are examined. The area is characterized by the tundra-forest transition on the Precambrian shield and by the seasonal migration of caribou (*Rangifer articus*).

Part III deals with Chipewyan group structure and subsistence units. In Chapter 4, the kinship structure, including the kinship terminology, and characteristics of Hatchet Lake Chipewyan kinship is described. In Chapter 5, the Chipewyan subsistence units are examined. The concept of subsistence unit is isolated from the structure of kinship. The domestic unit and the hunting unit are shown to be two different levels of the Chipewyan subsistence unit. The domestic unit is defined as the basic unit for production
and reproduction. The hunting unit, which is formed from bilaterally linked domestic units, is considered as another level of cooperative unit. The plasticity of the composition of the subsistence units and their range of adjustment (in relation to the Chipewyan kinship system) are clarified. The camp, another level of organization, appears as a temporary aggregation of the hunting unit(s). But, it is suggested that a camp can be positively defined as a pool of potential members of various activity groups, even though a camp does not have to be a corporate group.

Part IV examines the ecology of the Caribou-Eater. Chapter 6 deals with the seasonal movement pattern while Chapter 7 examines Chipewyan subsistence activities. Time-space use in subsistence activities is examined on the basis of the empirical data which obtained through direct observation and the active participation method.

Part V deals with the structure and adaptability of the Chipewyan caribou hunting system. In Chapter 8, Chipewyan subsistence activities are analyzed from the perspective of human activity systems. The structure and the structuring principles of the Chipewyan caribou hunting system are examined. In Chapter 9, the adaptability of the Chipewyan caribou hunting system is examined in relation to the environmental and economic changes of the Wollaston Lake region.
PART I

THEORY AND METHODOLOGY
CHAPTER 1

THEORY AND METHODOLOGY OF ECOLOGICAL ANTHROPOLOGY

1. THE STUDY OF HUNTERS AND GATHERERS

Anthropology has a long history of studies of the nature and cultures of man. Only recently, however, have anthropologists begun to study systematically the populations of hunters-gatherers from the viewpoint of human evolution and ecology (Bicchieri, 1972; Coon, 1971; Damas, 1969a, 1969b; Lee & DeVore, 1968; Service, 1966).

The symposium on *Man the Hunter*, Lee and DeVore (1968: 3) provided evidence that cultural man (i.e., man from *Australopithecus* to *Homo sapiens*) has been on earth for some 2 million years and for 99 per cent of that time lived as a hunter-gatherer. They also show that, of the estimated 80 billion men who have lived on earth, over 90 per cent lived as hunters-gatherers. Only about 6 per cent practised agriculture while the remaining few per cent lived in industrial societies (Ibid.: 3).

It is unfortunate that the main stream of anthropology tends to focus on agricultural and more 'advanced' forms of society while neglecting older forms. Because man is influenced by both natural and cultural backgrounds (Bates, 1964), man's once-universal hunting way of life should be intensively and extensively studied by anthropology.
Hunting-gathering refers to a mode of subsistence. The evolutionary characterization of hunters is as a 'population with strictly Pleistocene economics - no metal, firearms, dogs, or contact with non-hunting cultures' (Lee and DeVore, 1968:4). This definition does not provide an accurate characterization of the majority of the hunting-gathering peoples in the contemporary world, but case studies of present-day hunters can still provide us with rich information about the ecology of hunting-gathering societies. This information would be difficult to obtain from the prehistoric records alone.

**Chipewyan:** Caribou Hunters of the Sub-Arctic Forest:

The Chipewyan are one of the groups of Northern Athapaskan Indians of Canada. They are caribou hunters of the sub-arctic forest. The ecology of big-game hunters in the boreal forest is an important subject in anthropology both from the viewpoint of human evolution and population history of northern peoples (Watanabe, 1966; 1969a; 1969b; 1971). They have not been studied from the point of view of the ecology of hunting using intensive field data. For example, existing materials on the Chipewyan include traditional ethnological documentation and the recent cultural ecology. But, a detailed analysis from a hunting ecology point of view has been entirely neglected. As a result, precise ecological analysis of their subsistence strategies and the adaptive process of culture change is impossible.
Today, one of the traditional Chipewyan groups, called 'Etthen-eldili' (Caribou-Eaters) make up several northern communities. In these communities hunting and fishing activities still form a major part of life. The present study of the Caribou-Eater Chipewyan provides specific information on the ecology of the big-game hunters of the boreal forest of Canadian sub-arctic. It should be noted here, however, that the ecology of the Caribou-Eater Chipewyan is described and analyzed in the present-day context. They have had contact with outside Canadian society for some time, so some aspects of their historical development as well as the existence of the contemporary settlement and its socio-economic structure have been influenced by outside forces.

Besides being a case study of the ecology of northern hunters, this thesis makes a contribution to anthropological theory. Cultural ecology has come to be recognized as a sub-field in its own right due to the pioneering research of Julian Steward (1955) on multi-linear evolution. Recent work, however, has exhibited a strong tendency to stress biology (Rappaport, 1956; 1967; 1968), something counter to Steward's emphasis on culture. There is currently a dichotomy within cultural ecology although both approaches have been used as tools in the study of living hunter-gatherers (Damas, 1969a; 1969b; Lee and DeVore, 1968).

This thesis critically examines these cultural ecological frameworks from a broader theoretical perspective. From an
ecological point of view, human beings are neither purely cultural nor merely biological organisms. Man and nature are mutually interrelated in terms of human activity, and this has not yet been adequately investigated by either physical or cultural anthropologists.

I define ecological anthropology as the study of the life of man, within which biological, cultural, and environmental aspects interrelate to form a system of human activities (Watanabe, 1977a). This definition of ecology eliminates the traditional use of the term as a geographical and environmental determinant outside the socio-cultural sphere. Similarly, the concept of evolution is defined as the phenomena of evolution de facto, including cultural and biological change in man in the past and present in relation to the process of hominization. Consequently, 'the idea of evolution', in which an underlying principle or law behind the phenomena is presumed, will be called "evolutionism" in this paper.

2. THEORETICAL BACKGROUND OF ECOLOGICAL ANTHROPOLOGY

This section presents, after critically examining the current use of ecology in anthropology, a theoretical framework of ecological anthropology. The discussion includes:

(1) Problems in cultural evolutionism;
(2) Problems of ecosystem analysis in socio-cultural studies;
(3) Problems in functionalism and the notion of biological needs; and the
(4) Theoretical framework and subjects for ecological
Examination and the criticism of the existing models of ecology from the broader perspective of anthropology are essential to the presentation of a new theoretical framework for ecological anthropology.

First, I examine the problems in cultural evolutionism, the concept of culture and evolutionism in American cultural anthropology, and point out the deficiencies of the use of organic evolution as an analogy for the study of culture. Second, in the examination of the problems of ecosystem analysis in socio-cultural studies, I criticize the use of ecosystem models for the study of particular local populations. The concept ecosystem is, in fact, merely a transformation of the concept 'socio-cultural system' into ecological and biological terms. Third, the concept of function and structure is critically examined in relation to the notion of biological needs, culture change, and the use of geography, economy, and biology in British social anthropology. The concept of structure and function is dependent on the subjects with which particular anthropologists deal. Biology and ecology are considered to be factors outside the socio-economic framework. As a result, 'ecologically' oriented schemes in British social anthropology dismiss the ecology of man from the wider structural framework of anthropology.

Finally, the theoretical framework, including the appropriate subjects of ecological anthropology, is defined. It is
proposed that ecological study in anthropology is a study of man's systems of activities and their adjustments in which biological, cultural, and environmental aspects are interrelated.

(1) Problems in Cultural Evolutionism.

During the last twenty-five years, cultural ecology has become explicitly recognized as an anthropological sub-field, largely due to the pioneering research of Julian Steward (1955) on multi-linear evolution. Later Geertz (1963) and Netting (1965, 1968, 1971) used this methodology for a detailed analysis of ongoing agricultural societies from a functional viewpoint. But there are problems in the framework of cultural ecology, both in the concept of culture and cultural evolutionism, and in methodology.

In this section I describe the background of evolutionism in anthropology and the emergence of culture study in the American school of anthropology (Boas, 1938). Then I will examine neo-evolutionism in the culture studies of Leslie White (1949) and Julian Steward (1955, 1968). And, finally, I will critically examine the concepts of culture and cultural evolutionism from the human evolutionary viewpoint.

(i) Evolutionism and Culture Study in Anthropology:

The evolution of man and culture has been one of the central issues of anthropology since Darwin published the Origin of Species (1859) and The Descent of Man (1871). Different societies were seen to be at different stages in human history,
from lower to higher, or from Primitive to Civilized, on a scale of evolutionary development (Maine, 1861; McLennan, 1865; Morgan, 1870; 1877; Smith, 1903; Tylor, 1871). In Primitive Culture (1871), Tylor defined culture as, "that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society".

Franz Boas led anthropology in a different direction, to cultural relativism. He meant by "culture" an integrated way of life. Boas' concept of culture was a useful methodological tool for the comparative studies of American Indians that have been conducted (e.g., Kroeber, 1925; Steward, 1946-50; Wissler, 1926). The major contribution of Boas to contemporary anthropology was, in fact, the concept of culture, which is highly valued by historical and comparative study (Harris, 1968: 250-318; Hatch, 1973: 13-73; Stocking, 1968: 195-233).

Boas' concept of culture was combined with the concept of evolution by Leslie White and Julian Steward. White, reacting against Boas' particularism, used an evolutionary scheme in his book Science of Culture (1949). Hatch (1973: 130) pointed out the evident influence on White of Marvin Farber, a philosopher interested in evolution, and of Lewis Morgan, Marx and Engels. White (1949; 368-369) suggested that the degree of cultural development is determined by technology and proposed a basic law of cultural evolution: culture evolves as the amount of energy harnessed per capita per year is increased.
or as the efficiency of the instrumental means of putting the energy to work is increased.

White's grand theory of the evolution of culture, which was called "general evolution" in contrast with Steward's specific evolution (Sahlins & Service, 1960: 38-44), was intended to explain cultural differences using the nineteenth-century evolutionary scheme. Julian H. Steward's theories, on the other hand, did not really depend on the idea of evolution. He was concerned with change in so far as it is an adaptive response to a particular local ecology. The attempt by Marshall Sahlins and Elman Service (1960) to reconcile the positions of White and Steward is unsatisfactory because the difference between evolution and change was overlooked. White's evolutionary scheme involves change in terms of progress, of moving from the simple to the complex, while cultural ecology (Steward, 1955) involves change in terms of causality and process.

Steward's framework is, however, inadequate because of the weakness of his conception of one-way causality which dismisses the dynamic interrelations between cause and effect through positive and negative feedback mechanisms, and because of his concept of 'culture', which was inherited from Boas. I will examine first his concept of causality and then his concept of culture.

Steward's fundamental method of cultural ecology is described in **Theory of Culture Change** (1955). The three basic steps are:
(1) Analysis of the interrelationship of exploitative technology and environment.

(2) Analysis of the behavior patterns involved in the exploitation of a particular area by means of a particular technology.

(3) Ascertainment of the extent to which the behavior patterns entailed in exploiting the environment affect other aspects of culture (Ibid.: 40-41).

Steward saw cultural ecology as a methodological tool which could be used to ascertain how a culture adapts to its environment. This relationship between culture and environment is also stated in his paper presented to the symposium on Man the Hunter (Steward, 1968: 321-334). In his article, "Causal Factors and Processes in the Evolution of Pre-Farming Societies", he distinguished causes, processes, and effects, in his efforts to find cause-effect relationships in the evolution of different kinds of cultures. Causes were considered ultimate cultural and environmental factors utilized by human societies. He defined these ultimate factors as sets of cultural devices and practices, and environmental features. These are no more than inert potentials which may be classified in separable categories until they are activated and interrelated by human behavior.

Fire, carrying baskets, and weapons are merely part of the cultural inventory, and fishing resources or edible seeds are features of the natural landscape (Ibid.: 322).

Process refers to such things as demographic trends, seasonal aggregation, and dispersal which may bring about very similar group structures in quite dissimilar environments.
His cultural ecological method involves "causal factor identification", or "causal factor determination" (Ibid.: 324), through which one can ascertain the relationships between different aspects of culture and the behavior patterns involved in the exploitation of a particular environment by means of a particular technology.

This methodological framework might be useful if different cultures were surveyed and examined, noting cause-effect relations in each case to give some explanation of similarities and parallelism. However, this framework is not always adequate to explain the principles of culture change and human evolution. For the fundamental process of human evolution involves interaction between cause and effect, where the relationship between them changes by means of negative and positive feedback mechanisms. Steward did not take this into account.

The method of cultural ecology is simply based on typology, analogy, and comparison within a short-term socio-cultural changes. His diachronic method might be used to understand the cultural changes evidenced in archaeological records of the American Indians (Steward, 1937; 1967a; Steward & Setzler, 1938) and to analyze the socio-cultural transformations in the contemporary industrial world (Steward, 1967b; 1967c; Steward et al., 1956), but the application of the 'principle' of culture change to the human evolutionary time scale is invalid.
In utilizing the method of cultural ecology to analyze prehistoric hunter-gatherers, Steward (1968) failed to recognize the limitations of the cultural ecological method.

(ii) Defectiveness in the Concept of Culture and Cultural Evolutionism:

I shall now examine the concept of culture, which has been used by American anthropologists including Steward and White, and criticize it from the human evolutionary viewpoint.

Since Darwin (1859), a large number of primate fossils have been discovered about which enthusiastic communications have been exchanged among primatologists, palaeo- and physical anthropologists. Their primary aim was to classify Primates and understand the process of human evolution. In considering the adaptation and evolution of the Hominidae in relation to other primate groups, the major concern was behavior. Hallowell (1961) stated that behavior is the unifying center to which we must return at any adaptive level, whether we consider hominid evolution from an ecological, a social, a psychological, or a linguistic frame of reference (Ibid.: 236). Behaviors, including locomotional patterns, provide the basic elements in a definition of the order of primates as well as the genera within the Hominidae. In the division into genera Australopithecus and Homo, Washburn (1963: 190-203) considered locomotor adaptation, brain size, and capacity for tool making. His emphasis was on human bipedalism:

Human bipedalism is structurally unique, and it is not even mechanically convergent with these other forms of
bipedalism. Human bipedalism is a gait which is carried on while the trunk is erect, and walking is dependent on a unique forms of ilium and a pattern of muscles found in no other animal (Ibid.: 197).

The most interesting feature was the relation of these biological phenomena to a cultural one: bipedalism frees the hands and facilitates the use of tools. Thus bipedalism and the use of implements are intimately and causally associated with the origin of man (Washburn and Howell, 1960: 46-47).

The importance of cultural behavior as a dynamic factor in morphological changes of the human skeleton is also suggested in recent studies of physical anthropology dealing with macro and micro levels of evolution (Suzuki, 1963; 1971; Suzuki & Takai, 1970).

So, in the process of human evolution, culture and biology mutually affect each other as cause and effect. Therefore the idea that culture can be separated from biology and is independently evolved in its own right cannot be supported by the empirical evidence.

The concept of culture in American anthropology is, thus, mistaken. Steward (1977: 66-67) severely limits the role given to biology by assuming that the rate of man's cultural development became independent of his biological evolution during the last 25,000 years. The fact is that biology has been changing in relation to cultural development throughout human evolution, right up to the present (Boyden, 1970; Suzuki, 1963; 1971).
By excluding biology, Steward fails to understand the process of human evolution in which biology and culture are mutually interrelated.

It is worth noting here that the problems with concepts of culture and evolutionism are deeply rooted in the philosophical background of European culture: the dichotomy between spirit and body is one of its major themes. In anthropology it emerged as a dichotomy between culture and biology. For cultural anthropologists, the term 'culture' became an object, a method, and probably even a symbol. Culture became identified with the spiritual or sacred part of man, or humanity itself, and was completely separated from the material or profane aspect of man which was inherited from the beast.

In conclusion, cultural evolutionism is defective in that culture is seen as separable from biology and because the analogy between organic evolution and cultural evolution is used.

(2) Problems in Ecosystem Analysis in Socio-Cultural Studies

In this section, I will examine ecosystem models in socio-cultural studies. I will then point out that that ecological framework is merely a methodological tool for sociocultural study and does not deal with the ecology of man per se.

(i) Problems in the Concept of Ecosystem:

Vayda and Rappaport (1968) rejected Steward's separation of culture and biology, stressing that cultural phenomena should be described in terms of the effects of culturally informed
behavior on biological systems such as organisms, populations, and ecosystems. Rappaport describes this view of the relationship between man and culture as follows:

The distinctive characteristic of ecological anthropology is not simply that it takes environmental factors into consideration in its attempts to elucidate cultural phenomena, but that it gives biological meaning to the key terms - adaptation, homeostasis, adequate functioning, survival - of its formulations (Rappaport, 1956: 243).

It was within this framework that Vayda (1961: 346-358) examined the effects of ecology on distribution and expansion among swidden agriculturalists through warfare. Rappaport (1967: 17-30; 1968) demonstrated the practical role of ritual in maintaining environmental relations among the Tsembaga in the Territory of New Guinea. Ecology, here, is factor and function, which Vayda and Rappaport (1968) described as follows:

...Our concern will be to indicate the contribution of ecology, or an ecological perspective, towards realization of two major goals of cultural anthropology. One goal is to explain why particular traits or congeries of traits exist at particular times and in particular places ... The other goal is to elucidate how the traits or congeries of traits function or "behave" (Ibid.: 477).

The ecosystem approach is also found in Clifford Geertz' (1963) study of the process of ecological change in agricultural societies. His major focus is not on the use of biology to elucidate socio-cultural phenomena but rather on the
systemic explanation on culture. The idea that there are pervasive properties of systems *qua* systems rather than point-to-point relationships between paired variables of the "culture" and "nature" variety (Ibid.: 10) is important.

But there are some problems with using an ecosystem model for socio-cultural studies. In the discipline of ecology, ecosystem is defined as "a system of interactions in which individuals or whole organisms may be considered elements" (Margalef, 1968: 4). When applying it to human studies, it should be remembered that the ecosystem in a local environment is not a self-sustaining entity. The concept of ecosystem in anthropology is a methodological tool which conventionally draws its spatial boundary in a local environment. Thus, the Tsembaga ecosystem in New Guinea (Rappaport, 1967; 1968; 1971) is an artificial concept, and should not be assumed the equilibrium that keeps maintaining the balance of the particular local ecosystem. In fact, the ecosystem model in anthropology is used merely to indicate the socio-cultural system of a particular human group even though it is expressed in biological terminology.

(ii) **Use of Ecology as a Factor in Socio-Cultural Study**

Working from the tradition of British social anthropology, Fredric Barth took an ecological approach, using the concept of ecological niche, to a case study of the distribution of ethnic groups in Swat State in North Pakistan (Barth, 1956: 1079-1089; 1961). In his introduction to the symposium
Ethnic Groups and Boundaries (1969), Barth further developed the idea that ecological factors may be related to interethnic boundary maintenance mechanisms through various social interactions. He describes the ecological interdependence of ethnic groups in a stable situation in which two or more ethnic groups are in contact, as follows:

1. Ethnic groups may occupy clearly distinct niches in natural environment, and in minimal competition for resources.

2. They may monopolize separate territories, and be in competition for resources.

3. They may provide important goods and services for each other; i.e., occupy reciprocal and therefore different niches in close interdependence (Ibid.: 19-20).

He summarizes the nature of the mechanisms needed to maintain the ethnic boundary:

Boundaries persist despite a flow of personnel across them. And, stable, persisting, and often vitally important social relations are maintained across such boundaries, and frequently based precisely on the dichotomized ethnic status (Ibid.: 9-10).

It should be noted that Barth's use of ecology is rather unique in British social anthropology. The importance of geography has been recognized by such people as Forde (1934), Firth (1951; 1967) and Leach (1954; 1961a; 1961b), but their structural framework for studying anthropology is still a socio-economic one. Ecology is treated as a geographical and environmental factor which is outside this structure.
The ecological niche of an animal refers to its place in the biotic environment and its relations to food and enemies (Elton, 1927: 63-68). The concept is also used in relation to ecosystemic and energetic analysis in the study of humans (Hardesty, 1977: 109-120). In his study, the niches of human groups are quantitatively measured and compared by calculating the amount of resource variety that is used for subsistence. As already described, there are dangers in using the ecosystem model in anthropology although energy might be an index for analysis of ecological relations in the system.

It is interesting to note that the notion of 'culture' is used in the studies on human morphological and physiological adaptation (Collins & Weiner, 1977; Baker & Weiner, 1966; Rahn, 1965). In this case, only a limited aspect of 'culture' which directly influence human physical characteristics is taken into consideration. The method of inquiry is exactly the reverse of one used in socio-cultural studies in which ecology is considered merely as an outside factor. As a result, both the physical and the socio-cultural sub-disciplines of anthropology do not deal with the total system of human life between biology and environment.

(3) Problems in Functionalism and the Notion of Biological Needs.

In this section, I examine functionalism and the notion of biological needs in British social anthropology, since they are important for the theoretical framework of ecological anthropology which is presented later.
First, I examine the notion of biological reality which Bronislaw Malinowski uses in his functionalist theory. I point out that his concept of biological reality is no more than psychological reductionism. Second, I survey the way the concepts of structure and function are used particularly in the studies of culture change by Malinowski, Max Gluckman, and Edmund Leach. Finally, I examine the notions of geography, economy and biology in the works of Audrey Richards and other British social anthropologists. I point out that the methodological frameworks which are developed using these concepts still dismiss the ecology of man.

(i) Functionalism and Biological Needs

Malinowski's functionalism, particularly its utilitarian aspect in relation to biological needs, has been subjected to criticism by many anthropologists. Hatch (1973: 335), for example, recently discussed three aspects of Malinowski's functionalism: integrationalism, which is simply the idea that the parts of the cultural system are integrated; a dualistic form of utilitarianism, according to which each aspect of culture is conceived of as contributing to an ulterior end; and a monistic form of utilitarianism, according to which institutions serve the needs and interests of human beings.

Malinowski's idea of the basic needs were criticized by Harris (1968: 549-551) as being rather ad hoc; the logic connecting the various instrumentalities to their biopsychological base is never more than arbitrary. Also, Radcliffe-
Brown (1952, 178-187) did not agree with Malinowski's concept of basic needs. But, Radcliffe-Brown's theory of society is, in fact, a carry over from Durkheim's theory of social studies (Durkheim, 1938: 1-46), which was based on an analogy of society as an organism. The main stream of British social anthropology followed the Durkheim via Radcliffe-Brown and neglected to consider biological reality in human studies.

It is useful to re-evaluate Malinowski's functionalism and idea of biological needs from a broader anthropological perspective before proposing a theory of ecological anthropology. According to Malinowski, the essence of "pure" functionalism was in its conception and definition of the individual.

The functionalist includes in his analysis not merely the emotional as well as the intellectual side of mental process, but also insists that man in his full biological reality has to be drawn into our analysis of culture (Malinowski, 1939: 939-940, italics, mine).

Stressing the biological reality of the individual, Malinowski sharply draws a line between his "plain and pure" functionalism and Radcliffe-Brown's sociological functionalism.

However, the difference between Malinowski's and Radcliffe-Brown's scheme is not really a theoretical one; rather the difference lies in subjects they cover. Malinowski insisted on the biological aspect in his study in man and culture, while Radcliffe-Brown took biology for granted and turned his attention to society. This distinction in the scope of anthropology is important, since it comes from the different
images of human nature held by them. By human nature Malinowski (1944a: 75-84) meant biologically determined nature imposed on every civilization and on all individuals. It is in regard to these determinants that his famous seven basic needs and their satisfaction in culture come up. The biological needs are the property of the individual organism and include nutrition (metabolism), reproduction, bodily comforts, safety, relaxation, movement, and growth (Malinowski; 1939: 942). Their responses in culture are: direct responses (organized, i.e., collective), instrumental needs, responses to instrumental needs, symbolic and integrative needs, and systems of thought and faith. These chains of responses are called "permanent vital sequences incorporated in all cultures" (Malinowski, 1944a: 77). This is psychological determinism.

As Leach stated in *Man and Culture: An Evaluation of the Work of Bronislaw Malinowski* (1957: 119-137), Malinowski's epistemological background was in the pragmatism of William James. Malinowski's theory of human nature was based on psychological reductionism. Consequently, the role of 'culture' is rather weak in his theoretical framework. Culture is seen as a response to biological needs. Indeed, Malinowski's functionalism, in its essence, is a theory of the transformation of organic needs into derived cultural necessities and imperatives (Malinowski, 1939: 962).

His psychological determinism and utilitarian interpretation of culture should be criticized. Human behavior is
derived from biological reality, but the man-made environment also affects it. On the time scale of human evolution, biological reality changes as a result of the impact of culture. Malinowski did not realize that there was this kind of dialectic relation between biology and culture. Thus, Malinowski's theory of biological needs was merely a theory of psychological impulse, a one-way-drive towards satisfaction.

Piddington (1957: 35-51) saw Malinowski's anthropological concept of need as both a biological and psychological one, but Malinowski himself failed to distinguish these two aspects and so failed to see that they should be investigated from different methodological frameworks. Thus, his foundation of biological needs fell into psychological determinism.

Nonetheless Malinowski's stress of biological reality is significant because the majority of British social anthropologists ignored biology and devoted themselves entirely to the analysis of the social aspect of human life.

(ii) Function and Structure in Culture Change

In this section, I discuss Malinowski's functional method for the study of culture change in relation to both Max Gluckman's critique of Malinowski's method and Leach's criticism of Gluckman. I shall argue that they both failed to recognize the real problem embodied in Malinowski's functionalism.

a) Malinowski and Gluckman

Malinowski used his functionalism in the study of culture
Malinowski, 1944: 7-37; 1945: 1-171). Max Gluckman's critique of Malinowski's historical method is quite relevant. He said that:

In general Malinowski is completely confused about what history is. He fails to distinguish the understanding of a culture, derived from knowledge of its history and the analysis of historical process from the significance which their history, as they know it, has for the bearers of a culture (Gluckman, 1949: 2).

Malinowski's confusion regarding history had come from his questioning the scientific validity of reconstructing the past. There is no question that historical material cannot be as accurate as data based on participant observation of a living society. The discrepancy between oral tradition and the objects being excavated by archaeological survey is still one of the main issues in the field of ethno-archaeology today. Another difficulty in the historical comparative method in the study of culture change is the difference between the viewpoints of social anthropologists and those of the travellers and administrative officers who recorded the events.

So, Malinowski distinguished between science and history: science is objective based on empirical field data, while the study of history is subjective and based on unreliable accounts from memory of the past. However, Malinowski's critical view of historical study was directed against the nineteenth-century historians. Consequently he failed to distinguish between their pseudo-historical methods and the diachronic method of
social anthropology which can be based on the scientific method. Malinowski's distrust of diachronic study limited the development of his notion of biological reality, since a dialectic relation between biology and culture can be studied only when the time factor is taken into consideration.

In addition to criticizing Malinowski's rejection of historicity, Gluckman criticizes his concept of biological needs:

I (Gluckman) am here opposing his (Malinowski's) concept of "the primacy of commensurable interaction" which can be discarded as useless. It indicates the analytical sterility of the approach from needs, which even becomes misleading when Malinowski expresses it explicitly and makes it the compass of his search for "the common factor in culture change" (Gluckman, 1949: 15).

Gluckman's charge of weakness in Malinowski's practical anthropology based on his notion of biological needs is fair. In the discussion of the problems of native diet in their economic setting, Malinowski told us that:

In order to maintain the health of the native, to raise his working efficiency and even his general standard of energy, intelligence and resistance to disease, research and practical needs resulting from it are necessary (Malinowski, 1945: 100).

This is practical anthropology being used under colonialism to keep native labour efficient for the benefit of the ruling government. Malinowski's thought was in the same vein as the nineteenth-century evolutionists who put Primitiveness in a lower place than Civilization on an evolutionary scale. The
dichotomy between nature and culture appeared as the distinction between African natives and European colonialists.

However, Gluckman's critique of Malinowski's "theory" is not totally acceptable. His attack on biological needs amounts to an exclusion of biology from the discipline of social anthropology. He gave this view of what social anthropology encompasses:

We may yet find that this is little less than the utmost which sociology as a discipline will be able to achieve: accurate and comprehensive descriptions of particular realities. If so, let us at least be clear that this is what we are doing, and not delude ourselves by sprinkling tautological and teleological "functions" about our analysis (Gluckman, 1949: 25-26, italic mine).

But, Malinowski's functional theory was not in the discipline of "social anthropology" as Gluckman insisted. It actually tried to cover both biological and cultural realities. It could be said that Gluckman's critique missed the real point of Malinowski's functionalism and merely limited the range of subjects for discussion.

b) Gluckman and Leach

A more intensive examination of the functional theory of Max Gluckman is useful, since he was one of the most prominent figures in the development of functionalism in British social anthropology. Using Edmund Leach's critique of Gluckman's theory, I examine these two figures of British social anthropology.
First Gluckman's theory of equilibrium. The concept of equilibrium is based on the idea that a society is a self-regulating organic entity. This is central to the Durkheimian (1938) tradition of sociology.

I (Gluckman) argue that increases of population beyond the point of critical density disputed that equilibrium. This was a changing equilibrium with constant alterations in numbers and powers of existent social elements and the emergence of new types of associations and personages (Gluckman, 1969: 404).

This statement is nothing more than Durkheim's notion of a transition from mechanical solidarity to organic solidarity in relation to population density and the division of labour (Durkheim, 1933: 70-132). Gluckman said society was in equilibrium "because the major elements in the system are constant" (Gluckman, 1969: 404). In doing so, he admitted the British structural functionalism and its assumption of social stability (Radcliffe-Brown, 1952) into his theoretical framework: social stability and continuity is seen as a "temporary equilibrium" (Gluckman, 1969: 405). Gluckman's concept of equilibrium is used as a methodological tool in the study of social change. He could define a society in "temporal equilibrium" and could see the changes between successive stages of these "temporary equilibria". However, it should be remembered that the whole argument is based on Durkheim's metaphor of society as an organism. Nevertheless, Gluckman saw conflicts and cohesion in a system of equilibrium. He argued that conflict lead to
the re-establishment of social cohesion when a wider range of society and a longer period of time were taken into consideration. In this way, custom unites where it divides; co-operation and conflict balancing each other (Gluckman, 1956: 23). His conclusion is that these societies are so organized into a series of groups and relationships that people who are friends on one basis are enemies on another (Ibid.: 4). It is obvious that Gluckman's concept of equilibrium between co-operation and conflict has been derived from the notion of a system of segmentary lineage and political organization among the Nuer described by Evans Pritchard (1940a, 1940b: 272-296).

Even in the field of ritual and social structure, Gluckman has insisted upon the concept of equilibrium (Gluckman, 1963: 112). He had the idea that ritual was a regulating device of social structure. This arises from the structural-functional framework of British anthropology. His concept of "function" refers to the interdependence among the parts of a social system, which he sees as an organic entity. It is strange to find in the same paper on Rituals of Rebellion in South East Africa (1963) that he tried to seek some causal explanations for why these ceremonies should take place at the time of first-fruits and harvest. His suggestion is as follows:

--- there are real social disruptive forces working at this season, which require physiological and psychological study (Ibid.: 132).

This sounds like an explanation from biological needs, which
ironically, Gluckman had criticized in his earlier paper on Malinowski's *Sociological Theories* (1949). However Gluckman's view of the requirements of physiological and psychological study never go beyond this point. His rejection of Malinowski's functionalism was in fact a rejection of the study of biology in social anthropology.

It is useful to examine Edmund Leach's criticism of Gluckman's theory of equilibrium to gain an understanding of the concept of function in British social anthropology. Leach, in *Rethinking Anthropology* (1961a: 1-27), made critical comments on British social anthropology in general and its functionalism and the comparative analysis of social structures in specific. By thinking of the organizational ideas that are present in any society as constituting a mathematical pattern, his concern was with generalization not with comparison (*Ibid.*: 2). In his framework, the static view of a particular society as an entity was rejected. Throughout his works, Leach was critical of social anthropologists who, following Radcliffe-Brown, have presumed that the societies with which they deal exist throughout time in stable equilibrium (Leach, 1954: 4). His criticism of Gluckman's *Custom and Conflict in Africa* (1956) is directed against his functional explanations.

In his counter-attack, Gluckman interpreted Leach's "cyclical theory of social change" in the Kachin political systems of Highland Burma (1954) as an equilibrium which "works in a long-time cycle without producing, apparently, any
fundamental change of pattern" (Gluckman, 1963: 37). Leach's answer to this appeared in the introductory note to the 1964 reprint of Political Systems of Highland Burma:

Gluckman asserts that the Kachin system which I (Leach) describe is properly described as one of "equilibrium", which seems to me true at the level of ideas but quite untrue at the level of facts, and that "British anthropologists have always thought in terms of this kind of equilibrium", which seems to me untrue altogether (Leach, 1954, Introductory note to the 1964 reprint: x).

The real problem in this controversy arises not from different interpretations of the word "equilibrium", but from the concept of structural-functionalism and its field of its application. Function, to them refers to interrelationships between the different parts of the system. Then the system is said to have a structure, so far so good, but it is important to realize that "structure" is dependent on the subjects it is being applied to.

A structure will turn out to be one of the components in a larger structure when the range of subjects is expanded. Structure and function can be defined differently by each anthropologist. Gluckman's structure was a social entity, and Leach's structure is a socio-economic entity. As already noted, Gluckman dealt with a society as an entity within a framework of social anthropology. Here, social relations, kinship system and rituals are parts of a society and all contribute to the maintenance of the equilibrium of the structure of the society. This is the structural-functional framework used to
deal with society as the subject of study. On the other hand, Leach's distrust of social equilibrium comes from his notion of economy which was in beyond the scope of traditional social anthropology when he first delivered *Rethinking Anthropology* as the Malinowski Memorial Lecture at the London School of Economics on December, 1959. Because of his ideas on economy, it was quite natural for him to think that a society lost its uniqueness of structure. As a result he came to view the concepts of functional integration, social solidarity, cultural uniformity, and structural equilibrium as unintelligible. Leach's notion of economy and society could be treated as a broader concept which includes the traditional concept of society within it. Leach was right to claim that a society is not a structural entity, but he did not realize that his socio-economy was also a structure in his argument.

Thus the concept of "structures" each anthropologist used was possible only because they neglected the biological reality which, in fact, is an indispensable condition that can be related to the socio-economic sphere of life through human activity.

(iii) **Geography, Economy and Biology**

In *Seven Tribes of British Central Africa* (Colson and Gluckman, 1951), the geographical background as well as the history of the people discussed are extensively described by anthropologists from Manchester University and the Rhodes-Livingstone Institute. The term "ecology" is used by them to
refer to the geographical and environmental background. The relationship between natural environment and social structure is described in the way that Evans-Pritchard did in his accounts of the Nuer (Evans-Pritchard, 1940a; 1940b). Environment and geography are treated as a factor limiting the exterior frame of the society. Geography and economic structure are then examined in relation to the kinship system of the society. The study focuses on how the people solve a persisting series of dilemmas between economy and kinship (Fortes, 1945; 1949; Meggitt, 1965; Mitchell, 1956).

Fredric Barth, one of Edmund Leach's students, in the fifties and sixties (Kuper, 1973: 176) took an "ecological" approach in a case study of the distribution of ethnic groups in Swat State in North Pakistan, using the concept of ecological niche (Barth, 1956: 1079-1089; 1961). As already pointed out, Barth's scheme, which focused on social relations between different ethnic groups, was a socio-economic or socio-geographic one. "Ecology" as he uses the term, has nothing to do with the ecology of man but is a geographical factor in social interaction.

After Gluckman and Leach, British social anthropologists expanded the scope of their investigations to include the relationships between environment and society; but their study was still within a socio-economic framework from which the biological reality of the people was excluded.
It is worth noting that Audrey Richards took seriously Malinowski's notion of biology and, as a result, widened its scope (Richards, 1932; 1939; 1973). In the rest of this section, Richards' works will be examined in some depth with special reference to Malinowski's functionalism. In her book *Hunger and Work in a Savage Tribe* (1932) subtitled *a functional study of nutrition among the Southern Bantu*, she examines "the human relationships of a primitive society as determined by nutritional needs, showing how hunger shapes the sentiment which bind together the members of each social group" (Ibid.: 23).

Unfortunately, both Malinowski and Richards took human motivations merely as driving forces which underpinned social activities. As a result, in her precise description of tribal structure, their economic activities and ambitions, their beliefs, and their habits of using food (Richards, 1939), nutritional requirements were reduced to psychological factors. Biological reality was, as in Malinowski's scheme, translated into psychological determinism.

It is important to mention here that some influences from American cultural anthropology are apparent in Richards' works. In her book, *Land, Labour and Diet in Northern Rhodesia* (1939), she stated that:

The American concept of "cultural patterns", with its emphasis on the comparative viewpoint, I have found very stimulating, more especially as outlined recently by R. Linton, R. Benedict, and M. Mead. I (Richards) cannot accept the criteria used by the last two
writers to describe the culture patterns of particular societies, but I hope later to present the main body of my Bemba material in a form which will serve as a basis for comparative work of a rather different type, and in the meantime I have tried in this book to indicate the "orientation" or "pattern" of Bemba interests and activities as they affect the consumption or reproduction of food (Ibid.: x).

The influence of the American cultural anthropology was natural since Malinowski had exchanged anthropological ideas in 1920's-30's with Melville Herskovits (Hatch, 1973: 320) and Robert Lowie of Berkeley (Malinowski, 1939: 939). The impact of American cultural anthropology on Richards' thought was unfortunate: the psychological reductionism in Malinowski's original notion of biological needs was strengthened and transmitted into Richards' notions of psychological "orientation" and "pattern".

In her recent book, Subsistence to Commercial Farming in Present-Day Buganda (1973), Richards examines the economic and social changes which accompanied the change from subsistence cultivation to commercial agriculture in order to discover what the people who changed were like. She found that the innovators "had selected their own occupation whether from a desire for status, peace and security or for a genuinely economic motive such as a desire for profit. --- In other words they were, and are, individualist capitalist farmers" (Ibid.: 296, italics mine). The notion of the individual capitalist farmer
was important for her psychological framework, since capital would be a means to satisfy basic human needs.

Although Richards widens the scope of Malinowski's notion of biological needs in the study of social change, her restriction of biology to psychological factors prevented Malinowski's original notion of the full biological reality of human-beings from developing towards an ecological framework in which dynamic relationships between biology and socio-economy could have been discussed in terms of human activities.

According to the American cultural anthropology, a culture includes belief and social organization as well as technology and has been believed to be an integrated whole. Some British social anthropologists, like Edmund Leach and Meggitt, thought that a social system had no structural totality and that the relationship between social system and environment were important. But they dismissed biology and human activity systems, which are related to these components. Malinowski and Richards, on the other hand, took biology seriously, but treated it as a psychological factor. They failed to expand their scope to ecology which includes biology.

(4) Theoretical Framework and the Subjects for Ecological Anthropology

(i) Framework and Subjects:

In this section, the theoretical framework and the subjects for ecological study in anthropology are presented.
According to Elton (1927), a study of the life of organisms in relation to their habitat is the subject for animal ecology. Ecology in anthropology is defined as a study of the life of man, in which biological, cultural, and environmental aspects are interrelated to form a system of activities. Thus, ecological anthropology could be described as a natural history of human life (Itani & Harako, 1977; Watanabe, 1977a; 1977b).

The time scale for ecological study in anthropology is theoretically determined by human evolution. It should be noted here that the term evolution in anthropology appears to have two kinds of implications; i.e., "the idea of evolution", in which an underlying principle or law behind the phenomena is presumed, and "the phenomena of evolution" de facto, including cultural and biological change of man in the past and present, in relation to the processes of hominization. In the ecological study of man in anthropology, the term "evolution" does not mean evolutionism as ideology, but strictly refers to human evolution as a process.

In the tradition of Japanese anthropology in Tokyo University, the impact of human activities on the physical and the physiological characteristics of man in his evolutionary context has been one of the major research interests. Thus, Suzuki (1963; 1971) demonstrated the osteological changes of the Japanese skulls from the Jōmon era (8,000 years B.P.) up to present, pointing out the possible relationships to the changes of food
habits in this period. In order to examine this hypothesis, they further conducted laboratory researches using methods of mechanical engineering on the relationships of the structure of human cranial bones and a maxillary bone to the load factor of muscles of mastication in digesting movement. In the same framework of interest, they expanded their research on the process of human evolution with special reference to the Amud Man (Suzuki and Tatai, 1970) being excavated in Israeli with the Middle-Upper Palaeolithic industry, and to the emergence of *Homo sapiens* (Watanabe, 1971).

Then, in the field of physical and physiological anthropology, a kinesiological study on human bipedalism in comparison with the movement of the quadruped animals including primates is done from a wider viewpoint of the evolutionary changes of human physical structure. They also expand the subject to the reaction of human physics to modernized labour work under the name of human 'ergology'; i.e., a study of human 'work' (or 'activity') and its functional relations to human physics.

Genetic and environmental physiological studies are conducted as a part of the International Biological Program (Baker and Weiner, 1966) among the contemporary Japanese including the Ainu population from a viewpoint of human adaptability.

However, as Irimoto (1973) pointed out, there is only limited information available concerning the peoples' routine activities in their everyday life, and this kind of information
based on the intensive field investigation is necessary in order to make the data of laboratory researches intelligible. Because man's activities comprise a system of interrelations between man, tool, and environment (Watanabe, 1964), research into the daily activities seems important for an understanding of human adaptability in a total ecological relationship. Thus, from an ecological point of view, it is necessary to consider human activities and their systems in larger framework of biology-activity-environment relationships.

For ecological analysis, the extent of the subject should be clearly defined in order to ensure the validity of the level of analysis. Biology, individual, population (group structure), technology and environment are interrelated through activity. These relations are embodied in a human activity system, which is the primary subject for ecological anthropology.

"Cognition" is the knowledge and the understanding of a part of or the whole of a system by the individual and the population. It is the people's unique view of the world. Although ecological anthropology would include an epistemological approach, an objective analysis of the system set theoretically in the time scale of human evolution (Biology-Environment relationships) would be of primary importance.

The significance of the ecological model presented here is that it treats biology as an active component in the system.
in terms of individual and population, and that it focuses on human activity as a mediator between biology and environment. Thus, from the ecological point of view, the idea that "culture" and "society" are organic entities is eliminated.

The term "function" is defined in terms of adjustment among the components of the ecological model. "Function" includes cause and effect relations in a system as well as metaphorical relations without causality. The casual relation has a time dimension, but the metaphorical relation need not follow the temporal factor, although an active subject, such as human beings, can establish the association. Structure is defined as a manner in which a system is constructed. Structural analysis (Lévi-Strauss, 1958; Piaget, 1970) would be a useful methodological tool for ecological anthropology. But the focus of ecology is the empirical reality of human life and its dynamic relations to the structure rather than the universal principle of the human cognitive process. Thus, the term "ecology" in ecological anthropology does not refer to only an environment (Lévi-Strauss, 1972), but rather to a system of human life in which biology, culture and environment are interrelated.

In the rest of this section I shall more closely examine ecological theory in relation to the human activity system.
(ii) **Individual and Population:**

From the viewpoint of human existence, the ecology of man is made up of two levels: individual ecology and population ecology. The term "population", which is generally used to mean a group of individuals of any kind of organism (Odum, 1959: 6), here refers to a group of people. Being an organism, any individual has a metabolism. But for the existence of the species, populations are necessary in order for individual organisms to mate, reproduce, and raise offspring. The individual and the population are the two basic units of existence of human beings as a species. Thus, there are two levels of biological reality: the human population and the individual organism. In the ecological framework, the biology of individual and population does not imply any psychological explanation, but refers to the physical and physiological reality of the human organism.

In order to examine the human activity system from an ecological point of view, the relationship between individual and population should be discussed in terms of individual variations and the structural principles on which the system is formed. Individual variations based on the biology of man are significant. Of these variations, the most basic are age and sex differences. In terms of reproduction, the species has sexual dimorphism. As for age differentiation, organisms
in the species develop from birth to death. In each stage of development the biological background varies (Yape and Bourne, 1957). With growth the physical structure of the organism reaches completion. The aging process continues to decrease the abilities of man's physical equipment, but knowledge increases in the course of the aging process to a certain point.

Human skill is a biological aspect of individual which is related to technology. Technology, in anthropology, generally denotes any kind of non-biological device or equipment, but from an ecological point of view, technology is not a subject in its own right. It is investigated in relation to human skills and human activity. Thus, in the study of human evolution, skill comes to be an important subject with reference to the issues of the origins of tool-using and tool-making behaviors of man (DeVore, 1965; Jay, 1968; Oakley, 1954).

Individual variability in skill and activity is one of the important aspects of group formation and the division of labour from an ecological point of view. Age and sexual division of labour is discussed later in the context of the structuring principles of human activity systems.

(iii) Structure of Human Activity Systems:

Activity has dimensions of time and space due to the substantial nature of organisms. Time, refers to minutes and
hours which field researchers can measure objectively. Similarly, space includes distance and area which can be measured. Various activities can be described in spatio-temporal terms on both individual and population levels.

Watanabe (1964: 80) demonstrated that the Ainu ecological system, at the population level, could be described spatially and temporally through the arrangement of technical devices and activities. This spatio-temporal structure was closely connected with cyclical changes in the habits of the biotic species exploited by them. Ohtsuka (1977) focused on the spatio-temporal aspect of human activity on the individual level which was described through individual tracing and direct observation techniques. This method was also used for recording individual bear-hunting activities of local hunters in northern Japan (Takeda, 1977).

Irimoto (1977b; 1977c) demonstrated that the total activity system of a local fishing population in a marine environment could be illuminated by collecting data on how much time-space is used by individuals. The problem on the division of activity space on the basis of age and sex, which was originally proposed by Watanabe (1968), was thoroughly investigated in a living population. It was found that the characteristics of underwater divisions of space, according to its depth, for the exploitation of marine environment were closely related to the
age and sex of the individual diving-fishermen (Irimoto, 1973; 1977a; 1977d). The spatiotemporal structure of fishing activity was examined in a coral reef environment where the effectiveness of spatiotemporal methodology was again demonstrated (Kuchikura, 1977). These examples show that human activity systems can be described in terms of their spatiotemporal structure (Watanabe, 1977a).

Although the time-space aspect of human activity system is an important index for the ecological anthropological investigation, it is only one component of a human activity system. Other components include biology (individual/population), technology, environment (time/space, plus other aspects) and human activity.

The principles in the structure of a human activity system should be investigated from the viewpoint of the individual-population relationships and the division of labour in the population. The division of labour has been well described in relation to solidarly and moral rules of conduct (Durkheim, 1933).

Social stratification and specialization has been a major concern in anthropology (Chapple & Coon, 1947). Herskovits (1952), in the field of economic anthropology, pointed out the significance of the division of labour in keeping the economy of a society operating at its customary rate of efficiency. However, the division of labour, from a human activity point
of view, can be expressed as the allocation of different kinds of activities to different members in the population.

Some activities are allocated to the same individual as a set. From the individual's viewpoint, he combines the different kinds of activities. Various activities frequently are carried out at the same place by the same individual. Also, some activities are conducted simultaneously by the same individual in terms of time and space. These phenomena can be denoted here by the term combination of activities. Both allocation and combination of activities complement each other in the structure of the activity system of the population.

The other important characteristic of activity is the temporal relationship of the activities. Activities are related from one to the other in time; they form a series of activities through which a final product is completed. The end of one kind of activity presents a starting point for the next activity. For example, the completion of the two different activities makes the third kind of activity possible, etc. These activities can be said to be related in a temporal sequence. Here, individual variability, (i.e., age-sex), is a factor in the allocation and combination of each activity and is related to the spatiotemporal aspect of each activity. Human activity systems are formed between individual biology and environment. Therefore, the structure of human activity system and the structuring principles are the important subjects for ecological anthropology.
(iv) Adjustment and Adaptability of Human Activity Systems

The structure of the activity system is constantly adjusting and changing. In reality this is a function of the activity system. Function, therefore, is described as a process of adjustment. Adjustment occurs on two levels, individual and population. Individual adjustment is twofold: adaptation between individual biology and activity, and adaptation between individual activity and the structure of the population. In other words, the individual balances existence as an organism and existence as a part of the population. Adjustment of the spatiotemporal structure of individual activity, including technological and behavioral aspects, is an important characteristic of man-environment relationships. An individual's failure to adjust would result in inefficiency of activity or, in the extreme case, in the death of the individual. The lack of adjustment between individual activity and the activity system of the population can result in re-structuring or discontinuity of the population.

In contrast to adaptation on the individual level, the adaptation of the population-environment relation must be considered on a different level. The population exists in the environment through the total system of individual activities. Social groupings, settlement patterns, and the structure of human activity system are the subjects for continuous adjustment between population and environment.
The adjustment of human activity would be clarified by the method of structural-operational levels of analysis. "Structure" is a manner in which a system is constructed, and is an abstract which refers to the anthropologist's etic category, while "operation" refers to the people's observable activities. The activities would vary in relation to the changes of other variants in the system. In some cases, the structure of the human activity system would be consistent despite changes in people's real activities. Here, the human activities on the operational level may be understood in terms of its range of adjustment in a structure. It might also happen that the real activities go beyond the structure; changing it and its principles. Thus structure can change. So, in ecological anthropology, the term structure does not include any assumption that there is an equilibrium as the organic analogy does. In the study of human activity systems, the adaptability and the adjustment should be investigated in the context of biological and environmental changes in a particular time period.

3. STUDY AREA, PROBLEMS, AND METHODOLOGY.

In this section, methodologically more precise and practical aspects of ecological anthropology are described with special reference to the study of the Caribou-Eater Chipewyan. First, the study area and the problems are defined.
(1) **Study Area and Problems:**

(i) **Study Area**

The Northern Athapaskan Indians are distributed across a great expanse of the arctic and subarctic, extending from Alaska to central Canada (Osgood, 1936). Because this geographical expanse presents a wide variation in natural environment and historical background, the ways of life of these groups has become largely diversified in terms of exploitative activities of the local environment, settlement patterns, and social organizations (Cox, 1973, Curtis, 1928; Jenness, 1932; Vanstone, 1974).

As one of the Arctic Drainage Athapaskan groups, the Chipewyan Indians are uniquely adapted to the boreal forest-tundra ecological zone of the Canadian north, relying on caribou hunting as a major subsistence activity (J.G.E. Smith, 1975). There are some ethnological surveys as well as explorers' documentations on the traditional culture of the Chipewyan (Birket-Smith, 1930; Franklin, 1823; Hearne, 1958; Jenness, 1956; Lowie, 1912; Mackenzie, 1802). Recent anthropological studies have focussed on ethno-history, culture change, kinship systems and socio-territorial organization (Bone, 1973; Gillespie, 1975; Helm and Damas, 1963; Jarvenpa, 1975; Koolage, 1973; Muller-Wille, 1974; Rogers and J.G.E. Smith, 1973; Sharp, 1973; 1975a; 1975b; 1976; 1977; 1978; J.G.E. Smith, 1970; 1975; 1976; 1978; Vanstone, 1965). Detailed ecological analysis, especially from a hunting ecological point of view, has been
almost entirely neglected. As a result, detailed analysis of Chipewyan subsistence ecology and the process of culture change on the basis of the accurate field data is absent.

Today, one of the traditional Chipewyan groups, called 'Etthen-eldili' (Caribou-Eaters), formerly semi-nomadic, are now settled in several Canadian sub-arctic communities. In these communities, the hunting and fishing activities still constitute a major part of their life. The Wollaston Lake settlement of northern Saskatchewan was chosen as the study area because of its (1) isolation from multi-ethnic northern towns; i.e., La Ronge, Saskatchewan and Churchill, Manitoba (the Wollaston Lake Chipewyan are still dependant on the local products including caribou, moose, and various kinds of fish); (2) unique geographical and cultural situation between two other communities, Black Lake in northern Saskatchewan and Brochet in northern Manitoba, which have been investigated by Henry S. Sharp and James G.E. Smith, respectively. The results of the studies of the Black Lake Chipewyan are inconsistent with the results of the studies of the Brochet Chipewyan regarding group structure. The present study of the Chipewyan of the Wollaston Lake region provides some new material which should help evaluate and interpret the different results of those studies. The natural environment of the study area is characterized by the boreal forest-tundra ecological zone of the Pre-cambrian shield of the Canadian subarctic, and by the caribou which migrate seasonally between the forest and tundra.
(ii) Problems

Three major problems are defined for the study of the Caribou-Eater Chipewyan in the Wollaston Lake region; i.e.,
(1) Chipewyan group structure, (2) Subsistence ecology of the Chipewyan, and (3) Structure and adaptability of the Chipewyan caribou hunting system.

Problem 1: Chipewyan group structure:

Steward (1936; 1955) and Service (1962) typologically defined the social organization of the Canadian Athapaskan as a composite band. They thought the cause of the formation of the bands was to be explained either by their dependence on the large game herds—which made social aggregates of several hundred persons possible (Steward, 1955: 47)—or by the initial shocks, depopulation, relocation, and other disturbances in the early contact period which produced refugee-like groups of unrelated families (Service, 1962: 77). These explanations do not find support in the ethnographic facts (Helm, 1961; 1965).

In the symposium, Man the Hunter (Lee & DeVore, 1968) and the Ottawa Conference on Contributions to Anthropology: Band Societies (Damas, 1969), the typology of primitive bands were examined and revised. The remarks on the methodology of band composition analysis focusing on the primary relative bonds (Helm, 1969a; 1969b) and the theory of different levels of socio-territorial organization of Athapaskans (Honigman,
Sue, 1964) made a significant contribution to the analysis of Athapaskan social organization. As a result Service (1971) abandoned his concept of the band as a level of society in cultural evolution, and Steward (1969a; 1969b) recognized the existence of different levels in band organization; that is, the minimum band and the maximum band, which are comparable to the local band and the regional band identified by Helm (1968).

Another problem regarding the band issue arose out of recent studies on the Chipewyan of the Eastern Athapaskan of Canadian sub-arctic. On the basis of the theoretical framework of Steward (1936; 1955), Service (1962) and Helm (1965), the four levels of social organization among the Barren land group of Chipewyan were considered by J.G.E. Smith (1970; 1975; 1978) to be: regional band, local band, hunting group, and task group. Among them the hunting group was inserted as a level of socio-territorial organization intermediate between Helm's (1968) local band and task group. The hunting group is found "in the context of larger local and regional bands" (Ibid., 1978: 76) and "each local band typically consisted of several hunting groups" (Ibid., 1978: 77). Also, Smith's (Ibid., 1978: 79) view is that the Chipewyan hunting group is conceptually differentiated from a task group "because of the long temporal duration, its strength and generalized functions". Then, in his
analysis, Smith considers hunting group as a residential group which can be empirically observed in particular locations.

But Sharp (1977) saw the hunting unit as a basic structure of Chipewyan society. He argued that the hunting unit was "a cooperative unit concerned with jural rights, corporateness, control of marriage, and recruitment of its members. The band, then, appeared as merely an advantageous residential clustering of hunting units that were simultaneously, but not cooperatively, exploiting the environment" (Ibid.: 390). Thus, Sharp's 'hunting unit' is not bounded by residence, but is defined on the structural level of the Chipewyan society.

In this paper, the subsistence unit is methodologically distinguished from the structure of kinship. The subsistence unit arises as a result of the conflict between the structure and the real environment which the Chipewyan must adapt to. Thus, the reality of the subsistence unit is always subject to change in accordance with various factors. However, the concept of the subsistence unit could be defined so that the maximum range of adjustment is included. I do so in this paper; the subsistence unit implies both a structural aspect as well as an empirical one. I use the term hunting unit after Sharp (1977), since, by using this terminology, the plasticity of the unit could be demonstrated without altering the original definition of the term. It is possible to reconcile the concept of the hunting unit with the concept of the hunting group as
described by J.G.E. Smith (1970; 1975; 1978) by considering it as an operational model of the hunting unit. Thus, the problem can be posed how the Chipewyan operate the structure in accordance with empirical reality in their subsistence.

**Problem 2: Subsistence ecology of the Chipewyan**

As I have already described in the theory section, the human activity system is the central focus of ecological anthropology. The ecology of the big-game hunters of boreal forest has not been adequately investigated even though it is an important subject in anthropology from the viewpoint of human evolution and the population history of northern peoples (Lee & DeVore, 1968; Watanabe, 1966; 1969a; 1969b; 1971). Since there were no existing examples of systematic study of the ecology of man from a human activity system point of view, the present study on the Caribou-Eater Chipewyan will be the first. The question is how the Caribou-Eater Chipewyan make their living in a particular local environment of the Wollaston Lake region of Canadian sub-arctic during the period of the field study.

**Problem 3: Structure and adaptability of the Chipewyan Caribou hunting system**

VanStone (1965) reported that the Snowdrift Chipewyan had undergone an enormous change of ways of life and a loss of cultural traits. From the economic and the socio-cultural point
of view, it is true that the contemporary northern communities (at least in a village situation) are dependent on outside influence; it might be said that the patterns of direct culture change and the resulting deculturation have largely eliminated ethnic differences throughout the entire Great Slave Lake - Mackenzie River area and have created the kind of reservation subculture that has been reported in the United States and southern Canada (Ibid., 113-114) but, from the point of view of ecological anthropology, this culture change is seen as a process of adjustment of the individual and the population to the political and environmental changes in the area. Thus, in this thesis, a question is addressed how the Chipewyan adjust and adapt to the changing environment from the viewpoint of the Chipewyan caribou hunting system.

(2) **Methodology:**

The ecological anthropological methods are described here with special reference to the case study of the Caribou-Eater Chipewyan in the Wollaston Lake region. The methodology includes: Active participation; Individual tracing and direct observation for a spatiotemporal analysis of human activity; Historical comparison, indirect observation and chronology; and Structural-operational levels of analysis.

It is important in an ecological anthropological study to conduct an intensive field investigation for at least a one-year period using the intensive participant observation method.
In that way the anthropologist can become familiar with every aspect on the life of the human population, even though, in his analysis, he may concentrate on a particular study subject from a particular viewpoint.

Recently, Richard Nelson (1969; 1973) successfully described the knowledge and the technology of the Eskimos and the Athapaskans in Alaska by using active participation method, in which the anthropologist participates to the fullest possible extent. By learning each skill he is able to do a far more complete job of documentation, for he learns not only by observing others but by observing himself as well (Ibid.; 1973: 8-9).

It is particularly important for an anthropologist's studies among the northern hunters to actively participate in order that he contribute to the subsistence of the group. It has been found that active participation is, in fact, the people's way of learning: the elder Chipewyan demonstrates a technique but only once. Then, the younger Chipewyan has to practise it on his own. In the same way, the anthropologist learns the daily activities starting with children's work (e.g., getting water and chopping firewood), then doing women's work (e.g., hide preparation and making dry meat and dry fish) and finally participating in the men's activities (driving the dog-team and hunting). In this way, the anthropologist acquires accurate information on the techniques by acquiring the skills required for each activity.
Prior to the field survey, I learned the basic vocabulary of the Chipewyan language (dialect of Na-Dene language family) from text and the tapes (Paul, n.d.), and continued to learn the language through formal and informal sessions during the period of the field investigation.

I conducted a preliminary field survey from December 1973 to January 1974 in the Wollaston Lake community, then carried out an intensive field investigation from July 1975 to December 1975, and February 1976 to October 1976. So the total period for the field investigation was 15 months. During this period, I went to the bush camps after collecting general data in the community in order to observe and participate in their hunting activities. Thus, this thesis presents a specific case study among the Caribou-Eater Chipewyan of the Wollaston Lake region for this particular period of field investigation.

Individual tracing and direct observation method is used to record and to analyze the spatiotemporal aspect of the Chipewyan activities in the field. The direct observation is methodologically distinguished from the indirect observation which relies on the informants' recall of their activities.

In this thesis time-space use for various activities is described both on the population level and on the individual level. During the period September 30 to December 15, 1975 and the period March 3 to 14, 1976, the intensive surveys of
the every individual at the winter caribou hunting camp (totaling nine members in three households) was conducted.

In order to record the space use of each activity, topographical maps were used (Scale 1:250,000, compiled in 1960, by the Surveys and Mapping Branch, Department of Mines and Technical Surveys, from 1954, 1955 and 1956 air photographs; scale 1:1,000,000: the Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, Canada, Printed 1975). These maps were also used for calculating the size of the Chipewyan home range, its seasonal change, and the population density in the area.

The categories of the Chipewyan subsistence activities are etic ones emerged from the field investigation. The activities listed in Table 12 are those recorded in the field study.

A complete list of human activities has not yet been established in ecological anthropology since there has been no systematic and extensive study in this field. In the present field study among the Caribou-Eater Chipewyan, I observed the following activities: i.e., food getting activity, food processing activity, food eating activity, sheltering activity, hide preparing activity, tool manufacturing activity, investigating activity, (child) caring activity, ritual activity, playing activity and sleeping/resting activity. Among these activities, the following activities are revealed to be of major
importance to the structure of the Chipewyan caribou hunting system, and thus are intensively analyzed: food getting activity, food processing activity, sheltering activity, hide preparing activity, and manufacturing activity. These five major categories are further classified into sixty-nine minor categories of activity.

**Historical comparison: Indirect observation method and chronology**

Historical comparative method (indirect observation and chronology) is used here to obtain information on the historical background of the Chipewyan of Wollaston Lake region. By using the indirect observation method (Watanabe, 1964: 4) the anthropologist can examine indirectly the actual and concrete workings of the people through descriptive information about the activities of the informant himself. The chronological chart (Table 2) is presented in order to show the time of certain events. Three different historical periods are distinguished on the basis of the changes in subsistence patterns and settlement patterns: Period I from (1920's to 45), Period II (from 1946 to 57), and Period III (from 1958 to 75). In each period, the caribou ecology and the fur trading activity are revealed as the two major factors in Chipewyan settlement patterns. The trading posts in which the Chipewyan could exchange furs for necessities and non-essentials were different in each period in terms of the managing body and the geographical location. The year of 1920 is set as a base line because
the informants' knowledge beyond the year is scarce. And the period of 1920 to 1975 is sufficient to cover the historical background of the formation of the Wollaston Lake settlement. Chipewyan informants were able to recall which activities were associated with particular posts. Since the information on when each post was opened and closed could be obtained from the missionary of the Roman Catholic Church at the Wollaston Lake settlement it was possible to determine the chronology of an informants' activities. In some cases, the precise years for a particular event (e.g., winter camps at the particular location) can be determined since the informants recalled that event in relation to some personal events, e.g., marriage, births and deaths, which were recorded by the Roman Catholic Church.

First-hand information on the historical background was supplied by the two Chipewyan key informants as well as by the missionary of the Roman Catholic Church. Another four Chipewyan key informants, who mainly contributed information regarding the Chipewyan kinship terminology (in Chapter 4), also provided fragmentary data on historical events. Although the information obtained through the indirect observation method is not as accurate as that obtained from direct observation, it is possible, to some extent, to reconstruct the outlines of the settlement pattern, subsistence activities, and the membership of particular camps. Regarding the last, the kinship relations among the members can be checked against the church record.
On the basis of the historical information obtained, the Chipewyan subsistence ecology of 1930-40 is compared to that of 1975-76. The former period was chosen because it is prior to the establishment of the Wollaston Lake post and because the information about these years is relatively abundant and reliable. The latter period is the time of the present research. The information on the subsistence activities, the settlement patterns, and the social groupings was utilized to examine the changes and the adjustments of the Chipewyan ecology in the Wollaston Lake region with special attention being paid to the caribou hunting system. The historical comparative method was used in combination with the structural-operational levels of analysis described next.

The structural-operational levels of analysis is used to examine the range of adjustment of human activity and the adaptability of the structure of a particular system. In this thesis, the structural-operational level of analysis is used to analyze (1) Chipewyan group structure, and (2) the Chipewyan caribou hunting system.

In the analysis of group structure, the terms of subsistence units (domestic unit and hunting unit) are defined as a structural category of anthropologist and the range of adjustment in the structure is examined on the basis of the operational level of data. The empirical data on the operational level were obtained from the records on the composition
of the members in each tent, kinship relations among the members, hunting-trapping-fishing partnerships, and arrangement of the tents at summer and winter camps, which I acquired from direct observation of the camp sites. The kinship relations were checked against church records.

In the analysis of the Chipewyan caribou hunting system, the structural model is examined on the basis of the empirical material. The structuring principles are ascertained and the range of adaptability of the structure is examined with reference to the environmental changes in the Wollaston Lake region. On the basis of these methods, it is shown how the Chipewyan caribou hunting system adapted.
PART II

HISTORICAL BACKGROUND AND NATURAL ENVIRONMENT
CHAPTER 2

HISTORY AND CONTEMPORARY POLITICAL-ECONOMICAL
STRUCTURE OF WOLLASTON LAKE SETTLEMENT

1. HISTORICAL BACKGROUND OF THE WOLLASTON LAKE SETTLEMENT

Classification of the linguistic subgroups of the Northern Athapaskans and their genetic relations has not yet been fully achieved, though there are several attempts in this field (Powell, 1891; Sapir, 1915; Goddard, 1917; Boas, 1920; Osgood, 1936; Hoijer, 1963). In recent times some work has been done on Northern Athapaskan languages with special reference to the historical relations among sub-stocks of the group (Krauss, 1964; 1965; 1969; Howren, 1968; 1970; 1971). At the same time, ethnological and ethnohistorical materials are gradually being accumulated on each group of the Northern Athapaskans, especially on the Chipewyan. Recent studies on subgroup formation among the Chipewyans in a historical context have contributed to this field (Gillespie, 1969; J.G.E. Smith, 1973; Jarvenpa, 1975), although they have not yet joined these ethnohistorical materials with the linguistic data.

In this section the historical background to the emergence of the Wollaston Lake settlement and the process of the formation of the Hatchet Lake Chipewyan population will be the major focus (Fig. 1). The term Hatchet Lake Chipewyan, in this paper, refers the contemporary Chipewyan population at the Wollaston Lake settlement. Three different periods are
distinguished in this paper on the basis of changes in the subsistence patterns and the settlement patterns: that is, (1) Period I: 1920's-45; (2) Period II: 1946-57; and (3) Period III: 1958-75.

Period I is called contact-traditional phase (Helm & Damas, 1963), or the period of the developed fur trade, during which caribou was the major food source. 1946 marked the beginning of Period II when the Saskatchewan Provincial Government established a store at Moose Island on Wollaston Lake. At this time, both the northern and southern group of Chipewyan started intensive exploitation of the Wollaston Lake area. However, in Period II their home bases were scattered around the region and the trading post was only a place for short-term visiting. This period can be seen as a transitional period from the contact-traditional phase to the contemporary phase. It is noteworthy that commercial fishing played a significant role in initiating the concentration of Hatchet Lake Chipewyan at the contemporary settlement. Period II ended by 1958 when the new Northern Cooperative Trading Services started operating at the contemporary site of the Wollaston Lake settlement. Period III: 1958-75, was characterized by the increased tendency towards sedentariness and centralization of the Hatchet Lake Chipewyan, which continued until the time of the field study of 1975-76.

In each period, the two major factors for the Chipewyan settlement patterns are revealed to be the caribou ecology
and the fur trading activity. The trading posts, in which the Chipewyan could exchange the furs for necessities and amusements, were different in each period in terms of the entrepreneur and the geographical location for the posts. During this period management of the post changed hands a number of times; the Hudson's Bay Company, Saskatchewan Provincial Government, and the Northern Cooperative Trading Services all ran the store at one time or another. The categorization of the trading post was used as an index to clarify the settlement patterns which related to particular posts. The chronological table of the trading posts (Post I, II, IIIa, IIIb, IVa, IVb and V) were categorized on the basis of the entrepreneur and the geographical location. In order to date the events, the records of the Roman Catholic mission at the Wollaston Lake settlement were utilized. These record the dates of such events as the marriages, births, and deaths of the Hatchet Lake Chipewyan.

Post I, Post II, Post IIIa, and Post IIIb were managed by the Hudson's Bay Company, but each location was different. Post I was established at Brochet at the north end of Reindeer Lake in Manitoba in 1859; Post II was located on the southern fringe of Wollaston Lake; Post IIIa and Post IIIb, were supervised by a single manager and located at Swan Bay on Reindeer Lake and Middle Lake (southeastern part of Wollaston Lake) and were opened alternately. Post IIIb was the extension outpost of Post IIIa in the period of 1935 to 1942.
Posts IVa and IVb were established by the Saskatchewan Provincial government. Post IVa was on Moose Island but the location was changed in 1956 to the eastern shore of Wollaston Lake. Post IVa operated from 1946 to 1956, and then Post IVb took over the business until 1958, at which time the concession was transferred to the present operator, Northern Cooperative Trading Services. From Fig. 2, it is revealed that different groups of the Chipewyan utilized different posts in Period I. They started using a single post in Period II which produced the aggregation and concentration of the Hatchet Lake Chipewyan at the contemporary settlement in Period III. In the following pages, each period in the history of the Hatchet Lake Chipewyan is described with reference to the process of change in their subsistence activities and settlement patterns.

(1) PERIOD I: 1920's-1945

The Hudson's Bay Company established a trading post at Brochet on the northern end of Reindeer Lake in the year 1859. This post, which is described as Post I in this paper, was still operating in 1975. The Chipewyan who exploited the area of Nueltin Lake utilized this post for their trading activities. At the same time there was a group of Chipewyan whose home ground was Reindeer Lake and the southern part of Wollaston Lake. Post II was utilized by the latter group and some older members of the contemporary Hatchet Lake Chipewyan still remember the operation of Post II around the year 1905. The
post was closed before the 1920. Between 1920 and 1946 the Chipewyan in this region used either Post I at Brochet, or Post IIIa. The latter was located on a small island on Swan Bay in the western part of Reindeer Lake. During the years of 1934 to 1942, Post IIIb was established on Middle Lake in the southeast part of Wollaston Lake. The Chipewyan on Wollaston Lake began to use Post IIIb since it was closer and more convenient. Different groups of Chipewyan utilized different trading posts during this period; the northern group of Chipewyan traded at Post I on Brochet; the southern group of Chipewyan utilized mainly Post II, IIIa, IIIb as well as Post I. Their subsistence strategies and settlement patterns are differentiated, in the following pages.

(i) Settlement Pattern of the Northern Group of Chipewyan

Two major factors affected the Chipewyan settlement pattern. Firstly, the ecology of caribou, and secondly the fur trading activities. The Chipewyan were dependant on caribou for their staple food resource so caribou ecology, especially the seasonal migration pattern of the caribou, effected the Chipewyan settlement pattern. The fur trading activity necessiated lengthy journeys to trap fur animals and trade their pelts at the trading post.

In the fall, they hunted caribou when they crossed the water during the autumn migration. The northern group of Chipewyan utilized the Nueltin Lake region where the major
caribou crossings are located: Kasmere Lake, Tice Lake, Putahow Lake, the southwestern Arm of Nueltin Lake, and the southeastern Arm of Nueltin Lake. They also hunted caribou near Windy River, which is on the northwestern fringe of Nueltin Lake, though the area was generally exploited by the Kazan River Eskimos. If the fall hunting expedition was successful they made their winter camps near the hunting ground. In the southern part of Nueltin Lake, the five winter camps were stable. In the whole region approximately 30 log cabins were constructed for winter homes. During winter the men trapped in the areas of Kasba Lake, Snowbird Lake, Ennadai Lake and Nueltin Lake. The area overlaps with the home range used by the current Brochet and Black Lake Chipewyan. In late winter they split into small groups to follow the scattered herds of caribou into the forest. For fur trading, the men went to Brochet (Post I) by dog team at Christmas. They sold their pelts and purchased the necessities and amusements of the bush life. The women and the children remained in the winter camps. In the spring, after the ice had broken up, they moved to Lac La Brochet which was located south of their winter home base but some 80 kilometers north of Brochet. There were many log cabins on the shore of the Lake where they spent the summer fishing. Travelling was done in canoes along the river systems which connected the different lakes. It could take four to five days for the trip from the southern area of Nueltin Lake to Lac La Brochet, but usually, they
spent longer since they had to stop over due to rough weather. Some Chipewyan did not move down to Lac La Brochet even during the summer but stayed around Nueltin Lake. In the summer the staple food was fish which abound in Nueltin Lake and Lac La Brochet. Informants claimed they could hunt caribou through the summer since some caribou always stayed in the forest instead of migrating north to the tundra. In the fall before 'freeze-up' the Chipewyan went north to conduct the fall caribou hunt. The Chipewyan say that caribou would penetrate the forest (in their autumn migration), then would turn back north, staying on the edge of the forest until the mating season. After 'freeze-up' the caribou finally came south into the forest. The fall caribou hunt was, in fact, on the chance of this initial movement of the herds. This early penetration of caribou into the taiga, however, would last only for a few weeks. Predicting the time and place of the caribou migration was the main factor for the Chipewyan settlement patterns.

The locations for the fall caribou hunt were not permanent. A group of the Chipewyan moved to Cochrane River on the north of Wollaston Lake in the fall of ca. 1930. They made a camp there to fish and hunt small game until the river froze. The camp, totalling 17 people, was composed of 5 households. After the formation of the river ice, 13 people moved north to Phelps Lake to search for caribou which migrated south from the tundra. During the winter they depended on caribou.
In late winter, two households including 9 people, moved to Black Lake from Phelps Lake, while the other people moved east to Brochet. At Black Lake the two households parted; one joined the group of Chipewyan to go north to Wholdaia Lake for the fall caribou hunt, and the other went to Snowbird Lake and Kasba Lake. The group on Snowbird Lake succeeded in spearing many caribou in their fall hunt. The hunting ground was, in fact, on a small lake called Latimere Lake which was located between Snowbird and Kasba Lakes. They constructed a winter camp near the hunting ground. During the same winter, two other camps were set up around the Kasba Lake region; one was on the southwestern fringe of Kasba Lake and the other camp was on Tubane Lake located between Kasba Lake and Ennadai Lake. In the late winter, however, the camps were split up into smaller groups, since it was difficult to find large numbers of caribou around these winter camps. Some people, then, moved to the southern part of Nueltin Lake, and the other group moved south to Phelps Lake where they could hunt caribou. After the summer season, some people again moved back to Tubane Lake for the autumn caribou hunt.

On the basis of the information described above, home ground, or the range of the seasonal movement of the northern group of Chipewyan in the period of 1920's-45, covered the region of Nueltin Lake, Lac La Brochet, Phelps Lake, Black Lake, Kasba Lake, and Ennadai Lake. The locations for autumn
caribou hunts and winter home bases were mainly on the southern part of Nueltin Lake, but the areas of Kasba Lake, Ennadai Lake and Phelps Lake were also included. Since the fall caribou hunt was the most significant activity of the Chipewyan, the fall and early winter camps were set up on the edge of the forest. In the late winter the camps scattered into the forest in smaller groups to search for the dispersed herds of caribou. In the summer time, the pattern of movement was affected by trading activity; that is, their summer camps were located near the most abundant fish supplies and also as close as possible to the trading post. Before the 'freeze-up,' the Chipewyan would again leave the summer camp, relocating further north near the caribou crossing.

(ii) Settlement Pattern of the Southern Group of Chipewyan

When Post II was operating in ca. 1905, the Chipewyan inhabited the southern part of Wollaston Lake. They reported that they originally split from the northern group of the Chipewyan to exploit the area south of Brochet. They also had kinship relations with the people of Patuanak on the Upper Churchill River Drainage. After Post II was closed, the people still continued to trade with the Hudson's Bay Company at Post I on Brochet and Post IIIa on Reindeer Lake. During the period of 1934 to 1942, however, an outpost of the Hudson's Bay Company was established on Middle Lake (Post IIIb). Post IIIa and Post IIIb were alternately opened by
the same manager. The Chipewyan on the southern part of Wollaston Lake could use Post IIIb without travelling to Post IIIa.

The subsistence activities in winter for the southern group of the Chipewyan were caribou hunting and trapping fur animals. The caribou seem to have migrated to the south of Wollaston Lake where they stayed for winter. The animals usually appeared after 'freeze-up' but could sometimes be seen in the fall crossing in open water. In late December, the Chipewyan gathered at Brochet for Church Mass and for fur trading at Post I. After Christmas, they came back to their winter home base on Wollaston Lake to hunt caribou. In the spring season, when the ice broke up, the Chipewyan moved to Reindeer Lake where they stayed for fishing during the summer. Before 1934 when Post IIIb had not been established, the Chipewyan on Wollaston Lake had to travel to Post I, or Post IIIa in the spring and fall migrations. They used 16-foot canoes, and the travelling route was along Swan River which connects Wollaston Lake and Reindeer Lake. On this trip, however, there were 34-36 portages where the people had to carry all their equipment on their shoulders. One of the portages was an area of muskeg, and spruce trees had to be chopped down and put on the swampy ground to support their weight. The longest portage was said to be a distance of ca. 6 kilometers, and it took half a day. The spring and fall movement included all members of the households and the canoes were paddled by
everyone including the women and small children. In the fall they came back to Wollaston Lake for their wintering activities. There are some accounts of hunting activities in the Wollaston Lake area by the southern group of the Chipewyan. In the fall of 1934 a group of Chipewyan made their winter camp on the southern shore of Wollaston Lake. The camp was composed of 3 households totalling 14 people. Before 'freeze-up' they killed about 20 moose which played an important role in their subsistence that winter. In the next year, 1935, the same group of Chipewyan speared caribou in the fall and made their winter camp on the eastern shore of Wollaston Lake. That year 3 households joined the group which then totalled 6 households and 28 people. In 1936, they set up their winter camp at the same location as in 1935. However, in this year, the head of one household, who was also the father of another three households, died. The camp was split up and only limited members of the young Chipewyan men exploited the area for their winter activities for the next few years, the other members of the camp remained around Reindeer Lake. The young Chipewyan actively exploited the Wollaston Lake region in their hunting and trapping activities. They covered the western part of Wollaston Lake as far as Waterbury Lake and north of the lake up to Cochrane River. It should be also noted here that the Cree utilized the southwestern fringe of Wollaston Lake for their winter trapping, even though their home bases were located either on the south end of Reindeer Lake, or on the Upper
Churchill River Drainage. The Chipewyan also had contact with Euro-Canadian trappers in the region of Wollaston Lake during the 1930's. The trappers were seasonal visitors who came from Flin Flon during the winter season and returned to the south during the summer. The Chipewyans and the Euro-Canadian trappers maintained friendly relations which are described later in this chapter.

On the basis of the information described above, the significance of the settlement pattern of the southern group of Chipewyan would seem to be that the seasonal trading activity and the winter caribou hunt on snow were the two major activities. The fall hunt for migrating caribou was not dependable for the southern group of Chipewyan, though at least in some years they had chances to spear caribou at crossing places. They could hunt relatively large numbers of moose in the fall which and these provided a significant source of food when preserved for the sub-arctic winter. The differences in the subsistence strategies of the northern and southern groups of Chipewyan were due to the ecological difference of each home ground; the existence of the caribou crossings in the north, and the existence of moose in the south. The similarity in their settlement patterns was caused by the seasonal shift of home bases between the winter camp and the summer camp, and the seasonal fur trading activity which forced them to conduct trapping activities and necessitated numerous journeys to the
trading post. The attachment to each different post by the northern and southern groups of Chipewyan continued until 1946 when the Saskatchewan Provincial Government established Post IVa at Wollaston Lake on Moose Island.

(2) PERIOD II: 1946-1957

This period was the transition between the contact-traditional phase and the contemporary phase for the Hatchet Lake Chipewyan. In the year of 1946, Post IVa, or the Saskatchewan Provincial Government trading post, was established on Wollaston Lake. In the same year commercial fishing was introduced to the area by the Euro-Canadian settlers. Euro-Canadians had been the seasonal trappers from the south but came to stay on Wollaston Lake all year around after commercial fishing was introduced. Chipewyan men were hired as wage labourers by the Euro-Canadian settlers for summer fishing. A part of the northern group of Chipewyan, as well as the southern group of Chipewyan, were hired at Post IVa to do wage labour in the summer and they moved to the Wollaston Lake region. When the Euro-Canadian settlers gradually retired to the south after selling their fishing equipment to the Chipewyan in the 1940's and 1950's, the Chipewyan began to fish commercially themselves. There were no permanent buildings on Moose Island except for the Provincial Government store (Post IVa) and one for fish storage. The fish were transported to
Flin Flon weekly on a regularly scheduled flight. Some Chipewyan also engaged in winter ice fishing for commercial purposes as well as hunting and trapping.

In spite of the establishment of the trading post and the introduction of commercial fishing to Wollaston Lake, the Chipewyan still carried out the seasonal migration. Then, the trading post was strictly a place to visit. Therefore, after the summer fishing season was over, they purchased the necessities for bush life and went up north for the winter. Part of the northern group of Chipewyan moved their home bases from Nuel tin Lake to the north of Wollaston Lake. The area was on the caribou wintering ground. Their hunting and trapping ground covered Phelps Lake, Hatchet Lake, Charcoal Lake, Misty Lake and Wollaston Lake. In the summer they set up summer camps on the northern part of Wollaston Lake for fishing. The southern group of Chipewyan, on the other hand, exploited the south of Wollaston Lake, though some people covered the area of western and northern Wollaston Lake. As a result, Post IVa on Moose Island was utilized by both the northern and southern groups of Chipewyan in Period II.

In 1947, a Roman Catholic missionary was sent to the Wollaston Lake region, since the Chipewyan in this area were too distant from the mission at Brochet on Reindeer Lake. The Chipewyan constructed a log church on Usam Island in 1952 which was used for communal gatherings and Christmas Mass. It is
noteworthy that, during this period, the church building and the trading post were located in different places on Wollaston Lake. In 1956, the Saskatchewan Provincial Government post, i.e., Post IVa, was relocated from Moose Island to the eastern shore of Wollaston Lake where the contemporary settlement exists. A new church was built in the same location in 1957. Christmas Mass in 1958 was the last to be celebrated in the old church on Usam Island by the missionary since the people still stayed up north even after the new post was established. Post IVb was still operated by the Saskatchewan Provincial Government though the location was changed. The same year as the establishment of Post IVb, a fish filleting plant was opened so that the catch could be transported in form of fillet. Also in 1956, the school program started. A Euro-Canadian teacher arrived during the summer of 1956; the same teacher, accompanied by his family, operated the summer school in 1957. In 1958 a second teacher arrived at Wollaston Lake for the four-month summer school.

Though the Chipewyan remained in the vicinity of the new settlement of the post-church-school complex during the summer in their temporary camps, they left the settlement before 'freeze-up' in order to hunt and trap in the bush during the winter.
(3) PERIOD/III: 1958-1975

This period is characterized by sedentariness and centralization of the Hatchet Lake Chipewyan at the Wollaston Lake settlement. In 1958, the Saskatchewan Provincial Government transferred the rights of enterprise to the Northern Cooperative Trading Services which was the volunteer organization operated by the six northern settlements in Saskatchewan (Stanley Mission, La Ronge, Deschambault, Pine House, Cumberland House, and the Wollaston Lake). Presently three more settlements joined the cooperative business: Ile-a-la-Crosse, La Loche, and Patuanak. The Northern Cooperative Trading Services was formed by the people of the settlements and a board of commission, which is composed of representatives from each settlement, operates the business.

In the same year, the Saskatchewan Provincial Government extended the program of conservation blocks for trapping to the Wollaston Lake region. A part of the northern group of Chipewyan were officially registered as residents of the Province of Saskatchewan although their original home ground included parts of Saskatchewan, Manitoba, and the Northwest Territories. The registered trapping area covered the southern and northern part of Wollaston Lake. Two major divisions in the area were designated on the basis of the traditional use of the area: the trapping areas N-93 and N-26; the former used by the treaty status Chipewyan who mainly came from the
northern group of Chipewyan, and the latter for the non-treaty status Chipewyan who originated from the southern group of Chipewyan. Trapping area N-26 was further divided into three zones, each of which was registered as a trapping ground for an individual. The Cree and the non-treaty status Chipewyan were registered for area N-26 and they were belonged to the different zones. N-93 district is the northern part of Wollaston Lake; it covers Hatchet Lake on the west, but on the north it is limited by the boundary between Saskatchewan and Northwest Territories and on the east the area is limited by the boundary between Saskatchewan and Manitoba. The Chipewyan and the Cree trappers purchased licences for trapping for each season since the area is on Crown Land and the land use is under the authority of the Provincial Government.

In the winter of 1958, a few Chipewyan stayed at the Wollaston Lake settlement without going north for their winter camp. The tendency towards sedentary life increased year by year. Finally the Wollaston Lake settlement became a permanent home base for at least some Chipewyan. The process of as above was largely promoted by the Indian Affairs Branch of the Federal Government through the housing program. The population of both the northern and the southern Chipewyan was centralized at the Wollaston Lake settlement. They continued to spread out into bush camps; they set up spring and
summer camps as well as winter caribou and trapping camps. The Wollaston Lake settlement became a home base from which they exploited the different hunting grounds each season. Instead of making a journey to the trading post the people made trips to hunting and fishing grounds from the central place.

The problems of adaptation of the Chipewyan to sedentary village life at the Brochet settlement in Manitoba have been described in relation to the federal and provincial institutions that directly affect them (Smith, 1970, 60-66). Also, in case of the Black Lake settlement of northern Saskatchewan, the process of the concentration of the Chipewyan into villages has resulted primarily from two factors: i.e., the decay of the fur market and the spending of large amounts of money by the Canadian Government (Sharp, 1973, 12-37). At present the Wollaston Lake settlement, in contrast to the seasonal bush camps, is better equipped with modern facilities. There is a high frequency radio station at the post office, a 4000 ft. gravel airstrip with scheduled plane service twice a week, health facilities with a public health nurse, and elementary school with three class rooms. Two diesel powered electric generators (125 KVA ea.) were even constructed but there was no system of water distribution, garbage collection, or disposal. The housing program financed by the Indian Affairs Branch of the Federal Government for the treaty
status Chipewyan as well as the Provincial Department of Northern Saskatchewan for the non-treaty status Chipewyan and Cree, had been highly promoted. The environmental change of the Wollaston Lake region and the adjustment of the Caribou-Eater Chipewyan are again examined in Chapter 9.

2. THE CHIPEWYAN CATEGORIZATION OF THE PEOPLES AND THEIR SPATIAL DISTRIBUTION

In this section, as a part of the historical background of the Hatchet Lake Chipewyan, the classification of the different ethnic groups and the history of the interrelations with these groups are described. The distinction of ethnic groups is based on Chipewyan categories which group the different peoples in a spatial arrangement. The history of Chipewyan-Eskimo relations, Chipewyan-Cree relations, and Chipewyan-Euro-Canadian relations are described as well as the relationships between the Chipewyan and certain 'supernatural figures.' This section presents data not only on the history of the Hatchet Lake Chipewyan but also on their categorization of people and their identity.

There are various systems of expression by which the Chipewyan classify the different groups. One method is based on the social relations with the Chipewyan. They distinguish their enemy, or enna, from the people, or dene. The Eskimos hotequa (literally, hotel enna, or the barren land enemy),
and the Creees enna (literally, the enemy) are the two kinds of foes, even though some amicable relations were observed. Among dene, of which the Hatchet Lake Chipewyan are a part, they classify two other groups to which they have no immediate access: xincane, or the Dog rib, and tanztini, or the Yellowknife. The rest of dene are classified on the basis of the relative direction of the four cardinal points on the ground: yodai dene, the western people; saaisi dene, the eastern people; yonna di, the southern people; and yatena di, the northern people. The terms are used for mutual identity between the groups. Thus it is a relative categorization of the groups rather than a naming of particular groups. Some groups of dene are identified by the names of the particular location, where the groups gather; e.g., ganikwen dene, or the jack pine house people (Ford du Lac post people); telzentue dene, or the stone black lake people (Black Lake people); and Kesiyo dene, or aspen house people (Ile-a-la-Crosse people).

Another means of classification is based on the floral and topographical features of the areas where a particular group lives. One group of people is called hotela di, or barren land people, since the land in the Nuelzin Lake area is tundra. Curtis (1928, 3) noted term of kai-théli-ke-hotíinne which means willow flat-country up they-dwell; Thilanottine, or dwellers at the foot of the head; i.e., of the great glacier. Again, this category could be overlapped with another
classification. Thus, the barren land people *hotela di* are at the same time, *vatena di*, or the northern people.

The major classification and terminology of the group of the people who are found among the contemporary Hatchet Lake Chipewyan is demonstrated in Table 1. The classification is based on the distinction between *dene*, the people, and *enna* the enemy. Among the *enna*, they distinguish between the Eskimo and the Cree by using topographical features. Among the *dene*, two distinct groups are categorized as slightly different groups of people, even though they are a part of *dene*. The four cardinal points of the compass are used to identify the immediate group with whom the Hatchet Lake Chipewyan have contact. The other terminology which is also used by the Hatchet Lake Chipewyan is described in the footnotes of the table.

Besides the categorization of the people which is in the table, the Hatchet Lake Chipewyan distinguish some other features. The Euro-Canadians, for example, are called either *manrai*, French, or *totini*, English. The term *nasniiyu* was used, even though detailed information on the group was not available. The two other categories, *hot'elna detoi*, and *hočeras* seem to be rather supernatural creatures for the Hatchet Lake Chipewyan. In the following pages, each group of people mentioned before is explained in detail with reference to their historical relations to the Hatchet Lake
Chipewyan and their cognition of the spatial arrangement of the people.

(1) THE ESKIMOS AND THE CREEs

For the Hatchet Lake Chipewyan, the Eskimo is an object of contempt. When some Chipewyan try to eat raw food or eat in an untidy manner, they are ridiculed, since 'they behave like the Eskimos.' About 1917 a trading post was established on the northeastern part of Nueltin Lake in the Keewatin District for the Kazan River Eskimos (Harper, 1964: 10-16; Birket-Smith, 1929: 167-8). The area was one of the major crossing-places for caribou during the fall when the animals migrated from north to south. According to the Chipewyan informant, a group of Chipewyan camped near the home base of the caribou Eskimos in about 1930. The Chipewyan stayed on the southern shore of the Windy River which flows from Hogarth Lake to Smith Bay on the northwestern corner of Nueltin Lake, while a party of the Kazan River Eskimos camped on the northern shore of the river. There were five individuals in the group of Chipewyan which was composed of a man, his wife, and their three children. The group of Eskimos consisted of four to five households, in caribou-skin summer tents. The Chipewyan, in fact, recognized that the area was usually exploited by the Kazan River Eskimos, but they felt strongly that they had the right to camp anywhere they wanted.
to hunt caribou. Both the Chipewyan and the Eskimo camped there for the open water season, overlapping their home ranges. Mutual friendship between the two parties was observed. They crossed the river in canoes to visit, to play the hand game and perform the drum dance. When winter came, they separated. However, the Chipewyan did not return to the same place the next summer. Instead, another group of Chipewyan chose this spot for their summer camp and so further contact was made with these Eskimos. Inter-ethnic relations between the Hatchet Lake Chipewyan and the Kazan River Eskimo developed in an amicable rather than a hostile way (cf. Harper, 1964: 9; Birket-Smith, 1930: 15). However, it should be noted that no intermarriage between the Eskimo and the Chipewyan was observed at that time. In fact, one marriage had taken place between an Eskimo man and a Chipewyan woman, but the wife died soon after the marriage. Because of the death of the Chipewyan wife in this marriage, the Chipewyan decided that intermarriage between Eskimo and Chipewyan was bad, and the belief continues to this day.

The Kazan River Eskimo were, however, relocated on the coast of Hudson Bay in 1961 (Harper, 1964: 57-8). As a result, there is no further chance for the Hatchet Lake Chipewyan to encounter the Eskimos at present. In spite of this, they still maintain the image of the Eskimos living north on the tundra, or Eskimo country hotélna nene.
In the summer of 1975, a group of Chipewyan camped on Sandy Island in the northern part of Wollaston Lake to fish. They noticed two strange canoes being paddled from the north towards their camp, and thought that the visitors could be a party of Eskimos, although later they were identified as a group of Euro-Canadians, members of a Winnipeg sports club who were passing through the area on a canoe trip.

There was no clear territorial boundary dividing the Eskimos and the Chipewyan. The home ground for the Eskimos was Ennadai Lake and along the Kazan River, although this particular group of Eskimos also lived around the northern part of Nueltin Lake (Harper, 1964: 13). The Chipewyan, on the other hand, spent most of the time at their winter home base on the southern part of Nueltin Lake. However, as described in the previous pages, occasionally they journeyed north such that their seasonal hunting grounds overlapped with the Kazan River Eskimos. It should also noted that the range of these expeditions, including the winter trapping trip for the Chipewyan men on the tundra and the trading journey for the caribou Eskimos down to Brochet on Reindeer Lake, largely extended into the home ground of the other group without any conflicts. Friendly relations and alliances could be observed through participation in common games and through a case of intermarriage. Yet the establishment of regular inter-ethnic social relations failed, leaving only mutual suspicion and contempt.
In contrast to the case of the Eskimo, severe antagonism has marked the inter-ethnic relations between the Cree and the Chipewyan. There were open hostilities between these groups, even after the Hudson's Bay Company at York Fort had established peace between the enemies in 1715-16 (Jarvenpa, 1975: 81-88). Prior to the establishment of the Wollaston Lake settlement, a group of Chipewyan spent the winters at the same camp with the Cree in the years of 1935 and 1936. The camp was located on Labock Lake in the eastern part of Wollaston Lake. In one of the six households of the camp was a Cree couple who were related to the Cree man who had married the Chipewyan woman. In those days, the Cree exploited the southwestern fringe of Wollaston Lake for winter trapping, even though this meant coming up from the settlement of South End of Reindeer Lake where their home base was located. A group of Cree Indians became permanent residents when the Wollaston Lake post was established in 1956.

In spite of the alliance made by intermarriage, hostility and antagonism may still be observed between the groups. In recent years, as a result of formation of the northern communities, the Chipewyan and the Cree can be found living in the same settlement; e.g., Brochet in Manitoba, and Wollaston Lake in Saskatchewan (Smith, 1970: 60-66). At the Wollaston Lake settlement, the two different ethnic groups live side by side. The situation causes continual stress for both groups today,
and they tend to avoid each other. However, prejudice and antagonism were frequently observed, which affected the social and economic structure of contemporary Wollaston Lake settlement and will be described in a later section. The Wollaston Lake settlement is, therefore, the front line in the ongoing conflict between the Chipewyan and the Cree.

(2) THE EURO-CANADIANS

The Hatchet Lake Chipewyan know that, south of Cree country, a big field exists where the English (totini) and French (manrai) live. Real places in the south which the Hatchet Lake Chipewyan have had experiences visiting are Lac la Ronge, Prince Albert, Flin Flon, and Saskatoon. There is a hospital in Lac la Ronge and a boarding school in Prince Albert, although relatively few students from the Wollaston Lake settlement attend the school today. To the east, they know the name of the settlement of Churchill. Knowledge of Churchill comes from legend and they have no real experience in visiting the area. They also believe that there is a large lake east of Churchill, which is, in fact, Hudson Bay. To the west, Fond du Lac and Uranium City are known. But, beyond Uranium City, there is only an uncertain image of the country; i.e., other groups of dene and also different groups of dene that are called nasniiyuu, they believe may exist.

Euro-Canadians, to the Hatchet Lake Chipewyan, are people who mainly live to the south and temporarily come up north to
visit the country. Euro-Canadians are called either *manrai* which refers to French, or *totini* which means English, though, in general, they use the term *manrai* for any kind of European. On occasions when they have to distinguish the two terms, they use them differently; i.e., the Roman Catholic Church in which the priest is French is categorized as *manrai yati* (French church), while the Evangelical Church, which has English missionaries, is identified as *totini yati* (English church). In the region of Wollaston Lake there was contact between the Chipewyan and about twenty Euro-Canadian trappers during the 1930's. They maintained friendly relations. The trappers were all single men who came from Flin Flon during the winter season and returned to the south during the summer. They were, as such, seasonal visitors. During 1930's and 1940's, a Chipewyan lived with one of the Euro-Canadian trappers on a small island south of Lorranger Island in Wollaston Lake and they became friends. There was one case of intermarriage between a Euro-Canadian trapper and a Chipewyan woman. After the marriage, they left Wollaston Lake and went to Lac la Ronge. With the introduction of summer commercial fishing in 1946 many of the Euro-Canadians stayed during the summer too. They hired some Chipewyan for summer fishing as helpers. During the 1950's, they gradually returned to the south after selling their fishing equipment to the Chipewyan. At present, only the Chipewyan and the Cree fish commercially at the Wollaston Lake settlement. It should be noted
here again that the Euro-Canadians, during the period of this contact, remained on friendly terms with the Hatchet Lake Chipewyan.

In recent years, however, the Chipewyan have had contact with other kinds of Euro-Canadians: tekanetai, or mining prospectors. For example, the Gulf Oil Company has been conducting research for a uranium mine in northern Saskatchewan including the Wollaston Lake area (Foster, 1974: 1-18). The Hatchet Lake Chipewyan view these Euro-Canadians with suspicion, even though they know that 'the prospectors are looking for some kinds of stones for mining purposes.' In the bush, the Chipewyan carefully avoid encounters with prospectors. The author and a group of Chipewyan saw a temporary camp and a small boat on the western shore of Wollaston Lake during a moose hunting trip. The Chipewyan recognized that the camp was occupied by tekanetai, and they tried to avoid an encounter with the prospectors. They checked that the tekanetai did not follow them. The next day, our party met another tekanetai: he was walking along the shore of a creek as we were leaving an overnight camp on a small island at the mouth of Fond du Lac River. A member of our party mentioned that he was a tekanetai looking for 'some valuable stones.' In another example, the author and some Chipewyan hunters found the remains of a sleeping site of tekanetai in the bush. Several sticks had been hammered into the ground to hold a
sheet cover as a temporary roof. The Chipewyan stopped to examine the site, then continued travelling after mentioning that the spot could have been used by the tekanetai. They also met prospectors at the Wollaston Lake settlement. In the summer of 1976, a party of mining experts stayed at the Wollaston Lake Post. The Chipewyan believed that the people were tekanetai, and so, they were careful not to walk near their temporary abode, especially during the night. There were rumors that some small children had been chased by the tekanetai.

(3) THE BUSH-MEN

Three more kinds of figures which were not categorized as dene, are nasniyyu, hot'elna det'oi, and hoceras. The nasniyyu are the people who do not share a common language with the Chipewyan. They are believed to live far to the west beyond the big hill te čo. There are differences between nasniyyu and šincane or tanzčtini and the latter belong to the dene. However, there is no detailed account of the people and their country (cf. Sharp, 1973: 16-17). In contrast with nasniyyu, the other two creatures are human figures who possess supernatural characteristics. The hot'elna det'oi look like the Eskimo, but have heavy body hair and resemble the bear. They roam around on the tundra in search of food which is eaten raw. They are believed to consume even their own children in time of hunger. They are anthropophagites. They stay to the
north of Eskimo country, but the actual boundary between the Eskimo and the *hot'elna deto'i* is not known. The *hočeras*, or bush men, are of major concern to the Chipewyan in their daily life. They imagine that they roam in the bush to try to steal children and food from the Chipewyan (cf. Helm, 1961: 118; VanStone, 1965: 105). Sometimes, *tekanetai* could be *hočeras*, but they are basically different. *Hočeras* are believed to play tricks on the people, e.g., throwing a stone at the Chipewyan's tents from the bush, or whistling in the bush. Some people think today that the bush men escaped from jail in the south, then came up to the northern country. They believe they arrived in the area in a small aircraft, or Cessna 185, and landed on the water near the central settlement without being detected by the people. In stature, they are small and stout, but they are very strong. They believe these bush men have beards and that their arms and legs are covered by thick hair. They also wear torn clothes and heavy leather boots.

The Chipewyan were convinced of a story that three children had been abducted and were killed in the bush by *hočeras* at the Black Lake settlement which is located 180 kilometers northwest of the Wollaston Lake settlement. But, usually, they said that the bush men would steal small children only to be brought up in the south or west. These creatures are also believed to come north only in summer. In the summer of
1975, there were many sightings of these suspicious creatures roaming in the bush on the east side of a small bay of the central settlement. The people were careful not to go to the area. The bush men apparently appeared around the fish camp too. On Sandy Island fish camp, in the early part of August in 1975, the inhabitants started to discuss the suspicious creature, one of the members of the camp had caught a glimpse of a human figure in the bush. Other people had heard a peal of laughter. A party of young men and boys had investigated in vain for footprints. Two households containing nine people suddenly withdrew from their camp and returned to the central settlement. Some people suggested that the figure could be a bear, others stated that they could be a group of manrai, or Euro-Canadians who had, in fact, visited Sandy Island two weeks ago on their canoe trip. The Chipewyan proposed that the group of travellers might have returned to the island after they had left, and may have landed on the opposite side of Sandy Island to watch the Chipewyan camp.

As described before, the Hatchet Lake Chipewyan explanation of the bush man is related to the contemporary world although the central image of the supernatural creature is still powerful for them today.

(4) THE DENE AND SPATIAL DISTRIBUTION OF GROUPS OF PEOPLE

As for the system of nomenclature using relative directions, the four cardinal points on the ground are adopted: the
directions of east, west, north, and south. The Hatchet Lake Chipewyan, according to this rule, addresses the group of people as yodai dene, or the western people, who inhabit any place west of Wollaston Lake. The people at the Black Lake settlement, Stony Rapids settlement, and Fond du Lac settlement, for instance, are included in this category. The people who live east of Wollaston Lake are called saaisi dene, or the eastern people. When a part of the Hatchet Lake Chipewyan stayed on Nueltin Lake, the term saaisi dene, or the eastern people, referred to the group of people who lived east of Nueltin Lake, particularly the group of Chipewyan around Nejanilini Lake in northern Manitoba. However, after the people at Nueltin Lake had moved to Brochet, or the Wollaston Lake settlement, the Hatchet Lake Chipewyan addressed the people of Brochet as saaisi dene, or the eastern people. The reason is that the settlement of Brochet is located east of the Wollaston Lake settlement where the Hatchet Lake Chipewyan live today. Using this system of categorization, the Hatchet Lake Chipewyan are, in return, called saaisi dene, or the eastern people, by yodai dene, or the groups living west of Wollaston Lake.

Subsequently, in order to express the relative directions of the north and south, the term yonna di, or the southern people, and yatena di, or the northern people, are used. For the Hatchet Lake Chipewyan, the term yonna di, or the southern
people, includes the population at Patuanak, Ile-a-la-Crosse, Buffalo Narrows, and other settlements which are situated south of Wollaston Lake. In opposition, the Hatchet Lake Chipewyan are addressed as vatena di, or the northern people. Before establishing the Wollaston Lake settlement, the people who inhabited Nueltin Lake were called vatena di, or the northern people (they are also identified as hotela di, or the barren land people) by the Chipewyan who lived south of Brochet on Reindeer Lake. They, in return, were addressed as yonna di, or the southern people. However, a number of the northern people gathered to stay at the Wollaston Lake settlement at the same time as a number of southern people moved to settle at the contemporary post. Then, this rule of reciprocal identity between them was eliminated, and the people at the Wollaston Lake settlement began to share a common identity with a group living in the same locale. As a result, the term of yonna di, or the southern people, only refers the groups of Chipewyan living south of Wollaston Lake, and the term excludes the people who formerly lived south of Brochet. Also, the term vatena di, the northern people, has ceased to be used by the Hatchet Lake Chipewyan, since there is no Chipewyan group living north of Wollaston Lake to be addressed by the term today. Therefore, the terminology of this nomenclature system utilizing relative direction is basically one of reciprocal identity between the groups.
As well as using the relative directions to establish mutual group identity, they may also classify people by the Chipewyan name of the particular location the groups inhabit. In this manner, the people at Fond du Lac are called *ganikwen dene* (jack pine house people, or the Fond du Lac people), the Black Lake Chipewyan are named *telzen tue dene* (stone black lake people, or Black Lake people), and the population at *Ile-a-la-Crosse* is identified as *k'esiyo dene* (aspen house people, or *Ile-a-la-Crosse* people). The people classified by this method are, at the same time, included in one of the categories which is identified by the relative direction already described. Therefore, the *ganikwen dene*, or the Fond du Lac people, and *telzen tue dene*, or the Black Lake people are also a part of the *yodai dene*, or the western people. And *k'esiyo dene*, or the *Ile-a-la-Crosse* people, are a part of *yonna di*, or the southern people.

It should be noted here that two other categories of people are distinguished by the Hatchet Lake Chipewyan: *zincane*, or the Dog rib, and *tanzotini*, or the Yellowknife. They are believed to be a part of the *dene* living far west of Fond du Lac. However, these groups of people are not included in the *yodai dene*, or the western people, but rather are categorized as a more independent population. Detailed accounts of them and their habitat are beyond the knowledge of the Hatchet Lake Chipewyan, but some kinship relations to them are recognized.
The division of people and their spatial arrangement in the cognation of the Hatchet Lake Chipewyan is shown in the Fig. 3. Note that the contemporary population of the Wollaston Lake settlement is composed of the people from the area of Nueltin Lake and also the region of Reindeer Lake. The familiar locations and the inhabitants by Chipewyan terms are also presented on the map: Fond du Lac, Black Lake, and Ile-a-la-Crosse. The boundary of dene is shown as a solid line. The dotted line represents the boundary of knowledge of the Hatchet Lake Chipewyan. Some local names are plotted on these boundary lines. Churchill is the most eastern place that dene inhabit. Lac la Ronge, on the south, is on the boundary between dene and ennâ. Prince Albert and Flin Flon are the places which are on the boundary between ennâ, or the Cree, and manrai, or the Euro-Canadians. Saskatoon is the southernmost place that is known by the Hatchet Lake Chipewyan today. On the west, beyond the land of zîncane and tânzotîni, the boundary line could be drawn on te câ, or the big hill, which separates nasniîyu from dene. The Eskimo live in the north. The boundary between dene and hotîlnâ is a topographical and floral one: the tree line between the barren land and the boreal forest. To the north, believed to be roaming the tundra beyond the Eskimo, are the hotîlnâ detoi who begin to lose human characteristics and are represented as anthropopah-gies.
Among the group of *dene*, or the people, the Chipewyan adopt the various systems of categorization; i.e., relative direction using the four cardinal points of the compass, the names of the particular locales, and the topographical and floral distinction of the area the population inhabits. However, the terminology is based on the location of the population at any particular time, and it does not include the absolute identity of the membership of each individual. The individual identity could change from one categorization to another, depending on the movement of the people.

3. THE SOCIAL AND ECONOMIC STRUCTURE OF THE CONTEMPORARY WOLLASTON LAKE SETTLEMENT

(1) ADMINISTRATIVE STATUS AND THE ETHNIC DIVISION OF THE POPULATION

The administration of Indian Affairs in Canada recognized 292 registered Indians at the Wollaston Lake settlement as members of Band-31 Lac La Hache in 1975. There are, however, another 57 non-registered Chipewyan who are not included in the Indian Act. Although they are members of the ethnic group of Chipewyan they are not Indians, in the administrative sense, since they lost their treaty status as Indians. In this paper, they are classified as the non-treaty Chipewyan, while the registered Indians are described as treaty Chipewyan. There are another 29 people including Cree, Chipewyan women who are married to Cree men and their descendants. In fact,
only 9 people out of 29 are the Cree who originally emigrated to the Wollaston Lake region. After the establishment of the Wollaston Lake settlement the Cree began to remain at the settlement. When four Cree men married Chipewyan women, the women lost their treaty status as well as the right to claim treaty status for their offspring, since treaty status for legitimate offspring can be inherited only through the male line in accordance with Canadian law.

Besides the Chipewyan and the Cree, some Euro-Canadians also live at the settlement. The missionary of the Roman Catholic Church, who has been at the Wollaston Lake area since 1947, and the store manager of the Northern Cooperative Trading Services, and the school teachers are Euro-Canadians, though they are usually temporary residents. Including another two immigrant families, the number of Euro-Canadian settlers was recorded as 18 in 1975. Therefore, at the contemporary Wollaston Lake settlement, there are three ethnic groups: Chipewyan, Cree, and Euro-Canadians.

Communication is established among the ethnic groups with the languages of Chipewyan, Cree, and English. The Cree immigrants are bilingual, speaking both Cree and Chipewyan. They learned Chipewyan after they came to the Wollaston Lake settlement and made contact with the Chipewyan. Their children from the Cree-Chipewyan intermarriages, however, can not speak Cree: they are articulate in both Chipewyan and English.
English is learned at the elementary school where the Euro-Canadian teachers conduct classes in English. Hence, the Cree children as well as the Chipewyan children are articulate in English. In their daily life, however, they use only Chipewyan. The majority of the Chipewyan particularly the older adults speak only Chipewyan, though some are also articulate in Cree. Among the Euro-Canadian settlers, the French speaking Roman Catholic missionary is the only person who could communicate in the Chipewyan language. There is a lack of communication between the Chipewyan and the Euro-Canadian residents without the intermediates, the Chipewyan children, the Cree children, or the Roman Catholic missionary.

Administratively, a distinction is drawn between the treaty status, Indian and the non-treaty Indian. The treaty Indians include a part of the Chipewyan population, while the non-treaty people are the remaining Chipewyans, the Cree and the Euro-Canadian settlers. It is noteworthy that the Chipewyan as an ethnic group are categorized into two different administrative divisions. The identity of the non-treaty Chipewyan is twofold; administratively he is a non-treaty Indian but ethnically he remains a Chipewyan.

The administration of the population is related to the economic aspects of daily life at the settlement. The treaty Chipewyan are administered by the Indian Affairs Branch of the Federal Government. According to the Indian Act, the
Dominion Government is responsible for the health, welfare, education, and aid in the industrial enterprises of the Indians. The treaty Indian receives free health services, and education; the non-treaty Indian is excluded from these benefits. The non-treaty status population of the settlement is administered by the Department of Northern Saskatchewan (DNS) of the Provincial Government.

One's administrative status is also reflected in one's residence. The lots for the treaty Chipewyan houses were on reserve land, though some treaty Chipewyan live off the Reserve due to the lack of suitable sites for housing. However, the non-treaty population may not live on the Reserve. They choose the sites for their residences on the area adjacent to the Reserve for the housing program that has been being promoted by the Department of Northern Saskatchewan. The Roman Catholic Church, the school, the public health service, the general store of the Northern Cooperative Trading Services, are also off Reserve land. So, the treaty Indians must leave the Reserve in order to utilize these facilities. Therefore, the Wollaston Lake settlement is composed of two districts of jurisdiction: Reserve land and Crown land. The former is for the treaty Chipewyan who are under the jurisdiction of the Federal Government, the latter is for the non-treaty population at the settlement which is under the jurisdiction of the Saskatchewan Provincial Government. The treaty
and the non-treaty Chipewyan maintain their common ethnic identity which cuts across these administrative divisions.

(2) SOCIO-ECONOMIC STRUCTURE OF THE WOLLASTON LAKE SETTLEMENT

In this section, the social and economic structure of the contemporary Wollaston Lake settlement is described in relation to the ethnic composition and the administrative division of the population. The Chipewyan-Cree ethnic dichotomy and the treaty-non-treaty administrative distinction play a significant role in the social and economic relationships among the population. Fig. 4 shows the socio-economic structure of the Wollaston Lake settlement. The Wollaston Lake population is categorized by the three types of administrative-ethnic groups: treaty status Chipewyan (T-Chipewyan), non-treaty status Chipewyan (NT-Chipewyan), and the Cree immigrants to Wollaston Lake area who are non-treaty status Cree (NT-Cree).

The Local Government, or Band Council is the representative for the T-Chipewyan who are registered members of the Lac La Hache Band. The Band Council is composed of three councilors, one of whom is the chief of the Band. A councilor usually serves a term of two years, but the Local Government is subject to recall in accordance with a request by the Band members. The Local Government, in reality, functions as an intermediary between the Federal Government and the Band.
The Band Council controls the money provided by the Indian Affairs Branch of the Federal Government. The Band Council has the authority to call the police onto Reserve land. The R.C.M.P. are stationed at the Stony Rapids settlement located 200 kilometers northwest of the Wollaston Lake settlement. The R.C.M.P. have no right to enter Reserve land without the permission of the Band Council. There is a wireless installation at the Band chief's private house, which can be used to summon the R.C.M.P. at his discretion. At the Wollaston Lake settlement there was no administration building for the Band Council in 1975. A record of the Band members was kept at the administration office at Stony Rapids. In 1976 a new house was constructed for administrative work on Reserve land.

The councilors are paid by the Federal Government in order to fulfill their functions without being concerned with food acquisition in the bush. They attend the Band Council meetings at Prince Albert and hold public Local Band meetings at the settlement to circulate the information among the Lac La Hache Band members. However, some communication difficulties at the Band Council meetings were reported. The proceedings are expedited in English, though the chief is not articulate in the language. For this reason, the chief is accompanied by the Roman Catholic missionary, and the latter actually transmits the demands and problems of the Wollaston
Lake population to the Federal Government. Because of the inadequacy of communication at the Band Council meetings they have difficulty transmitting the information from the Federal Government to the Local Band members.

In contrast to the T-Chipewyan, the NT-Chipewyan and the NT-Cree are under jurisdiction of the Department of Northern Saskatchewan (DNS) of the Provincial Government. The Local Advisory Council, which acts as the representative of the people, is elected by the non-treaty population. The Local Advisory Council is composed of one chairman and two vice-chairmen. At present, the three members of the council are Cree Indians. A conservation patrolman, working under the DNS at the settlement, is a NT-Chipewyan. The patrolman issues the fishing and trapping licences and the T-Chipewyan as well as the NT-Cree and the NT-Chipewyan must obtain these licences since they exploit Crown land. As far as food gathering activities are concerned, the T-Chipewyan are not obliged to observe any hunting and fishing regulations by the Provincial Government while the NT-Cree and the NT-Chipewyan are under the regulations in terms of the such things as quantity and season. There is no difficulty in communication between the DNS and the non-treaty population at the settlement through the Local Advisory Council, since the members of the Council are articulate in English as well as Cree and Chipewyan. Communication between the NT-Cree and the NT-Chipewyan is not always effective. General hostility and
skepticism exists between the two ethnic groups, though there are mutual alliances between some members.

There are two volunteer organizations which are connected with the economic life of the people of the Wollaston Lake settlement including both the T-Chipewyan and the non-treaty population: the Northern Cooperative Trading Services, and the Cooperative Fisheries. The Northern Cooperative Trading Services were founded at the Wollaston Lake settlement in 1958. The business of the cooperative organization is under the management of the general store and the fur trading services. The general store is the major concern of the people at the settlement for their daily life while they stay at the post. Food and daily necessities are purchased through a cheque system. Cash income from commercial fishing and other sources is deposited in a bank account from which they can buy provisions from the general store. A Euro-Canadian manager operates the store and some Chipewyan and Cree are hired as cashiers and labourers. Fur trading services, on the other hand, are handled by the store manager. He buys fur from the individual trappers and he then travels to the south to sell furs at the Provincial auction. The Northern Cooperative Trading Services are composed of nine northern Saskatchewan communities. Any residents at the settlements may join the organization. The profit, if any, is dispersed among the cooperative members. There is a board to manage
the business at each settlement, and the central board is formed by representatives from each community. The Roman Catholic missionary at the Wollaston Lake settlement is a board member for the settlement as well as representative to the central board of the Northern Cooperative Trading Services.

The Cooperative Fisheries is the association for the commercial fishermen including the T-Chipewyan, the NT-Chipewyan, and the NT-Cree. The filleting plant and the systems of transportation from the plant to the market are organized by the Cooperative Fisheries located at Prince Albert. The filleting plant at the Wollaston Lake settlement is managed by the Cree residents who are temporary seasonal workers from settlements on the Upper Churchill River Drainage. There is effective communication between the temporary Cree workers at the fish plant and the NT-Cree residents at the settlement. The Chipewyan, unlike the Cree, show little or no interest in the management of the Cooperative Fisheries, although they are engaged in commercial fishing. These two volunteer organizations, the Northern Cooperative Trading Services, and the Cooperative Fisheries contribute to the economy of the Wollaston Lake population in general. As a result these organizations form a link between the ethnic and the administrative divisions of the population at the settlement.
Another significant characteristic of the socio-economic structure of the settlement is the relation of the people to the missionaries. There are two European missions at the Wollaston Lake settlement, the Roman Catholic, and the Evangelical. The former, in which the French missionary operates, has a long history among the Chipewyan since 1861 when the first missionary made contact with the Chipewyan at Brochet. The Evangelical church, on the other hand, is a recent introduction to the Wollaston Lake population, particularly to some Crees. The Roman Catholic church was constructed at the contemporary settlement in 1957, after the old church on Usam Island was abandoned. The Roman Catholic missionary has been working in the Wollaston Lake region since 1947 and is a permanent resident of the area. The people gather to hear Mass every Sunday at the Church. Christmas and Easter are the two major festivals when midnight Mass is held. Other events at the Church are baptisms, marriage ceremonies, and funerals, which the Hatchet Lake Chipewyan consider as rites of passage.

The Chipewyan, including both treaty and non-treaty, are Roman Catholic. NT-Chipewyan actively assist in the church services for Sunday Mass. Mass is given in the Chipewyan language. The Chipewyan women who married Cree men also attend the church services with their offspring. The Cree men, on the other hand, do not frequently participate in Mass, due
to the inter-ethnic antagonism between the Cree and the Chipewyan and some Chipewyan forbid the Cree to join in Sunday Mass. The Cree, as a result, usually stay home on Sunday in order to avoid contact with the Chipewyan. Therefore, the Roman Catholic Church which has a vital influence on the Chipewyan's religious and social life, does not include the Cree residents at the settlement.

The Evangelical Church has approached the Cree at the Wollaston Lake settlement. Church services are sporadic. The missionary flies to the settlement only once or twice a year from the United States to stay for a few days. At that time the missionary and an assistant call on the individual Cree homes to give Mass. They sing hymns with guitar accompaniment and sometimes with expansive gestures by the assistant. They do not maintain any church building at the settlement except a log cabin which is used as a public meeting place when the missionary visits the settlement. The Wollaston Lake people, including both the Cree and the Chipewyan, come to see the events at the cabin. The Evangelical Church has also been trying to approach the NT-Chipewyan, though it would be difficult for the Chipewyan, and particularly the NT-Chipewyan, to participate in a second religion. Even the Cree report that most of them are not interested in the Evangelical Church. The missionary of the Evangelical Church has difficulty increasing the number of followers in his
religious sect at the Wollaston Lake settlement, since the Roman Catholic church has already established its constituency.

The socio-economic structure of the Wollaston Lake settlement is the product of contact between the Wollaston Lake population and large scale contemporary Canadian society. Political and economic input comes from the Indian Affairs Branch of the Federal Government and from the Department of Northern Saskatchewan of the Provincial Government. On the other hand, the two missions exert an influence upon the population. In this way the structure of the Wollaston Lake settlement, in which each individual has a different ethnic and administrative status, has been formed. The role of the intermediator in this structure of socio-economic relationships is significant. The Band Chief may act as a broker between the Treaty Chipewyan and the Federal Government. However, at the Wollaston Lake settlement in 1975, the chief is neither an effective leader for the Lac La Hache Band nor a capable intermediator between the Indian Affairs Branch and the Local Band members.

The Roman Catholic missionary, in lieu of the Band Council, assists the Chief by acting as the broker between the Federal Government and the Local Band. He accompanies the Band Council when they attend the Band Council meetings in Prince Albert. He also acts as the intermediator to the outside
world for the non-treaty population at the settlement. He is not a member of the Local Advisory Council, but he has a voice in local issues, since he is one of the members of the non-treaty population at the settlement. The Euro-Canadian residents at the settlement also have need of him, since he is able to negotiate with the Provincial Government (DNS) concerning public services for the Wollaston Lake settlement on behalf of Euro-Canadian settlers. Besides his religious influence on the Chipewyan, the Roman Catholic missionary becomes involved with the Cree economically in order to exert an influence over them spiritually. Thus, on the basis of the data presented in this paper, it should be pointed out that the contemporary socio-economic structure of the settlement has been developed through the intermediation of the Roman Catholic missionary who can communicate with the different worlds inside and outside the Wollaston Lake settlement.
CHAPTER 3

NATURAL ENVIRONMENT: CARIBOU, MOOSE, AND FISH ECOLOGY

1. PHYSICAL ENVIRONMENT AND FLORA

(1) GEOGRAPHICAL AND CLIMATOLOGICAL BACKGROUND

The location of the Wollaston Lake settlement and vicinity is shown on the map (Fig. 21 & 22 in Chapter 6). The original geographical map was charted in 1960 by the Survey and Mapping Branch, Department of Mines and Technical Surveys, from 1954, 1955 and 1956 air photographs and from field surveys in 1955 and 1958. The Wollaston Lake settlement is located in the northeast corner of the Province of Saskatchewan. The adjacent communities are as follows: Black Lake, Saskatchewan, 180 km northwest; Brochet, Manitoba, 95 km east; and La Ronge, Saskatchewan, 390 km south of the Wollaston Lake settlement. The geological background of the Wollaston Lake region is examined by Fahrig (1958). The area lies far north on the Precambrian Shield, the underlying rocks on the eastern shore of Wollaston Lake are of the Archean (early Precambrian) age, mainly gneisses, some with a granitoid appearance. But, in the western area of Wollaston Lake, flat-lying sedimentary strata of the Athapaska series
(late Precambrian) are found. So it is suggested that the removal of softer Athapaska rocks, pushed from northeast to southwest by glaciation and the damming of earlier drainage by Pleistocene deposit, may have been responsible for the formation of Wollaston Lake (Fahrig, 1958; Rawson, 1959, 38-39).

The outflow of Wollaston Lake into the Cochrane and the Fond-du-Lac Rivers is examined in the report of the Fisheries Branch, Department of Natural Resources on the basis of the records from 1949, 1950 and 1952, as well as more complete records from 1953. The characteristics are as follows: the greater outflow is into the Cochrane River with an average in different years of 2,400 to 3,000 cubic feet per second. At ordinary levels, the outflow into the Fond-du-Lac River is small, usually between 100 and 300 cubic feet per second, but at the highest levels, the outflow increases rapidly. In August 1949 it was 2,400 c.f.s. when the Cochrane outflow was 4,950 c.f.s. Thus, the Fond-du-Lac outflow is usually less than one-tenth, but at very high water it may become one-half, that of the Cochrane. Recorded changes in the water level of Wollaston Lake show a range of 3.48 ft., from a low of 91.00 ft. to a high of 94.48 ft. (Rawson, 1959, 40).

The soil of the Wollaston Lake region is dominantly podzolic, or light coloured forest soil on the basis of the
data shown in the Soil Map of Canada produced by the Soils Research Institute, Department of Agriculture and the Canadian National Soil Survey Committee (Clayton and Marshall, 1972, 41-42). The soil of the northern Wollaston Lake region is podzol with a significant occurrence of Cryic Peaty Gleysol (Peaty Gleysol with frozen subsoil) and Cryic Fibrisol (Deep peat moss with frozen subsoil), while the southern part of the region could be classified as podzol with a significant occurrence of Regosol (Weakly developed soils) and Fibrisol (Deep peat moss) (Richards and Fung, 1969, 70-71). The Wollaston Lake region is located in two different zones of soil climates: sub-arctic and cryoboreal. Sub-arctic is one of the soil temperature classes categorized as very cold; i.e., mean annual soil temperature 20° to 36°F. Moderately cool summer. Mean summer soil temperature 41° to 47°F. Regions in this class have sporadic permafrost. Cryoboreal is characterized as cold to moderately cold; i.e., mean annual soil temperature 36° to 47°F. Mild summer. Mean summer soil temperature 47° to 59°F. Regions in this class have no permafrost but the soil is frozen annually (Clayton and Marshall, 1972, 43-44).

A general overview of the climate in the Wollaston Lake region may be obtained from the meteorological records at
Cree Lake and Uranium City, since it lies between these two points. The average annual hours of sunshine is 1,940 hrs. at Cree Lake and 1,950 hrs. at Uranium City. The average temperatures are \(-18.0^\circ F\) (Cree Lake) and \(-20.0^\circ F\) (Uranium City) in January, and \(60.0^\circ F\) (Cree Lake) and \(59.0^\circ F\) (Uranium City) in July. The average annual precipitation is 16.0 inches (Cree Lake) and 14.8 inches (Uranium City). Dates for the last spring frost are June 20 (Cree Lake) and June 15 (Uranium City) and for the first fall frost, September 1 (Cree Lake and Uranium City). So the average number of frost free days per year is 72 days (Cree Lake) and 77 days (Uranium City). More precise meteorological data were available, since one of the inhabitants at the Wollaston Lake settlement recorded the daily temperature (at 9:00 a.m.), precipitation (rainfall and snowfall), the dates of 'freeze-up', 'break-up', etc. On the basis of the data, the average monthly temperature and precipitation (rainfall and snowfall) in 1975 are shown in Table 2. The average temperature for the month of January is \(-27.6^\circ C\) \((-17.6^\circ F\)} and for the month of July is \(15.2^\circ C\) \((59.4^\circ F\). The annual precipitation in 1975 was 310 mm (12.2 inches) of rain and 1,310 mm (51.6 inches) of snow. The total annual precipitation, when the snowfall is converted into rainfall at the rate of one-tenth,
would be 441 mm (17.4 inches). The recorded events for 1975 are as follows: first rainfall (May 3); 'break-up' began on shore (May 10); small bay in front of the Wollaston Lake settlement was completely ice free (May 28); east side of Wollaston Lake was free of ice (June 4); first forest fire at Hatchet Lake (June 24); first snowfall (October 6); ice began to form between the Wollaston Lake settlement and Dog Island on Wollaston Lake (November 7); most of Wollaston Lake was frozen (November 21). On the basis of this record, Wollaston Lake is ice-free for five months (from June to October) and is ice-covered for seven months (from November to May) of the year.

(2) FLORA

The Wollaston Lake area is in the boreal forest region which comprises the greater part of the forested area of Canada, forming a continuous belt from Newfoundland and the Labrador coast westward to the Rocky Mountains and north-westward to Alaska (Rowe, 1972; Hosie, 1969). The area is further classified as Northwestern Transition, a minor division of the boreal forest region. The character of the Northwestern Transition in this forest fringe fronting the tundra is unfavourable climatic conditions, thin soils and
frequent fires combined to reduce the distribution, abundance and size of the tree species (Rowe, 1972; 55). The most abundant tree on all sites is black spruce (*Picea mariana*), and with it on the well-drained soils grows white spruce (*Picea glauca*). Other accompanying species are white birch (*Betula papyrifera*) and tamarack (*Larix laricina*), the latter of increased importance in the more northerly parts of the section. Jack pine (*Pinus banksiana*) is only common in the southern parts especially on sandy soils and upland. Stunted trembling aspen (*Populus tremuloides*) and balsam poplar (*Populus balsamifera*) extend well toward the northern boundary. Forest flora, or the plants within the forest (Cummingham, 1958), does not include many species in this region. Lichens, mosses, and small seed-plants are found, of which the Chipewyan use cranberry (*Airelle canneberge*), blackberry (*Rubus sp.*), and blueberry (*Vaccinium sp.*) for their diet.

The Chipewyan use jack pine, white spruce, and black spruce for firewood. Tamarack is used for producing smoke with which caribou and moose hide are finished, and white birch is used as a material for making toboggans, snowshoes, and axe handles. White and black spruce are used in the construction of log cabins. Detailed descriptions of each of these wood using activities are in Chapter 7.
2. FAUNA: CARIBOU, MOOSE, AND FISH

(1) CARIBOU AND MOOSE ECOLOGY

The mammalian fauna of the Wollaston Lake region which the Chipewyan utilize is shown with the information on Chipewyan terms, hunting and fishing methods, and the type of use (Table 3). The animals listed are indigenous to both the forest and tundra regions. Shrews (Family Soricidae), weasels, minks, etc. (Family Mustelidae), cats (Family Felidae), squirrel (Family Sciuridae), mice and voles (Family Cricetidae), beaver (Family Castoridae), porcupine (Family Erethizontidae) and moose (Family Cervidae) inhabit the forest region. Bears (Family Ursidae), dogs, wolves, foxes (Family Canidae), and hares (Family Leporidae) may extend well north into the tundra, although their habitat is usually the forest region. Among the family Canidae, arctic fox is a tundra species not found in the forest region. Barren ground caribou, on the other hand, is a migratory animal that inhabits the tundra in summer and the open coniferous forest in winter. The data in the table show that the Chipewyan trap forest-dwelling, fur-bearing animals for their pelts, but hunt barren ground caribou and moose for food. On the basis of the floral and faunal characteristics, it is pointed out that the Wollaston Lake region is located on the
ecotone, or the tundra-boreal forest transitional zone. The seasonal migration of the barren ground caribou is the major concern in the Chipewyan's subsistence. The behaviour of the barren ground caribou and moose reflect on the hunting methods used. This is examined in Chapter 7.

Recent studies of the barren ground caribou in mainland Canada show that four major populations of caribou are distributed in the Mackenzie and Keewatin Districts of the Northwest Territories (Fig. 5). These groups of barren ground caribou have been named Bluenose, Bathurst, Beverly, and Kaminuriak, respectively. By aerial survey, the number of caribou in the first three groups has been estimated at 320,000 to 330,000 (Thomas, 1969, 1-44). The total Kaminuriak population prior to calving in June 1968 was also estimated by the same method to be 68,173 (Parker, 1972; 1-95). In fact, aerial surveys by the Canadian Wildlife Service in 1967 and 1968 produced an estimate of 385,000 barren ground caribou in the four major populations. The Kaminuriak population, ranging over northeastern Saskatchewan, northern Manitoba, and the southeastern District of Keewatin, is the major resource for the Hatchet Lake Chipewyan, although they also hunt the Beverly population, since the wintering range for the two populations overlap (Thomas, 1969, 16-17).
Human predation on the Kaminuriak population was estimated to be 3,500 - 4,000 in 1968, which constituted an estimated 5.3 per cent of the caribou population over 1 year of age. Annual mortality from human predation decreased from 30,000 in 1955 to 3,500 - 4,000 in 1968 (the Kaminuriak population was estimated to number 149,000 in 1955) (Parker, 1972, 89). Both Chipewyan and Caribou Eskimo hunt the Kaminuriak population. The Chipewyan who lives in the communities of Churchill, Brochet, and Wollaston Lake harvested 2,000 - 2,500 each winter. From the Wollaston Lake settlement an estimated number of 1,000 caribou were reported killed from August 1967 to July 1968 (Ibid., 74-77).

The seasonal migration of the barren ground caribou as well as environmental factors for the migration have been well investigated among the caribou in mainland Canada. (Banfield, 1951; 1954a; 1954b; Harper, 1955; Pruitt, 1959; 1960; Kelsall, 1968; Thomas, 1969; Parker, 1971; 1972). The general pattern of the migration is: northward to the calving ground on the tundra in summer and southward to the forest region in winter. Fall is the rutting season when they gather at the forest fringe. Harper (1955) documented the seasonal migration of caribou particularly in the Nueltin Lake region where some of the Hatchet Lake Chipewyan exploit the animal resources. When the northward movement starts in spring, the does precede the bucks as they migrate through this area. The Windy River
in the Nueltin Lake region) mostly in May, but to some extent in April or even earlier. During June, the majority of the animals passing by are bucks (Ibid., 12). After July 1 no more caribou were seen about the Windy River for five weeks. In the summer, they remain on the barren ground to bear their offspring. The southward migration in the fall reaches the Nueltin Lake region in August and continues until October or November, by which time the animals have passed into the boreal forest region for the winter. There is a definite retrograde movement northward into the Barrens in September-sometimes as early as the first part of the month. Then there is a final movement toward the south in November, at the time of the first heavy snowfall (Ibid., 18). It should be noted here that the Hatchet Lake Chipewyan are aware of this retrograde movement of the caribou in the fall. In the 1930's, the northern group of Chipewyan conducted the fall caribou hunt around Snowbird Lake, Kasba Lake, and Nueltin Lake, as described in Chapter 5. The fall caribou hunt corresponds to the movement of initial intrusion and retrogradation of the caribou herds. In this period the barren ground caribou cross the streams and lakes where the Chipewyans spear them from their canoes. It is said however that the initial intruding movement of caribou into the forest lasts for only a few weeks. So the Chipewyan travel northward to the forest fringe in the late summer to wait for the arrival
of the caribou herds. It should be noted here that, on the basis of the information on the fall caribou hunt by the northern group of Chipewyan in the 1930's, the direction of the caribou migration at some water crossings where they hunted the game was, in fact, northward. Thus, it seems apparent that the fall hunt corresponded to the initial intrusion and re-emergence of the caribou in the forest fringe area.

The contemporary Hatchet Lake Chipewyan do not conduct a fall caribou hunt, but hunt in winter instead. After 'freeze-up,' the caribou herds finally move southward into the forest. At this time, the size of the caribou herd is still large (the author observed 100 - 200 animals on the lake in November) and the southward movement is swift. The Chipewyan use the extensive hunting method for caribou in this period covering a wide area with their dog-teams to increase the chances of finding the migrating caribou. Since the route of migration as well as the size of the caribou herd being observed has varied considerably over the years (cf. Burch, 1971; 339-368), the Chipewyan hunters frequently exchange information on the location of caribou in the area. Seasonal changes in caribou grouping have been observed. Pruitt (1960, 1-44) summarized it as follows: winter—small bands, in-group spacing wider than in summer; spring—small to medium bands (10 - 100), occasionally large aggregations,
sexes generally segregated; summer—extension and aggregation of nursery bands. Males in separate bands; and fall-breeding males join small bands of females, fawns, immatures and sub-adults. In the winter, particularly the later part of winter, the caribou spread in small groups over a wide area. In this period the Chipewyan use the intensive caribou hunting method; i.e., wearing snowshoes, they follow the caribou footprints in the snow. Although Chapter 7 contains a detailed examination of these caribou hunting methods (extensive and intensive) it is useful to state here that clearly the most valuable assets available to the Chipewyan in hunting is their extensive knowledge of caribou behaviour and the winter snow cover which makes tracking easier.

Snow cover as an factor in the ecology of mammals and birds has been pointed out in the field of animal ecology (Elton, 1927; Formozov, 1946). In forest regions, snow cover has a unique character. The compression of snow in the forest is due mainly to the weight of the snow itself, but also thawing and the condensation of moisture from the air. Since the forest prevents the snow cover from being exposed to the sun and wind, and thus moderates the temperature, the compacting and setting of the snow under the forest canopy is not as great as the tundra! So, the forest regions may be said to be in a zone of 'fluffy forest snow', as distinct from the tundra being in a 'snowy-dune zone' (Formozov, 1946, 16).
Caribou ecology is largely governed by the snow conditions in the forest. The behavior of caribou during the snow season has been investigated by Pruitt (1960); overwintering herds of caribou use snow-covered lakes as 'escape cover' because lake snow is usually thinner and harder than forest snow. These groups may stay on the lake during the day, feed on the nearest shore and later return to their bedding ground. At the next feeding period they go to the same area, or if the snow there is now too hard, they move on until they encounter soft snow. In this fashion the herds feed progressively farther and farther away from the original bedding ground. Finally they proceed over the ridge in sight of the next lake which is then utilized as a new bedding ground. Thus the groups of caribou move back and forth in the snow cover of their winter range (Ibid., 19). The Hatchet Lake Chipewyan in this season employ the intensive hunting method. Searching for caribou footprints in the snow, they follow the trail on snowshoes. Particularly in late winter when the forest snow cover becomes deep, it is difficult for the caribou to move in the bush. The Chipewyan hunters, however, are able to stay on the snow surface with their snowshoes and they can chase down the game in a short distance. The snow cover, a negative factor in the locomotion of the caribou, is a positive factor for the hunters.
Moose is another important food resource for the Hatchet Lake Chipewyan particularly in the snowless season when the barren ground caribou has disappeared from the forest region. Although seasonal migration of moose has been reported (LeResche, 1966, Kelsall and Prescott, 1971), the settlement pattern of the Hatchet Lake Chipewyan is not affected by this fact. It should be noted that the southern group of Chipewyan in 1930's intensively used moose as a food source which compensated for the poor fall caribou hunt. The contemporary Hatchet Lake Chipewyan conduct moose hunting in summer and autumn. The moose may be the only meat supply in this season when the Chipewyan mainly depend on fishing. In the summer they strategically locate their fish camps in areas where moose are located (see Chapter 5). The Hatchet Lake Chipewyan are knowledgeable about moose habitat and so they focus on meadow areas particularly in the summer when moose are in the water to feed on water plants and escape from the mosquitoes in the bush. When the moose are not in this particular area the Chipewyan use the extensive method of hunting; they extensively search for moose over a wide area in which there is a good possibility of finding game. Information on the location of moose is frequently exchanged among the hunters and this also increases the chance of finding game. Although the extensive hunting method is again described in Chapter 7, it is pointed out here, that the method corresponds to the wide
distribution and unpredictable wondering pattern of moose in the summer. However, once the moose has been located in one particular area, the hunters employ the intensive hunting method. A thorough knowledge of moose behavior as well as hunting skill are necessary for success in the intensive method as described in Chapter 7. In the fall, bull moose can be decoyed by a sound which the Chipewyan make since this is the moose rutting season. Bulls and cows are mating and there is also fierce fighting among the bulls. During the autumn moose are an important resource for the Chipewyan who live south of the caribou crossings. The contemporary Hatchet Lake Chipewyan, as well as the southern group of Chipewyan in the 1930's, utilized moose as one of their major food resources. Although the input of moose meat is not as dependable as the fish catch it does provide a large amount of preserved food for the winter. It is noteworthy that a member of camp 3uzaze succeeded in killing a moose prior to the establishment of the winter camp in 1975 and this supplemented the food supply in the early part of the winter in the form of dry meat. Similarly, a member of camp Desi če in 1975 killed three moose which played a substantial role in their winter subsistence since the camp was located south of the caribou wintering range for 1975-76. The major food resource for the Hatchet Lake Chipewyan is caribou, even
though moose contribute to their subsistence base. The estimated number of moose killed in a year by the contemporary Hatchet Lake Chipewyan is 20, which is much less than the caribou input of an estimated 1,000 animals per year. Particularly in the winter season, the Chipewyan largely focus on caribou and tend to ignore moose since caribou is more easily hunted than moose. In deep winter snow the moose has no difficulty moving, while the caribou is hampered in the same depth of snow (Kelsall, 1969, 302-310). On one occasion in November 1975, I observed a Chipewyan hunter try to chase down a moose on lightly snow covered ground (20 - 30 cm). The moose had become trapped on a small island due to the formation of unstable ice on the water. The hunter, however, could not chase down the moose under these conditions (see Chapter 7). Moose are only restricted in their movement when snow depths exceeded 70 cm (Kelsall and Prescott, 1971; 7). After an unsuccessful moose hunt, caribou were reported to the north of the camp. The camp members went to hunt caribou, ignoring the existence of the moose, even though they knew that the moose were still in the vicinity. However, during the spring, the Chipewyan are able to chase down moose on snowshoes. This is made possible by the formation of crusted layers and lacerate their legs on the sharp edges. The hunters, in contrast, are able to walk on the surface of snow without difficulty. In this case, the snow, and particularly
the formation of the crusted layers, works as a negative factor for the movement of moose and a positive factor for the hunters.

(2) FISH ECOLOGY

Fish are one of the major food supplies for the Hatchet Lake Chipewyan in the summer as well as in the fall. They can be used as emergency food in winter when the caribou migration fails to enter the winter range of the Chipewyan. However, if they are successful in their winter caribou hunt, fishing activity is reduced particularly in the period of late winter when the lake ice becomes thick. In spring, they begin to fish again particularly in areas where the ice has melted and fish gather. Although the Chipewyan seasonal movement in relation to fish ecology is examined in Chapters 5 and 6, a general overview of the fish fauna and ecology in the Wollaston Lake region is provided here. On the basis of the research conducted by the Fisheries Branch, Department of Natural Resources, Province of Saskatchewan (Rawson, 1959), eighteen species of fish have been listed in the Wollaston Lake: Round whitefish (Prosopium cylindraceum); Common whitefish (Coregonus clupeatormis); Ciscoes (Leucichthys sp.); Lake trout (Cristivomer namaycush); Grayling (Thymallus signifer); Longnose sucker (Catostomus catostomus); Common sucker (Catostomus commersoni); Northern pike, or jackfish
(Esox Lucius); Yellow perch (Perca flavescens); Burbot (Lota maculosa); Northern chub (Couesius plumbeus); Spottail minnow (Notropis hudsonius); Lake shiner (Notropis atheri- moides); Ninespine stickback (Pungitius pungitius); Trout perch (Percopsis omiscomaycus); Northern sculpin (Cottus cognatus); Rice's sculpin (Cottus ricei); and Deepwater sculpin (Triglopsis thompsoni) (Ibid., 57-61). Among the fish fauna, the Hatchet Lake Chipewyan mainly use the following six species: round whitefish, common whitefish, lake trout, longnose sucker, common sucker, and northern pike.

For commercial fishing in the summer season, longnose sucker and common sucker are excluded, since they have no commercial value. The fish population is measured by the standard gauge of gill nets consisting of 50 yards each of 1¼, 2, 3, 4, 5, and 5½ inch mesh. The result is that the common whitefish provided the largest catch, 42 per cent of the total. The longnose sucker was next at 25 per cent. Lake trout provided 11.2 per cent of the catch, and pike and pickerel were 2.8 and 5.7 per cent of the average catch, respectively. The average weight per test-net catch was 99 pounds (45 kg) (Ibid., 61). After an examination of fish growth, it is stated that the productivity of Wollaston Lake is low because it is low in minerals, and cold (surface temperature, in 1956, rarely exceeded 15°C in the open lake but went above
$17^\circ$C in the protected bays (bottom temperature in deep water remained as low as $6^\circ$C throughout the summer). Further, the lake has a relatively low plankton crop. It is suggested that the present annual limit for Wollaston Lake of 450,000 pounds (204,000 kg) of trout and 450,000 pounds (204,000 kg) of other fish, which is equivalent to 1.75 pounds (0.79 kg) per acre, could be maintained except for a substantial increase in the limit for whitefish to possibly 650,000 pounds (294,000 kg), which can be justified biologically (Ibid., 72). The average of the annual commercial catch of fish in Wollaston Lake for the period of 1946 to 1957 was within this limit: 221,225 pounds (100,204 kg) whitefish, 297,650 pounds (134,835 kg) trout, and total of other kinds of fish is 534,461 pounds (242,110 kg) (Ibid., 68).

The migration of fish, which is related to their spawning behavior, affects Chipewyan subsistence. In spring, sucker, runs up the small streams lure an aggregation of northern pike, and the latter feeds on the former. The Chipewyan know the particular location of this aggregation of fish, and tend to locate their spring camps in the area. In the fall whitefish move to the shallow sandy-bottomed water to spawn. Similarly trout gather in shallow rocky-bottomed water to spawn. Then the Chipewyan set their fish nets in these area (see Chapter 5). The autumn camp is ideally situated near
the good fishing grounds, since fish is a major food during this season before the caribou appear. Fish ecology, particularly in the open-water period, affects the Chipewyan movement patterns and subsistence activities.
PART III

GROUP STRUCTURE
CHAPTER 4

KINSHIP STRUCTURE

1. KINSHIP TERMINOLOGY

(1) KINSHIP TERMINOLOGY

The Hatchet Lake Chipewyan kinship terminology is shown in Table 4. The characteristics of kinship terminology for ascending, descending, and ego's generation are described as follows.

Ascending generations: Only two terms are used for the relatives of the second ascending generation, 'grandfather' and 'grandmother.' Thus, sex is referred to in the use of the two categories. For the relatives of the first descending generation, ego's parents are distinguished from his brothers and sisters. The term for ego's father is seta, and for ego's mother is ennë, while ego's FB, FZH, MB, MZH are called se?e, and ego's FZ, FBW, MZ, MBW are called sanke. Male relatives on the father's side and mother's side are called by the same term which differs from the term for the female relatives on both father's and mother's side. It should be also noted that ego's father's elder brother (FeB) may be distinguished by the term seleene as opposed to the term se?e which applys to ego's father's younger brother (FyB) and ego's...
mother's brother (MB). An example of actual usage is observed in Chart Ia. Ego, in this Chart, is addressed as sekeene by his younger brother's children, while the same ego is called sepe by ego's sister's children and by ego's elder brother's children. In reply to the term sekeene, either sinya, or selie is used depending on the sex of the person addressed. The term sepe is answered by return of the term saaze. A stepfather is also called sekeene which is different from the term seta, or ego's father. Similarly, stepmother is categorized by the term sanke and is also distinguished from the term sinya, or ego's mother. Therefore, both ego's stepmother and stepfather are distinguishable from ego's original parents in kinship terminology. The term for ego's stepmother is identical with ego's FZ, FBW, MZ, and MBW, but the term for ego's stepfather is different from the term for ego's FB, FZH, MB, and MZH. The affinal relatives in the first ascending generation are called either sepe for WF (mn. sp.) and for HF (wn. sp.), or secon for WM (mn. sp.) and for HM (wn. sp.).

Descending generations:

The second descending generation is grouped by sex: the term sonnaaze is used for 'grandson,' and the term saaraze is applied to 'granddaughter.' For the first descending generation, ego's son is called sinya, and ego's daughter is called selie. When ego is either stepfather, or stepmother
for the addressed person, the terms *singse* and *selie* are also used. The terms are further extended to ego's BS, BD, ZS, and ZD in female speech, but a different kinship term, *saase* is used when addressing these relatives in male speech.

In the example of Chart Ia, however, the male informant extended the terms of *singse* and *selie* to ego's younger brother's children. In this case, ego is reciprocally addressed as *sezeene*, while the term *saase* is paired with the term *sepe*. Ego's SW and ego's DH are different in kinship terminology. The term *saaraze* is used for ego's SW. Ego's DH, however, is addressed by the different terms on the basis of sex of the speaker: *saaze* in male speech and *sonnagaze* in female speech. The term, *saaze*, is identical to the kin term for ego's BS, BD, ZS, and ZD (mn. sp.). The terms of *saaraze* for ego's SW and that of *sonnagaze* (wn. sp.) for ego's DH are, on the other hand, the same as the kinship terms for ego's second descending generation.

**Ego's generation:**

The terms for ego's husband, *senkwe*, and ego's wife, *sečankwe*, are paired, and are generally used in reference only. Four sibling terms are distinguished on the basis of sex and relative age: *sonnagai* for EB; *sečele* for yB; *saare* for yZ; and *sedeze* for y2. For the first cousins, the sibling terms are extended. Beyond the first cousins, the sibling terms are
not extended, but the cousin term *sela* is used exclusively. There is no distinction between cross- and parallel-cousins. Kin terms for affinal relatives in ego's generation are with reference to the sex of the speaker as well as to the sex of the person addressed. The terms for ego's BW (mn. sp.) and ego's WZ (mn. sp.) are identical and differ from the terms for ego's ZH (mn. sp.) and ego's WB (mn. sp.); the former is *secōn*, and the latter *sege*. Ego's BW (wn. sp.) and ego's HZ (wn. sp.) are called by the single term, *sege* which is distinguished from the term *Secai*, ego's ZH (wn. sp.) and ego's HB (wn. sp.). It is noted that ego's HyB may also be termed *sonnagaze* (wn. sp.), while ego's HeB is addressed as *Secai* (wn. sp.).

(2) APPLICATION OF THE KINSHIP AND AFFINAL TERMINOLOGY

The application of the kinship terminology in actual examples is variable. In the following pages, empirical data are provided to examine the consistency and flexibility of kinship terms. Chart Ia shows the kinship terms for relatives given by the male informant. Chart Ib is the same genealogy, but the terms were recorded using a different informant, the female ego. Both informants lived on the southern part of Wollaston Lake, and were categorized as 'southern group of Chipewyan' in the previous chapter. Chart II is the...
application of kinship terms by female ego to her husband’s relatives. The examples of kinship terminology in Chart IIIa were given by a male informant who was adopted by ego’s MM. Chart IIIB is the same genealogy, but the informant was a female ego who was the original mother of the informant in Chart IIIa. Chart II and Chart III were provided by the people of ‘northern group of Chipewyan’ who inhabited the north of Wollaston Lake around Nueltin Lake, Kasba Lake, and Snowbird Lake.

In the usage of kinship terms in Chart Ia, ego applied the term saaze to his BS, BD, ZS, and ZD who were distinguished from ego’s own child. At the same time, however, the informant categorized his yBS and yBD by the same terms as his own children: son, singe, and daughter, selie. This application was not observed among the other examples. It should be noted that in reply to the terms singe and selie, the term sekeene was used to address the informant by his yBS and yBD, though the term is ideally used for stepfather. Therefore, at least in this example, it is pointed at that the singe/selie - sekeene terms applied to the relationships between ego and his younger brother’s children. To the relatives in the second descending generation, ego ideally would use the terms sonnage and saaraze with sex differentiation.
However, the informant was observed adopting the term saaze for some members in the second descending generation. One of the reasons was the newly formed relations with some relatives of the second descending generation; ego was married to the woman who had been ego's eBDHZ. After the marriage, ego's eBDH became sege. Another reason for establishing the saaze-sege relation for the second descending generation was the relative age of ego and the addressed members. The informant, in Chart Ia, addressed some members who were ego's eZ's grandchildren as saaze, while the other younger members of ego's yZ's grandchildren were called grandson, ssonnagaze, or granddaughter, saaraze. As a result, a generation shift from the second descending to the first descending was observed. By this procedure, the informant could also distinguish the third descending generation, preserving the terms of grandchildren for the second descending generation. In Chart Ia, this informant also used a term seceeni, my partner, which connotes a close bond of friendship. The term is reciprocally paired with the same term, seceeni, and mutual cooperation and interdependence would be expected between them. The informant's eZDH was, in the Chart Ia, called seceeni, although he would be addressed by the term saaze in the ideal system. The informant claimed that he used the term seceeni, since they were the same age and the relation resembled a partnership more than the relation of uncle and nephew.
Chart Ib shows the same genealogical relations as Chart Ia, but ego is a female informant, so some different usages of kinship terms appear. The kin terms for the first descending generation, ego's BS, BD, ZS, and ZD, were applied to ego's children. In Chart Ia, the male ego addressed the same relatives either by the term saaze, or singe/selie. The female ego, in Chart Ib, did not use the term saaze, but indiscriminately used the terms singe/selie. These terms were paired with enne for ego's own children and with sanke for the other relatives of the first descending generation. In Chart Ib, the informant addressed ego's eZSW by the term sege, instead of using the term saaraze. The reason was that the person addressed was ego's HZ as well as ego's eZSW, and that the informant used the kinship term for the latter relation. The terms for the second descending generation were either sonnagaaze, grandson, or saaraze, granddaughter, depending on sex, who in turn address ego, (grandmother) as secune.

Chart II represents examples of usage of kinship and affinal terms by a female ego. The informant did not discriminate between ego's children and ego's husband's sibling's children in kinship terms. They were called either singe, son, or selie, daughter. In return, ego's own children used the term enne for her, while the other relatives of the first descending generation called her sanke. The terms for the
second descending generation were either sonagaze, grandson, or saaraze, granddaughter. In ego's generation, the informant termed her husband as senikwe which was replied by the term sečankwe. The term for ego's HZ was sege and for ego's HB was sečai. Ego did not distinguish ego's HB by the relative age of ego's H among his siblings, which differed from the example described in Chart Ia. The term sege was also applied to ego's HBW, and the term sečai for ego's HZH. In Chart II, ego had two possibilities for usage of kinship terms with one of ego's HBW: the term sege would be used ideally, but ego chose the term sedeze, since the addressed person had been adopted by ego's mother's sister and ego continued addressing her by the term sedeze. The flexibility of the kinship and affinal term usage through the process of adoption is described in the examples of Chart IIIa and IIIb in more detail.

Chart IVa shows the kinship terminology used by a male informant who had been adopted by his M's M. The informant distinguished the three different relations to his relatives with application of kinship and affinal terminology, as indicated in Chart IIIa. Prior to his adoption, ego's original mother was called snnr, and ego's original siblings were called by the sibling terminology: sonnagai, elder brother; secele, younger brother; saare, elder sister; and sedeze,
younger sister. The sibling terms were extended to ego's cousins, but the boundary was defined between ego's MM's original children and ego's MM's adopted children. Ego's MM's original children were termed either se, or sanke with reference to sex. However, ego's MM's adopted children, who had grown up with the informant, were categorized by the sibling terms. Ego's MM who adopted the informant was called ᵃⁿⁿⁿᵉ, my mother, and in turn addressed ego as ᵃⁿⁿᵉ, my son. Then, ego's grandmother was categorized as ego's mother in kinship terminology because of the adoption. Ego's MMH was also addressed as ᵃⁿⁿᵉ, my father, who was in turn called him ᵃⁿⁿᵉ, my son.

However, some conflicts of kinship terminology not only used by the informant but also used by the person addressing the informant were observed. By kinship terms, ego had two mothers. So, the informant insisted that he should theoretically address ego's MM as ᵃⁿⁿᵉ, my grandmother, although the ᵃⁿⁿᵉ⁻ˢᵉ ᵃⁿⁿᵉ relation had already been established between ego and ego's MM. The case of addressing ego's stepfather seemed to be simpler, since ego's original father was dead and the term ᵃⁿⁿᵉ applied only to ego's stepfather. In spite of this situation, a conflict was observed; ego gradually categorized his MMH as ᵃⁿⁿᵉ, my grandfather, at least in reference. Ego's MMH still used the term ᵃⁿⁿᵉ for the
informant. Ego's original MBW was called by the term sanke. In return, in order to address the informant, they could use either the term žinge, or ego's HZS (as demonstrated in Chart II), or sečai, ego's HB (as demonstrated both in Chart II and IIIa). Also, in the latter case, the term sonnagaze could be used on the basis of the information in Chart Ia, which was used for ego's HyB. However, in Chart IIIa, the informant was addressed by his personal name without any kinship terms. It should be pointed out here that this procedure of usage of personal name allowed for more flexibility as well as avoiding any conflict by using the improper kinship terminology. It should be noted that in Chart IIIa, ego distinguished a third domain - kinship and affinal relations. Ego's original mother's half sibling was termed sečie, although he was in the first ascending generation. Similarly, his wife was called by the term sećune; and their children were called by their personal names. The informant did not fully exploit the area of this domain from which he was seemingly more detached.

In Chart IIIb, which shows the same genealogy as Chart IIIa, the ego was a female informant. She used the terms žinge, my son, and selie, my daughter for only ego's own children. Ego's sigling's children were called either sonnagaze, my grandson, or saaraze, my granddaughter. Thus, ego did not distinguish the first and second descending
generations in kinship terms except for his own children. It should be also noted that ego still reserved the term *singge*, my son, for her original son who was adopted by ego's mother. The discrimination of the terms between ego's own children and ego's sibling's children by the female informant was not observed in the example of either Chart Ib or Chart II. In order to distinguish ego's sibling's children from ego's own children, the male informant used the term *saaze*, while the female informant used the terms of the second descending generation for this purpose. It is also noted in Chart IIIb that ego used the term *sekeene*, stepfather, which was in turn termed *selie*, my daughter. The informant extended the sibling terminology to ego's half sibling. Thus, ego's mother's former husband's son was called *sonnagai*, my elder brother, which was paired with the term *sedeze*, my younger sister; his wife was addressed as *sege*; and their children were termed either *sonnagaze*, my grandson, or *saaraze*, my granddaughter. Thus, the information which is provided by the examples in Chart Ia, Ib, II, IIIa, and IIIb demonstrates the flexibility in usage of kinship terms.

(3) OTHER KIN-TERMS

Besides the kinship and affinal terminology, the Hatchet Lake Chipewyan also employ a terminology for categories of groups of individuals. In the following pages, this
terminology will be described (Fig. 6).

**Ego's generation:**

The term **acankwe** includes ego and ego's wife, within which the kinship terms **sećankwe** and **sentkwı**, or my wife and my husband would be used. Thus, the term **acankwe** includes neither ego's parents, nor ego's children, and it applies only to the pair: ego and ego's spouse. The kin-term of **ehinakwi** includes ego and ego's siblings, among which the kinship terms **sɔnnagai**, elder brother, **seçełe**, younger brother, **saare**, elder sister, and **sedeze**, younger sister, are used reciprocally. It was noted that both male and female siblings are included in **ehinakwi**, but the spouses of the siblings are excluded from ego's **ehinakwi**. In other words, ego, without reference to sex, remains ego's original **ehinakwi** even after marriage. The **ehinakwi**, is not identified either through male, or female lines; this is strictly a group of ego's siblings who were descended from the same parents, even though **ehinakwi** could include ego's half-siblings. Thus, the **ehinakwi** would be a descent group which is bilaterally extended only to the first ascending generation.

**The ascending and the descending generation:**

In the first ascending generation, the term **setixkwı** is used for ego's parents to which ego employs the kinship terms
seta, my father, and enng, my mother. In turn, for the first descending generation, the term seekene includes ego's children. In Figure 6, ego 1 uses the term setixkwi for his parents, and, in return, ego 3 uses the term seekene for his children including ego 1, and his brother and sister. Ego 1 uses the term seekene for his children including his son, or ego 4, and his daughter. Ego 2, the female ego, utilizes the terms setixkwi for her parents, and seekene for her children. Therefore, both ego 1 and ego 2 could address their children as seekene. Also, it is interesting to note that the category that was called seekene by ego 3 is the identical group that was categorized as ekinaakwi by ego 1. Similarly, the category called by the term setixkwi, or my parents, would be the identical group categorized by the term ekcankwi, when the ego using the former term is one of the children of the speaker who uses the latter term. Thus, in the schematic diagram of kinship genealogy in Figure 6, ego 1 calls his parent by the term setixkwi that would be called ekcankwi by ego 3 who is one of the parents of ego 1. In turn, ego 1 and ego 2, as a group, would be called setixkwi by ego 4, but ego 1 could address the same group by the term ekcankwi.

In the first descending generation, ego distinguishes his own children from sibling's children; the term for the former is seekene, and the term for the latter is saazekwi.
saazekwi includes ego's sibling's children: ego's BS, BD, ZS, and ZD. The kinship term for them is saaze. The informant, who excluded ego's younger brother's children from the relatives who could be termed saaze as described in the previous section, also excluded them from the category of saazekwi. The saazekwi could include ego's wife's sibling's children. The kin-term ekinakwiyaaze is also used in order to group the children of ego's ekinakwi, or ego's sibling's children. The ekinakwiyaaze includes ego's own children as well as ego's sibling's children, since the term ekinakwi covers ego's siblings. Thus, in the example of Figure 6, ego 1 uses the term ekinakwiyaaze in order to address ego's children and ego's sibling's children, and, in return, one of the members of the group of ekinakwiyaaze could identify himself as one of the members of 'his father's (or mother's) ekinakwiyaaze. For example, ego 3 uses the term ekinakwi to address ego and his sister who were descended from the same parents, while ego 3 is one of the members of ego 1's ekinakwiyaaze. At the same time, ego 3 would also be one of the members of ego 2's ekinakwiyaaze. Theoretically, ego is a member of the group which includes both ego's patrilateral and ego's matri-lateral cousins, while ego's father and mother exclude the spouse's sibling's children from his (or her) ekinakwiyaaze. One of the informants drew a circle to represent the ekinakwi.
He then put dots along the inside of the circle line to represent their children. Inside the circle, or the aggregation of the dots, represented the ezinakwiyaaze. The ezinakwiyaaze as well as the ezinakwi are the kinship categories among which mutual reliance and identity of common descent are established, even though the ancestor could go back only to the first ascending generation from ego and to the second generation for the members of ezinakwiyaaze. Within the category of ezinakwi, the siblings cannot marry each other, since, as one of the informants explained, 'be dele ezagai' (his blood is same as the woman's -- they have the same blood). Similarly, ego cannot marry ego's ezinakwiyaaze, or the children of ego's siblings: they also have 'the same blood'. As already described in the section of kinship terminology, the Hatchet Lake Chipewyan extend sibling terminology to ego's first cousins. Thus, the incest includes not only ego's siblings, but also ego's first cousins.

The kin-term ezyaazekwi includes ego, ego's spouse, and ego's children. The term is the one which includes the members from the two different generations. In Figure 6, ego 1 uses the term ezyaazekwi for the group composed of ego 1, ego 2, ego 4 and ego 1's daughter. This is the basic kinship structure which usually forms the domestic unit when
they stay together at the same location, which will be again
described in the Chapter 5. Among the category of e’nyaazekwi,
the parents are called setixkwí by the children who are in
turn termed seekene; the spouses refer to one another as
e’zcankwe, and the children term themselves e’inakwi.

The individuals of the second descending generation, ego’s
children’s children, are termed seeuaze. It seems that the
term of seeuaze is primarily used for ego’s children’s child-
ren, but may also extend to ego’s sibling’s children’s child-
ren. Ego calls them by the terms sonnagaze, grandson, and
saaraze, granddaughter depending on sex, and is in turn
referred to as secie, grandfather, or secune, grandmother
with reference to sex. One informant compared the kinship
and affinal system to the white spruce; the stem is figura-
tively seen as ego’s ascending generation, or parents; one of
the branches as ego and the group of main branches of the
same size as ego as e’inakwi, or ego’s siblings; the twigs
which are attached to one of the main branches represent the
e’inakwiyaae, or ego’s sibling’s children; then, small
needles which came from one of the twigs could be seen as
seeuaze, or ego’s sibling’s children’s children. The kinship
system has developed to include a larger number of indivi-
duals in this method. Besides the terminology for kinship
and affinal groups which were described in the previous pages,
the general term *ekilotine* is used. This term includes the people who would have any kind of kinship and affinal relations with ego. Thus the *ekilotine* would be ego's relatives in general.

2. CHARACTERISTICS OF HATCHET LAKE CHIPEWYAN KINSHIP

In this section, some characteristics of the Hatchet Lake Chipewyan kinship system are described with special reference to: (1) bilaterality, and (2) the flexibility of kinship.

(1) BILATERALITY

For the first ascending generation, ego's father was distinguished from ego's FB, FZH, MB, and MZH. Similarly, the kinship term for ego's mother was different from the term for ego's FZ, FEW, MZ, and MBW. Stepfather and stepmother are strictly categorized by different terms from ego's original mother and father, even though they could address ego indiscriminately as son or daughter. It was also noted that, in some cases, ego could also use the kinship term for stepfather for ego's FeB. However, even in this case, ego clearly distinguished ego's own father by a different term. For the first descending generation, the male ego used the term *saaze* which included ego's sibling's children and ego's spouse's sibling's children, but excluded ego's own son and daughter. In some cases, ego could extend own children's terminology to
ego's younger brother's children. For the second ascending and descending generations, the terms extended laterally without observing a lineal principle. The Hatchet Lake Chipewyan did not show any unilineal descent principle. There was no descent group for ego to be attached to by the rule of either patrilineality, or matrilineality. The discrimination of kinship terminology of ego's parents in the first ascending generation was coincident with the existing category of setixkwi, or ego's parenthood. The kin-term of ežinakwi, which strictly distinguished ego's sibling from the rest of his relatives in ego's generation, could be coincident with the kin-term seekene that was discriminately used by ego's parents in order to segregate their own children from their sibling's children. Thus, it appeared that the kin-term of ežyaazekwi included two other kinship and affinal groups: setixkwi, or parenthood, and seekene, or childhood. From inside the group, setixkwi is called ežcankwe, and seekene is addressed by the term ežinakwi. The ežinakwi, or siblinghood would be continued through life, which is coexistent with the ego's affinal group of ežcankwe. Thus, in ego's generation, the kinship category of ežinakwi becomes of vital importance when ego gets married. The sibling's children, or the children from ežinakwi were addressed as ežnakwiyaaze. Ego, as already described, could be identified bilaterally as a
member of ego's parents, eknakwiyaaze. Thus, the eknakwi, or
the siblingships cross-cuts the categories of ekyyazekwi.
Hatchet Lake Chipewyan kinship is both vertical and horizon-
tal: the former included only two generations to establish
the parenthood-childhood relationship, and the latter includ-
ed the spouse relation and siblingships. The siblingships,
then, could produce the group of siblings' children which
extended horizontally and bilaterally to include ego's chil-
dren. Then, the shallow lineality and the bilaterality of the
Hatchet Lake Chipewyan kinship system rather stressed the
formation of the elementary family and the horizontal kinship
relations.

(2) FLEXIBILITY OF KINSHIP TERMS

As described in the section on the application of kinship
and affinal terminology, individuals had a range of choice
in using the different kinship terms in order to address the
same individuals. In this section, the range of choice and
flexibility will be ascertained and the principle of adjust-
ment will be described.

There are two major factors which enable the people to
have a choice in kinship terminology. One was the variation
of the kinship terminology within itself. And the other
factor was the changes in social relations during an indivi-
dual's lifetime. The objective person could form a new
relation to ego, or ego could change his social relation to other individuals. The variation of kinship and affinal terminology has been described in previous sections on the basis of the empirical examples.

It was clear that the widest range of flexibility in kinship terminology was observed in the use of the terms for the first descending generation. The main issue was whether ego could distinguish sibling's children from his own children by kinship terms. The male ego can use the term saaze for ego's BS, BD, ZS, and ZD, which differed from the term singse, or son and selie, or daughter. The female ego, on the other hand, addressed ego's sibling's children and ego's spouse's sibling's children by the same term as ego's own son and daughter: singse, or son, and selie, or daughter. However, the use of the terms for the second descending generation by the female speaker, sonnagzi, my grandson, saaraze, my granddaughter, was also recorded when she spoke of ego's sibling's children and ego's spouse's sibling's children in order to separate them from ego's own children. Also, one of the male informants was observed to extend the children terminology to ego's sibling's children; ego used the children terminology for ego's yBS and yBD.

The other terminology for the first ascending generation was relatively stable; ego's F and M were always strictly
distinguished from ego's parents' siblings and ego's parents' siblings' spouses. In spite of the wide range of variation for kinship term usage between the two generations, the terminology for ego's M and F, and ego's S and D, appeared to be the most stable. In other words, the kinship terms within the elementary family had the least variation. This was also true for ego's generation; i.e., the terminology for ego's H and W, ego's eB, yB, eZ, yZ, maintained maximum stability. The kin-term of ekinakwi or the siblingships, was another stable group in which the sibling terminology was not changed. Though the sibling terminology extended to ego's cousins and the usage seemed to be stable at present, one of the informants presented the kinship term sela, by which, in this case, ego addressed his WZH. The kinship terminology for the second ascending and descending generations appeared to be stable. There were only secie/secune-sonnagate/soaraze relations between them, or the relations between grandfather/grandmother-grandson/granddaughter, with sex reference. However, the terms comprised a flexibility within themselves; they could be applied to any person of the second ascending and descending generations with each other.

Similarly, the Hatchet Lake Chipewyan used the term seceni, or my partner, which did not necessarily connote any
kinship relations. In the example used in the previous sections, the seceni-seceni relation was formed between individuals born in the same year. The relation had been chosen by the informant instead of using the term saaze. In this case, it should be pointed out that individuals adjusted their relations by using the term seceni, who belonged to different generations on the basis of the kinship relations in spite of their age. In other cases, the term seceni was used to establish new relations between individuals who had no kinship ties, particularly between hunting and trapping partners. The author also formed the seceni-seceni relation with some Chipewyan for subsistence activities in the bush. The relation was, however, temporary. That is, after cancellation of the partnership, the seceni-seceni relation was also dissolved. This temporary partnership relation contributed to the flexibility of the social relation without involving the persons in a lifetime obligation.

Adjustment of the kinship terminology was also observed in the case of divergence between generation and relative age. In the example cited in the previous sections, the informant used the kinship terminology of the first descending generation for some relatives of the second descending generation. They were the informant’s elder sibling’s grandchildren, but their relative age was closer to the first descending
generation of the speaker. Other grandchildren of the informant's siblings were called by the terms of the second descending generation on the basis of the ideal kinship terminology. The relative age between ego and the subject often overcame the generation difference resulting in adjustment of kinship terminology usage.

Changes in kinship and affinal relations during an individual's lifetime could also cause a shift in kinship terminology usage. In the empirical data of the usage of kinship terminology presented in the previous section, the choice of the different terms by the informants for the same object was recorded. One informant began referring to his BD's children as saaze after the marriage of ego's BDHZ. Previously they had maintained the second descending and ascending generation relationship. One of the female informants maintained the siblingships, or sedeze-saa.re relation which had been formed since the adoption of the objective individual by ego's MZ, even after her marriage with ego's HB to from the sege-sege relation. One informant established the saaze-sepe relation with his BD. But the relation was cancelled after the marriage dissolved. In this case, ego stopped using the term saaze with this person, and began instead to address him by his first name. The informant explained the adjustment of the usage of kinship terms in this way, "because the
man left his wife--and he was no longer saaze.' In relation to the dissolution of social relations, it is interesting to note that the preferential second marriage was one which would maintain the kinship and affinal relations which had been established by the original marriage: i.e., the levirate and the sororate, the latter appeared in the genealogical data on Chart Ib.

Adoption was another mechanism by which the individual could obtain a wider range of choice of kinship terms. As demonstrated in the previous section, one of the informants had created different spheres of social relations because of adoption. In fact, the informant participated as a child in two different elementary families. He could see the people from two different standpoints and formed a unique world of kinship and affinal relations characterized by usage of both sets of kinship terms available to him. Ego's adoption by his grandmother eliminated the gap of two generations and formed a new parent-child relationship. As the former example demonstrated, the informant who had been adopted by ego's MM, started addressing ego's stepfather by the term of secie, or my grandfather who had formerly been called by the term of seta, or my father. Also, the informant had two mothers who could be addressed by the term enne, or my mother. The informant did not use any kinship terms for ego's mother's
half siblings though ideally they could be called by the terms sepe, or sanke with reference to sex. In this case, the informant confessed that he did not wish to use the term sepe, since he felt a certain distance from these persons. Thus, the informant by choice used their personal names instead of using any kinship and affinal terms. In turn, the informant himself was also addressed by his personal name. This resulted in some confusion on the part of other members as to which form of address they should use. Usually the personal name could be used for a period of time before a clear relationship had been established. Usage of personal names in the event of such things as adoption, demonstrates again the flexibility of the Chipewyan kinship system.
CHAPTER 5

CHIPEWYAN SUBSISTENCE UNITS

Chipewyan social structure is one of the current topics of interest in anthropology since recent observations have been provided new data for the traditional debate about the band organization of the Northern Athapaskans. On the basis of the theoretical framework of Steward (1936; 1955), Service (1966) and Helm (1961, 1965), four levels of social organization among the Barren Land group of Chipewyan were proposed by J.G.E. Smith (1970, 1975, 1978): regional band, local band, hunting group, and task group. The hunting group was inserted as a level of socio-territorial organization intermediate between Helm's (1968) local band and task group. On the other hand, Sharp (1977) focused on the hunting unit, a restricted cognatic descent group as the basic structure of Chipewyan society. The hunting unit was considered "a cooperative unit concerning itself with jural rights, corporateness, control of marriage, and recruitment. The band appeared as merely an advantageous residential clustering of hunting units that were simultaneously, but not cooperatively, exploiting the environment" (Ibid., 1977, 39).

In this paper the subsistence unit is methodologically distinguished from the structure of kinship. The subsistence
unit arises as a result of the conflict between that structure and the real environment to which the Chipewyan must adapt. The form of the subsistence unit is always subject to change in accordance with various factors. The concept of the subsistence unit can be defined as a methodological tool for the anthropologist, in which the maximum range of adjustment is included. In this paper, the subsistence unit, implies both a structural concept as well as an empirical one. The term hunting unit is used after Sharp (1977). With this terminology, the plasticity of the unit, an aspect of the Chipewyan subsistence unit, can be emphasized without altering the original definition of the term. In this framework, it is possible to reconcile the concept of the hunting unit, with the concept of the hunting group as described by J.G.E. Smith (1970, 1975, 1978) by considering it as an operational model of the hunting unit.

In this paper, the range of adjustment of the hunting unit is clarified in relation to the Chipewyan kinship system. At the maximum, a hunting unit includes all the siblings, their parents, and their spouses and children, in which siblingships (ežinakwi) play a major role in the group's affiliation. One of the siblings could therefore refer to the group as ežinakwi akanaide (my siblings staying together). At the minimum point the hunting unit corresponds to a domestic unit
typically, but not always, composed of an elementary family. One of the parents of a domestic unit could refer to a group of people as *ekaazekwi akitanide* (my children staying together). That operational model of the hunting unit varies within this range which is demonstrated in this chapter on the basis of the empirical data.

The term camp is used as a temporary aggregation of population at the same location, which is theoretically an aggregation of the operational model(s) of the hunting unit. In Chipewyan, *akitaide* means staying together, or if the speaker is excluded from the population, *akitanide*, instead of *akitaide*. The term does not connote any kind of underlying kinship relation. Thus, the anthropological definition of the term camp in this paper corresponds with the Chipewyan concept of *akitaide*.

In the first half of this chapter, the focus is on the domestic unit as one of the basic subsistence units of the Chipewyan. The domestic unit is the basic unit for production and reproduction. In the process of reproduction, offsprings are procreated and raised; in the process of production, food is produced and shared.

A variety of kinship compositions were found in the domestic unit, including partnerships and relations through adoption, but the elementary family was found to be the basis of
composition. Inter-domestic unit relations were clarified on the basis of the data from the summer fishing camps. The inter-domestic unit relations in the summer camps are shown as operational models of the hunting unit. The data for hunting camps came from the information on camps in 1930's by the northern and southern groups of Chipewyan, and the information on contemporary winter camps from some Hatchet Lake Chipewyan in 1975. The plasticity of the hunting unit is shown and interpreted as a mechanism for Chipewyan ecological adjustment. The camp, on the other hand, appeared as a temporary aggregation of hunting unit(s) at the same location. However, we suggest that a camp can be defined as a pool of potential members who could form a male activity group such as a temporary caribou hunting party. A camp does not necessarily have to be a single corporate unit.

1. THE DOMESTIC UNIT

(1) CHIPEWYAN SUMMER CAMPS

In the summer of 1975 8 camps were established in the Wollaston Lake region, each composed of 2 to 9 domestic units (Fig. 7). The characteristics of the Chipewyan summer camps are as follows. The people occupied a common camp site and maintained daily communication. Although the function of the domestic unit was food production and consumption,
food sharing was observed between domestic units when moose meat was available and during food shortages. The following is an example of food sharing at the camp on the island Gabriel be nue. In August of 1975 the people of the camp were suffering from a food shortage since the lake was too rough for fishing. One evening one of the Chipewyan managed to go fishing between storms. As the boat approached the camp people emerged from their tents and gathered on the shore. They pulled the boat up and then simply took the fish from inside the boat. Distribution was effected when each individual, who was the head of a domestic unit, took fish without first asking permission or demonstrating any suppliantatory behavior. In this manner 8 fish out of 14 were distributed to 4 domestic units. Four of the remaining 6 fish were then given to the domestic unit of the fisherman's parents. The catch of one fisherman was consumed by 6 domestic units. It should be noted that reciprocal distribution activities were also observed after this event. One of the people who had taken a fish gathered some dry firewood for cooking the fish for the rest of the people. Later, they also completed hauling the fishing boat to a safe position on the beach. These reciprocal activities were conducted without hesitation among the people at the camp. Also, it should be noted that the one of the members who took part in the sharing was, in reality, a member of a domestic unit of
a different camp and only happened to be present during the
distribution. There was no exclusion of this person from
the consumption of the fish.

When the two camps were in close proximity, frequent visit-
ing and mutual communication were observed. In one case, two
camps were established on the same island Өai nu, but separat-
ed by a small bay. After a successful moose hunt, distribu-
tion of meat was observed between the two camps. In another
example, two camps were established 200 meters part on the
island Gabriel be nue. Frequent visiting between the two
camps was observed. For example, Mass was held in one camp
and all the members of the adjoining camp, except some women
with very young children, joined in. Although religious autho-
rity existed in the camp, there was no leadership in this
matter in the summer camp. Fission and fusion occurred which
resulted in changes in the composition of each camp. There
was no territoriality, or claim for fishing and hunting
grounds by the camp or its domestic units. The people at the
same camp had a common sentiment as temporary residents of
the same location and this provided not only security but also
fostered feelings of mutual interdependence. This issue will
be discussed in more detail in the latter part of this chapter.

(2) THE DOMESTIC UNIT AND INTER-DOMESTIC UNIT RELATIONS

The function of the domestic unit is subsistence;
production and consumption of food by performing daily activities in a common rhythm. A dwelling, or a tent, may be defined as a single habitation. Among 18 domestic units at the summer fishing camp in 1975, 14 units consisted of only one tent. Three domestic units at camp ñai nu, on the other hand, consisted of two tents. The spatial arrangement of the tents in the fish camps in 1975 is shown with the corresponding kinship relations in Figs. 8, 9, 10, 11, and 12.

Six types of internal kinship relations were found among 18 domestic units (Table 5). Eleven out of 18 units were composed of an elementary family; i.e., a group consisting of a father, a mother, and their children (hereafter, EF). In 5 cases, the constitution of the domestic unit was an elementary family plus some other members who had originally come from outside the elementary family; in 3 cases the extra members were functionally fishing partners (type EF + FP). In one case, the extra member had been adopted (type EF + AD); and in another case, the members included both a fishing partner and an adopted child (type EF + FP + AD). One example of the 18 domestic units was composed of a widow plus an unmarried child, a fishing partner, and an adopted child (type WD + UC + FP + AD). In this case, the widow, her unmarried children, and her new companion formed a unit. The domestic unit had formed a compound family
(type CF); i.e., a group formed by the remarriage of a widow having children by a former marriage. The kinship relation of the fishing partner to the elementary family which formed the core of the domestic unit are also examined. The kinship relations to fishing partners are ego's (widow) BS; ego's (F) FBS; ego's (F) B. Two cases were found in which there was no kinship relation between the elementary family and the fishing partner. The kinship relations of adopted children to the elementary family are described in Table 5: ego's (widow) DD; ego's (F) SDD; ego's (F) W2D.

The following is an examination of the kinship relations between the domestic units which formed a camp. Four types of kinship relations were found between domestic units in this case and were classified as Type A, a relation between the members of the first ascending and descending generations; Type B, a bond between the members of ego's generation. Type A is further classified into two subtypes: Type Aa is a kinship relation within an elementary family, and type Ab is that beyond the elementary family. Type B also has 2 different subcategories: Type Ba is a kinship relation within an elementary family, and type Bb is that beyond the elementary family. It is also noted that a domestic unit without any kinship relations to the other domestic units in the same camp was observed, which was classified as type 0 (Fig. 13).
As described in the previous chapter, the kinship relation of type Aa is parenthood. Type Ba is siblingship; that is, the members belong to the kinship category of ekina\={k}wi. Both types Aa and Ba were originally established in an elementary family and still continued to exist after the children developed their own domestic units. The kinship relation of type Ab is the relation between ego and ego's sibling's children, or ego's ekina\={k}wiya\={a}ze. Type Bb is the relation between ego and ego's parents' siblings' children, or first cousins. Here, both ego and ego's parents' siblings' children belonged to ego's parents' ekina\={k}wiya\={a}ze.

Among the 18 domestic units which formed 8 camps during the summer fishing season, 10 inter-domestic kinship relations were observed, of which 4 cases were classified as type Aa, 3 as type Ab, 1 as type Ba, and 2 as type Bb. One domestic unit had no kinship relation to the other units, which was then categorized as type 0 (Table 6). Among the 4 cases of type Aa, 3 cases were revealed as the kinship relation between father (ego) and ego's son's family, and one case was revealed as the relation between a widow (ego) and ego's son's family. In the case of type Aa, it is noted that the kinship relations among siblings as well as parenthood could be observed at the same time, since the parent's domestic unit also included some unmarried children who were the
siblings of another domestic unit. As far as the observation in the fish camp in 1975 is concerned, there was no example of type Aa between father (ego) and ego's daughter's family. The kinship relation of type Ab included either father (ego) and ego's brother's son's family, or the relation between father (ego) and ego's brother's daughter's family. In the case of type Ba, the relation between father (ego) and ego's sister's family was found. In the last, type Bb included one example of kinship relation between father (ego) and ego's father's brother's daughter's family, and another example of the relation between father (ego) and ego's father's brother's son's family.

It should be noted that in 7 out of 10 inter-domestic unit kinship relations, the relation was formed between only two domestic units, though another example showed that the three domestic units were related to each other. As described before, one domestic unit had no kinship relation within the camp. In this case, however, type Aa relation and type Ba relations existed with two other domestic units at a different camp. Further, fishing partnerships were formed on the basis of one of the kinship relations described: 5 cases out of 10 kinship relations were at the same time fishing partnerships, although in 6 examples, there was no fishing partnership between the two domestic units.
As pointed out in the last section, a characteristic of the camp is the fission and fusion of domestic units. In the process of rearrangement of the camps some inter-domestic unit relations are relatively stable. The data show that the 5 pairs of domestic units maintained close association throughout the summer fishing season, although the other 5 pairs of domestic units separated when they changed the location of the camps. In the former cases, 3 pairs of domestic units maintained fishing partnerships between the units, but the other 2 pairs of domestic units kept close association without fishing partnerships. In 5 examples of the latter, one case showed that the fishing partnership had been dissolved between the domestic units; 3 cases demonstrated that either one of domestic units, or both of domestic units of the pair had returned to the central post (Wollaston Lake settlement). In one case it was observed that once they returned to the central post they established a new fishing partnership. Inter-domestic unit relations with reference to the hunting unit will be described in the next section using the data on the winter caribou hunting camps.

2. THE HUNTING UNIT

In this section, the Chipewyan hunting unit is viewed as level of the subsistence unit between the domestic unit and
The data came from the information on the winter camps in 1930's and in 1975. The former includes examples of several winter camps around Kasba Lake in the District of Keewatin, Northwest Territories; that is, the territory exploited at that time by the northern group of Chipewyan. The examples of winter camps on Wollaston Lake where the southern group of Chipewyan stayed in the 1930's are also provided. Then, two cases of contemporary winter caribou hunting camps of Hatchet Lake Chipewyan in 1975 are described. At one of the winter camps, the present author conducted an intensive investigation using direct observation and active participation.

(1) CHIPEWYAN WINTER CAMPS IN 1930'S

(i) Northern group of Chipewyan

As described in the section on settlement patterns in Chapter 2, the northern group of Chipewyan exploited the Nueltin Lake region, Snowbird Lake, and Kasba Lake in the early twentieth century. In this section, the kinship relations of the Chipewyan at their winter camps are described.

In the fall of ca. 1930, a group of Chipewyan left Nueltin Lake for the northern fringe of Wollaston Lake. They went westward along the Cochrane River in canoes and set up a fall camp at the location called karkaze. They successfully
fished and hunted in the area, both fish and small game being abundant at that time. The camp \textit{kaikaze} was composed of 4 domestic units: one of them occupied two tents, though the other 3 domestic units lived in one tent each. The kinship relations in a domestic unit and between the domestic units are shown in Fig. 14. The kinship relation within each of the three domestic units was an elementary family, but one domestic unit was composed of a widow (ego) plus ego's son's family. Two domestic units at the camp were related through kinship; a man (ego) and ego's brother's son's family. Since the man had adopted his brother's son after the death of his brother the inter-domestic relation could be also seen as an adopted father and son relation.

After 'freeze-up,' the camp, \textit{kaikaze}, split up into two parts: one was composed of the domestic units 101, 102, and 103, and the other was the domestic unit 104. The domestic units 101, 102, and 103 moved north to set up a winter camp at Phelps Lake, but domestic unit 104 built a log cabin near the fall camp and spent the winter there. The members of domestic unit 104 stayed together in an abode. At Phelps Lake, the three domestic units each had one tent. They conducted winter caribou hunting in the area. Then, in late winter, or before the 'break-up' of the domestic units 101 and 102 left the camp at Phelps Lake to go to Black Lake,
while the domestic unit 103 moved to Brochet in Manitoba. At Black Lake they sold pelts obtained by trapping. They also received treaty money at the Stony Rapids post, which is given to the treaty Indian by the Federal Government in the summer.

In late summer, domestic unit 101 was a part of a group of Chipewyan who went north to Snowbird Lake from Black Lake in order to conduct fall caribou hunting. Domestic unit 102, on the other hand, moved north to Wholdaia Lake from Black Lake also in search of caribou. In the area of Kasba Lake, there were three winter camps established in that year: camp Ta tue (camp-T), camp Tabani tue (camp-N), and camp Te ċo nilini desi če (camp-D). In each camp, the residents had a successful fall caribou hunt, and made winter camps near the hunting ground. The fall caribou hunt was a communal hunt conducted by a male hunting party. At Ta tue, five canoes were employed to surround and spear the caribou herd swimming across the narrows of the lake. The four canoes approached the caribou herd when the animals were well out in the lake. The Chipewyan in the canoes compressed the caribou herd from both sides using two canoes for each side without disturbing the front of the swimming herd. At the same time, more Chipewyan hunters in another canoe approached the herd to spear the front of the herd. Each canoe was occupied by
two Chipewyan hunters, one spearing and the other paddling. The hunters in the four canoes also speared and blocked the escaping caribou on both sides of the herd. They also kept the animals from turning back to the shore. After killing the caribou they were towed to shore with a rope. Using this communal hunting method, the informant estimated that they harvested ca. 200 animals in each hunt, and that they conducted ca. 10 such hunting excursions in a year. As a result, they could hunt ca. 2,000 animals in the fall caribou hunt. Since there were 12 domestic units at the camp Ta tue, the average caribou usage per domestic unit was ca. 167 animals. In the fall when caribou are hunted, they lived in canvas tents. Then, for winter, they constructed log cabins near the autumn camp.

The domestic units and kinship relations among the members of the winter camps Ta tue, Tabani tue, and Te čo nilini desi če are shown in Fig. 15 and Fig. 16. In Fig. 16, it is noted that the kinship relations extended to other camps. Three cases of siblingship between domestic units at camp-T and camp-N, between domestic units at camp-T and camp-D, and between domestic units at camp-N and camp-D. In the first case, the parent-child relation was also found between the domestic units at camp-T and camp-N. A more detailed description of the inter-domestic unit relations in the camps
appears later in this section. On the genealogical charts, the location of persons absent from the camps is also noted. Some people stayed at Stony Rapids, the east end of Lake Athabasca, and other people stayed at Carai tue on the southwestern part of the Nueltin Lake region. In Fig. 16, the members of camp-N and camp-D, who had no kinship relation to the other camps, are shown. But, it should be noted that the members indicated in Fig. 15 also appeared in these camps.

On the basis of the genealogical data, the kinship composition and population size of each domestic unit were examined (Table 7). Among the 24 domestic units in the three winter camps, the kinship relation of each domestic unit was revealed as follows: 5 cases of a conjugal pair (PR); 16 cases of an elementary family (EF); 1 case of compound family (CF); and two cases of a widow plus her unmarried children (WD + UC). The conjugal pair could be formed by two processes; parents whose children had left the natal domestic unit, or a pair who established a new domestic unit by marriage but had not yet produced any offspring. In the case of 5 examples of conjugal pairs in the winter camps, 3 cases were revealed as a result of the former process, but 2 cases were established by the latter process. It should be noted that the 2 examples of the conjugal pair maintained their kinship relation to their children's domestic units (parenthood) in
the same winter camp. In one example, the parenthood of the conjugal pair extended to another camp as well as in the same camp (the domestic unit T-108 at camp Ta tue). The dominant kinship composition of the domestic unit was the elementary family which is a group consisting of a father, a mother, and their children. In camp-N, however, one case of the compound family in a domestic unit was observed: a production of the second marriage of a widower with a child by a former marriage. Finally, 2 cases of kinship composition of a widow plus her unmarried children which formed a domestic unit were found. It was noted that, in those days, the adult woman could participate in fishing and even caribou hunting in order to provide for her children. However, it is thought that in these cases, the widows' unmarried children who were, in reality, young boys could join the caribou hunt with the other adult male members of the camp and could also share in the catch. Each domestic unit in the three winter camps had its own abode. However, domestic unit T-106 and T-107 at camp-T had a joint log cabin with a shared wall. It is also noted that domestic unit T-103 at camp-T was dissolved after the death of two members of the unit, and joined the domestic unit T-102. As a result, the number of domestic units at camp-T was reduced from 12 to 11, and the population dropped from 41 to 39.
On the basis of the data on the three Chipewyan winter camps in ca. 1930, the inter-domestic unit kinship relations were examined (Table 8). Among the 24 domestic units, 6 domestic units had no kinship relation to the other domestic units. In the rest of the domestic units, 18 inter-domestic unit relations were found. The types of relations were either parent-child relation (Aa), or siblingship (Ba). Within a camp, 7 cases of parenthood were observed, in which one case was the relation between a mother and her son's family (M-S); and 6 cases in which the relation was a father and his daughter's family (F-D). The relation between a mother and her son's family also included the affinal relation between a stepfather and his son's family. The relation between a father and his daughter's family also included the kinship relation between a mother and her daughter's family, since both parents were still alive. Between the different camps, one case of mother-son relation (M-S) was found. Siblingships (Ba) within a camp were observed in 7 cases: 3 cases of kinship relation between brothers (B-B); 2 cases of kinship relation between sisters (Z-Z); and 2 cases of kinship relation between brother and sister. Between the different camps, 3 cases of siblingship were found: 2 cases of the kinship relation between brothers (B-B); and one case of the kinship relation between brother and sister (B-Z). On the basis of the
data presented here, it may be seen that the basic inter-
domestic unit kinship relations were both parenthood and
siblingships, which originated from the elementary family
but also extended to the other domestic units in the process
of development of the domestic unit. Among the parenthood
(Aa) between the different domestic units, the kinship rela-
tion between father and his daughter's family (F-D) was the
major type. Among the siblingship (Ba), the kinship relation
between brothers (B-B), kinship relation between sisters
(Z-Z), and kinship relation between brother and sister (B-Z)
were all observed. Lastly it should be noted that the paren-
thood (Aa) and siblingship (Ba) were both observed not only
within a camp, but also between different camps.

The Chipewyan camp and its population and the number of
domestic units in each camp are examined in Table 9. The
number of domestic units per camp varied from one to 12, and
the population of a camp ranged from 4 to 41. However, it is
noted that the camp kaikaze (no. 1) was the fall camp even in
the event that there was no caribou hunt. The camp at Phelps
Lake (no. 2) and camp kaikaze (no. 3) were established after
'freeze-up,' and these two camps were the result of a fission
of camp kaikaze (no. 1). On the other hand, the three
Chipewyan winter camps: camp Ta tue (no. 4), camp Tabani tue
(no. 5), and camp Te čo nilini desi če (no. 6), were made
after the successful fall caribou hunt. Basically, these three camps were the early winter camps. Finally, the three winter camps were dissolved. The informant recalled that they could not find many caribou in the area in late winter, since the caribou dispersed into small herds and migrated south into the forest. The two domestic units at camp Ta
tué left the camp and went south to Patuanâk which was the Chipewyan settlement on the English River drainage, since one of the wives of the domestic units had relatives at the settlement. Some domestic units, then, went eastward to the Nuelhin Lake region, and the other domestic units moved south to Phelps Lake where they could find caribou. Usually in late winter, the camp would split up into small domestic units to follow the dispersed caribou herds into the forest.

On the basis of this kind of information, it is concluded that the Chipewyan camp is not a permanent unit, but rather one that responds to seasonal changes of the environment.

(ii) Southern group of Chipewyan

As described in the section on the historical background of Hatchet Lake Chipewyan in Chapter 2, this region of Wollaston Lake was the home ground for the southern group of Chipewyan. On the basis of the data on the winter camps in the years from 1934 to 1939 with the kinship relations among
the members of the camps; the process of the dissolution of a hunting unit is described in this section (Fig. 17).

In 1934, a winter camp was established at the mouth of Compulsion River, or Nanka tue desi če, on the southern fringe of Wollaston Lake. The camp was composed of three domestic units and each unit had its own abode. The kinship relation in each domestic unit was the elementary family and the inter-domestic unit relations were parenthood and sibling-ships which had developed from an original domestic unit of A-101. The establishment of domestic unit A-102 through marriage was in 1925. Domestic unit A-104 was formed in 1930 and the domestic unit A-103 was founded in 1932. Domestic unit A-101 was composed of parents and their unmarried children in 1934. At the camp Nanka tue desi če, the people succeeded in hunting moose, but not caribou in the fall of 1934. The informant claimed that they managed to kill over 20 moose during the fall season, which constituted the major portion of the winter food supply. In late winter, they could also hunt caribou which usually penetrated into the area at that time of year. The subsistence base for wintering on the southern part of Wollaston Lake was both caribou and moose. The informant could also recall that there were plenty of fish in the area. In the spring, they moved to the trading post at Reindeer Lake.
In the winters of 1935 and 1936, the camps were again set up in the Wollaston Lake region. This time, the camp was on the eastern shore of Wollaston Lake. The domestic unit A-102 joined the camp. Prior to setting up the winter camp, they had succeeded in hunting caribou in the fall. On the narrows between a small island and the eastern shore of Wollaston Lake, a caribou herd of ca. 100 animals had been killed, according to the informant. At the camp the other two domestic units also stayed together. It is noted that siblingship or cousinship existed between the domestic unit A-101 and A-105, since the head of each domestic unit was called by the term elder or younger brother. The domestic unit A-106, however, was composed of Cree Indians. The informant claimed that there could be an affinal relation between domestic unit A-105 and A-106, since a former marriage of a member of domestic unit A-105 had been to a Cree man.

The death of certain members of domestic units A-102 and A-101 occurred in the years of 1935 and 1936 respectively. Also, in 1936, a member of domestic unit A-104 died, causing the group to dissolve. Only a member of domestic unit A-101 and a member of domestic unit A-104 joined together as partners in order to conduct winter trapping and caribou hunting in the Wollaston Lake region. Their base was the southern shore of Wollaston Lake for the winter of 1937 and on the
western shore of Wollaston Lake for the winters of 1938 and 1939. The rest of the people stayed at Swan Bay on Reindeer Lake near the trading post without establishing any winter camp for caribou hunting. The data presented here demonstrates the process of reduction of the Chipewyan hunting unit by the death of members of the unit. It is pointed out, however, that the constitution of the hunting unit was based on kinship relations among the domestic units, A-101, A-102, A-103, and A-104 through parenthood and siblingships. Discussion on the hunting unit appears later in this chapter.

(2) CHIPEWYAN WINTER CAMPS IN 1975

As described in the historical background section in Chapter 2, there was a growing tendency among the contemporary Hatchet Lake Chipewyan towards sedentary life. However, some Chipewyan still continued to make winter camps in the bush where they depended on caribou as a staple food source. In the winter of 1975, two winter camps were established: one was called camp Zuzaze and was located on the west bank of Cochrane River, north of Wollaston Lake, and the other was called camp Desi ce which was set up on Kendel Island at the mouth of the Cochrane River. Although the winter activities of these camps will be described later in Part IV, the kinship relations and the subsistence unit of the camp are examined in this section.
(i) Winter camp *zuzaze*

On the west bank of Cochrane River, 75 air-km north of the Wollaston Lake settlement, the winter camp *zuzaze* existed from the end of September of 1975 to March of 1976. Three domestic units were observed in the camp, each of which maintained a log cabin. The kinship and affinal relations among the members of the domestic units are shown in Fig. 18. And the plan of the camp is shown in Fig. 19. The genealogical chart appeared in the previous chapter as an example of the operation of the kinship terminology. In this section, however, the domestic unit as a Chipewyan subsistence unit is shown on the chart. Some visiting members of the camp who had kinship relations to the other domestic units were considered as the members of the hunting unit. Trapping partnerships between the members of the camp are also indicated by squares around the individuals' marks and a solid line between them.

The process of establishment of the winter camp *zuzaze* was as follows. In the winter of 1974-75, prior to the winter camp in 1975-76, the three domestic units Z-101, Z-102, and Z-103 had made a winter camp. Two domestic units, Z-101 and Z-102, had each constructed log cabins, but the domestic unit Z-103 lived in a tent throughout the winter. For the winter of 1975-76, the domestic units Z-101 and Z-103 planned
to spend the winter at the same camp site. The wife of the domestic unit Z-102, however, did not want to join the winter camp this time, since the winter activities were too arduous for her. She expressed her reason for nonparticipation to the anthropologist (author) as 'her laziness'. Instead, she remained at the Wollaston Lake settlement with her children. Her husband postponed making the decision to join the winter camp for some time. By the end of September of 1975, only the members of the domestic units Z-101 and Z-103 (and the author) prepared for the seasonal movement to the north. In October of 1975, the canoe travel began with all the members of the domestic units Z-101 and Z-103. They set up a temporary fall camp near the winter camp. At the fall camp, they shared a tent for a few days. After they had checked and repaired some damage to parts of the two log cabins at the winter camp, they moved into the camp in the middle of October, 1975. The domestic unit Z-101 used the same cabin they had used for the previous winter. And the domestic unit Z-103 moved into the cabin which had been constructed by the domestic unit Z-102 in the previous winter, since they thought that the domestic unit Z-102 would not join the camp this time. However, when the two members came back to the Wollaston Lake settlement in order to purchase some additional supplies, the husband of domestic unit Z-102 decided
to join the winter camp without his wife and children. As a temporary arrangement, he moved into the cabin of domestic unit Z-101, since his cabin had been occupied by the domestic unit Z-103. Then, the residents of the camp constructed a log cabin for domestic unit Z-103 which was completed by the end of October. Then, the domestic unit Z-103 moved into the new abode, and the husband of domestic unit Z-102 occupied his original cabin. For the rest of the winter, each domestic unit used its own abode.

Before the examination of the interrelationships between the members of camp uzaze and the subsistence unit and its boundary, the kinship and affinal relations of the members should be described. The domestic unit Z-101 was composed of a conjugal pair and their adopted children. The domestic unit Z-102 in the winter of 1974-75 was composed of an elementary family, a father, a mother, and their three children. However, for the winter of 1975-76, only the husband joined the camp leaving the rest of his family at the Wollaston Lake settlement. Domestic unit Z-103 was composed of an elementary family, a father, a mother, and their child. It should be noted here that the author participated as a member of domestic unit Z-103 through establishment of a partnership with the husband of domestic unit Z-103. Among the members of the domestic unit Z-101, the two adopted children came
from the adopted mother's grandchildren. One of the adopted children, in reality, originated from domestic unit Z-103. It is also noted that the wife of domestic unit Z-102 had originally been raised by the mother of domestic unit Z-101 as a result of adoption. Thus, there were no real kinship relations between the members of domestic unit Z-102 and the rest of the members of the genealogical chart. They were only attached to the other members through a fictional relationship. In contrast, the inter-domestic unit kinship relation between domestic unit Z-101 and Z-103 was one of real parenthood, the relation between a mother and her son. But the father of domestic unit Z-101 was not the real father of the husband of domestic unit Z-103, but he was a stepfather, his mother's husband in the second marriage. The inter-domestic unit kinship relation between domestic unit Z-102 and Z-103 was siblingship, but, in this case, it was also a fictional relation because of adoption.

The background of kinship and affinal relations described above affected interrelationships among the members of camp juzaze. It especially appeared in the relationship between the husband of domestic unit Z-102 and the rest of the members. In reality, it could be said that the husband of domestic unit Z-102 was excluded by the rest of the members of the camp as a cooperative member of the hunting unit for the
winter of 1975-76. In the rest of this section, this process of the exclusion and the boundary of the hunting unit will be examined.

The members of domestic units Z-101 and Z-103 were critical of the behavior of the husband of domestic unit Z-102. Since he had joined the camp late, he had not helped with transportation of household goods. In fact, he had no canoe and he and his household goods had to be transported in the canoes of domestic units Z-101 and Z-103. By joining the winter camp and leaving the rest of his family at the Wollaston Lake settlement, he was, in their view, ignoring his responsibilities as head of domestic unit Z-102. The man took his dog-team to the camp for trapping, but since he had no fishing net he could not catch fish to feed his dogs and so depended on the other members of the group to supply dogs with fish. In reality, he had asked to be the fishing partner of the husband of domestic unit Z-103, and later he managed to borrow a net from domestic unit Z-101. For trapping, he had a quasi-trapping partnership with the husband of domestic unit Z-103. But the trapping activity was not really of a cooperative nature. They set their own traps in different spots, and the catch was strictly the property of each trapper, even though the travelling routes for trapping often overlapped. The quasi-cooperative arrangement, however,
provided security for the trappers in case of emergency. This also provided the extra convenience of sharing a fire during a meal stop, which was prepared by one of the trappers who would travel ahead of the other trapper. In fact, the husband of domestic unit Z-103 had to make a fire for another trapper, since his dog-team ran faster than the dog-team of the man of domestic unit Z-102. There was always a feeling by the husband of domestic unit Z-103 that the other depended on him. On one occasion, during the first trapping excursion, the man of domestic unit Z-102 followed the husband of domestic unit Z-103 with his dog-team immediately after the former had left the camp. The man of domestic unit Z-102 declared publicly that the other trapper might set traps at all the good spots, leaving none for him. After the two trappers left the winter camp, criticism against the man of domestic unit Z-102 was observed. In reality, the criticism was against the public statement by the man of domestic unit Z-102 concerning his lack of faith in the other trapper. The head of domestic unit Z-101 said that the behavior of the man was not appropriate for a trapper.

The degree of exclusion of this man by the cooperative members from the unit of subsistence increased as time passed. At the beginning when the man was temporarily staying with domestic unit Z-101, he contributed by hunting porcupines and
brought meat to the camp, which had been shared among the members of domestic units Z-101 and Z-103. The man joined all meals at domestic unit Z-101. The wife of domestic unit Z-101, the stepmother of the man of domestic unit Z-102, made a canvas toboggan bag for him. He was temporarily a member of domestic unit Z-101 as a unit for production and consumption. The situation changed after he moved into his original abode. The rest of the members of the camp did not consider the man as a member of their domestic units. The man had his own domestic unit but it was not self-sufficient without his wife at the camp. A subsistence unit can only be maintained through the division of necessary activities for wintering subsistence, especially between male and female members of the unit. The rest of the members at the camp excluded him from their domestic units in order to avoid his dependency on their domestic units. This was basically the boundary between the domestic units. Without the existence of a self-sufficient domestic unit the man was also excluded from being a member of the larger cooperative subsistence unit, the Chipewyan hunting unit. The hunting unit could not provide the every day subsistence of one man, since this was the function of the domestic unit. A boundary was drawn between the man and the rest of the members of the camp. The man had his own abode and as such was a resident of the
camp, but he was not a member of the cooperative unit. The exclusion appeared in all aspects of daily life. The people ignored his existence when he came into the log cabins of the other domestic units. So he could not participate in the sharing, distribution, or consumption of the food. On one occasion, the man tried to join a meal which had been prepared for the members of domestic units Z-101 and Z-103. When he asked for a plate, his request was rejected by one of the members of domestic unit Z-101 'because they lacked a plate'. But, a plate was later given to a member of domestic unit Z-103 who came for the meal.

The other members of the camp 3uzaze, however, did not deny his participation in the Sunday Mass which was conducted by the head of domestic unit Z-101. After the Mass, they had a small feast in which all the members at the camp shared a meal. The husband of domestic unit Z-103 allowed him to take some caribou meat when he ran out of meat. The man had to also take some dry caribou meat from domestic unit Z-103, which the wife had processed, and was necessary to carry as provision for the hunting and trapping trips. But, in these cases, the distribution of food was minimal and was always on the basis of negative reciprocity. The man came into the abode and watched the people without meaningful conversation. Then he took some provisions from the cache of meat and left.
There was neither asking nor a reciprocal exchange, and the people of the abode ignored him. The minimum level of reciprocity, including the sharing of food in a case of food shortage, would be extended to the members of a camp beyond the boundary of hunting unit. However, any degree of cooperative activity between the man and the other members of the camp was not formed, although cooperation and division of labour were observed between the members of domestic unit 2-101 and 2-103 which will be further discussed later in Part IV. In the latter half of the winter, February to March of 1976, the man withdrew from camp 3uzaze and returned to the Wollaston Lake settlement, rejoining his domestic unit. There are various reasons for the exclusion of this man by the members of the cooperative unit at the camp. In addition to his kinship background lack of a domestic unit, his ethnic background was a half-breed Chipewyan and Cree. The Cree, as described in Chapter 2, were always seen as the enemy by the Chipewyan. In short, the other members of the hunting unit completely lost faith in this man.

In contrast to the exclusion from the membership of a hunting unit as described above, inclusion of visiting members to the hunting unit was observed. There were five visiting members to camp 3uzaze, who are indicated on the genealogical chart in Fig. 18. All had kinship relations with the
members of the hunting unit at the camp. One member of domestic unit Z-104 and two members of domestic unit Z-105 stayed at the abode of domestic unit Z-101 at the camp. One member, who was originally a member of domestic unit Z-105 but was adopted by another domestic unit, was also observed staying with domestic unit Z-101. The rest of the members of domestic units Z-104 and Z-105 remained at the Wollaston Lake settlement since they had children who had to attend school. Otherwise, they might have joined the winter camp. In reality, they had a strong feeling of affiliation with the people at the camp. Another visiting member was a single male who was the third son of the mother of domestic unit Z-101. He had no wife, although he was a good hunter and trapper who operated his own dog-team. From January to March of 1976, he established a trapping partnership with the husband of domestic unit Z-103. He stayed at the abode of domestic unit Z-103 and participated in activities as a member of the unit. The visiting members from the domestic units Z-104 and Z-105 used the camp as a temporary home base for their winter trapping and hunting activities. They also supported their own domestic units at the Wollaston Lake settlement. After a successful caribou hunt, they were observed transporting caribou meat on their dog-teams to the settlement.
On the basis of the data presented here, it may be said that the hunting unit could ideally include more members than those who were empirically observed at the camp 3uzaze in 1975. Not only the members of domestic units Z-101 and Z-103, but also the members of domestic units Z-102, Z-104, and Z-105 could form a hunting unit. However, because of various reasons, some people were excluded from the unit and some people joined to the unit only as partial members of their own domestic units. Thus, it should be pointed out here that the hunting unit at camp 3uzaze in 1975 was an operational model, which was a result of the Chipewyan adjustment to economic and environmental realities. A further description of the plasticity of the hunting unit, in ideal and operational models, particularly on the basis of seasonal change, will be discussed in the last section of this chapter.

(ii) Winter camp Desi če

Another winter camp was set up by the contemporary Hatchet Lake Chipewyan in the winter of 1975. This camp was called Desi če and was located on Kendel Island at the mouth of the Cochrane River, 45 air-km north of the Wollaston Lake settlement. Although the information on this camp is based on indirect observation, the process of fission at the camp could be documented.
The kinship and affinal relations among the members of camp Desi Ye are shown in Fig. 20. Three domestic units were distinguished, E-101, E-102, and E-103. Domestic unit E-101 was composed of a widower, his sons, and his son's family. It was observed at the summer camp in 1975 that the widower's son's family lived as a domestic unit. However, in the winter camp, a widower and his two sons joined to form a domestic unit. One of the sons was not married, and the other was married, but the latter did not stay with his wife joined the domestic unit by himself. Thus, the kinship relations in the domestic unit were parenthood and siblingships. The widower had a trapping partnership with his unmarried son. However, the widower's third son, who was the husband of his own elementary family, trapped by himself. Domestic unit E-102 was a compound family which was formed by the second marriage of the woman who was accompanied by some of her children from her first marriage. The domestic unit E-103 was composed of an elementary family, or a father, a mother, and their children. One of their children, however, did not live with them, since she attended the boarding school in Prince Albert. The members of the domestic units E-102 and E-103 lived in a single tent at camp Desi Ye.

Because there was no precise information on the matter of food production and consumption among the members of the
domestic units E-102 and E-103, it is difficult to clarify the boundary of the domestic units. However, I think that the situation could be a temporal aggregation of the two different domestic units in a single abode, since the observation of the fall camp (before the winter camp 3uzaze) was similar to this situation. At the fall camp, as described in the last section, the domestic units 2-101 and 2-103 temporarily shared a tent. There was cooperation in housekeeping, but the male members of each domestic unit set their own fishing nets and the catch belonged to each fisherman and was used to feed the dogs of his own domestic unit. Particularly in the overnight camps during the seasonal movement as well as in winter, it would be convenient to share a tent to reduce the necessary housekeeping to a minimum. But even in these cases, the boundary of the domestic unit would be maintained. The inter-domestic unit kinship relation existed only between the domestic units E-101 and E-102. There was a kinship relation between the members of the domestic units E-101 and E-102. Actually, at the summer camp Gai nu, the husband of domestic unit E-102 established a fishing partnership with his cousin's husband in domestic unit E-101, which was described in the previous section in this chapter. At the winter camp Desi ce, however, their partnership was dissolved.
The process of the fission of camp Desi če may be described as follows. The domestic units E-101, E-102, and E-103 set up their winter camp in October of 1975. After the 'freeze-up', they started trapping with their dog-teams in November, but there were no caribou migration to the area. One of the members of domestic unit E-101 joined a hunting party going north in search of caribou. The hunting party visited the camp Zuzaze in November and went further north with the additional male members of domestic units of Z-101, Z-102, and Z-103 from camp Zuzaze. One person from camp Desi če, however, had trouble with his transportation and temporarily stayed at camp Zuzaze. He returned to camp Desi če in the middle of November without any caribou. The members of camp Desi če were short of food. Camp Desi če then split into two parts; domestic unit E-101 formed one part and domestic units E-102 and E-103 the other. The former domestic unit moved 3 air-km north of the original camp on Kendel Island and the latter domestic units remained at the same site of camp Desi če. It should be noted that, prior to the fission of the camp, there were a few visits by hunting parties from the Wollaston Lake settlement. The members of the hunting parties who were all male, not only occupied the abodes when they stayed at the camp, but also had parties and made home brew from yeast and raisins which they had brought
The caribou meat, however, was transported to each hunter's domestic unit at the Wollaston Lake settlement and was not shared with the members of camp Desi Ce. When they were experiencing a shortage of caribou meat at camp Desi Ce, the residents at the camp would have difficulty maintaining even their own subsistence. The members of the domestic units at the camp said that they suffered from the drinking parties which they really did not want to have. One of the persons who took the initiative for a home brew party was a brother of the husband of domestic unit E-102. The husband of the domestic unit could not refuse his proposal for a drinking party. As a result, another domestic unit E-101 simply left the camp to form its own camp in a different location.

After the fission of camp Desi Ce, the members of domestic unit E-102 succeeded in killing three moose, with which domestic units E-102 and E-103 could sustain themselves with until the end of the year 1975. A member of domestic unit E-101 also succeeded in hunting caribou after he took his dog-team north of camp 3uzaze, after which domestic unit E-101 could sustain itself for the winter. At the new camp site for domestic unit E-101 they lived in two tents. One unit was composed of a widower and his unmarried son, and the other was the rest of the members of the domestic unit E-101.
Every member of camp Desiče returned to the Wollaston Lake settlement in December of 1975. They did not go back to their winter camp in the New Year. They withdrew from the winter camp, although the tent of domestic unit E-101 had been left at the camp site. The tent, they said, would be used temporarily for their winter trapping activity.

On the basis of the data presented here, it should be pointed out that the domestic unit E-101 operated as a hunting unit. Although the size and the extension of membership of the hunting unit were minimal, it acted as a subsistence unit at the camp. The fission of the camp demonstrated not only the independency of the unit for winter subsistence but also the boundary of the hunting unit. The hunting unit could have included more members but the rest of the widower's son's family stayed at the Wollaston Lake settlement. They did not join the camp partly because of the contemporary change of the Chipewyan subsistence base, and partly because of the weakness of the influence of the widower over his children. The widower himself did not maintain his own domestic unit as a basic level subsistence unit without his wife. The hunting unit itself was in the process of dissolution.

It is difficult to ascertain the boundary of the hunting unit of domestic units E-102 and E-103. They formed a subsistence unit which was different from the domestic unit, and
could have been a fictional hunting unit without any kinship relation. However, detailed analysis is difficult without precise observation at camp Desi Ce.

(3) CHIPEWYAN HUNTING UNIT AND CHIPEWYAN CAMP

In this section, the significance of the Chipewyan hunting unit and camp is described. The plasticity of the hunting unit is pointed out as a major characteristic of the Chipewyan subsistence unit. Structurally, or ideally, the hunting unit could include all members by bilateral descent, in which the siblingships, or edinakwi, plays a major role in the affiliation. As an operational model, however, there is a range of adjustment for participation of the members. At the maximum operation, the hunting unit would include all the siblings, their parents, and their spouses and children. At the minimum point, however, the hunting unit could correspond to a domestic unit. Within this range, the composition of the hunting unit varies on the basis of the various factors; e.g., the possibility of participation of the members, social changes, and seasonal changes of the environment. In this section, the seasonal adjustment of the affiliation of the members to a hunting unit is described using the empirical data in order to demonstrate the plasticity of the operational model of the hunting unit.
Fig. 18 is again used for this purpose. In the summer season of 1975, the two domestic units, Z-105 and Z-106 camped together at fish camp θai nu which is described in the section on Chipewyan summer camps in this chapter. In the previous section, they were described as a pair of domestic units through the inter-domestic unit kinship relations. Fishing partnerships were established in each domestic unit, which was made possible by the adoption of a member of domestic unit Z-105 into domestic unit Z-106. Although the fishing nets and the catch belonged to the individual domestic unit, they always participated in fishing trips together in order to exploit the same fishing grounds. At camp θai nu-1, their abodes stood side by side (Fig. 8). Then, they moved to camp Ten kwen neceras together (Table 5: N.B. Codes of the domestic units were recorded as 106 and 107 in Table 5). Thus, it appeared that the pair of domestic units at the summer camp were, in reality, an operational model of the hunting unit in the context of the larger kinship group. During the summer domestic unit Z-101 stayed at the Wollaston Lake settlement participating in small scale fishing for self consumption. The father of domestic unit Z-102 remained at Kasba Lake in the Northwest Territories to act as a fishing guide for tourists, a summer job for a few contemporary Chipewyans. The father of domestic unit Z-103, however, was ill and stayed at
the Wollaston Lake settlement. In the winter of 1975, as described in the section on the winter camp ḥuẓaze in this chapter, they made a winter camp. The members of domestic units Z-101 and Z-103 participated as members of the hunting unit, although the father of domestic unit Z-102 was excluded from the cooperative unit. It should be noted that, in the winter of 1974-75, the domestic units Z-101, Z-102, and Z-103 were at the camp. However, in the winter of 1975-76, the mother of domestic unit Z-102 was reluctant to join the winter camp and chose to stay at the Wollaston Lake settlement with her children. Only the father of domestic unit Z-102 joined the camp, as described in the previous section, and the other members of the camp did not accept him as a member of the cooperative unit. On the other hand the five visiting members of the camp, who were the unmarried son of the mother of domestic unit Z-101 as well as the members from domestic unit Z-104, Z-105, and Z-106, were accepted as members of the hunting unit. The rest of the members of domestic units Z-104 and Z-105 stayed at the Wollaston Lake settlement, since their children were attending the school and their mothers had to take care of them.

Ideally, all the members of the genealogical chart who were bilaterally descended from the first generation could be a member of the hunting unit. And the members of domestic
unit Z-102 could also participate in the unit as shown in the winter camp in 1974-75. However, in practice, the affiliation of the father of domestic unit Z-102 without being accompanied by his wife and children was not accepted by the other members of the unit. This was the boundary of the hunting unit in operation. In the spring of 1976, they moved to the Wollaston Lake settlement, although the male members maintaining the winter trapping partnerships went to the spring trapping activity in the bush. Then in the summer season of 1976, domestic unit Z-101 made a summer camp on Cochrane River, north of Wollaston Lake. They lived on fish without participating in commercial fishing. The camp was also used as a home base for fishing excursions for the male members of domestic units Z-105 and Z-106. The mother of domestic unit Z-101 arranged for her adopted child to be a fishing partner of the father of domestic unit Z-106. The mother expected that her adopted son would learn the skill of fishing from the male members of domestic units Z-105 and Z-106.

The female members of domestic unit Z-102, Z-103, Z-104, Z-105, and Z-106 obtained wage labour at the filleting plant at the Wollaston Lake settlement for the summer of 1976. As a result, they did not go into the bush to make a summer fish camp. This constituted an economic change in the subsistence base for the contemporary Hatchet Lake Chipewyan. Thus, the
operational model of the hunting unit was a result of this adjustment.

For the winter of 1976-77, they again planned a winter camp in which they mainly focused on caribou hunting. The members of domestic unit Z-101 started north in October, 1976, a few days before the author left the field. On the basis of the data presented here, it is shown that the hunting unit was subject to adjustment in its operation, though the unit as an ideal category, could include all the members of bilateral descent.

In contrast with the concept of the hunting unit as a subsistence unit, the Chipewyan camp is a temporary aggregation of the operational model(s) of the hunting unit. In Chipewyan, ažanaide means staying together and the term does not necessarily imply any kinship relations among the people. Thus, the anthropological definition of the camp corresponds with the Chipewyan term of ažanaide. However, the people do not merely stay together at the same location. There was a positive aspect of aggregation of the people, which is described in the rest of this section.

Firstly, the camp provides security. Secondly, the camp is a place for communication, or exchange of information. And thirdly, the camp is a pool of male members who could conduct communal caribou hunting. Food sharing at the summer
camp Gabriel be nue, as described in the section on Chipewyan summer camps in this chapter, is a good example of the security provided by camps. There was no membership restriction for participation in food distribution. Also in the example of camp 3uzaze, it was observed that the semi-excluded man was allowed to take caribou meat. This demonstrates a minimum level of cooperation as long as they stayed at the same camp site. The camp is also a place for communication. They can exchange various kinds of information, of which the following description could demonstrate the importance of such an exchange. For the residents at camp θαι nu, moose was the most important big game resource during the summer. During this season, the animals wonder over a wide area and they are sensitive to predators, including the Chipewyan hunters. Thus, it is not easy to hunt moose in summer without the proper hunting strategy and some good luck. The people were always trying to spot wandering moose on the basis of information which included actual observation of moose as well as indirect signs of the animal. In late August of 1975, the people at camp θαι nu believed that a cow moose accompanied by a calf was on the island of θαι nu, since one of the hunters observed the animals when he shot another moose. However, after a while, some fishermen saw a moose standing on the shore of the island of Conori daari nue which was
located 7 km west from θai nu. The people realized that the animal had moved to a new location. A hunting excursion was carried out by some hunters without success. When, no more fresh tracks were found in the area, the people began to believe that the moose had moved again. But, they still believed that the animal had not moved far from the area. They remained at camp θai nu and waited for another chance. Finally, a hunter got the moose as it was swimming across the channel between the western shore of Wollaston Lake and Usam Island, 15 km north of camp θai nu. At last, the people at the camp realized that the moose had been killed and then they separated and went to other camps. This example showed two points. One is the strategy of moose hunting which, though basically an individual activity, also depends on accurate information from others on the location of the game. This information was provided through daily communication at the camp where the hunters stayed together. Since the moose meat would be indiscriminately distributed among the people who were there, the people at camp θai nu did not want to move from the camp until the animal had been hunted. θai nu fish camp was, in this case, utilized as a strategic base for moose hunting. In reality, one of the reasons the camp was located there was the existence of moose in the area.
Another positive aspect of the camp was that it could provide manpower for caribou hunting expeditions. At the winter camp Juzaze, a group of Chipewyan hunters visited the camp in November of 1975. The four male members joined the party and together the ten male members went north in search of caribou migrating to the south. They set traps on the way out to the caribou hunting expedition. Thus, the group could rather be defined as a hunting-trapping party. The members of the party were not restricted to the members of the hunting unit. Five members of the ten hunters were members of the hunting unit at camp Juzaze, who came from domestic units Z-101, Z-103, and Z-105. One male hunter had joined from domestic unit Z-102, who was excluded from the hunting unit, and the rest of the hunters had no kinship relations with the members of the hunting unit. Thus, the hunting-trapping party was a temporary male group which was formed especially for caribou hunting activities. The structural principle of the formation of the male hunting group could be applied to the example of the Chipewyan camp Ta tue. As described in the section on Chipewyan winter camps in 1930's in this chapter, camp Ta tue was the product of the successful caribou hunt in the fall. In order to conduct the fall caribou hunt, the male members of the camp communally operated canoes and speared the animal. The camp was composed of the different
hunting units but the male members of the camp could form a communal hunting party. On the basis of the information presented here, the Chipewyan camp can be positively defined as an aggregation of hunting unit(s) from which a male hunting group can be formed.
PART IV

ECOLOGY OF THE CARIBOU-EATER CHIPEWYAN
CHAPTER 6

SEASONAL MOVEMENT PATTERN

In this chapter, the home-range and seasonal changes in range size of the contemporary Hatchet Lake Chipewyan are described. In each season, the Chipewyan use seasonal camps where the children and female members remain while the male members go out into bush, and fish, trap and hunt. The Wollaston Lake settlement, on the other hand, is a home-base for the Chipewyan as described in Chapter 2. The facilities at the settlement were constructed by the Provincial and Federal Governments for permanent usage, although the Chipewyan consider all camps temporary and the Wollaston Lake settlement is no exception. In reality, some domestic units were observed staying at the settlement all year around, while the other domestic units constructed seasonal camps in the bush. Thus a variety of seasonal movement patterns of domestic units could be observed among the contemporary Hatchet Lake Chipewyan. Some examples have already been mentioned in the last chapter in the context of the plasticity of the Chipewyan hunting unit. In this chapter, the home-range which was used generally by the Hatchet Lake Chipewyan at the population level will be described. It should be noted that the concept of the home-range does not
include any sense of territoriality or ownership which would cause the people defend it against an intrusion by other groups. The Hatchet Lake Chipewyan did not form a political unit, but were an aggregation of people at a single settlement. The home-range is merely the total space for exploitation. In the latter part of this chapter, transportation and moving activity between the seasonal camp and home base will be described. Two modes of transportation will be described here, the dog-team and canoe.

1. HOME-RANGE AND HOME-BASE

(1) THE HOME-RANGE OF THE HATCHET LAKE CHIPEWYAN

The total home-range of Hatchet Lake Chipewyan is the space in which they were observed carrying out their activities. The data came from two sources, the beaver census originally conducted by the Department of Northern Saskatchewan (Provincial Government of Saskatchewan), and the information on space use by Hatchet Lake Chipewyan in seasonal subsistence activity which was obtained by the author. The census data is shown in Fig. 21, and the information on space use in seasonal activities is shown in Fig. 22.

In Fig. 21, the location of beaver houses is plotted on the map. This information was originally provided by each trapper as well as the Chipewyan conservation patrolman who
was working for the Department of Northern Saskatchewan.

On the basis of the number of beaver houses which he reported, each trapper could obtain a trapping licence for a quota of beaver. Thus, data on beaver census could be used as indirect information about the Chipewyan home range which covered the trapping ground.

The trapping area for the residents at the Wollaston Lake settlement was regulated by the Provincial Government, as described in the section on historical background in Chapter 2. Fig. 21 shows the boundary of the trapping area for the people of the Wollaston Lake settlement. The areas were registered with the Saskatchewan Provincial Government as N-93 and N-26. The former was for the treaty Chipewyan. The latter was further divided into three zones: zone-1 was utilized by both treaty and non-treaty Chipewyan; zone-2 was exclusively used by the Cree residents at the settlement; and zone-3 was used by non-treaty Chipewyan. In each trapping area and zone, each individual could use any place for trapping. However, as shown in Fig. 21, the information on beaver houses was beyond the boundary of the trapping area. Other data on space use for fishing and hunting showed that their home-range extended outside the trapping area. For winter fishing, the Hatchet Lake Chipewyan used Charcoal Lake as well as Hatchet Lake. And the Cree residents at the
Wollaston Lake settlement exploited the Waterbury Lake area which is located west of Wollaston Lake. Some Chipewyan also used Corson Lake for the north of Hatchet Lake. Wollaston Lake, totally inside the trapping area, was the summer fishing ground. The winter caribou hunting ground extended to the Northwest Territories and the Province of Manitoba, since the Chipewyan hunt caribou where the animal migrates. However, in the years of 1975-76, the caribou remained within the trapping area and there was no extension of the caribou hunting range beyond the boundaries. On the basis of this information on space use for activities other than trapping, the Chipewyan home-range was determined. The eastern and the western part of the home-range was beyond the registered trapping area. The northeastern fringe was bounded by the Northwest Territories and the Province of Manitoba. The total home-range was 26,900 km². The population density could be calculated as 0.013/km², since the total population of the Wollaston Lake settlement was 351.

In Fig. 22, the sites of the seasonal camps in 1975-76 as well as the location of the Wollaston Lake settlement are shown. The map also shows information on the seasonal space use. For the winter trapping and caribou hunting, the trail for each trapper is traced on the map. For summer fishing, the Chipewyan utilized Wollaston Lake as well as
part of the Cochrane River. It is pointed out that the summer range of the Chipewyan activity was restricted mainly to Wollaston Lake and was well within their total home-range for the year. The winter range of the Chipewyan, on the other hand, was expanded beyond the summer home-range. To the north, the range extended to the Keewatin District of the Northwest Territories, and to the east, to the Province of Manitoba. To the south, the Chipewyan used the Compulsion River area. The seasonal changes in home-range were related to the seasonal difference in their subsistence activities. For fishing in summer they intensively exploited Wollaston Lake, but for hunting and trapping activities they used the forest where numerous ponds connected to river systems. They followed streams into the forest that fed into Wollaston Lake. On the basis of the data presented in Fig. 22, the range size for the summer season was calculated to be 4,700 km², which constituted 17.5% of yearly home-range, or the winter range. More precise data on the size of the activity space on seasonal camp level will be presented in the section on time-space use of subsistence activities in Chapter 7.

(2) HOME-BASE AND SEASONAL MOVEMENT PATTERN

For the contemporary Hatchet Lake Chipewyan, the Wollaston Lake settlement was practically a semi-permanent home base
from which they could exploit the seasonal activity space. However, the seasonal camps were observed being set up in the bush and used as base camps for each subsistence activity in each season. The summer and winter camps were the two major seasonal camps. The former was for summer fishing, and the latter was for trapping and winter caribou hunting. More temporary, the fall camp would be constructed near the winter camp, where they could still operate open water fishing and small game hunting before the caribou migration. As described in Chapter 5, the Chipewyan had made their fall camps in order to conduct the autumn caribou hunt. For the contemporary Hatchet Lake Chipewyan, however, the fall camp was not used strategically for the caribou hunt, but used for winter preparations. A temporary spring camp was also made in the bush for spring trapping and fishing.

Fig. 23 shows the seasonal movement pattern of the Hatchet Lake Chipewyan. The people return to the Wollaston Lake settlement on at least three occasions in the year: Christmas and New Year's Day in December and January, Easter in March-April, and Treaty Day in June. For the first two occasions, there would be Mass at the Roman Catholic Church at the settlement. On Treaty Day, the Indian Affairs Branch of Federal Government would offer treaty money to the treaty status Chipewyan. The people sold pelts which were brought
from the bush camps and purchased provisions for the next seasonal movement. In the Fig. 23, the caribou migration is also shown, which indicates the overlapping of the caribou and Chipewyan at the winter camp. The Chipewyan moves north in order to meet the caribou herd which migrates to the south for the winter season.

In summer, the Chipewyan depend on fish and moose. Commercial fishing is open from June to September. Since the Chipewyan have to bring the catch to the fish plant at the settlement, the summer camps are located within a day trip of the settlement. Wage labour at the fish filleting plant is available for the Chipewyan women. When they have the opportunity for wage labour, not only the women but all the members of the domestic unit tend to stay at the settlement. This phenomenon was observed in the summer of 1976 when large numbers of women were hired by the fish plant. The Chipewyan men only went fishing from the settlement and did not establish summer fishing camps.

During the winter season, the tendency of sedentary life is also observed. In this case, however, the main reason is the schooling for which the children have to stay at the settlement where they are cared for by their mothers. Wage labour is scarce in winter, but other means of economic support, including welfare and pensions, are available at
the settlement. Then, again, only the men go trapping and caribou hunting in the bush while the rest of the members of their domestic units stay at the settlement. Schooling, wage labour and other cash income at the settlement are causes for the Chipewyan to settle down at the contemporary post. As a result, the seasonal camps can be only established at the sacrifice of these opportunities. On the other hand, sedentary life at the settlement forces the members of the Chipewyan family to give up staying together in the bush camps where they participate on subsistence activities.

The subsistence pattern and the seasonal movement pattern of the contemporary Hatchet Lake Chipewyan would be understood between the two polar types of life; i.e., bush life vs. village life. Some Chipewyan tend to be more sedentary. Life in the village is secure because of the aggregation of the people. There is protection from natural and supernatural enemies and food sharing in case of food shortages. But, the economy of the village does not support their life on full time basis, and the aggregation of the population at the same place during longer periods without adequate production of sufficient food supplies causes hostile relations among the people. Thus, some Chipewyan would rather seek the quiet of bush life. When the caribou come, they have plenty of meat. Although the work in the
bush is hard, they can avoid the conflict between peoples in the village. As a result, a variety of subsistence patterns and seasonal movement patterns among the contemporary Hatchet Lake Chipewyan are in between these two polar types. Each domestic unit decides its subsistence and movement pattern in each season on the basis of economic and social factors. The domestic units discuss and plan for subsistence pattern, and the operational hunting unit is formed in the bush in the particular season for those particular activities.

(3) SEASONAL CAMPS

(i) Local factors for seasonal camps

The major factor determining the location for a seasonal camp is the subsistence base. Within the seasonal range for their activities, the Chipewyan adjusted the locations of camps on the basis of minor local factors. For the summer camp sites, fish ecology was one of the factors. The most used fish in Wollaston Lake are lake trout, whitefish, jackfish, and sucker. In early summer, lake trout, whitefish, and jackfish tend to enter the shallow water near the lake shore. Then, they return to the deep water during the months of July and August. In early September, however, trout gather in the rocky-bottomed shallow water to spawn.
Whitefish then move to the shallow water for spawning in late September. Whitefish, however, spawn on sandy or muddy bottoms. Jackfish, a predator of the whitefish, are often found with whitefish during the spawning period. The Chipewyan fishermen chose the fishing ground on the basis of the seasonal migration pattern of the fish. They used shallow water around Wollaston Lake for the early summer and fall and used the deep water for the mid-summer season. The summer camp sites were, then, situated near the seasonal fishing grounds.

The second factor in determining the location of the summer fish camp sites was the location of the ice house. For commercial fishing activity the fishermen transported their catches to the fish filleting plant at the Wollaston Lake settlement. They used ice to keep the catch fresh during transportation. Therefore, the ice houses were constructed around Wollaston Lake. In the spring, prior to the commercial fishing season, the fishermen cut ice from the lake and stored it in ice houses constructed of logs and moss. There is no ownership of ice houses, but the fishermen could use ice from any of the ice houses on the lake. It was observed that the ice houses were built near the main fishing ground and summer camp sites which the people frequently utilized. As shown on Fig. 22, the ice houses were
on θai nu, and on Deniye nue where the fish camps were made. The summer camp Ten kwen ne čeras had access to the ice house near the camp. The name of the camp, in fact, came from the Chipewyan term for the 'small ice house.' There was no ice house near Gilibe nue and Hoobai nu camps, but the people took ice from the ice house at the Wollaston Lake settlement before fishing trips. Two other ice houses in the Wollaston Lake area, one on Blue Island, and the other near Usam Island, were utilized during extensive fishing trips.

The third factor influencing the location of the summer fish camp was the distance between the camp and the Wollaston Lake settlement. The fish camps were within one day's travel of the settlement, although occasional fishing excursions of more than one day from the camps were made. Distance was not the only factor. Allowances had to be made for weather as well. The small plank boats loaded with a catch of fish are easily capsized by the waves on Wollaston Lake. There had been accidents in the past and many Chipewyan had been lost in the water. The people were very careful and did not go out on the lake in rough weather. On the basis of the data on the changes of location of summer camps in 1975, which are shown in Fig. 7, the distance between camps and the settlement becomes shorter in later part of the summer season. The people moved from camp θai nu to camp
Gabriel be nue in late August. Then, they moved to camp Hoobai nu in mid-September. The Chipewyan explanation for this movement of the camps was that the wind became stronger in late summer and fall. Particularly, they were careful not to cross the open water between Gabriel be nue and Hoobai nu, since that area was not protected from strong winds and the condition of the water could suddenly change. The last summer camp, Hoobai nu, was only 2.5 km north of the Wollaston Lake settlement.

The summer camps were always made on an island in the lake rather than the mainland, effecting a separation from natural and supernatural enemies. The islands were separated by water from the main land and the inhabitants at the camp could thus avoid contact with wild animals, particularly the bear. Another enemy for the Chipewyan was the supernatural figure, or hoceras. The islands provided a relatively safe retreat from these enemies. The Chipewyan also choose islands as a camp site for more practical reasons, e.g., to guard against forest fires during the summer. After making a cooking fire, they extinguished the fire completely with water. They thought that by having the camp on island they could thus prevent the expansion of a forest fire. Advantages of summer camps on islands also include the availability of water, dry ground, and wind for insect dispersal.
There are eskers, sandy ridges 10 - 20 meter high deposited by streams that ran under Precambrian glacial ice, on some islands. They protect the camp site from strong winds and are good places for walking and berry picking. If available, the camps are strategically located near the esker.

The fifth factor for the location of summer camps was the availability of moose. The people always exchanged information on the location of moose. They would choose camp sites where there was the possibility of moose hunting.

The factors governing the choice of location of the winter camps differed from those of the summer camp site. The two major factors for the winter camp site choice were caribou and trapping. The caribou migrated north of Wollaston Lake during the winter. The winter camps were ideally located within the caribou migrating area. The other factor was the accessibility of the trapping ground for members of the winter camps. As shown in Fig. 22, the Cochrane River was used as one of the major winter trails for trapping activities. And the winter camp Juzaze and Desi ce were situated strategically at the place where the residents could use them as base camps for their trapping excursions. The other temporary winter camps on the map which were composed of only male members were also made on the trapping routes. Minor factors for the location of winter camps are
such things as the availability of firewood and fish. For wintering, a supply of firewood was necessary. Both the winter camp 3uzaze and the winter camp Desi če were located near the area previously destroyed by the forest fire. Then, plenty of dry wood was available as firewood. A supply of fish is necessary in the fall before the caribou come. Nets were set in open water and the catch consumed by both humans and dogs. The isolation of the camp on the island, which was observed in summer camps, was not necessary for winter camps. Bears hibernate for the winter and the bush men do not appear in the winter. The winter camp, 3uzaze was on the west bank of the Cochrane River. The winter camp, Desi če was located on Kendel Island, but later its members dispersed and some moved to the western shore of the Cochrane River. Eskers are also used as a protection from the wind and as a berry picking ground in the fall time.

Construction of log cabins only occurs for the winter camps; spring, summer, and fall camps consist of tents. The same location could be used over the years if the hunting for the previous year had been successful. If not, the camp would be abandoned, especially if there had been some bad luck such as death or disease. In these cases, even a log-cabin winter camp would not be used again. For example, two log cabins had been constructed at the winter camp 3uzaze.
in 1974 and one more abode had been made for the winter of 1975-76 at the same camp site, as described in the previous chapter. For the winter of 1976-77, however, they planned to construct a new winter camp near camp 3uzaze, since a person became ill at the camp in 1975-76. Thus, the seasonal camps were temporary.

(ii) Spatial plans of seasonal camps

The spatial arrangement of tents and the associated structures at summer camps were shown in Figs. 8, 9, 10, 11 and 12. The summer tent is made of canvas. Sheet canvas is purchased from the store and the people made square tents from it. When it is put up, the trunks of birch are used for the front- and the back pillars, and spruce is fit as a beam (Plate I). Spruce is used for pillars, since it provides the crotch on which the beam is fit. On both sides of the outside tent, trunks of spruce are set at a height of ca. 1 meter from the ground and the upper end of the canvas wall is pulled up to outside by strings. Inside the tent, logs are used as a weight on the bottom of the canvas wall. Spruce twigs are spread on the ground as a floor. In winter, spring and late summer, a canvas tent is equipped with a wood stove which is used for cooking, heating the tent. For hunting-trapping trip in winter and spring, a smaller canvas tent is used. The tent is pitched without poles inside,
but is supported from outside (Plate II).

The smoke tent is used as a cooking place for summer, but it is mainly utilized for making dry fish and dry meat (Plate III). The wooden poles are combined at the upper point and widen on the bottom to make a conical form. One side of the conical form is covered with a canvas sheet in order to keep smoke inside, although the other side is open for the exposure of the meat and fish to the sun. A rack is made inside the smoke tent, on which the material is hung. In order to scrape moose hide, a wooden framework is made on the camp site (Plate IV). Four logs of green spruce are lashed in the shape of a rectangle. And, it leans on another log that is crossed between two standing trees at a height of ca. 1 meter.

In late summer, the wooden support for sawing firewood is constructed beside the canvas tent. In this season, the people need more firewood to keep. (cf. Fig. 10, 11). The wooden support is a stick driven in the ground across a stump. The stick and the stump are tied up on the top and the crotch is used for supporting the log being sawed. On the beach, canoes and plank boats are pulled up from the water. If the beach is gravel, green spruce trees with twigs and leaves still attached are put on the shore to protect the bottom of the canoes. Sometimes a ladder is
made to serve this purpose for longer periods.

The plan of a winter camp was shown in Fig. 19. The camp site is surrounded by standing trees. The log cabins are built on flat ground facing the water and are backed by elevated ground of a height of 5 - 10 meters. Each log cabin (Plate V) is equipped with a wood burning stove made of an empty oil drum. It is fitted with a chimney through the roof. The log cabins are floored with boards taken from the abandoned previous camp. In Hut-2 and Hut-3, beds are made of slender spruce trees. The floors and the beds were made in 1975. In the winter of 1974, these cabins were spread with spruce twigs and leaves. Hut-3 was constructed in 1975, and the people lived in a canvas tent the previous winter. In the winter of 1975-76, the canvas tent was used only for storage of excess household items.

A smoke tent is made at camp site (Plate VI). The structure of the construction is the same as that of the summer camps but the tent is totally covered by a canvas sheet for except an entrance and the top of the conical tent. Due to the snowy weather and the weak sunlight during the winter season, meat is dried inside cabins and then it is only smoked in the conical tent. A wooden framework for scraping moose hide is constructed on the elevated ground behind the cabins. The structure of the construction is same as one in the summer camps.
On the camp site, the wooden racks are used to store fresh fish, fresh meat, caribou hide, and snowshoes (Plate VII, VIII). The racks are put on four wooden poles and the height of the platform is as high as human stature. The items on the rack are protected from dogs and wild animals. One of the three racks at the winter camp is also associated with wooden stairs.

Two small enclosures are made of logs, in which puppies are caged. They are protected from the wind and the snow in winter. The younger puppies, which are still nursed by their mother, are gathered under a tree with the mother dog. They are covered by spruce branches with green leaves. In this case, the mother dog is chained, but the puppies are not enclosed. The sledge dogs are individually chained on the stumps at the camp site.

In the winter camp, the canvas canoes, which were used as the transportation in the fall season are turned over and left under the snow. On the river ice, a water-hole is made and the people get water through the ice. In order to discard the crashed caribou bones from which they extract bone marrow and lard, two holes behind the cabins and one spot on the river ice are used exclusively. Caribou bones are prohibited from being disturbed by dogs.
Some differences of the spatial plan of camp between summer camp and winter camp are pointed out as follows. Firstly, the abode in the winter camp is a log cabin, while canvas tent is used in the summer camp. But, as described in Chapter 5 as well as in the present chapter, the Chipewyan can live in the canvas tent even in winter. This was the case for some members at the winter camp 3uzaze in 1974-75 and for the people at the winter camp Desi če in 1975. Also, they use small canvas tent on their hunting and trapping trips in the bush during the winter season. Sometimes, they even sleep outside, while a large amount of firewood is burned all night and the blanket is placed on spruce leaves spread on the snow. However, the Chipewyan tend to construct log cabins as a winter home base which effectively protect the people from the wind, the snow and the low temperature during the sub-arctic winter.

The second different nature in the winter camp from the summer camp is the existence of wooden racks. The racks above the ground are intensively used in winter to store fresh fish and caribou meat. The construction prevents the food not only from being lost on the ground when it is unexpectedly covered by new snow, but also from being disturbed by dogs and wild animals. It is noted, however, that the one of the racks in the winter camp 3uzaze was destroyed by
wild animals when the people temporary returned to the Wollaston Lake settlement for the Christmas in 1974. The people said that this was done by a wolverine which consumed the cached caribou meat on the platform. In summer camps, the people make dry fish and dry meat as soon as possible after the food is brought to the camp. Processed food is kept inside the abode. A third difference of spatial arrangement at the seasonal camps is that the dogs are chained beside the abodes during winter. They are kept on the peripheral part of summer camps. In winter, the dog-teams are used for transportation. After a hunting trip, dog-teams are driven in front of log cabins, and the caribou meat is either put inside the cabin, or put on the rack outside. Then the dogs are unharnessed and individually chained to their posts. Thus, the cabin, the cache rack and the posts are spatially gathered within a short distance at the winter camp. On the other hand, the dogs in summer camps are tied outside the cleared camp ground. Transportation in summer is by canoe. The front part of the camp site faces the water and is used exclusively for launching boats. In summer, the dogs are just kept alive for the coming winter. But, dogs would bark when the wild animals and some peoples approach to the camp. Thus, even in the summer they contribute to the security of the camp as watch dogs.
2. TRANSPORTATION AND MOVING ACTIVITY

Moving activity, in this section, refers to the activity of human movement between the seasonal camp and the home base. This moving activity may be categorized as part of the sheltering activity which will be further described in the next chapter. However, because of its significance for the contribution to the seasonal movement pattern of the Chipewyan, it is independently described in this section. In parts (1) and (2) of this section, the transportation in summer and winter is described on the basis of the empirical data. In part (3) of this section, the strategy of moving activity is described. The significance of transportation and moving activity is specified as one of the major aspects of the Chipewyan seasonal movement pattern.

(1) SUMMER TRANSPORTATION: CANOE

The advantages of the canoe as a means of transportation are twofold: high load-carrying capacity as well as the usage of water systems in the forest as travel routes. Today, the Hatchet Lake Chipewyan can purchase a canoe from the general store at the settlement. The wooden frame is used for many years but the canvas is replaced frequently. The canoe is best employed to transport provisions from the settlement to the fall camp. They begin preparing for the winter camp when the water is still open. In 1975, the
members of the winter camp, \textit{zuzaze}, conducted two trips between the home base (Wollaston Lake settlement) and the seasonal camp before the people actually settled at the camp. Items for wintering activities were transported by canoe. The weight of the load for the two trips is shown in Table 10. The Hatchet Lake Chipewyan also used outboard engines on their canoes. This made the trip considerably faster and easier. However, on the negative side, frequent delays due to engine malfunction as well as the cost of the gas had to be considered. In the following example, the aspects of time and distance for moving activity by canoe are described.

\textbf{(CASE 1)}

This describes the first trip to a fall camp, by which the necessary items for wintering were transported. Two canoes were employed, one for domestic unit Z-101 and the other for domestic unit Z-103 (See the section on Chipewyan winter camp \textit{zuzaze} in 1975). In the first canoe, or Blue canoe (4.5 h.p.), were two persons and in the second, or Gray canoe (6.0 h.p.), were two persons including the author (Table 10, 11; Fig. 24).
September 29, 1975

12:00 The members of domestic units Z-101 and Z-103 started loading provisions in the two canoes.

14:00 They left the Wollaston Lake settlement to go north.

15:40 They stopped on Modice be nue (Modice's Island). Chopping white spruce with branches and leaves to put under the canvas canoe on the rocky shore. Made a fire and had tea.

16:30 They left Modice be nue (Modice's Island) to go north.

18:15 They stopped on the shore of Gabriel be nue (Gabriel's Island) and filled the tank with gas.

18:30 They left Gabriel be nue (Gabriel's Island) heading north. It was already dark.

19:00 They stopped on a small island north of Gabriel be nue (Gabriel's Island). Pulled the two canoes on the beach. Made a fire and pitched a tent. Ate two whitefish baked on the fire.

21:00 They slept in sleeping bags in a canvas tent.
September 30, 1975

07:00  They got up and made fire.

07:30  They had breakfast.

08:00  Left the island and continued north. Cloudy with a few snow flurries, but no wind. The engine on the Gray canoe did not start. Then they returned to the shore and warmed the engine by the fire.

08:30  The engine started (They lost 30 min. for the engine trouble).

10:30  They stopped on a small island to the north of Usam Island. They ate a whitefish and bannock for lunch.

11:45  They left the island. The Blue canoe passed a small island on the west side. The Gray canoe, however, took a different route. Since the former's route was through shallow water, the Gray canoe chose the other route due to its heavier load.

14:00  They arrived at a small island south of the winter camp on the Cochrane River. The Blue canoe had arrived already and they had made a
14:00  fire. They pitched a small tent and left some provisions in a tent. The items were deposited on the island, since the location would prevent an invasion by bears.

14:30  They finished the deposit of provisions.

15:00  They left the small island to return to the Wollaston Lake settlement.

17:00  They stopped on the shore of Qai čo nilini (Big esker narrow) and made a fire for coffee.

17:30  They left Qai čo nilini (Big esker narrow).

17:50  They arrived at the ice house on the mouth of the Cochrane River. Four fishermen were camped here. They ate dinner.

22:00  They slept in two tents, but some of the fishermen slept outside.

October 1, 1975

07:30  They got up. The weather was cloudy and there was a breeze.

08:45  The Blue canoe left the camp. The Gray canoe also started, but the engine trouble recurred.
10:00 The Gray canoe was returned to the shore in order to check the engine. The Blue canoe went ahead.

11:00 A fishing boat found the Gray canoe and towed the canoe to the former camp.

12:00 They checked the engine. The trouble was in the fuel system. It was then fixed. They had a lunch of whitefish and bannock.

12:20 One of the members on the Blue canoe returned to the camp and reported that they had shot a moose on their way to the settlement. They took advantage to hunt on their travel.

13:00 The Blue canoe and the Gray canoe left the camp.

13:20 They arrived at the narrows on the eastern side of Usam Island where the moose had been shot. One of the members in the Blue canoe was in the process of butchering the moose. They had moose meat baked on the fire.

14:30 The meat was divided between the two canoes for transportation and they left for the settlement.
18:10 They stopped on Modice nue (Modice's Island). They made a fire and had a kidney and rib of the moose baked on the fire.

21:00 They arrived at the Wollaston Lake settlement.

On the basis of the data on time of arrival and departure in each place, the net running time of the canoes was shown in Table 11. For the trip from the Wollaston Lake settlement to the island where the provisions were deposited, the net running time was 8 hrs. 40 min. (520 min.) with a load of 387 kg. Since the distance on the map was 84.0 km, the average speed of the canoes was 9.7 km per hour. For the return trip, the net travelling time was 9 hrs. 25 min. (565 min.). The weight of the load was 10.5 kg of hunting gear, 10 kg for the blanket, 120 kg for the two persons, and ca. 250 kg for the moose meat. The total weight then was 390.5 kg. They took a different route for the return trip and the distance on the map was 87.3 km. The average travelling speed was 9.3 km per hour. It should be noted that they lost 30 min. on September 30, and 3 hrs. 45 min. (225 min.) on October 1 with engine trouble. For the latter case, however, the actual time lost was minimized since the other members were butchering the moose meat in the mean time. Also, on the basis of the data presented, the loaded canoes
had difficulty travelling in shallow water. The same situation was also observed in the course of the second trip to the winter camp. In order to travel through an area of shallow water, the people disembarked and pushed the vessel. On the occasion when the author participated in another canoe trip, it was observed that the people portaged; they carried their supplies as well as their canoe on land.

(2) WINTER TRANSPORTATION: DOG-TEAM

A toboggan pulled by a dog-team is used for transportation on snow. The contemporary Hatchet Lake Chipewyan can purchase the boards for the toboggan from the store at the settlement. Some Chipewyan, however, make their toboggans from birch trees. They frequently used birch to repair their toboggans, since the toboggans from the store are not strong and are easily damaged. Also, they are very expensive and it is hard to get. A canvas bag is used on the toboggan to carry hunting equipment and catches. Part of the dog harness is made from moose hide and is described in the next chapter. The lead dog is trained to respond to the voice signals of the driver and the signals are as follows: x or sometimes xai for start; wow for stop; yo or sometimes voi for turn right; cia for turn left; yo esi for turn right and return to the same trail; cia esi for turn left and
return to the same trail. The latter two signs are used when the dog-team and toboggan become stuck in deep snow and it is necessary to turn 180 degree of go back on the same trail. In order to accelerate the speed of the dog-team, the driver can shout encouragement, saying "ai ai ai..."; tongue-clicking and whistling are also used. The driver can also encourage the dogs with the word, eëen, or caribou. The dogs are verbally abused when they are lazy. They can also be beaten with sticks if they do not obey the driver. If the dogs attack the driver, they would be shot. When travelling by dog-team and toboggan, however, the Chipewyan take great care of their dogs. Each dog is named and they are all spoken to individually by the driver. The maximum weight for a toboggan is 5 - 7 butchered caribou plus a driver (approx. 400 kg) for team of 6 - 7 dogs. The hauling ability of each team of dogs and the ability to understand the signals of the driver varies greatly for each dog. A good dog-team is necessary for a successful hunting trip as well as for satisfactory transportation in winter. The following is a specific example of moving from the winter camp to the Wollaston Lake settlement on snow. The procedure of training the leader dog is especially demonstrated in the account.
This was a trip by dog-team and toboggan on snow from the winter camp, \textit{uzaze}, to the Wollaston Lake settlement. The five members of the winter camp, including the author, used four dog-teams for moving. The load of each toboggan was \(3 - 4\) butchered caribou, hunting equipment, and a driver (approx. 300 kg). The number of dogs for each toboggan was 6, 7, 7, and 7 when they left camp \textit{uzaze} (Fig. 24).

\textbf{March 15, 1976}

\textbf{09:00} Four dog-teams and toboggans left the winter camp \textit{uzaze} and proceeded south. They drove in a line following a trail in the snow on the Cochrane River. The drivers ran with the dog-teams in order to lessen the load for the dogs as well as to keep warm themselves. The trail was on powder snow and was in good condition.

\textbf{10:00} Two young Chipewyan drivers competed for the head of the travelling party. To increase their speed, they encouraged their own dog-teams and ran beside their toboggans.

\textbf{12:00} They stopped in the bush and made a fire on the snow. Much dry wood was chopped up and piled up on the fire. They made water from snow and
then made tea. They had a lunch of caribou meat baked on the fire as well as dry caribou meat with fat. The dogs were not fed. They rested on the snow in their harnesses.

Each driver checked the dog harnesses and started travelling south again. The travelling route was on the Cochrane River. Some parts were cut short by a portage in the bush.

They reached the north end of Wollaston Lake. One of the drivers changed the leader of his dog-team in order to train a new leader. The new leader, however, could not understand the voice signals and ran off the trail into deep snow. Whenever the dogs became stuck in deep snow off the trail, the driver had to pull them back on the trail. The new leader, however, made the same mistake many times. Then, the driver hit the dog with a stick. The dog began to learn to run on the trail.

They stopped again on a small island. They made a fire and had a snack of tea and dry caribou meat.
16:00 They started again. The ice was exposed on Wollaston Lake because of strong winds on the lake, so the dog-teams and toboggans ran on the dry ice. The driver training a new leader for his dog-team changed back to the old leader.

17:30 Since the old leader could not pull the toboggan (a slack rope behind the dog), the driver changed the old leader for a third one. The new leader had the power to pull the toboggan, although he had not fully learned the signals. One of the dog-teams was slower, so one dog was transferred from the fastest dog-team to the slower team.

19:00 The driver again changed the leader to the old trained dog, since the Wollaston Lake settlement was near.

19:30 They arrived at the Wollaston Lake settlement.

On the basis of the time data presented here it took 10 hrs. 30 min. (630 min.) to move from the winter camp, Zuzaze, to the Wollaston Lake settlement. Since the resting time for the two fire stops was one hour (60 min.), the net travelling time was 570 min. The distance for travel was
85.3 km on the map. Thus, the average speed for transportation by dog-team would appear to be 9.0 km per hour. The speed, however, varied depending on the snow conditions and the route. The Chipewyan used frozen rivers and lakes as travelling routes. This is well demonstrated on the trapping and hunting routes in Figures 22 and 24. So, the lake and river systems of the Wollaston Lake region acted as routes for seasonal moving not only in summer but also winter.

The account of the travel by dog-team and toboggan in Case 2 also demonstrates the significance of training lead dogs. Since the procedure of driving a dog-team was mainly based on the voice of the driver, it was necessary for the leader of the dog-team to understand the signals. It was observed that the new leader was trained on the relatively easy trail where the dogs did not need to change directions very often. Around the camp and home base, on the contrary, the well trained leader was used. In these places, the dogs must obey the driver's order without being confused by other dogs. Thus, the Chipewyan used their dogs differently in accordance with the time and place of travel, and also in their training of a new leader for the dog-team.

(3) STRATEGY OF CHIPEWYAN MOVING ACTIVITY

As demonstrated in the previous sections, the Hatchet Lake Chipewyan used the two kinds of transportation in the
different seasons; canoe in summer, and dog-team in winter. However, it is difficult to move in the transitional periods between summer and winter. During the time of 'freeze-up' and 'break-up', neither canoe, nor dog-team can be employed for transportation. In these periods the Chipewyan are essentially isolated in their camps. Their subsistence activities during this time, which conducted mainly on foot around the seasonal camps, will be described in more detail in the section on time-space use in subsistence activities in Chapter 7. Moving during this transitional time, fall and spring, can be strategically achieved, although it is dangerous. During the 'freeze-up' in the fall, the ice starts forming first in the shallow water; e.g., the small rivers and ponds in the bush and the shore of the larger lakes. Thus, the Chipewyan can choose a travel route for dog-team in the bush as well as on the shore line of big lakes. The rapids of the rivers are the last place to freeze and are avoided as travel routes. When a party of Chipewyan hunters visited the winter camp, 3uzaze, on a caribou hunting trip in November, they used a route through the bush on the eastern shore of Wollaston Lake. At this time the Cochrane River was still ice-free except along the shore. The caribou hunting party went north along the shore line of the Cochrane River. It should be noted, however,
that one of the hunters broke the ice and his dog-team and toboggan were immersed in the water. Another hunter chopped down a tree and bridged over part of the open water to pull the toboggan onto the ice again.

Spring travel also involves some risk. At this time, the ice starts breaking up at the rapids and in the shallow areas. The surface of the lake ice is melted by the heat of the spring sun and water is collected on the ice. The ice absorbs the water, and is broken into sections. Therefore, in this period, the ice can not support heavy weight, even though it is thick. The Chipewyan were very careful to observe the colour of the ice. Black ice, for example, was soft and dangerous. In order to move in the spring time, it was observed that they utilized both the canoe and dog-team. In May, the author participated in spring travel in this manner. The Chipewyan left the seasonal camp by canoe. Since the ice on the shore line was breaking, they paddled their canoes. Where the ice was still formed, they broke the ice with their paddles. When they reached the stable ice, they used the dog-team to pull the canoe onto the ice. The canoe was then put on the toboggan, and the dog-team pulled it. However, the dogs broke the ice many times and frequently got wet. It was said that during spring travelling dogs were frequently drowned. The dogs have difficulty
running on the spring ice, since it is needle shaped. The paws of dogs are cut by the ice and bleed. The Chipewyan use pieces of caribou skin to cover the paws of the dogs.

In order to avoid danger, the Chipewyan carefully chooses the time for travel. During the day time, the spring ice becomes loose particularly near the shore. It was observed that they rested on a small island in the middle of the Wollaston Lake and waited for evening. After the sun set, the lake ice became rigid and the dog-teams were relatively easy to drive on the ice. When they approached the Wollaston Lake settlement, it was difficult to return to the shore since the water was not frozen along the edges of the lake. They removed all the dogs from their harnesses, pushed the canoe into the water, and paddled ashore. Therefore, it may be said that the Chipewyan could manage spring transportation by the combination of dog-team and canoe. Without these facilities and the aforementioned strategies it would be difficult to conduct a large scale move in spring.

Another strategy for moving is the proper usage of traditional devices and modern tools for transportation. They use the motorized toboggan without dog-teams in the winter time. One of the disadvantages of the motorized toboggan is, however, engine trouble. To be stuck on a winter trail in the snow far from the base camp is a serious problem. In the
winter of 1975, one of the hunters from the Wollaston Lake settlement had engine trouble with his motorized toboggan on his caribou hunting trip 15 km south of camp 3uzaze. Since he knew of the existence of the winter camp, he decided to walk to the camp on foot. However, due to a snow storm, he lost his way and was wandering in the snow. Fortunately, two trappers with dog-teams from camp 3uzaze found the abandoned motorized toboggan and searched for the man. They brought him to the winter camp 3uzaze. It was said that he would have died if the other trappers had not found him.

Another difficulty with the motorized toboggan is its ineffectiveness in deep forest snow. As described in Chapter 3, the snow cover is fluffy in the forest region. Because of its weight and low speed on narrow and meandering trails through the bush, the toboggans often get stuck in deep snow. The Chipewyan, therefore, place more confidence in the dog-team for winter transportation. The dogs would not simply stop in the snow, although they are not as fast as the motorized toboggan. As a result, the Chipewyan tend to use the dog-team for long travel for hunting and trapping in the bush, and the motorized toboggan would be employed only for the activities near the camp (e.g., to gather firewood). Some Chipewyan, however, risk using the motorized toboggan for their winter hunting and trapping activities, since it is
difficult for them to feed dogs during the summer. However, the motorized toboggan has one advantage. In 1976, distemper spread among the dogs at the Wollaston Lake settlement. Then, many Chipewyan hunters lost their dog-teams. In order to conduct the winter activities, they began to purchase the motorized toboggan. Canoes with out-board engines are popularly used by the contemporary Chipewyan. This is particularly effective not only for the commercial fishing, but also for the long-distance seasonal movement. Heavy loads can be carried between seasonal camps and the Wollaston Lake settlement. However, they are less useful in shallow water systems in the forest. It was observed on the summer moose hunting trip that a small hunting canoe is carried on a big boat with an out-board engine. After arrival at the shore on the lake, the boat was left and the Chipewyan hunters portaged over land with a hunting canoe. They approached the area where the moose stayed by paddling the small canoe. In this manner, the Chipewyan can transport themselves from the home base to the hunting ground in a shorter time and can still manage hunting activity in the bush area with interlacing water system.

Thus, not only the motorized toboggan, but also the motorized canoe are more efficient in terms of time and labour. The contemporary Hatchet Lake Chipewyan manage to
cover their home range with frequent back and forth movement between seasonal camp and the Wollaston Lake settlement using modern equipment. In this case the Chipewyan strategically select and use traditional and modern transportation devices on the basis of their effectiveness in each environmental condition.
CHAPTER 7

SUBSISTENCE ACTIVITIES

1. CATEGORIES OF SUBSISTENCE ACTIVITIES

The categories of the Chipewyan subsistence activities are those defined by anthropologist. Although a complete list of human activities has not yet been established in ecological anthropology (there has been no systematic and extensive study in this field), in the present field study among the Caribou-Eater Chipewyan, I observed the following activities: i.e., food getting activity, food processing activity, food eating activity, sheltering activity, hide preparing activity, manufacturing activity, investigating activity, (child) caring activity, ritual activity, playing activity and sleeping/resting activity. Among these activities, the following activities are revealed to be of major importance to the structure of the Chipewyan caribou hunting system, and thus are intensively analysed in this paper: food getting activity, food processing activity, sheltering activity, hide preparing activity, and manufacturing activity. These five major categories are further classified into sixty-nine minor categories of activity (Table 12).
Food getting activity is hunting, fishing, and gathering activities. Food processing activity is the treatment of raw food prior to consumption by the people. There are two minor categories in this activity, food preparing activity and food preserving activity. The former is the cooking activity involved in preparing a meal, and the latter is food preserving activity for future use. Preparation of dry fish and meat is included in the food preserving activity.

The third major category is sheltering activity. This activity includes moving, house building, and housekeeping. The fourth category is hide preparation. This activity could be included in the fifth category, manufacturing, but hide preparation plays a significant role in their subsistence activities in terms of time use. Therefore, it should be separated from the manufacturing activity and established as a major category itself. The fifth category is manufacturing activity. This includes the making of tools and equipment. Since various materials are used for the activity, minor categories can be made on the basis of the materials; e.g., manufacturing with leather, canvas, feather, bone, bead, or wood. The repair of modern equipment is also included in this category. The contemporary Hatchet Lake
Chipewyan repairs his own motorized toboggan and rifle.
For the rest of this section, the characteristics of each activity are described and time-space use of subsistence activities is examined.

(1) FOOD GETTING ACTIVITY (FGA)

Food getting activity includes the six minor categories: hunting; trapping; hunting and trapping; gathering; gathering and trapping; and fishing. In fact, hunting-trapping and gathering-trapping activities are the results of a combination of activities which will be further discussed in Chapter 8. Hunting is subdivided into two minor categories, hunting on foot and/or canoe, and hunting on snowshoes and/or toboggan. Similarly, fishing is subdivided into open-water fishing and ice fishing. These minor classification are based on the different techniques used in the different seasons.

1 - 1 Hunting activity

a) Hunting on foot and/or canoe:

When hunting is conducted on foot, the canoe is often used as transportation. Thus, this activity must be conducted before the 'freeze-up', and usually on snowless ground.

One of the important hunting activities in this category is moose hunting. Moose hunting could be divided into the
two hunting methods based on the hunting techniques and skills employed in hunting, extensive hunting and intensive hunting.

The extensive hunting methods is a technique whereby hunters cover a wide area so their chances of encountering the game are increased. For this purpose, hunters have knowledge of the habitat of the moose: e.g.: muskeg in summer, where the moose feed on the water grass and avoid mosquitoes in the bush. Passing through the muskeg, the Chipewyan hunters watch for moose from their canoes. During their summer fishing excursions as well they would be watchful where they had heard reports of moose. The summer camp was always located near probable moose habitat as mentioned in Chapter 5. The extensive hunting method depends on chance. However, the Chipewyan increase their chances by applying their knowledge of the animal's habit and by using information obtained from other hunters. The animal could also be found swimming across the water in summer, particularly in the narrows between an island and the main land. So the Chipewyan watches these sorts of places. When they find moose either on the shore or the water, they try to shoot the animal with a .30-.30 rifle. If the game is in the water, the hunters try to force the animal to land on the shore, since it is easier to butcher.
the animal there without pulling it up from the water with human power. It was also reported that the moose could be stabbed with a knife when it was in the water.

In contrast to extensive moose hunting, the intensive moose hunting method is dependent upon hunting skill. The hunters have to have a complete knowledge of moose behavior. The moose rests on the leeward of his own trail after doubling back slightly. Then, the hunter should follow the moose track on its leeward checking the continuity of the track. When the track runs in the opposite direction indicating that it has stopped for a rest, the hunter then carefully approaches the animal. However, the behavior of the animal differs for a bull moose and a cow moose with her calf. A bull moose moves quickly and deliberately running 5 - 10 km straight through the bush before resting for 2 - 3 hours. The latter, however, would not wander over a wide range, but stay in a relatively restricted area often for a few days at a time. So one of the important strategies for intensive hunting for cow moose with calf is waiting, or ambushing the animal in their feeding area. On the basis of the data obtained through direct observation of moose hunting, the Chipewyan hunters wait for a cow moose after they had killed the calf.
The cow moose appeared and went into the water to feed on the plants under the water. The hunters, who waited on the opposite bank of a small river, succeeded in shooting the animal. Moose can be also hunted by the intensive method during the winter season as well as the spring. In this case, however, the hunters could employ another strategy for moose hunting, the 'running-down' method on snowshoes. This method is described in the next category of hunting on snowshoes.

Another important hunting activity which is categorized as hunting on foot is small game hunting. The Chipewyan hunt small mammals (porcupine and hare) and birds (spruce grouse, ptarmigan, duck, goose, loon and young seagull). Hunting porcupine is an important activity at the fall camp when caribou have not yet appeared. Birds also supplement the food resource when they gather in migrating season. The spruce grouse and ptarmigan are hunted in spring and fall, and duck, goose, loon, and young seagull are hunted in the spring as well as during the summer season. Small game is killed with a .22 caribre rifle and duck, goose and seagull are killed with a shot-gun. The hunters have an extensive knowledge of animal habitat. For example, the porcupine is always found
near the jack pine forest, since the animal feeds on the bark of the tree. Thus, the hunters pass the jack pine forest on their hunting trips to determine whether the bark has been gnawed on the trees. If fresh marks are found, the animal is then known to be in the area. Fall camps are often located in areas where porcupine are known to be abundant.

1-1 b) Hunting with snowshoes and/or toboggan:

Winter hunting with snowshoes is distinguished from hunting on foot without snowshoes. A toboggan being pulled either by a dog-team or a modern device (motorized toboggan) can be used as transportation. Moccasins, or hide socks, are used as foot-wear which is combined with the use of snowshoes. The web of the snowshoes is made of caribou hide strings and is not damaged by the soft moccasin. Thus, the moccasin and snowshoe could be regarded as a set of foot gear for winter hunting. Chipewyan snowshoes are the Athapaskan type which have a pointed tip and tail. The frame is made of birch and the netting from caribou hide. A more detailed description of the Chipewyan snowshoes and their manufacture is examined later in this section. The most important hunting activity in the category of hunting with snowshoes and/or toboggan is caribou hunting in winter. Caribou hunting can be divided into
the extensive hunting method and the intensive hunting method. The former is employed in early winter when the snow is not deep and the caribou herd is migrating south on the snow. The caribou, in this season, move fast. The size of herd is relatively large, from 10 to 100 animals on the basis of observation in the winter of 1975. The hunters find the caribou herd mainly by chance rather than by following a particular herd. They cover a wide area in their toboggans. The existence of a caribou herd may be ascertained by footprints in the snow. But the hunter does not follow the herd into the bush, since it moves fast on lightly snow-covered ground. Instead of following the caribou herd, the hunters take a chance to encounter the caribou in an open area. By this time, the river systems and many lakes are frozen and snow-covered. The caribou herd moves across these open places and, in the night, they stay on the lake ice. When a caribou herd is found, the Chipewyan hunters approach the herd to within rifle range. It should be noted, however, that the dog-teams tend to chase the caribou, and that it is difficult for the hunters to stop the dog-teams. When they manage to stop the dog-teams, they start shooting the game with .30-.30 calibre rifles. They also use .30-.06 high powered rifle
as well as the .22 calibre rifle. The caribou herd, however, does not escape immediately. They usually run a short distance and stop on the snow to watch the hunters. Therefore, the caribou hunt itself with a long range rifle is not difficult for the hunters. On the other hand, the encounter with the caribou herd is mainly by chance. Thus, the hunters, in this season, try to cover a wide area on their toboggans in order to increase the chance of finding a caribou herd. In many cases, it was also observed that the Chipewyan combined caribou hunting with early winter trapping. The success of extensive caribou hunting is unpredictable, but, by combining it with trapping, their chances of obtaining some product for the expense for their activity are greater.

The intensive caribou hunting method could be observed in the fall caribou hunt in which the Chipewyan spears the migrating caribou in the water. The hunting may be classified as hunting by canoe. Data on this hunting method by the northern group of Chipewyan was shown in the Chapter 5, but the Hatchet Lake Chipewyan did not conduct a fall caribou hunt today. The intensive caribou hunting method is used in the late winter by the contemporary Hatchet Lake Chipewyan. In this season, the months of January to March, the caribou
disperse into the forest in smaller herds. They stay in the bush, since the deep snow prevents them from migrating in a wide range. The Chipewyan hunter follows the caribou herd on snowshoes. The hunters approach the animal closely as the caribou cannot escape in the deep snow which reaches to the height of its shoulders. The Chipewyan informant claimed that in old times they could hunt caribou with bows and arrows in this season. In those days, they also used a device made of caribou horn which made a rustling sound while tied to the hunter's waist. The caribou, hearing the sound, would stop and wait for the approach of the hunter. The contemporary Hatchet Lake Chipewyan, however, use rifles. They follow the footprints of the caribou to locate the herd and then shoot when they find the animals.

The toboggan and dog-team are used as transportation between the hunting ground and the winter camp. They leave the toboggan in the bush and walk on snowshoes to search for caribou footprints. After a successful hunt, they butcher the animal at the hunting spot and make a cache under the snow which is retrieved later by dog-team and toboggan.

This same intensive hunting method on snowshoes is used for moose hunting. The hunter uses the strategy of tiring the
animal in deep snow. It was observed, however, that intensive moose hunting was quite difficult when the hunter employed the 'running-down' strategy without the condition of deep snow. An unsuccessful attempt was made to hunt a moose trapped on a small island (1 km x 2.5 km) by the formation of thin ice between the island and the shore. Though the ground was covered by snow (10 - 20 cm) the moose continued to elude the hunter for three days by hiding in the thick forest, always out of range of his rifle. The hunter, had previously been successful using the 'running-down' technique in deep snow, however, in this instance, the animal kept its distance and moved around the small island. As a result, the hunter and the moose made so many footprints in the snow that the hunter could not distinguish between old and new footprints. The success of the 'running-down' strategy in moose hunting depends not only on the hunter's endurance and strength but also on the condition of the snow. The informant claimed that the best condition for this method was spring snow which has ice on the surface. This causes damage to the moose's legs as the broken ice continually scrapes the skin and the animal's progress is impeded.

On the basis of observations at the winter camp in 1975-76,
it was revealed that intensive caribou hunting was much easier than intensive moose hunting. The caribou, as described before, could not escape from the hunter when followed in the deep snow. However, the moose could detect the hunter's approach and strategically remain out of range of its predator. In fact, the hunters did not attempt to hunt moose when caribou herds were near the camp, even though the existence of moose was recognized.

1 - 2 Trapping activity:

The Hatchet Lake Chipewyan use steel traps for fur-bearing animals including beaver, muskrat, fox, marten, mink, otter, squirrel, weasel, wolf, wolverine, and lynx. This steel-spring trap can be purchased from the store at the settlement. The spots for setting traps, however, are chosen by individual Chipewyan trappers. They use a sachet of beaver in order to lure the fur beavers. A fish head is also used for this purpose. They make a small house of spruce leaves around the trap to keep snow off the trap and prevent birds from picking up the bait. The winter trapping activity is conducted in a wide area along the river systems in the forest as seen in Figures 21 and 22 in Chapter 6. The Chipewyan use dog-teams and toboggans for transportation in covering their trapping
area. It is observed that winter trapping is combined with extensive caribou hunting.

Snares are used for trapping for hares. The wire snare is set on a hare trail. It is released by the movement of the animal, the branch of the tree springs up and the animal is hung up in the air. The snare is also observed to be used for trapping bear. In this case, heavy steel line is used to make the snare. On the bear trail, a few snares are set, but it was observed that the bear broke the snare. The Chipewyan trap mainly to obtain fur animals for commercial purposes, but the meat of beaver, musket, and bear is consumed.

1 - 3 Hunting and trapping activity:

This is a combination of hunting and trapping activity most frequently observed in early winter. In this season, the Chipewyan conduct the caribou hunt using the extensive hunting method. Time-space use of the hunting activity is overlapped with that of trapping. Hunting and trapping cannot be separated into two different activities in this season, but form one activity. Thus, the hunting/trapping activity is classified as one category here. The significance of this combination of activities as a strategy of Chipewyan subsistence is examined again in the next Chapter.
Gathering activity:

Gathering activity is the gathering of wild plants including blueberries, blackberries, and cranberries. This activity takes place only during the snowless season. In the fall, the berries are gathered and consumed as supplementary food with fish. Cranberries are also gathered in the spring after they have been frozen all winter. Gathering berries is a minor activity in comparison with the other food getting activities.

Gathering and trapping activity:

This is a combination of gathering and trapping, observed particularly among the female members during the fall camp. While checking the traps and snares, they gather wild plants. The activity is further examined in the next section of this chapter as well as in Chapter 8.

Fishing activity:

a) Open-water fishing:

Chipewyan fishing includes open-water fishing and ice fishing, the former in the summer season, and the latter in the winter season. The gill net is used during both seasons for both types of fishing.

The canoe is used for transportation for open-water fishing.
Gill nets are set in the water for one to three days and then are pulled up with the entangled fish. Open-water fishing is also employed today for commercial purposes during the summer. However, at the fall camps, open-water fishing is exclusively for their own use. The activity becomes a major subsistence activity during the time when the Chipewyan wait for the caribou herd. A part of the catch is also accumulated and preserved for future use. In the spring time, it was observed that sucker ran up small streams for spawning. Then the Chipewyan could catch the fish by swatting them with sticks. They were also observed catching fish with their bare hands during the spawning season.

Fishing becomes difficult during the transitional period prior to the freezing of the open water. At this time, they can employ neither the open water fishing method, nor the ice fishing technique. The formation of unstable ice on the water prevents the people from using canoes or from transportation on foot on the ice. The transition from open-water fishing to ice fishing is examined more closely in the next section of this chapter.
b) **Ice fishing:**

The gill net is used for ice fishing during winter. In order to set the net under the ice, they make holes in the ice. A pole being attached with a guiding line is passed from one hole to the next under the ice. After the guide line is stretched under the ice passing several holes, they pull the gill net into the water through the hole in the ice. In order to check the net for fish, they pull the net up on the ice from the hole, but the guide line remains attached on the other end of the net with which they can set the net under the ice again.

It was also reported that the contemporary Hatchet Lake / Chipewyan use the line and hook for ice fishing. They make a hole through the ice and set the line and hook in the water. They claimed that they caught jack fish by this method at their winter camp in 1974. But, this technique was not observed during the winter of 1975.

(2) **FOOD PROCESSING ACTIVITY (FPA)**

Food processing activity includes two minor categories, food preparation and food preservation. Food preparation is the preparation of daily meals; i.e., cooking activity. In
this category, however, bannock baking and dish washing are also included, since these activities take as much time and energy as the preparatory activities for food. Food preservation, on the other hand, is the activity of preserving food for future use. Making dry fish and meat are of major importance for the Chipewyan. They also pound dry meat to make a powder. The caribou bone is used to make lard, and bone marrow is also extracted.

2 - 1 Food preparing activity:

a) Bannock baking:

Bannock is made of flour, baking powder, and lard. The ingredients are purchased from the general store at the Wollaston Lake settlement. Bannock can be cooked by baking, boiling, or frying. For baking, the mixed components are kneaded and baked in a frying pan. They also cook bannock on an open fire. In this case, sticks are put into the dough and the ends are put in the ground for support during cooking. In order to make a boiled bannock, the ingredients are mixed, kneaded, and wrapped up in a cloth and then boiled in water. Bannock can also be cooked by frying. Baked bannock is the most common, while boiled and fried bannock are made only occasionally, particularly at feasts.
Cooking is the activity of preparing a meal. The two major materials are meat and fish. Cooking techniques for each ingredient include roasting, boiling, and frying. The meat, after a successful hunt, is butchered and transported to the camp. There it is further cut into parts, some used for making dried meat and the others for meals. Most of the boneless meat is preserved for dry meat, the process of which is described later in a separate category. The meat used for cooking is, therefore, the head, neck, backbone, and some internal organs. The shank and legs are used for cooking after the largest muscles are removed for making dried meat. Ribs can be used for dried meat, but it is also cooked with the bone in. The hooves of caribou can be baked and the meat in them consumed. In abodes at the camp, the cooking is mostly done by boiling. But, in the bush, meat and fish are usually roasted on an open fire. For a feast at the camp, the material can be fried with lard in a pan.

Small game is transported to the camp without being butchered into smaller parts, but the stomach and the intestines are discarded where they are killed. In the case of porcupine, the spines are burned off over an open fire before transportation,
although sometimes it can be brought back to the camp without this treatment. In the latter event, a big fire is made at the camp site and the porcupine is put right in it. After the spines are taken off, the body is butchered into smaller parts. The skin of the porcupine can be eaten after this treatment, but the meat of the animal is usually boiled in water.

In order to cook hare, it is skinned, butchered, and boiled in water. Similarly, beaver is boiled. But, the tail of the beaver is roasted over an open fire and is eaten after the burnt skin is scarped off. Birds, including duck, goose, spruce grouse, ptarmigan, and loon are cooked. They are mainly boiled particularly in the abodes at the camp, but in the bush they can be broiled over an open fire. In the case of the loon, the feathers are burned off in the open fire before it is butchered, since it is said that its feathers are difficult to pluck, and then put in a pail and boiled in water. Therefore, meat cooking activity includes butchering, although the big game is butchered by the hunter to facilitate transportation. Similarly, the cooking of fish includes the process of cleaning the fish. The skills of butchering meat and cleaning fish are important techniques for
Chipewyan subsistence, and are described in more detail in the section on food preservation.

2 - 1 c) Dish washing:

Dish washing is observed after each meal at the camp, and is categorized as one of the food preparing activities. The Hatchet Lake Chipewyan use plates and cups as tableware, which can be purchased from the general store at the Wollaston Lake settlement. After the meal, they wash these items and dry them with a dishcloth. No soap is used in dish washing. In the bush, however, twigs of spruce are used as a plate. In this case, the twigs are discarded after the meal, and there is no dish washing.

2 - 2 Food preserving activity:

a) Dried fish making:

At the summer camps the Chipewyan were observed making dried fish for future use. Fish drying is a significant activity at the fall camp, since preserved food can be used during the fall-to-winter transitional period, when they can not fish. The process of dressing fish is as follows. The scales are removed and the fish is cut open along its backbone. Then the internal organs are discarded. The fish is not cut into parts, but is left connected at the tail. The head is
sometimes discarded, but it can be left attached. The fish is then hung on a wooden frame to be dried by the sun as well as partly smoked. In reality, the smoke is used to keep flies away from the fish, but the Chipewyan are fond of the smoky flavour on dried fish. Dried fish made in this manner was observed to be consumed within a week. They claimed that dried fish can be preserved for several months if it is well dried. When it is served for a meal, it can be either baked, or fried in lard.

2 - 2 b) Dried meat making:

Both caribou meat and moose meat are used for this purpose. This is an important activity after a successful moose hunt during the summer. In this season, the meat would spoil, unless it is preserved by drying. In the winter, caribou meat is dried for future use. However, it is mainly dried in spring for use in the coming summer. The dried meat which is made during the winter keeps very well during the summer.

The procedure for making dried meat is as follows. The caribou is separated into meat and bone, and the caribou meat is cut into thin slices. For example, the breast meat is cut off from the bone. Rib bones are removed. The muscles of the shank and leg are taken apart. Clearly, the Chipewyan
uses her knowledge of anatomy in order to carry on the process of butchering. After butchering, the slices of caribou meat are hung up to be dried in log cabins. The dried meat is then put in a smoke tent to add the smoky flavour.

2 - 2 c) **Dried meat pounding:**

Dried meat may be consumed as it is. However, the Chipewyan also make a powder from it. It is eaten mixed with lard and sugar. In order to make powdered meat, the dried meat is pounded on a stone platform using an axe as a hammer. Tendons in the meat are discarded, and only the powdered dried meat is collected to be stored in a caribou skin bag. The powdered dried meat has less volume than the same weight of non-powdered dried meat. It is more convenient for transportation during their seasonal moves.

2 - 2 d) **Bone marrow extracting:**

Bone marrow extraction is basically an individual activity when each person breaks caribou leg bones and extracts bone marrow at the meals. However, it was also observed that the women performed most of this task and stored bone marrow for future use. The bone marrow is eaten either with dried meat or with powdered dried meat. In order to take bone marrow from the bone, the leg bone is split open with a knife.
The bone is struck with the back of the knife or split laterally with the knife. The same stone used for dried meat pounding is employed as a supporting platform for this activity.

2 - 2 e) Lard making

The Chipewyan make lard from caribou bones. The joints of leg bones are gathered and cached after the extraction of bone marrow. The back bone is also utilized for this purpose. The bones are boiled in water and lard is collected as it comes to the surface. The caribou lard is stored and may be consumed with dried meat or powdered dried meat.

3) SHELTERING ACTIVITY (SHA)

Sheltering activity for the Chipewyan is making their seasonal camps and maintaining their households. It includes the following minor categories: moving, house building, and housekeeping. Moving is described in the section on transportation and moving activity in Chapter 6. House building is an important activity in the fall. Although the Chipewyan can stay in canvas tents throughout the winter season they usually make log cabins for winter. Housekeeping is the daily activity of maintaining their shelters, which includes house
cleaning, laundering, water drawing, fire making and generating, dog feeding, acquisition of firewood, and firewood chopping. Housekeeping becomes one of the major activities for the Chipewyan, particularly during the winter season. It is noted that not all housekeeping activities are exclusively women's work.

3 - 1 Moving activity:

Moving is the seasonal migration between the home base and the seasonal camps. The last chapter contains more detailed descriptions of the actual preparation and transportation of goods involved in the seasonal moves.

3 - 2 House building activity:

In spring, summer, and fall, canvas tents are used as dwellings. The canvas tent is pitched and is supported by a wooden framework.

For the winter season, some Chipewyans make log cabins, or use the cabin built for the previous winter if they camp at the same site. The process of house construction is as follows. Logs are hauled to the place where the cabin will be built and are then stacked crosswise in two parallel piles. Moss is used at the joints. The logs are transversely crossed between the front and the back walls of the house, which are
used for supporting the roof. Then the roof is made. After the framework is made, a door and two windows are cut out. Moss is put between logs on the walls and roof. It was also observed that sand is put on the roof to protect the dried moss when sparks landed on it.

3-3 Housekeeping activity:

a) House cleaning:

   In a canvas tent, spruce twigs are spread as a floor. But the needles become dry in a week and are then discarded and replaced by fresh twigs. They are laced into each other to form a carpet. Some log cabins have boards as floors. During the winter, food processing such as making caribou dry meat is conducted indoors. When the floor becomes unclean, even though a canvas sheet covers the floor during this activity, it is washed and scrubbed.

b) Laundering:

   Laundering is the activity of washing clothes. The contemporary Hatchet Lake Chipewyan purchase their clothes from the general store at the settlement. The clothes are washed when they become dirty. Washing is a particularly difficult task involving heavy labor during the winter season when the water is drawn through ice holes. Firewood must be
chopped and hauled; water has to be heated on the fire and then the clothes are washed by hand. The washed clothes are hung up outside where they become frozen and dry. After a few days they are brought inside and thawed.

3 - 3 c) **Water drawing:**

Camps are always made near a supply of fresh water. Water for drinking, cooking, and cleaning is drawn and kept in a bucket inside the dwelling. At the summer camps, water is simply drawn from the lake, but at the winter camps a hole is made in the ice and then water is obtained through the hole. When this hole is used frequently, only thin ice forms over it. But if a hole is only being used by a small number of people, thick ice may form between uses.

3 - 3 d) **Fire making:**

To make their morning fire, the Hatchet Lake Chipewyan use wooden matches. They start the fire with dry wood shavings without using paper. Shavings are prepared for the morning before they retire the previous night. A sharp axe is used to make thin shavings.

3 - 3 e) **Fire generating:**

Fire generating consists of maintaining a fire in the abode. Chopped firewood is stacked outside the house, brought
in and put in a stove. This activity is particularly important during the winter season since the fire should be kept going during waking hours.

3 - 3 f) Dog feeding:

Dogs are kept in the vicinity of the camp. They are fed only once every few days during the summer, but at least once a day in the winter season. Ideally fish are given to them in summer and caribou meat in winter. Puppies are placed under a temporary shelter made of spruce branches and small pieces of fish are boiled for them.

3 - 3 g) Firewood getting:

During the summer season dry wood is collected from the ground. In the fall, when they need more firewood for keeping their living quarters warm, they cut down dry wood with an axe and carry it back on their shoulders. During the winter, they use snowshoes for transportation in the deep snow. They also use the dog-teams and toboggans for transportation of firewood. Since much firewood is necessary in winter they were observed conducting this activity almost every day. The winter camp is, in fact, always situated near a place where sufficient dry wood is available. This issue is again discussed in the section on time-space use of
subsistence activities in this chapter.

3 - 3 h) **Firewood chopping**:

The Chipewyan chop their firewood on the ground with an axe. They also use an axe with one hand while the other hand holds the log vertically on the ground. The thick firewood may be sawn. The wood is then split into smaller pieces. The skill of using an axe is important, since the wood is frozen and slippery in the winter, and the axe handle is easily broken in the cold.

(4) **HIDE PREPARING ACTIVITY (HPA)**

Hide preparation involves tanning the skin of the animal. The finished smoked skin can be used as material for manufacturing various items (see next category). Because hide preparation plays a significant role in the Chipewyan subsistence activities in terms of time and energy an independent category was made for this activity in this paper. So a characteristic of hide preparation is the fact that it is an independent stage in the temporal sequence of Chipewyan subsistence activities from food (and material) getting activity to manufacturing.

Hide preparation includes three minor categories on the
basis of the raw material; moose hide preparation, caribou hide preparation, and fur-bearing animal skin preparation. The first two categories are further divided into minor activities on the basis of the sequence of the activities. The methods and skills involved in preparing the hide are basically identical, but some modifications are observed on the basis of the characteristics of the different materials. The third minor category, preparation of the skin of fur-bearing animals, is different from other hide preparing activities. Specifically, the hairs on the pelt remain, and the process of tanning is omitted. The dried pelts are then, mainly used as commercial items in fur trading.

4 - 1 Moose hide preparing activity:

Preparation of moose hide includes a series of minor activities in temporal sequence. Soaking in the water, removal of hair, making the wooden framework, stretching the skin, scraping the inside of the pelt, scraping the outside of the pelt, tanning, smoking (first time), softening and drying, and smoking (second time). The major differences between the moose hide and caribou hide preparation is the use of a wooden frame for scraping the hide. This is due to larger size and greater thickness of the moose hide. The
process of scraping the inside and outside of the moose hide requires much time and energy, as demonstrated in the next chapter in the time and activity data. In this section, however, each series of activities is described with reference to the skill and technique involved.

4 - 1 a) Cutting moose hair:

Hairs on the moose hide are cut off with a knife before the hide is scraped. However, this is not necessary, since the hairs would be removed when the outside of the pelt is scrapped. It was observed that by cutting off the hair the scraping of the outside of the pelt was made easier. Sometimes, the moose hide is soaked in the water, so that the hairs are easily removed.

4 - 1 b) Wooden framework making:

A wooden frame is made in order to stretch the moose hide before it is scraped. Four logs of green spruce are lashed in the shape of a square (Plate IV).

4 - 1 c) Stretching of the skin:

The moose hide is stretched on the wooden frame. For this purpose, holes are made along the edge of the hide, strings are laced through these holes and around the wooden frame. Moose hide is strong enough to be stretched in this manner.
Once the moose hide is stretched on the wooden frame, it is leaned on a bar between two trees (Plate IV).

4 - 1  d) **Scraping the inside:**

The fat attached to the inside of the moose pelt is removed. It was sometimes observed, however, that it was not really necessary for the hide to be stretched on the frame for scraping the inside. In this case the pelt was simply hung on a wooden stick and scraped (Plate IX, X). A bone scraper made of moose leg bone is used for this process. The edge is sharpened with a file. The bone scraper is brought down between moose skin and fat so this activity requires not only strength but manual skill. Also, the first scrapings can be made into a soup.

4 - 1  e) **Scraping the outside:**

In order to scrape the outside of the moose pelt, the wooden frame on which the pelt is stretched is necessary. The soft tissue on the skin is scraped off using a steel scraper (Plate XI, XII). The material for the scraper may be from a steel file or steel springs used in modern machinery. It should be noted that this scraper is used with two hands. One hand is used to press the scraper to the moose skin while the other hand is used to pull it downward (Plate XIII).
The moose hide is scraped until it no longer contains any moisture in the soft tissue. The Chipewyan frequently examine the pelt during this process by placing a bare hand on the pelt in an effort to detect any moisture. Some parts of the moose hide, particularly the neck and back, are thick and must be well scraped. But other parts of the pelt are thin and the Chipewyan must be careful not to tear the hide with the sharp scraper. Thus, the scraping of the outside of the moose hide needs strength, manual skill and knowledge of the moose hide. Also, age, sex, and time of year that the moose is killed are factors that determines the degree of scraping required.

4 - 1 f) Tanning:

The Chipewyan use moose brain for tanning moose hide. A solution of the brain is put on the scraped moose hide with a twig of spruce. When brain is not available, fish gut may be used for this purpose. But it is said that the results are better with moose brain.

4 - 1 g) Smoking (first time):

The tanned moose hide is smoked. Since the pelt is large, it is put on a smoke tent (Plate VI). Dry larch is used to produce smoke. In order to avoid actually burning the dry
wood, it is covered with moss so it only smolders and produces smoke. The smoked hide is not only more aesthetically pleasing in colour but is also made more water proof. Larch is selected since it produces dark brown smoke stain on the hide.

4 - 1  h) Softening (Drying/Scraping):

The smoked moose pelt is softened, and stretched out by two people. The thicker part of the hide which is difficult to dry is then again scraped with the iron scraper. It should be hot inside the abode for this activity during the winter. When the hide can't be softened, it is again scraped and put in the brain solution. The softening activity of the moose hide requires physical strength.

4 - 1  i) Smoking (second time):

The softened moose hide is again smoked. This smoking procedure is identical to the first. The smoked moose hide is stored for future use in manufacturing after the entire process of hide preparation is completed.

4 - 2  Caribou hide preparing activity:

The process of caribou hide preparation is basically identical to the preparation of the moose hide. But, it is much easier, since the caribou skin is smaller and not so
thick as the moose skin. For the caribou hide, it is not necessary to use a wooden frame to stretch the pelt. Instead, the Chipewyan utilize only a wooden stick. The scraper for the outside of the caribou pelt is different from that for moose hide. The process of tanning and smoking is basically the same, but some modifications were observed.

4 - 2 a) Cutting of the caribou hair:

The hairs on caribou hide are cut off with a knife. The hairs are used to pad the inside of the dog harness.

4 - 2 b) Scraping the inside:

The caribou skin is scraped in order to remove the fat and inner membrane of the skin. The bone scraper which is used for moose hide preparation may be utilized.

4 - 2 c) Scraping the outside:

The hair and soft tissue on the outside of the skin are removed using a side scraper of caribou leg bone (Plate XIV). The edge is made on the lateral side of the scraper. Both ends are gripped, and it is then pulled downward. Thus the bone scraper is used with two hands, differing from the usage of the other type of bone scraper used for scraping the inside of the skin.
4 - 2 d) **Tanning:**

The scraped caribou hide is tanned using a solution of caribou brain or alternately, fish gut. After this solution is put on the caribou hide, the skin is taken outside and hung on a pole where it freezes.

4 - 2 e) **Softening (Drying/Scraping):**

The solution of caribou brain on the hide is washed out in hot water. Then, the hide is softened using the same procedure as that for moose hide. The hide should be well dried and the thick part is then scraped again.

4 - 2 f) **Smoking:**

As the last stage of caribou hide preparation, the hide is smoked. Dry larch wood is again used for producing smoke. It is covered by moss in a smoke tent. The caribou hide is sewn in the shape of a bag, the open end placed over the moss, so that the smoke fills the inside of the skin bag (Plate VI). Following the smoking process, the completed pelt is stored for future use in manufacturing a variety of items.

4 - 3 **Fur-bearing skin preparing activity:**

The pelts of fur-bearing animals are mainly used commercially for fur trading. It is not necessary to intensively
scrape the skins since there is not much fat on the inside and the hides are very thin. Also the hairs are left on the outside of the pelt. Primarily, the only preparation necessary is the drying of the pelt.

4 - 3 a) Skinning:

The small fur-bearing animals are skinned with a small knife and the skin is cut from the end of the legs. Then the pelt is stripped off. The head is difficult to skin, the skin and body must be carefully separated with a knife.

4 - 3 b) Scraping/Drying:

The skin is stretched on a board, with the inside facing out, to dry. The fat and tissue on the skin should be scraped. A bone end scraper made of moose leg bone is used for this purpose. The skin is fixed to the board with nails if necessary. The beaver pelt is stretched on a wooden frame to dry and holes are made around the edge of the pelt and string is passed through the holes and around the frame to stretch it. The dried pelts are then stored and later traded.

(5) MANUFACTURING ACTIVITY (MA)

The manufacture of tools and equipment includes the following: manufacturing using leather and/or canvas, feather,
bone, bead, wood, and the repairing of modern equipment.
The following are the activities which were observed during
this field investigation.

5 - 1 Manufacturing using leather/canvas:

Moose and caribou leather can be used for manufacturing
various items. The contemporary Hatchet Lake Chipewyan also
utilize canvas as a substitute for leather. Items manufactur-
ed with leather and/or canvas include leather string, thread,
skin bags (containers), hunting bags, toboggan bags, gun
cases, dog harnesses, mittens and/or gloves, moccasins, caribou-
hide blankets, and snowshoe netting.

5 - 1 a) Leather string making:

Leather strings are cut from moose or caribou hide with a
knife. Leather strings from smoked hide can be used for the
strings in moccasins, mittens, or the opening of a skin bag
(container) or of a toboggan bag. The unsmoked scraped cari-
bou hide cut into strings is used for the netting on snowshoes.

5 - 1 b) Thread making:

Thread, for sewing, is made of dried caribou loin tendon.
Pieces of this dried tendon are twisted to make a reasonable
length of thread. The Hatchet Lake Chipewyan today use
needles purchased from the store at the settlement.
5 - 1  c) **Skin bag (container) making:**

The skin bag is made of untanned scraped caribou skin and a leather string is used at the opening. The skin bag is used as a container for dry meat. It was also observed that pieces of moose head skin with hair intact were sewn together to make a skin bag. In this case, the powdered dry meat was stored in the bag.

5 - 1  d) **Hunting bag making:**

The hunting bag, which hangs from the shoulder, is cut from a sheet of canvas with a knife and sewn with a needle and thread.

5 - 1  e) **Toboggan bag making:**

Toboggan bags are made of canvas. A sheet of canvas is cut out in accordance with the size of the toboggan, and sewn up to make a bag. The strings which are attached to the edge of the bag are made of leather.

5 - 1  f) **Gun case making:**

Gun cases are made of canvas or smoked hide. The material is cut out and is sewn together to make a case. A small bullet case can be made of smoked leather.

5 - 1  g) **Dog harness making:**

Dog collars are made of hide and hairs. Hide is sewn
to make a collar, and moose or caribou hair is put into it to form a cushion. As mentioned, the hairs cut off and stored during the process of hide preparation is used for this purpose. Leather straps are purchased from the store.

5 - l h) **Mittens and/or gloves making:**

Mittens and/or gloves are made of smoked caribou or moose hide. Mittens made of caribou hide are thin. Moose hide mittens, on the other hand, are thick and more suitable to the cold season. In order to cut the hide in the shape of mittens, the Hatchet Lake Chipewyan use paper patterns. Using three pattern pieces, the smoked hide is cut out with scissors (Fig. 25). A hole is made on piece (a), and part (c) is joined by stitching it on. Part (b) is also sewn to part (a) and part (c). The edge of parts (a) and (c) is sewn up. Then it is turned inside out. A muskrat pelt can be stitched into the seam between (a) and (b). As a result, the seam is concealed inside, which prevents snow from sticking to it. The Chipewyan use their incisors to shape the hide when each piece is folded back (the parts are shown on Fig. 25 by xxx lines). The teeth are also used to pull out the seams when the mittens are turned inside out. The same technique is also observed during moccasin manufacture.
5 - 1  i) **Moccasin making:**

The Chipewyan also use paper patterns in the manufacture of moccasins from smoked hide. These patterns are shown in Fig. 26. Pattern (a) is identical for both the right and left foot, but pattern (b) differentiates between feet: i.e., the outer edge of each foot is round. Parts (a) and (b) are stitched together. At this time, another piece of smoked hide is sewn between the two parts, which is shown as (c) in the figure. Then, it is turned inside out. An extra part of hide strip is cut off. A part for the toe is shaped with the incisor teeth. It should be noted that the edge of part (a) should be creased in order to fit with the length of the edge of part (b), when parts (a) and (b) are sewn together. As shown in (d) in figure, part of heel is sewn together in a T-shape. After it is stitched, the moccasin is turned inside out. Then, the seams are put inside. A piece of canvas can be attached as a gaiter on each moccasin, which prevents the snow from entering the moccasin. Lastly, strings are attached to the shoes, which are used to lace up the moccasins. The manufacturing of moccasins requires a great deal of skill; manual dexterity in sewing as well as skillful use of the incisor teeth are necessary.
5 - 1  j) **Caribou hide blanket making:**

Caribou hide is used as a bed sheet. For this purpose, the inside of the pelt is scraped and the hairs are left on the outside of the skin. The hide is neither tanned, nor smoked, but it should be dried. The Chipewyan, particularly outside in winter, uses the caribou hide for bedding.

5 - 1  k) **Snowshoe netting:**

Snowshoes are netted with caribou hide strings. The scraped, unsmoked caribou hide is cut into strips, put into water and stretched. Later, when they dry in the snowshoe frame they shrink. The string is netted by hand, but the Chipewyan also use a bone needle which has a hole in the center. In order to tighten the string, teeth are used. In Fig. 27, the details of a pair of completed snowshoes as well as the procedure for construction of the wooden frame are shown. The manufacture of the snowshoe frame is described in a later category on manufacturing with wood. The central part of the snowshoe, on which feet rest, are netted with thicker string while the front and tail parts are made of thinner string. Snowshoe netting is one of the most skillful activities among the Chipewyan manufacturing activities, as both elaborate manual dexterity and knowledge of the webbing
procedure are necessary.

5 - 2 Manufacture using feathers: (Packing feathers in a blanket)

Down and feathers are stored when birds are killed and later this material is used as the contents of a down-filled blanket. The down is wadded into a sleeping bag which is originally purchased from the general store at the Wollaston Lake settlement. The down of water fowl is preferred, but that of spruce grouse and ptarmigan can also be used.

5 - 3 Manufacture using bone: (Bone scraper making)

The bone scraper is the tool used for scraping hides as described in the section on hide preparation. Two types of bone scrapers are used by the contemporary Hatchet Lake Chipewyan. The end scraper, which is used with one hand for scraping the inside of the pelt, is made of moose leg bone (Plate IX). The bone is sawed off and the edge sharpened with a file. A leather string is attached to the other end so that the hand can firmly grip the scraper. The side scraper, used with two hands for scraping the outside of a caribou pelt, is made of caribou leg bone (Plate XIV). The bone should be split off with a knife and the edge on the lateral side of the bone sharpened with a file.
Other tools made of bone as well as caribou horn include the drill and knife handle. The Chipewyan also reported that, in the past, they had made arrow heads and spear points from caribou horn, although this was not observed among the contemporary Hatchet Lake Chipewyan.

5 - 4 Manufacture using beads:

Bead work is done on mittens and moccasins. It is also observed on the small hide bag which serves as a bullet container. The beads are purchased from the store at the Wollaston Lake settlement. The Chipewyan set much value on them. When the moccasins or mittens become old, the beads on them are saved for future use on a new pair of mittens or moccasins. The patterns and the workmanship depend on individual skill.

5 - 5 Manufacture using wood:

The Chipewyan use wood as a material for making various tools. Manufacture using wood includes constructing racks, pitching smoke-tents, wooden plate making for fur drying, pups' shelter making, axe handle making, toboggan, and snow-shoe frame construction. House building, which is categorized as sheltering activity, could also be considered as one of the manufacturing activities using wood. Manual skill in the
use of the knife and axe is necessary particularly for these activities.

5 - 5 a) **Constructing racks:**

Wooden racks are constructed at Chipewyan camps, on which food is cached. Racks are put on four wooden poles. Fish and caribou meat are put on racks in order to prevent dogs and wild animals from consuming them. Snowshoes with nets of caribou hide strings and unprepared caribou hide are put on racks, since dogs might chew them.

5 - 5 b) **Pitching a smoke-tent:**

A smoke-tent is pitched in order to smoke dry caribou meat as well as caribou and moose hide. Several wooden poles are combined to make a conical form and a sheet of canvas is used to cover this form. When this tent is used for drying meat and fish, a rack is made inside.

5 - 5 c) **Construction of a wooden plate for drying fur:**

A plate is made of wood in order to dry the pelt of fur-bearing animals. The size of the wooden plate differs according to the size of the animal. A plane and a knife are used for this activity.
d) **Construction of shelters for pups:**

Pup shelters are constructed to protect them from wind and snow during the winter. A spruce is chopped down with an axe and a small enclosure in the shape of a square is made of it.

**e) Axe handle making:**

Axes may be purchased from the general store at the Wollaston Lake settlement, however, axe handles are easily broken. When this happens, the Chipewyan make an axe handle of birch. Living birch is cut down, and a wooden stick is made of it with axe and knife.

**f) Toboggan making:**

Toboggans are also purchased from the general store at the Wollaston Lake settlement, but must be also fixed when broken. Again birch is used in the repair of toboggans. The procedure for making a board of birch is as follows. Birch is cut down with an axe. Then the birch is split into two parts from one end using small pieces of wood as wedges. Each part is shaved to make a board. Skillful use of the axe is necessary for this activity. The board, then, is further planed and the finished birch board is used to reinforce the sled part of the toboggan. It should be noted
here that some Chipewyans can construct the entire toboggan of birch. Reportedly, the birch toboggan is much more solid and durable in the bush. The front part of the toboggan should be bent upward in order to slide on snow. The Chipewyan use fire to bend the boards.

5 - 5 g) Snowshoe framework making:

The wooden frame of the snowshoe is made of birch wood. A crooked knife is used to produce small pieces of wood. They are combined together and are framed. In order to shape the snowshoe framework, it is dried indoors. The front part of the snowshoe is bent upward in order to avoid being caught in the deep snow. The shape of the snowshoe frame is not symmetrical as the inner sides of both are straighter and the outsides more rounded to make walking easier. The size of snowshoes also varies depending on the weight of the individual as well as on the season they are utilized. For the deep and soft snow in late winter, a larger size is preferred. On the other hand, a smaller size of snowshoe is used for the shallow snow of early winter. Thus, the manufacture of snowshoe frames with the adjustment of size is one of the most skillful activities among the various Chipewyan manufacturing activities. The snowshoes are complete when they are netted.
This activity has been previously described in the section on manufacture with leather.

5 - 6 **Manufacture and repair of modern mechanical equipment:**

The contemporary Hatchet Lake Chipewyan repair modern equipment originally purchased from the store at the Wollaston Lake settlement. A fully detailed description of the procedures for fixing and preparing modern tools including the motor, rifle, and modern clothes are beyond the scope of this paper. However, it should be noted that skill and knowledge of modern equipment are an essential part of the life of the contemporary Hatchet Lake Chipewyan. The following minor activities can be categorized under the manufacturing and repairing of modern equipment.

5 - 6 a) **Repairing the motorized toboggan:**

5 - 6 b) **Repairing and/or adjusting rifles:**

5 - 6 c) **Wire-snare making:** (In this category, also see: 1 - 2 Trapping activity)

5 - 6 d) **Wood stove making from oil cans:**

5 - 6 e) **Repairing clothes:** (For skill for sewing activity, also see: 5 - 1 h) **Mittens and/or gloves making; 5 - 1 i) Moccasin making**
2. **TIME-SPACE USE OF SUBSISTENCE ACTIVITIES**

In this section, the time-space use of the Chipewyan subsistence activities is described. Time use of activities in the yearly cycle is characterized by the seasonality of activities. Five seasons in a year are distinguished by the author from the viewpoint of subsistence activities.

Season I is autumn, or the time after summer fishing, but before the caribou hunting. This season is further divided into two sub-seasons; i.e., season Ia and Ib. Season Ia is characterized by open-water fishing and small game hunting. Season Ib overlaps with the 'freeze-up' period and is characterized by dependence on preserved food as well as by ice fishing. Season II is the early part of winter including November and December when the Chipewyan conduct extensive caribou hunting, trapping, and ice fishing activities. Season III is the time of intensive caribou hunting and coincides with the latter part of winter, or January to March. Season IV is the spring when the ice breaks up. Open-water fishing at the small streams and bays where the ice melts is the major activity for food acquisition. This season is also characterized by spring trapping, small game hunting, and caribou meat preserving activities. Finally, season V
corresponds with the summer when open-water fishing and moose hunting are of major importance.

Subsistence activities for each season are examined in terms of time-use. The focus is also on the transitional time from one season to another. Thus, the process of changes in activities from the summer season to the winter season is described on the basis of the quantitative data, and the Chipewyan strategy for subsistence in this transitional time is demonstrated. Space use of subsistence activities is also examined in this section. The general activity area in the summer season and in the winter season has been already described in the section on seasonal changes in home-range size in Chapter 6. Then, in this section, the space-use of each subsistence activity is described on the level of the seasonal camps.

(1) TIME USE OF SUBSISTENCE ACTIVITIES

Season Ia and Ib:

Season I is autumn; i.e., October and part of November. This is a transitional time from summer fishing to winter caribou hunting. The season is further divided into two sub-seasons, or season Ia and season Ib. Season Ia is
characterized by open-water fishing and small game hunting activities. Season Ib, on the other hand, is the time when the Chipewyan depend on preserved food as well as ice fishing (Fig. 28). The process of change from open-water fishing to ice fishing is as follows. At the winter camp ņüzaze in 1975, open-water fishing was observed from October 10 until November 1. And ice fishing began on November 4 and was sporadically observed until December 14. During the two days, November 2 and November 3, it was impossible to conduct either open-water fishing, or ice fishing. The following accounts are the condition of ice during the time of 'freeze-up'.

**October 9, 1975**

At the camp on the way from the Wollaston Lake settlement to winter camp ņüzaze, partial formation of thin ice on the shore was seen. It was often broken and washed ashore when the wind blew. The snow cover was 30 cm. (due to a snowfall on October 8).

**October 27, 1975**

The ice had expanded on the surface of the Cochrane River to 10 m. off the shore. The temperature was -7°C at 08:00.
October 28, 1975

The ice was formed to 60-70 m. offshore. The thickness of ice at the shore was 2 cm. A slight snow cover was observed on the ice. The wind started to blow at 16:00 and the formed ice was broken into pieces and drifted away. Only ice to 2 m. offshore remained. The temperature was \(-13^\circ C\) at 08:00; \(-10^\circ C\) at 10:00; and \(-8^\circ C\) at 15:00.

October 29, 1975

The snow on the ground disappeared and the ice on the Cochrane River also drifted away leaving only 1 m. of ice offshore. The weather was cloudy. The temperature was \(-7^\circ C\) at 08:00; \(-4^\circ C\) at 11:00; \(-1^\circ C\) at 15:00; and \(0^\circ C\) at 21:00.

November 1, 1975

The temperature went down in the afternoon but there was no wind. The members of the winter camp said that the lake would freeze. Clear. The temperature was \(-3^\circ C\) at 09:00; \(-6^\circ C\) at 15:00; and \(-15^\circ C\) at 18:00.

November 2, 1975

New ice was formed to 100 m. offshore and a light snow covered the ice. The temperature was \(-8^\circ C\) at 09:00; \(-6^\circ C\) at 12:00; and \(-7^\circ C\) at 17:00.
November 3, 1975

There was a blizzard from 18:00 until 22:00, bringing 10 cm. of snow. The temperature was $-6^\circ C$ at 09:00; $-8^\circ C$ at 12:00; $-8^\circ C$ at 15:00; and $-8^\circ C$ at 18:00.

November 4, 1975

The ice on the Cochrane River had turned to slush. The colour of the ice was dark white signifying a lack of solidity. In the afternoon, however, two members of the winter camp took decisive action in setting a fishnet under the ice. They were careful when walking on the ice (e.g.: two people could not stand on the same spot, since this soft ice would sink down). They managed to conduct the first ice fishing for the winter season of 1975.

As demonstrated in this example, the discontinuity of fishing exists between seasons I and II. In reality, season Ib is largely overlapped with the time of 'freeze-up'. During this period, it is difficult to conduct either open-water fishing, or ice fishing. The first ice fishing is carried out with risk, which is forced due to the food shortage at the winter camp. Therefore, season Ib is revealed as a time when the Chipewyan depended on preserved food including dried fish. It is shown in Fig. 28 that the open-water fishing
in season I correlated with the fish preserving. The preserved food which the Chipewyan used in season Ib is the product of the activity in season Ia. Thus, the Chipewyan strategically overcome the discontinuity of fishing activity by using preserved food from the previous season.

Aside from fishing, hunting on foot is important in season I. The caribou do not appear around the camp in this season, and the hunters were observed conducting small game hunting on foot. The porcupine, hare, and migrating birds are the major game. On the hunting trips from the camp, they pass through the jack pine forest to find porcupine. During season I, three porcupines which were hunted and brought to the camp, constituted the major meat input. It should also be noted that moose could be an important part of their food intake during this season. At winter camp 3uzaze, moose was not observed being hunted in season I, although some members of the camp tried to find moose. At winter camp Desi če, on the other hand, on Kendel Island, 35 km. south of camp 3uzaze, three moose were hunted on which the members of the camp could manage to subsist. In season I, gathering activity is also observed as one of the food acquisition methods. Berries on the snowless ground are gathered, which
can be consumed with fish and bannock. Small scale trapping activity is also started in this season. This trapping, however, is carried out on foot mainly around the camp.

Another characteristic of season I is the high frequency of manufacturing and house building. These activities are done in order to prepare tools and equipments which will be used for hunting and trapping in season II.

**Season II:**

This season is characterized by hunting activity on snowshoe (and toboggan) which is combined with trapping activity. The extensive hunting method for caribou is mainly used. In this season, caribou herds migrate south to the winter camp and the hunters go north to meet the caribou. On such hunting trips, however, they also set traps so they may better be classified as hunting-trapping excursions. After the first caribou meat input to the winter camp, food preserving activity with caribou meat begins (Fig. 28). Dry fish making activity changes to dry meat making activity using the caribou. Fishing on ice was sporadically observed, but the fish are given to the dogs. Therefore, season II appears to be a hunting, trapping, and ice-fishing period.

In order to examine the process of changes of subsistence
activities from season I to season II, time use for each activity in each day by the members of the winter camp is shown in Figs. 29, 30, 31, and 32. Time use in food acquisition demonstrates the change of activity from hunting to hunting-trapping. The former is hunting on foot and/or canoe, and the latter is the combination of hunting (by dog-team and toboggan) with trapping activity. In season II, hunting not combined with trapping is also observed (Fig. 29). Food processing changes from fish preserving to caribou meat preserving (Fig. 30). It is noted that, in season II, dry meat pounding and bone marrow extraction are also observed. In this figure, bannock baking as one of the food preparing activities could be specified as an activity of season I. The bannock which is used as a supplementary food source for the Chipewyan is intensively made in this season. This activity is rarely observed in season II when a sufficient amount of caribou meat exists. Time use for cooking and dish washing is not shown in the figure, but it is noted here that these activities are observed usually three times a day throughout the seasons. Time use of hide preparation is shown in Fig. 31. Moose hide preparation is observed from October 16 until December 1. Caribou hide preparation is,
on the other hand, started on October 20. The caribou hide which was used for this activity is the product of the year of 1974-75. The caribou hide, which was obtained in 1975-76, is prepared on November 13 and December 4, 5, and 6. Hide preparation with the material of the previous year is started before the caribou input in order to provide finished hide for mittens and moccasins. Then, the items are utilized for hunting and trapping activities in season II. A more detailed examination of time use in hide preparation is discussed in the section on the temporal sequence of activities in Chapter 8. Time use in manufacturing activity is shown in Fig. 32. Various kinds of manufacturing activities are observed including manufacture with leather and/or canvas, feathers, bone, beads, and wood. In the category of manufacturing activity on leather and/or canvas, the following minor activities were observed: manufacture of skin bags (container), hunting bags, toboggan bags, gun cases, dog harnesses, mittens, gloves, moccasins, and caribou hide blankets. The manufacturing with wood includes constructing racks, pitching smoke-tents, wooden plate making, pups' shelter making, axe handle making, toboggan making activities. On the basis of the data in Fig. 32, it is pointed out that the peak time
use for manufacturing is from October 14 to early November. The activities are for the preparation for hunting and trapping, and largely include the activities for making hunting equipments. It is also pointed out that certain manufacturing activities are done sporadically from the middle of December. These include the making of mittens and moccasins, and the bead work on these items. Manufacturing activity in season II includes the repair of toboggans and hunting gear which are used during this period. Thus, the manufacturing activity in season I is the preparatory activity for the hunting and trapping of the next season, while the manufacturing activity in season II is mainly the production of mittens and moccasins and bead work on them.

Season III:

The major activity in this season is caribou hunting. The combination of caribou hunting with trapping, which is frequently found in seasons I and II, is not observed in season III. In season III, January to March, the snow cover on the ground prevents the Chipewyan from setting traps in the appropriate spots, so intensive trapping is not observed in this season. Only sporadic trapping for snowshoe hare is conducted in the bush near the winter camp. It is also pointed
out that in season III, ice fishing is rare. The subsistence base in this season is caribou. So caribou meat becomes the staple food not only for the Chipewyan, but also for their dogs. The caribou hunting is conducted with snowshoes and toboggan using the intensive hunting method. The Chipewyan hunters go to the hunting ground by dog-team. Then, they search for caribou tracks in the forest on their snowshoes. When they find new tracks, they follow them on the snow. The deep snow cover in this season prevents caribou from moving fast so the hunters can approach the caribou herd by running. It was observed by the author that the Chipewyan hunter using this intensive caribou hunting method wore only a cotton shirt, yet sweated profusely due to the exertion involved.

In season III, food processing, in the form of preserving caribou meat, continues but is less frequent than in season II. The caribou meat is cached on the wooden racks at the winter camp. The intensive production of dry caribou meat takes place in the next season, or season IV. Production of dry fish is not observed in season III, since the major food source has changed from fish to caribou. Hide preparation is observed particularly for caribou hide. Sheltering activity in this season includes mainly housekeeping and takes more
time and energy than in other seasons. At the end of this season, the seasonal move by dog-team and toboggan takes place and is described in the section on transportation and moving activity in Chapter 6.

Manufacturing activity in this season includes leather string making, as well as the production of mittens and/or gloves, snowshoe netting and frames. The production of snowshoes is of major importance. In this season at the winter camp Guszaze, five pairs of snowshoe frames were made, three of which were finished with netting. In this season, the ground is covered with deep snow. Thus, snowshoes are necessary for transportation as well as caribou hunting. The quantitative data on time use for snowshoe making is again examined in the section on the temporal sequence of activities in the next chapter. In this section, however, it is only pointed out that the manufacturing of snowshoes, which includes leather string making, snowshoe netting, and snowshoe frame making, could be specified as one of the major activities in season III.

Season IV:

Season IV is the transitional time from winter to summer and includes April and May. Some Chipewyans set up their
spring camps at this time. The major food acquisition activity is fishing on open water. The small streams and bays are free of ice, although the large lakes remain frozen. The spawning season for sucker is spring and a large number of these fish come up the stream. The author observed that the Chipewyan could easily catch the fish with his hands. The fish were also swatted with branches in the shallow water. At this time, other kinds of fish including whitefish, trout, and jackfish gather in open water. Migrating birds, particularly ducks and geese, return to certain spots which are known to the Chipewyan who accordingly locate their spring camps there. In this season, they also conduct spring trapping. The ground is still covered with snow, so that the dog-team and toboggan can still be used for transportation. In the latter part of this season they conduct hunting and trapping on foot on the snowless ground. The important fur-bearing animals at this season are beaver and muskrat. Steel traps are used for these animals, but they can also be hunted with the .22 calibre rifle. During the sucker spawning season, bears gather along the streams, so the Chipewyan use the thick wire snare to capture the animal. It was also observed that they hunted bear with a .30-.30 calibre rifle.
In the category of food processing, production of dry caribou meat is of major significance in this season. Although the caribou have migrated north to the tundra, cached caribou meat is made into dry meat before the summer season. At the spring camp, the caribou meat is cached in the snow. When the snow disappears, the meat is stored in lake ice on the shore. At the end of this season, the cached caribou meat is dried and smoked, and then stored for the summer. Hide preparation is also observed in the spring camps, but the major activity is skin preparation of fur-bearing animals, particularly beaver and muskrat.

In the category of sheltering activity, time use for housekeeping activity decreases. In the spring camps, the Chipewyan live in canvas tents with wood-burning stoves. A large amount of firewood is not necessary, since the temperature rises in this season. The difficulties for transportation in this season are described in the section on transportation and moving activity in Chapter 6. The Chipewyan strategically combine canoe with dog-team and toboggan in order to overcome the various conditions encountered on the lake. Time use for manufacturing decreases in this season.
Season V:

Season V is the period of open water when the ground is free of snow and ice. The major activity for food acquisition is open-water fishing. During the month of June, the Chipewyan fish for themselves and in July, August, and September, they expand their fishing for commercial purposes. At the summer camps, however, the subsistence base is fish. It is also pointed out that moose hunting is another important activity for food acquisition in this season. Moose is the only meat source in this season, since the caribou is farther north outside the home-range of the Hatchet Lake Chipewyan. Small game, including snowshoe hares and birds, can be used as supplementary food. It was also observed that, in the early part of this season, the Chipewyan in canoes, gathered the eggs of water birds including ducks and seagulls. These birds lay their eggs on the small rocky islands in Wollaston Lake. During this season, gathering of wild berries also takes place and the cranberries of the previous year reappear when snow melts. Blackberries and blueberries ripen later in this season.

In the category of food processing, dry fish making is observed at the summer camp along with the daily food
preparation. Hide preparation is also done when the moose is hunted. Moving, as one of the sheltering activities, is frequently observed during this season. The Chipewyan make summer fish camps on the various islands on Wollaston Lake. They move from one camp to another in accordance with the fish and moose ecology, which has been described in the section on home-base and home-range in Chapter 6 as well as in the section on Chipewyan summer camps in Chapter 5. Therefore, moving in this season may be seen as one of the major activities. At the summer camps, it was observed that the Chipewyan collected twigs of spruce which are used as a floor in the tent. Approximately once a week, the spruce floor would be replaced. Other minor activities for keeping house are less important in this season. In the middle of the summer, the Chipewyan rarely use the stove in their tents. Only a small amount of firewood is collected at the camp for cooking and drying fish. The time use in manufacturing also decreases in this season, although they construct smoke-tents at their camps and repair their fishing and hunting equipments.
(2) SPACE USE OF SUBSISTENCE ACTIVITIES

In this section, the aspect of space use for each subsistence activity is examined in terms of the distance from the seasonal camp. Activity space is revealed to be divided into three categories: in-camp, near-camp, and out-of-camp.

The in-camp area is the camping ground where the abodes of the Chipewyan are constructed. The near-camp area is the ground within a distance of approximately 1.0 km of the camp. This area is outside camp, but still within a short distance of the camp. The out-of-camp area is, however, the ground farther than 1.0 km from the camp. For the rest of this section, the subsistence activities conducted in each space are described on the basis of the empirical data at the winter camp, ZuzaZe and the summer camp, Θai nu (Figures 33, 34, 35, 36).

The activities which are carried out in the out-of-camp area are hunting, trapping, and fishing. These activities are categorized as food acquisition activities in Table 12 in this chapter. Hunting in the out-of-camp area includes both hunting on foot and/or canoe and hunting on snowshoes and/or toboggan. The space of exploitation in seasons I, II, and III is shown in Fig. 33. For season I, the activity
space covers 50 km², and the farthest point of exploration is 10 km north of the camp. It should be noted that the area is covered mainly on foot in the course of hunting. For season II, the activity ground expands to cover 1,200 km². The farthest points of exploration for this season are 11.0 km west, 36.8 km northwest, and 50.5 km north of the camp. The dog-teams and toboggans are used for transportation on the snow. This area is used for both hunting and trapping. In this season, the extensive method of caribou hunting is employed, through which the Chipewyan hunters cover the widest range of area. For season III, the figure shows that the activity space is shifted to the northeastern part of the camp. This is due to the movement of the caribou herd as well as the abandonment of trapping in the area to the northwest of the camp. In this season, the activity space covers 400 km². The Chipewyan conduct caribou hunting by the intensive method using snowshoes. The range of movement is restricted by the deep snow in the forest during season III for both caribou and the Chipewyan. The farthest points of exploration in this season are 27.8 km northeast of the camp.

Fishing activity is also conducted in the out-of-camp area. Space use for summer fishing in season V by the members at
camp Θai nu - 1 covers 800 km². The farthest points of exploration are 25.0 km northeast, 10.3 km southeast, 17.8 km southwest, and 4.8 km northwest of the camp. It should be noted, however, that they transport catches to the Wollaston Lake settlement which is located 34 km south of the camp. In this season, they conduct open-water fishing in their canoes and fishing boats. However, fishing on open water in season Ia is conducted in the near-camp area. It was observed that the fish nets were set at the distance of 200 to 1000 m. from the camp (Fig. 34). Ice fishing in seasons Ib and II was also carried out on the ice in front of the winter camp. The distance of the fishing spots is 50-200 m. from the camp (Fig. 35). Ice fishing could also be done in the out-of-camp area. The fish nets are set 10 km. north of the winter camp enroute to hunting and trapping. The ice fishing is conducted at the temporary hunting and trapping camp in order to supply the dogs with food. In this case, the area of ice fishing could be in the out-of-base camp area, but still in the area of the temporary camp.

Trapping is conducted in the out-of-camp area, but it is also observed that small-scale trapping can be done in the near-camp area. In this case, the traps are set and checked
on foot. The area is used particularly in season I when the
dog-team and toboggan can not be used as transportation.
When trapping is combined with hunting, the space for this
activity expands to the out-of-camp area. On the other hand,
trapping can be combined with gathering. This phenomenon is
observed in season I. The space for this activity is the
near-camp area. Therefore, it is pointed out here that
hunting is always conducted in the out-of-camp area, but
that trapping and fishing can be carried out either in the
out-of-camp area, or the near-camp area.

The other activities which are carried out in the near-
camp area include collecting spruce twigs for house cleaning
(housekeeping activity in the major category of sheltering
activity) and firewood acquisition (also see housekeeping in
sheltering activity). In order to collect spruce twigs, the
Chipewyan go out of the camping ground, but not far from it
(Figures 34, 35, 36). To gather firewood, the members of
winter camp *zuza* exploited the 'forest fire area' which
was located 300 to 500 m. from the camp. They used dog-teams
and toboggans for transportation on snow in seasons II and
III. At the summer camps, it was observed that the firewood
is collected around the camping ground. It should be noted
that larch, the material for smoking moose and caribou hide, is also obtained in the near-camp area, although hide smoking itself is done at the camp. Similarly birch, the material used to make snowshoe frames, toboggans and axe handles is cut down in the near-camp area. Spruce is also obtained around the camp, which is used for constructing racks and smoke-tent poles as well as for house building materials. However, manufacturing activity using these materials is done at the camp.

The in-camp area is used for food processing, hide preparation, sheltering activity, and manufacturing. It should be noted that the space use for moving activity is out of this classification. The significance of space use for subsistence activities with special reference to age-sex factors of participants in activities is discussed in the section on allocation and combination of activities in the next chapter.
PART V

STRUCTURE AND ADAPTABILITY
OF THE CHIPEWYAN CARIBOU
HUNTING SYSTEM
Activity is a basic term not only for individuals, but also for populations. To examine the structure and the function of activity systems, the relationships between the individual and the population should be discussed in terms of the individual variations and the structural principles on which the system is formed.

Individual variations based on the biology of *Homo sapiens* are significant. Of these variations, the most basic are age and sex differences. For reproduction the species *Homo sapiens* is divided on the basis of sex. As for age differentiation, the individual organism in the species develops through a life cycle. In each stage of development, the biological background varies. The physical structure of the organism reaches maturity, and the aging process ends after a decrease in man's physical ability. On the contrary, knowledge and mental capacity increase during the course of the aging process, through training and experience. This contradiction between the physical and mental abilities of man influences his skill
in all activities.

The three major principles for structuring systems of activities on the basis of individual variations are revealed as: the allocation of activities, combination of activities, and temporal sequence of activities. Division of labour, in the study of sociology, was well described in relation to solidarity and moral rules of human conduct (Durkheim, 1933). Social stratification and specialization was a major concern in anthropology (Chapple and Coon, 1947). Then, Herskovits (1952) pointed out the significance of the division of labour in which the total amount of effort is divided to keep the economy of a society operating at its customary rate of efficiency. However, from a human activity system point of view, the division of labour can be expressed as the process of allocation of different kinds of activities to different individuals in the population.

Some activities are allocated to the same individual as a set. From the individual's viewpoint, he combines different kinds of activities. Frequently, various activities are carried out at the same place by the same individual. Also, some activities are conducted simultaneously by the same individual in terms of time and space, which can be seen as
a strategic arrangement of activities. Thus, these phenomena can be denoted here by the term combination of activities. Both allocation and combination of activities complement each other in the structure of the activity system of a population. As described in this chapter, the allocation and combination of activities are related to space use in subsistence activities.

The other important characteristic of activity is the temporal relationship of the activities. Activities are related to each other in time, they form a series of activities through which a final product is completed. The end of one kind of activity presents a starting point for the next. Or, the completion of the two different activities makes the third kind of activity possible, and so on. The relationships between activities can be seen as a temporal sequence from an activity system point of view. Thus, in this chapter, the temporal sequence of activities, allocation and combination of activities are described as structural principles of the activity system.
1. TEMPORAL SEQUENCE OF ACTIVITIES

Among the major categories of Chipewyan subsistence activities, food processing activity occurs in temporal succession after food acquisition activity. Caribou meat preservation (production of dry meat) is observed after a successful caribou hunt. Dry fish making is done after fishing activity. It is demonstrated in the section on time-use of subsistence activities that dry caribou meat making activity starts in season II when the Chipewyan begin to hunt caribou. Meat preservation continues to be observed in seasons III and IV. Especially in season IV, or the spring, dry meat is produced in order to cache it for the next season when caribou meat is not available. A similar phenomenon is observed in season Ia in the production of dry fish. In this season, fish preservation is conducted as a subsistence strategy for the Chipewyan to overcome the discontinuity of fishing activity due to the 'freeze up' period in season Ib. Thus, food preservation which follows food acquisition also covers possible food deficiencies in future seasons.

Food acquisition is also followed by hide preparation, since the former activity produces the raw material for the latter. Then, some manufacturing activities including
manufacturing activity with leather, feathers, and bone also occur in temporal succession from hide preparation. Manufacturing activity with beads follows manufacturing activity on mittens, gloves, and moccasins. The frequency of food acquisition (hunting for caribou and moose), hide preparation, and manufacturing activity in seasons I and II is shown in Fig. 37. This figure demonstrates the temporal sequence of the following activities: i.e., from moose hunting to moose hide preparation; from caribou hunting to caribou hide preparation; from hide preparation (including moose and caribou hide making) to manufacturing with leather. Manufacturing with wood is not initiated by hide preparation, but results from wood (as material including birch) acquisition.

It should also be noted here that the manufacturing activity provides positive feedback for food acquisition; i.e., the tools and equipments are manufactured to be used in the next caribou hunt. It is demonstrated in Chapter 7 that intensive manufacturing in season I is for hunting and trapping in the next season. Therefore, in the figure, the temporal sequence of activities is shown with arrows. The manufacturing activity, in this case, includes skin bag (container) production, hunting bag, toboggan bag, gun case, dog harness, mitten
and/or glove, moccasins, and caribou hide blanket production as well as toboggan production (manufacturing with wood).

Fig. 37 also demonstrates the temporal sequence of minor activities in the category of hide preparation. Moose hide is prepared in a series of minor activities: cutting moose hair, wooden framework making, stretching skin, scraping the inside, scraping the outside, tanning, smoking (first time), softening (drying and scraping), and smoking (second time). For caribou hide preparation, the tanned skins from the previous season are used. Then they are softened and smoked.

After the first caribou input to the camp (in this case, the winter of 1975-76), the caribou hides are processed through hair cutting and scraping. These caribou hides are then stored, and preparation and treatment resumes in season III.

Temporal sequence and time use of minor activities in caribou hide preparation in season III are shown in Table 13. In this season, all stages of caribou hide preparation are observed: cutting caribou hair, scraping inside skin, scraping outside skin, tanning, softening, and smoking activities.

It should be noted that the operations of tanning and softening were reversed in one instance. The reason for this reversal was an unsatisfactory result of the softening. In
this case, one of the caribou hides was not fully dried before it was frozen, as the hide was still thick and the temperature of the abode had not been high enough to dry the hide. So the tanning process was repeated. On the basis of the data shown in Table 13, it is also pointed out that the two persons (no. 102 and no. 302) cooperatively conducted this activity. The same phenomenon was observed during the process of the moose hide preparation. The significance of cooperative activity in hide preparation is again discussed in the section on allocation and combination of activities in this chapter.

The time sequence of minor activities for snowshoe making was observed at the winter camp in season III (Table 14). Snowshoe production is categorized as one of the manufacturing activities specific to the late winter when the snow cover becomes deep. The minor categories of snowshoe production include production of leather strings, snowshoe frames, and netting. Leather string production may be done after the caribou hide has been prepared. Snowshoe frame production follows the acquisition of the material (birch) for the frame. So, snowshoe production is taken over in temporal sequence by snowshoe netting. Table 14 shows the
number of snowshoes in production at any given moment. A particular pair of snowshoes move from frame production to netting in accordance with the temporal sequence for snowshoe production. But the same individual does not perform every minor task for making snowshoes. The allocation of activities by individuals is observed, which is further examined in the next section of this chapter.

In this section, it is demonstrated that the Chipewyan subsistence activities categorized in the last chapter may be seen as a network of activities in a temporal sequence. For the major categories of activities, the temporal relations of activities are clarified; i.e., from food acquisition to food processing on the one hand, and from food (or material) acquisition to hide preparation and manufacturing, on the other. It is also pointed out that manufacturing provides feedback to food acquisition again. The temporal sequence of the minor activities in hide preparation and snowshoe production is also demonstrated.
2. ALLOCATION AND COMBINATION OF ACTIVITIES

Time use in subsistence activities by individuals is shown in Table 15. The period of investigation for this Table is 68 days from October 10 to December 15, 1975, which corresponds to seasons Ia, Ib and II. The subjects are the nine members of the winter camp Izuzaze of whom the author conducted an intensive investigation through direct observation and active participation. The data on time use are obtained for the following activities: HTA (Hunting and/or Trapping activity: Hf; Hs; H; H/T; G/T; H/F; H/C), GA (Gathering activity), FA (Fishing: Fw; Fi), FPA (Food Processing: Cb; Ck; Pf; Pm; Pp; Pb), HPA (Hide Preparation: m/c-Dh; Dc; Dr; Di; Do; Dt; Ds; Dm), MA-1 (Manufacturing with skin, feathers and bone: Mk; Mn; Ma; Mg; Md; Mi; Mn; Me; Mf; Mb; Mj), MA-2 (Manufacturing with wood: Mr; Mw; Mo; Mp; Mx; Mt).

Time use for the activities by the author as well as some visiting members to the winter camp are also recorded, and are marked with an x in the Table. It is also noted that manufacturing is divided into two subcategories; i.e., MA-1 for manufacturing with skin, feathers and bone, and MA-2 for manufacturing with wood. The individuals numbered 101, 102, 103, 104, and 105 are the members of domestic unit Z-101.
(See Fig. 18 in Chapter 5). The individual numbered 105, in reality, belonged to domestic unit Z-104, but also participated as a member of the hunting unit at the winter camp, zuaze. Individual no. 201 participated in the winter activities unaccompanied by his domestic unit. Nos. 301, 302, and 303 are the members of domestic unit Z-103. The sex and age in 1975 for each individual is as follows: 101 (male, 71); 102 (female, 71); 103 (male, 15); 104 (male, 6); 105 (male, 17); 201 (male, 30); 301 (male, 36); 302 (female, 24); 303 (female, 4). In Fig. 38, the time use for each activity for each individual is shown as a histogram. It should be noted that the male individuals are shown on the left side of the figure, in order of age, and the female individuals are on the right side in age order.

On the basis of the data in Table 15 and Fig. 38, the characteristics of the Chipewyan allocation of activities by sex can be described as follows. Hunting and trapping are male dominant activities. Trapping, however, has been observed among female individuals. In this case, trapping is combined with gathering. Gathering, on the other hand, is a dominantly female activity, although it can be also conducted by the male members. Both male and female members
participate in fishing. However, open water fishing is mainly conducted by males. The female members were observed participating in ice fishing at a time when the male members were hunting caribou. They check the net and transport the catch to the camp, although the initial setting of the fish net under the ice is done by the male members. Food processing is a dominantly female activity and includes the production of both dry fish and meat. It is noted that one of the male members also worked at drying meat for a few hours, since his wife was busy processing a large quantity of caribou meat. The male members have the necessary skill and knowledge for preserving fish and meat but they were not observed devoting themselves to food processing for as much time as the female members. The female members perform food preparation tasks although the morning meals were prepared by the husband in the case of domestic unit Z-103. Further, the male member of domestic unit Z-102 (since he lived alone during the winter of 1975) made all his own meals.

Hide preparation is also a dominantly female activity. However, wooden frame making is conducted by male members. It is noted that, in the summer camp, the author observed a male Chipewyan stretching the moose skin on a frame aided by
his wife. Also, the husband of domestic unit Z-103 was observed assisting in scraping the inside of the moose hide. In general, however, all aspects of hide preparation would be done solely by the female members. Although, the time use for sheltering activity is not shown in the table, it was revealed that house building activity is done by both male and female members. The construction of log cabins is mainly by male members, while the activity of putting moss between the logs and on the roof is done both by males and females. Housekeeping activity including house cleaning, laudering, water drawing, fire generating, and dog feeding, is done by women. But the actual making of a fire and acquisition of firewood are mainly done by males. In once case, a female member did carry out the acquisition of firewood by dog-team and toboggan. Though it is not common to see a female Chipewyan driving a dog-team, in this case, she claimed that since her father had been lazy, she had learned to haul wood by dog-team in her youth. Although both males and females are capable of chopping firewood, this activity is done by male members if they are at the camp. On the basis of the data presented, it is revealed that the manufacturing with leather, feathers, and bone is done by women, but that the
manufacturing with wood is done by men. The bead work is also conducted by females. Some wooden items are produced by women occasionally such as smoke-tent and pup shelters. On the other hand, only male members make dog harness which is categorized as manufacturing with leather. Consequently, Fig. 38 demonstrates the allocation of activities by sex: i.e., hunting and trapping, and manufacture with wood are male dominant activities, while food processing, hide preparation, manufacturing with leather, feathers, bone, and beads as well as everyday housekeeping are female dominant activities.

The data on time use for the subsistence activities in season III are examined in Table 16. This is a record of activities for the 12 day period from March 3 to March 14, 1976. The seven members who participated in wintering activities in this season at camp 3uzaze are the subjects. Time use for some activities by the author is also shown as a comparison. The members include the individuals nos. 101, 102, 103, 104 of domestic unit Z-101 as well as the individuals nos. 301, 302, 303 of domestic unit Z-103. Individual no. 201 of domestic unit Z-102 withdrew from winter activities for the period as described in Chapter 5. Also the visiting member no. 105 who appeared in the previous description, left
the winter camp, and so is not included in the data. The data on time use for the activities are shown as a histogram in Fig. 39.

The characteristics of the allocation of activities in terms of time use are as follows. Hunting and trapping are male dominant activities. It is noted, however, that one female was observed trapping hare near the camp. One of the male members (individual no. 103) also conducted the same kind of trapping which was combined with firewood gathering. In reality, he set and checked traps while gathering firewood. The appearance of small scale (sporadic) trapping in this season is worth noting, since the large scale trapping which is combined with extensive caribou hunting observed in season II could not be seen in season I. Hunting activity, as previously mentioned, is a male specific activity. However, in Table 16 and Fig. 39, it should be pointed out that the time use for hunting by individual no. 101 is missing. The reason is that while his hunting partner was out actually conducting the caribou hunt he was manufacturing snowshoes. In reality, individual no. 101 had initiated the caribou hunting during the early part of season III. Since individuals 101 and 103 were partners in hunting: i.e., they drove
a single toboggan pulled by one dog-team, in the later part of season III, individual no. 101 devoted his time to making snowshoes at the camp, and only individual no. 103 conducted caribou hunting. Individual no. 103 learned the skill and technique of driving a dog-team as well as for hunting caribou from individual no. 101 (individual no. 103's adopted father). In the latter part of season III, individual no. 101 concluded that the individual no. 103 had succeeded in killing some caribou. Then individual no. 101 allowed him to use the dog-team and toboggan which belonged to individual no. 101. As a result, individual no. 101 participated in making snowshoes at the camp, while the individual no. 103 conducted the caribou hunt. This phenomenon demonstrates the allocation of activities by age: i.e., individual no. 101 at the age of 71 made snowshoe frames and individual no. 103, at the age of 15 was able to conduct the caribou hunt using the dog-team by himself. This issue is again discussed later from the viewpoint of space use of activities.

Food processing activity in season III is revealed as a female dominant activity, which is the same as the result of the examination of the data for seasons I and II. Similarly, hide preparation is a female dominant activity. The data on
time use and the temporal sequence of minor activities in the category of hide preparation is shown in Table 13 of this chapter. It should be noted here that the minor activities for preparing caribou hide are conducted in each house for each domestic unit, except the smoking of the caribou hides.

In order to smoke the hides, individual no. 102 of domestic unit Z-101 and the individual no. 302 of domestic unit Z-103 worked cooperatively. The scraped hides were brought together and smoked over the same fire. In this cooperative activity, however, allocation of minor activities was observed: i.e., the sewing of the caribou hides into the shape of a bag was done by individual no. 102, while the dry larch wood was collected and chopped by individual no. 302. The procedure of putting moss on the burning larch to produce smoke as well as the technique of hanging the caribou hides over the smoking wood were taught by individual no. 102 to individual no. 302. The technique and the manner of sewing the caribou hides into a bag-shape were demonstrated by individual no. 102, while individual no. 302 watched the activity. The same phenomenon was also observed in the preparation of moose hide in seasons I and II. In this period, individual no. 302 learned the technique and skill of moose hide scraping,
although she had some experience and knowledge of it before. The two individuals, no. 102 and no. 302, were observed scraping the moose hide together. During the course of this activity, individual no. 102 taught the individual no. 302 about the thickness of moose hide in the different parts and where care had to be taken during the scraping process. In reality, when individual no. 302 tore the thin part of the moose hide with her iron scraper due to her lack of skill in this activity, individual no. 102 advised her. Similarly, during the process of the softening of the moose hide, individual no. 302 was observed performing the activity under the advice of individual no. 102. The softening of the hide also requires strength and endurance, so individual no. 102 avoided this heavy task and only watched and gave suggestions while the activity was conducted by individual no. 302. On the basis of the observation described above, two points could be made. One is the allocation of minor activities by age in the category of hide preparation. Individual no. 102 at the age of 71 conducted the more skillful activities which could only be done with sufficient knowledge of the material as well as the techniques involved. Individual no. 302 at the age of 24 carried out the heavier activities which required
more physical strength but less skill. The other point is that they could transmit the knowledge and skill for particular activities during the process of cooperation. The significance of such cooperative activity is again the issue, later in this chapter.

Among sheltering activities, firewood gathering and chopping are done by the male members, while house cleaning and laundering are done mainly by females. Although the data on time use for fire preparation and fire generation are not presented in the table, the former activity is conducted by males and the latter by both male and female members. Water drawing activity was conducted mainly by individual no. 103 for domestic unit Z-101. Some housekeeping activities including water drawing, fire generating, and firewood chopping are done by Chipewyan boys, if they are available in the domestic unit. Chipewyan girls could also participate in these everyday activities of keeping house. It was frequently observed in the Chipewyan summer camps that the Chipewyan children over the age of 6 conducted the water drawing. The Chipewyan girls above 15 years old were normally observed participating in house cleaning as well as laundering. Therefore, it may be pointed out here that the Chipewyan
children including both boys and girls intensively participated in housekeeping activity. This phenomenon can be seen as an allocation of activities by age.

The manufacturing activity shown in Table 16 and Fig. 39 includes the making of leather strings, mittens and/or gloves, snowshoe netting, and snowshoe frames. Allocation of activities by sex was observed: i.e., males conduct snowshoe frame making, while females produce the leather strings for mittens and/or gloves, and for netting snowshoes. The data on time use for snowshoe making is shown in Table 14, from which the allocation of activities is demonstrated. Through the allocation of minor activities, the total process of snowshoe making could be completed cooperatively. In this case, the cooperation of individuals no. 101 and no. 102 in domestic unit Z-101 (no. 101 is the husband of no. 102) is observed. It is interesting to note the time use for snowshoe frame making by individual no. 103 (age 15). He, in reality, tried to make a pair of small snowshoes for his younger brother but since it was his first attempt at making snowshoes, he watched individual no. 101 and tried to follow his example. His first trial was not successful. He did not judge the flexibility of the material well and it broke as he tried to bend
it. Then, he got more material and started the second trial. Individual no. 101 was not observed giving much advice to him, but people including individual no. 103 encouraged and advised him. The account presented here demonstrates the process of learning manufacturing techniques and skills. Snowshoe making is conducted by the more elderly Chipewyans as was pointed out in the allocation of activities by age, but in the process of learning and training, the younger Chipewyans also participate in the activities.

As described, activities are allocated to individuals on the basis of age and sex. From the individual's viewpoint, some activities are allocated to the same individual as a set: i.e., the individual combines the different kinds of activities. Various categories of activities are frequently observed being conducted at the same place by the same individual. In fact, some activities are carried out simultaneously by the same individual in terms of time and space, which could be seen as a strategic arrangement of activities. This phenomenon is denoted here by the term combination of activities. Table 17 shows the time use for Chipewyan food acquisition in seasons I and II, which includes hunting, trapping, gathering, and fishing activities. From the table,
the following combinations of activities are noted: i.e., the combination of hunting and fishing; and the combination of hunting and retrieving a cache located at a distance from camp. The time use for these combined activities constitutes 72.3% of the total time use of 1,066.0 hours for food acquisition. This phenomenon as it relates to space use for activities is examined in more detail in the rest of this section.

Among the food acquisition tasks, hunting is frequently combined with trapping. This was observed in seasons I and II, when the Chipewyan conducted extensive caribou hunting activity with dog-teams. In this period, hunting and trapping could be simultaneously conducted in terms of time and space. The potential caribou hunting ground and the fur-bearing animal trapping area are overlapped. The Chipewyan utilize the out-of-camp area for both activities. On hunting-trapping excursions, they hunt caribou when they encounter the game. Even when the caribou is not seen, the Chipewyan may obtain some product by their trapping. The same strategy was observed in the cases of hunting-fishing as well as hunting-cache retrieving. Prior to the hunting excursions, the Chipewyan planned to conduct other activities on the way which would
compensate for an unsuccessful hunt. It is no coincidence that these activities are conducted in the same spot, but are strategically combined by the individuals. The combination of various kinds of activities with hunting is based on the character of the extensive caribou hunting method in this period, since the success of this type of caribou hunting is unpredictable. The data on time use for the same type of combination of activities in season III shows a different picture (Table 16, Fig. 39). Caribou hunting is not combined with other kinds of activities in this season when the Chipewyan use the intensive hunting method. They follow the caribou on snowshoes and the time is totally devoted to the hunting activity itself.

It is noted that, among the female members of the camp, combining of activities is also observed. In Table 17, gathering is combined with trapping. In this case, as the individual gathered wild berries, she set and checked traps for squirrel. This sort of trapping is termed small scale and is conducted in the near-camp area. The female members of the Chipewyan were observed combining the activity of caring for children with other activities at the camp. At the winter camp Zuzaze, there were two children individual no. 104 (male,
6 years old) and individual no. 303 (female, 4 years old). They played together in the camping area, while other members of the camp, particularly the female members (individual no. 102 and no. 302) watched them to ensure that they didn't go too far from the camping area. Other sorts of activities observed in child care were feeding, clothes changing and helping with toilet activities. The time use for these caring activities is largely overlapped with other activities conducted by the female members in the in-camp area. Thus, it should be pointed out here that the child caring activities combined with food processing, hide preparation, sheltering activity and manufacturing.

On the basis of the data presented, it is revealed that the allocation and combination of activities by age and sex is related to the space use of activities. The activities in the out-of-camp area are conducted by males. And the activities at the in-camp area are done mainly by females, though some activities in the category of manufacturing could be conducted by males at the camp. In the near-camp area, both males and females are observed participating in their subsistence activities. Then, in each activity space, the Chipewyan combines the different categories of activities. The
combination of extensive caribou hunting and other activities in the out-of-camp area by males is significant, while the combination of child caring and other activities in the in-camp area is characteristic of women. It is also noted that the age factor contributes to the space use for activities. The Chipewyan children (individual no. 104, 6 years old; and individual no. 303, 4 years old) stayed at the camping area under the supervision of the adult members. The Chipewyan boy (individual no. 103, 15 years old) conducted small scale trapping activity in the near-camp area. In seasons I and II, he was accompanied by individual no. 101 (his adopted father, 71 years old) for hunting and trapping in the out-of-camp area. However, in season III, after a successful kill of caribou by individual no. 103, he was allowed to use his adopted father's dog-team for his own caribou hunting excursion in the out-of-camp area. Conversely, individual no. 101 was observed mostly participating in manufacturing at the camp for the latter period of season III. Thus, it is pointed out that the male Chipewyan expands his activity space in accordance with his age from the in-camp and near-camp areas to the out-of-camp area, while the space for activities for the female Chipewyan is restricted to the in-camp and near-
3. CHIPewYAN CARIBOU HUNTING SYSTEM

The relationship between the temporal sequence of Chipewyan subsistence activities and the allocation and combination of activities is examined in Fig. 40. The space use for each activity is also considered in this figure. It is noted that the initial part of the sequence of activities, or food getting activities (FGA) is dominantly carried out by males. Although trapping activity (TA) and fishing activity (FA) could be done by either males, or females if the activity space is the near-camp area, and gathering activity (GA) is a dominantly female activity, hunting activity (HA) is exclusively a male activity. Hide preparation activity (HPA) and food processing activity (FPA) which follow food getting activity (FGA) in the temporal sequence are female dominant activities. The last process of the temporal sequence, manufacturing activity (MA), is done by both males and females who allocate the minor activities on the basis of the material and technique of each activity: i.e., manufacturing with wood (MA-2) is a solely male activity, while manufacturing with leather, feathers, and bone (MA-1) is a dominantly female
activity. Wood for manufacturing is obtained also by males in the near-camp area. Leather for manufacturing is produced by the female through hide processing. Manufacturing as well as hide preparation and food processing are conducted at the camp, or the in-camp area. In the category of food processing activity (FPA), food preserving could be taken over by food preparation if the cached food needs to be cooked before consumption. Then, food processing activity (FPA) is followed by digestion of food. In the figure manufacturing activity (MA) is followed by food and material getting activity.

Thus, on the basis of the data presented, it is revealed that the sex of the participants for each activity in the temporal sequence is changed from male to female, and again returns to male. Similarly, the space use of activities in this sequence alternates from the out-of-camp area to the in-camp area and again to the out-of-camp area. It is interesting to note that between the out-of-camp area and the in-camp area, the near-camp area is used by both male and female. This area is also the transitional zone for the young Chipewyan men as they learn techniques and skills for food acquisition and later expand this activity space to the out-of-camp area. And for the Chipewyan women, the area
provides security in obtaining food particularly when the Chipewyan men are absent from the camp on a hunting expedition. Thus, it is pointed out that the various categories of the Chipewyan subsistence activities are organized into a system of activities on the basis of the principles of the temporal sequence of activities, allocation and combination of activities by age and sex, and time-space use of activities. The system of activities which is clarified in this section may be called the Chipewyan caribou hunting system.

Lastly, it is necessary to examine the cooperative unit as regards the Chipewyan caribou hunting system. The system could be termed complete at the basic subsistence level, or domestic unit. The adult male member of the unit participates in food acquisition, while the female member conducts food processing and hide preparation. Manufacturing activity could be done by both male and female members. When they have offspring, the child care is done by female which could be combined with other subsistence activities at the camp. Thus, the domestic unit is the minimum subsistence unit in which the allocation and combination of activities is organized. Within the hunting unit, another level of cooperation is observed. The female members from the different domestic
units cooperatively prepare hides. It is worth noting that during the process of cooperation, skill and the knowledge of the activity could be transmitted to the descending generation. Similarly, in out-of-camp area, it is observed that hunting and trapping partnerships are formed between individuals in the same hunting unit as described in Chapter 5. So transfer of these subsistence skills is possible in the unit. Therefore, from the long-term viewpoint, the hunting unit makes a significant contribution to Chipewyan subsistence with special reference to the transmission of subsistence skills in the course of an individual's development. Thus, the Chipewyan caribou hunting system operates at two different levels of the cooperative unit: the domestic unit and the hunting unit.
CHAPTER 9

ADAPTABILITY OF THE CHIPEWYAN
CARIBOU HUNTING SYSTEM

In this chapter, the adaptability of the Chipewyan caribou hunting system is examined in relation to the environmental and economic changes of the Wollaston Lake region of northern Saskatchewan. Yearly changes in the natural environment and adjustment of the Chipewyan caribou hunting system is described. Then, the ecological changes over the years, or caribou migration and distribution, are examined in relation to the Chipewyan home-range and seasonal movement pattern on the basis of the data from the 1930's to 1975. The adaptability of the Chipewyan caribou hunting system to ecological changes is made possible by the flexibility and plasticity of the Chipewyan group structure.

Seasonal changes in the natural environment are significant in the Wollaston Lake region which is located on the taiga-tundra ecotone. Climatological phenomena including temperature changes and then ice formation and snow cover play a major role in caribou, moose and fish ecology. The caribou migrate into the forest region to winter, but disappear from the
region in summer. The Hatchet Lake Chipewyan, who use the caribou as their major subsistence base during winter, change their food resources to fish and moose in summer. During summer, both fish and moose meat are consumed as well as smoked and dried for future use. This process is repeated during the winter and spring using caribou meat. Therefore, the temporal sequence of activities; i.e., food getting activity (FGA) to food processing activity (FPA); food (material) getting activity to hide preparing activity (HPA); and hide preparing activity to manufacturing activity (MA), can still be observed in the summer subsistence activities. Sex allocation of summer activities is also identical to that of winter subsistence activities. Hunting, either for caribou, or moose, and out-of-camp fishing are strictly male dominant activities. Both males and females participate in fishing, if it is carried out in the near-camp area. Food processing activities, including both food preparation for daily meals and food preservation, are female dominant activities. Although the food processing materials change from caribou to moose and fish in the summer, the activities themselves are identical. Preparation of moose and caribou hides is also a female activity. The division of space use
described in the Chipewyan caribou hunting system is also observed among the Chipewyan subsistence activities in summer. Food getting activity, particularly moose hunting, is conducted in the out-of-camp area but food processing, hide preparation, and manufacturing are done in the in-camp area. Thus, the structural principles of the Chipewyan caribou hunting system; i.e., the temporal sequence, allocation, and space use of activities are consistent, even though the components are changed in accordance with the seasonal changes in the natural environment.

In the transitional periods between summer and winter, the Chipewyan depend on preserved food; i.e., cached fish in fall, and cached caribou meat in spring. Both periods are critical for subsistence. In the fall, caribou will migrate to the forest region only after ice has formed on the lakes and rivers. Thus, during the 'freeze up', the Hatchet Lake Chipewyan camping south of the fall caribou range, have to solve the problems of obtaining food by uncertain hunting or unsafe fishing. The unstable condition of the half-formed ice prevents them from conducting both open-water fishing and ice fishing. Male members continue to hunt small game in this period covering the out-of-camp area but the
success of such hunting remains unpredictable. In order to overcome this critical period, the Chipewyan preserve food such as fish prior to this season. Then, as pointed out in the section on time use of activities in Chapter 7, the Chipewyan is able to sustain himself through this transitional period. The same strategy can be observed during the transition from winter to summer. At this time when the caribou have moved from the forest region and while the ice is breaking up, it is difficult for the Chipewyan to depend on either caribou or fish. However, it is observed that usually they move to the small streams and bays where the ice first disperses and sucker are spawning. Migrating birds as well as bears are frequently observed around the area, since they are also prey on these fish. In the spring camp, their time is also spent preserving food such as caribou meat. The male members of the camp hunt and trap for beaver, while female members participate in food preserving activities. Thus, for this transitional period from winter to summer, the Chipewyan strategically prepare cached food as well as hunt for alternative resources. On the basis of the account presented here, it is pointed out that winter and summer subsistence complement each other through food preserving
activity and the two seasons make the complete yearly cycle for the Hatchet Lake Chipewyan in which the structural principles of the caribou hunting system are consistent.

However, the operational model of the Chipewyan subsistence unit has flexibility in the course of the seasonal changes. Although the domestic unit is the basic subsistence unit in which only minimal adjustment was observed, the hunting unit is very flexible. As demonstrated in the section on the hunting unit and camp in Chapter 5, the size of the hunting unit varies in the different seasons on the basis of the economic and the social factors. However, this flexibility is not only the result of the recent economic changes among the contemporary Hatchet Lake Chipewyan, but is continuously observed from the data on the Chipewyan subsistence units in the 1930's to 1975.

The ecological changes of the Wollaston Lake region over the years are examined in relation to the Chipewyan caribou hunting system and the group structure. In the section on the historical background of the Hatchet Lake Chipewyan in Chapter 2, it is noted that both the northern and southern groups of Chipewyan conducted caribou hunting in the 1930's. The northern group carried out the fall caribou hunt in the
Kasba Lake and Nueltin Lake area in the District of Keewatin, Northwest Territories. On the basis of the account, they speared caribou from the canoe as the animals swam across the water. Using this communal hunting method, the informant estimated that they harvested ca. 200 animals in each hunt, and that they conducted ca. 10 such hunting excursions in a year. As a result, they could hunt ca. 2,000 animals in the fall caribou hunt. Since there were 12 domestic units at the camp Ta jue, the average caribou usage per domestic unit may be ca. 167 animals. The southern group of Chipewyan on the other hand, remained to the south of the fall caribou range. But they had opportunities to find caribou crossing the water in some years in the 1930's; that is, on the narrow between a small island and the eastern shore of Wollaston Lake, a caribou herd of ca. 100 animals had been killed. In general, however, they preferred to exploit moose instead of depending on the fall caribou hunt as described in the section on the settlement pattern of the southern group of Chipewyan in Chapter 2 as well as in the section on the winter camps of the southern group of Chipewyan in the 1930's in Chapter 5. It is said that they managed to kill over 20 moose during the fall season, which
constituted the major portion of the winter food supply.

However, during winter, both the northern and the southern groups of Chipewyan were within the wintering range of the caribou. In those days, the caribou migrated to the southern part of the Wollaston Lake area for the winter, and the Chipewyan depended on them for their winter subsistence. The northern group of Chipewyan moved their camps south into the forest region in late winter, since the caribou herd penetrated deep into the forest in this season. The early winter camps divided into smaller groups. The informants could recall that they always shifted their camps following the spread of the caribou herds in late winter. And they kept moving until they found a caribou herd in the forest. The fission of the camp in late winter, which is described in Chapter 5 in more detail, demonstrates the plasticity of the Chipewyan subsistence unit. Changes in the composition of the hunting unit among the southern group of Chipewyan is also described in the same chapter. In this case, the disruption of a hunting unit due to the death of some of its members is documented. In the summer when the caribou migrate north to the tundra, both the northern and southern Chipewyan changed their subsistence base from caribou to fish. They
camped on lakes where fish were abundant. The location of summer camps was also near the trading post. The northern group of Chipewyan stayed on Lac La Brochet and traded at Brochet on Reindeer Lake but the southern group stayed on Swan Bay and carried out their trading at Brochet and at the outposts of the Hudson's Bay Company. Therefore, it is pointed out here that the major subsistence activities for the Chipewyan in both northern and southern groups in 1930's are caribou hunting in winter and fishing in summer. Trading and trapping activities were combined with these subsistence activities which, however, restricted their home range to within travelling distance of the trading posts.

In comparing the home range of the Chipewyan in the 1930's to the range of yearly activities of the contemporary Hatchet Lake Chipewyan, a shift towards the south is seen, although it still covers the taiga-tundra ecotone. The Hatchet Lake Chipewyan in 1975 do not use the Kasba Lake and Nueltin Lake areas, which were intensively exploited in the 1930's. As a result, they are not within the autumn range of the caribou. However, it should be noted that the Hatchet Lake Chipewyan are still within the caribou wintering range and that they can depend on caribou for their winter subsistence. The
Canadian Wildlife Service estimated the total Kaminuriak population prior to calving in June 1968 as number of 68,173. Human predation on the Kaminuriak population was estimated to be 3,500-4,000 in 1968, which constituted an estimated 5.3 per cent of the caribou population over 1 year of age. In fact, both Chipewyan and Caribou Eskimo hunt the caribou population, of which the Chipewyan who live in the communities of Churchill, Brochet, and Wollaston Lake harvested 2,000-2,500 each winter. From the Wollaston Lake settlement, an estimated number of 1,000 caribou were reported to be killed from August 1967 to July 1968. On the basis of the present field investigation, 46 caribou were hunted by the members of the winter camp 3uzaze in the period October 10 to December 15, 1975, and the estimated number of 100 caribou were harvested from January 3 to March 22, 1976. As a result, ca. 150 caribou were input to the winter camp 3uzaze in 1975-76.

Although the winter caribou migration is unpredictable, the northern part of Wollaston Lake in Saskatchewan is one of the major concentrations of the Kaminuriak population in late winter. It is noteworthy that the area is also penetrated by the Beverly population from northwest. So the
wintering area of the Kaminuriak and Beverly populations may overlap, at least in some years to the north of Wollaston Lake. As a result, the Hatchet Lake Chipewyan have an opportunity to hunt caribou from the two major populations of barren ground caribou in mainland Canada. During the winter of 1975-76, the author observed that the caribou appeared on the northwestern part of Wollaston Lake in early winter, but the major concentration of caribou appeared on the northeastern part of Wollaston Lake in late winter. It is difficult to ascertain without systematic observation of caribou migration, if this phenomenon was a result of the overlapping of the winter range of the two populations of caribou, or merely a result of the movement of a single population of caribou. However, it is said, on the basis of the observation, that the contemporary Hatchet Lake Chipewyan fully exploited the caribou in its wintering range.

The lack of a fall caribou hunt for the Hatchet Lake Chipewyan in 1975 due to the southern movement from their original home range in 1930's was compensated for by the exploitation of moose. It is noted that a member of the winter camp 3uzaze acquired a moose in the fall which contributed to their subsistence base in early winter. Similarly,
A member of the winter camp Desi ce in 1975 succeeded in hunting three moose on which they managed to sustain themselves without any caribou input in fall. The same phenomenon was observed at the winter camp of the southern group of Chipewyan in the 1930's. Thus, it is pointed out that the exploitation of moose as an alternative resource is a subsistence strategy used by the Hatchet Lake Chipewyan whose home range is south of the fall caribou range. Not only has the Chipewyan home range changed but so has the distribution of caribou between the 1930's and 1975. The caribou wintering range is receding to the north. Informants stated that in the 1930's caribou migrated south of Wollaston Lake. However, caribou only used the northern part of Wollaston Lake in the winter of 1975-76. As a result, the Chipewyan moved north for their winter camp when they depended on caribou. So their seasonal movement pattern may be seen as a north-south migration in accordance with the seasons. And it has become difficult to establish the winter camp south of Wollaston Lake without the support of alternative resources, since the possibility of caribou input in the area is minimal. On the other hand, the area north of Wollaston Lake is within the present winter range of the
caribou. In recent years, the Hatchet Chipewyan have made their winter camps in such areas as Charcoal Lake, Hatchet Lake, and the Cochrane River. The Chipewyan trappers can easily cover the area to the north in the District of Keewatin with their dog-teams, ensuring a supply of meat. Thus, the ecological relationships between Chipewyan and caribou have continued on the caribou wintering range north of Wollaston Lake from the 1930's to 1975.

As described in the section on the historical background of the Hatchet Lake Chipewyan in Chapter 2 as well as their seasonal movement pattern in Chapter 6, the Wollaston Lake settlement is used as a home base for the Chipewyan today. Rather than only visiting the trading post at particular times in the year, they now have a tendency to stay at the settlement for longer periods. Prior to 1957, there were no year-round residents at the settlement. In 1975, the Wollaston Lake settlement consisted of a general store, a church, a nursing station, an elementary school as well as the permanent houses of the residents which have been built by the housing program of the Federal and Saskatchewan Provincial Governments. Commercial fishing was introduced to the Wollaston Lake region in 1946 and has become one of
the major economic activities of the Hatchet Lake Chipewyan particularly in summer. Thus, the Chipewyan exploit their home range from this central base. Their seasonal movement is between the bush camps and the Wollaston Lake settlement. However, it is noted that the Chipewyan do not consider the Wollaston Lake settlement their permanent home base, but rather as one of their camps; i.e., a temporary aggregation of the population.

The contemporary Hatchet Lake Chipewyan also traps and fishes commercially, so in this sense their subsistence activities and seasonal movement patterns have changed since the 1930's. The schools, wage labour and other cash income, including welfare and pension plans, are the factors that caused the Chipewyan to become sedentary at the contemporary post. As described in Chapter 6, the subsistence pattern of the Hatchet Lake Chipewyan may be seen as falling between the two polar types of life; i.e., bush life and village life. Some Chipewyan tend to be more sedentarily, since village life has a security against the temporary hunger and the natural - and the supernatural - enemies in the bush. But, the economy of the village does not support their life on full time basis, and then the aggregation of the population
at the same place during longer period without producing the sufficient amount of food causes hostile relations among the people. Thus, some Chipewyan seek for the bush life. Although the work in the bush is hard, they have plenty of meat when the caribou come and they can avoid the conflict between peoples in the village. As a result, a variety of the subsistence patterns and seasonal movement patterns are observed among the contemporary Hatchet Lake Chipewyan between these two polar types. Each domestic unit decides its subsistence pattern and its movement pattern in each season on the basis of the economic and the social factors. The domestic units discuss and plan for their subsistence pattern, and the operational hunting unit is formed in the bush in the particular season for the particular activities. Thus, in spite of the diversity of the Chipewyan life between a village type and a bush type, the structural principles of the caribou hunting system and the group dynamics still endure. The Chipewyan caribou hunting system is consistent with environmental and economic changes of the Wollaston Lake region from 1930's to 1975, although its elements may have changed from time to time.

This adaptability of the Chipewyan caribou hunting system
to environmental changes is partly made possible by the flexibility of Chipewyan group structure. As described in the section on Chipewyan subsistence units in Chapter 5, the hunting unit has a high degree of plasticity. Through this adjustment of the composition and size of the hunting unit, the Chipewyan has been able to cope with the environmental and economic changes in the Wollaston Lake region over the years. The inter-domestic unit relations, found in the Chipewyan summer camps are, in fact, the operational model of the hunting unit. The fission and fusion of the domestic units in a hunting unit in accordance with the seasonal changes of activity including commercial fishing, demonstrates this principle of adjustment for subsistence. Therefore, the plasticity of the subsistence unit and the adaptability of the caribou hunting system play an important role in the Chipewyan subsistence strategy as regards to the environmental and economic changes of the Wollaston Lake region.
CONCLUSION

An ecological anthropological study was done among the Caribou-Eater Chipewyan of the Wollaston Lake region of northern Saskatchewan. The direct observation/active participation method was used as a major study procedure in the 15-month field investigation.

The result provides specific information on the ecology of the big-game hunters in boreal forest of Canadian subarctic. Besides, the thesis is intended to provide a contribution to theory and methodology of anthropology; that is, the theoretical framework of ecological anthropology is presented, in which biology, culture and environment are described in terms of the human activity system.

Three specific problems are defined for the present study; i.e., (1) Chipewyan group structure, (2) Chipewyan subsistence ecology, and (3) the structure and adaptability of the Chipewyan caribou hunting system. In order to approach these problems, basic information on the natural environment and the historical background of the region is, firstly, clarified. Then, the problems are examined by the following methods; i.e., (1) Active participation, (2) Individual
tracing and direct observation for a spatiotemporal analysis of human activity, (3) Historical comparison, indirect observation and chronology; and (4) Structural-operational levels of analysis. For the rest of this paper, the specific problems and the information on the Caribou-Eater Chipewyan are concluded, and the significance of the ecological anthropological theory and methodology is stated.

The natural environment of the region was examined with special reference to the caribou, moose, and fish ecology. The area is on the boreal forest-tundra ecotone where migration of the barren-ground caribou may be observed in the autumn and winter. The Hatchet Lake Chipewyan exploit caribou as a major food resource. The southern part of the Wollaston Lake region is also unique, since moose is available and the Chipewyan use moose as well as fish, particularly during the summer and autumn. The contemporary Hatchet Lake Chipewyan do not conduct a fall caribou hunt, although they intensively exploit the game in their wintering range. The absence of a fall caribou hunt is, however, compensated for by moose hunting activity in the fall.

In the historical background of the region, three different periods are distinguished by the author on the basis of
changes in the subsistence patterns and the settlement patterns: that is, (i) Period I: 1920's-45; (ii) Period II: 1946-57; and (iii) Period III: 1958-75. Period I is the contact-traditional phase, or the period of the developed fur trade, although they still depended on caribou as their major food source. The year of 1946 marked the beginning of Period II when the Saskatchewan Provincial Government established the store on Moose Island on Wollaston Lake. At this time, both the northern and southern group of Chipewyan started intensive exploitation of the Wollaston Lake area. However, in Period II their home bases were scattered around the region and the trading post was only a place for short-term visiting. This period could be seen as a transitional time from the contact-traditional phase to the contemporary phase. It is also noteworthy that the introduction of commercial fishing played a significant role in initiating the concentration of Hatchet Lake Chipewyan at the contemporary settlement. Period II ended by 1958 when the new Northern Cooperative Trading Services started operating at the contemporary site of the Wollaston Lake settlement. Period III: 1958-75, is characterized by the increased tendency towards sedentary life and centralization
of the Hatchet Lake Chipewyan, which continued until the time of the field study of 1975-76.

In each period, the two major factors of the Chipewyan settlement patterns were revealed to be caribou ecology, and fur trading activity. On the basis of the historical background of the Wollaston Lake settlement, it may be seen that different groups of Chipewyan (i.e., the northern and southern groups of Chipewyan) utilized different posts in Period I, and that they started using the single post in Period II, which produced the aggregation and concentration of the Hatchet Lake Chipewyan at the contemporary settlement in Period III.

As a part of the historical background of the Hatchet Lake Chipewyan, the classification of the different ethnic groups and the history of the interrelations with these groups is described. The distinction of ethnic groups is based on the Chipewyan categories of the different groups in a spatial arrangement. The history of the Chipewyan-Eskimo relations, the Chipewyan-Cree relations, and the Chipewyan-Euro-Canadian relations are examined as well as the relationships between the Chipewyan and certain supernatural figures. At the contemporary Wollaston Lake settlement, there are three ethnic groups: that is, the Chipewyan, the Cree, and
the Euro-Canadians. Administratively, a distinction is drawn between the treaty status Indian and the non-treaty population. The treaty Indians include a part of the Chipewyan population, while the non-treaty people are the remaining Chipewyans, the Cree and the Euro-Canadian settlers. It is noteworthy that the Chipewyan as an ethnic group are categorized into the two different administrative divisions. So, the identity of a non-treaty Chipewyan is twofold: administratively he is a non-treaty Indian but ethnically he remains a Chipewyan.

The administration of the population is related to the economic aspects of daily life at the settlement. The treaty Chipewyan are administered by the Indian Affairs Branch of the Federal Government. According to the Indian Act, the Dominion Government is responsible for the health, welfare, education, and aid in the industrial enterprises of the Indians. The treaty Indian receives free health services, and education, while the non-treaty Indian is excluded from these benefits. The non-treaty status population of the settlement is, on the other hand, administered by the Department of Northern Saskatchewan (DNS) of the Provincial Government.
The socio-economic structure of the Wollaston Lake settlement is the product of contact between the Wollaston Lake population and large scale contemporary Canadian society. Political and economic impact comes from the Indian Affairs Branch of the Federal Government, and from the Department of Northern Saskatchewan of the Provincial Government. On the other hand, the two missions (i.e., Roman Catholic and Evangelical) exert an influence upon the population. In this way, the structure of the Wollaston Lake settlement, in which each individual has a different ethnic and administrative status, has been formed. The role of the intermediator in this structure of socio-economic relationships is significant.

Then the first problem on the group structure of the Caribou-Eater Chipewyan is examined. As a methodology, the structural-operational levels of analysis is used. On the basis of the data on kinship terminology and kin-group terminology, the characteristics of the Hatchet Lake Chipewyan kinship system are described with special reference to bilaterality and kin-groups and flexibility of kinship and kin-group.

The subsistence unit is methodologically distinguished from the structure of kinship and kin-group. The subsistence
unit arises as a result of the conflict between the structure and the real environment to which the Chipewyan must adapt. Then, the reality of the subsistence unit is always subject to change in accordance with various factors. However, the concept of the subsistence unit could also be defined as a methodological tool for the anthropologist, in which the maximum range of adjustment is included. Thus, the subsistence unit, in this paper, implies both a structural concept as well as an empirical one. The term hunting unit is used after Sharp (1977), since with this terminology, the plasticity of the unit, or an aspect of the Chipewyan subsistence unit may be emphasized without altering the original definition of the term. In this framework, it is also possible to reconcile the concept of the hunting group as described by J.G.E. Smith (1970, 1975, 1978) with the concept of the hunting unit, as an operational model of the unit.

In this paper, the range of adjustment of the hunting unit is clarified in relation to the Chipewyan kin-group category. At the maximum point, a hunting unit would include all the siblings, their parents, and their spouses and children, in which the sibling-ships, or eťinakwi, play a major role in the affiliation. At the minimum point, the hunting unit
could correspond to a domestic unit, typically but not always being composed of an elementary family. The operational model of the hunting unit varies within this range which is demonstrated on the basis of the empirical data.

The term camp is used to describe a temporary aggregation of population at the same location, which is theoretically an aggregation of the operational model(s) of the hunting unit. In Chipewyan, ałanaide means staying together, and the term does not connote any kind of underlying kinship relation. Thus, the anthropological definition of the term camp in this paper corresponds to the Chipewyan concept of ałanaide.

The second specific problem in Chipewyan subsistence ecology examined from an ecological anthropological viewpoint in which human activity, particularly hunting, is intensively documented as one of the technological and ecological relationships between man and nature. Individual tracing and direct observation methods are used for obtaining the quantitative data on the spatiotemporal records on human activity. Each subsistence activity is described on the basis of the active participation method, in which anthropologist participates and documents it by learning skill and knowledge.
The Chipewyan seasonal movement pattern is clarified in terms of home base and seasonal changes in home-range size, and the transportation and movement strategies. The total home-range is 26,900 km² (population density in the region would be 0.013 person/km², since the total population of the Wollaston Lake settlement is 351). The range size for the summer season is revealed to be 4,700 km², which constitutes 17.5% of the yearly home-range, or the winter range. The significance of transportation and moving activity as one of the factors on the Chipewyan seasonal movement patterns is pointed out.

Then, the subsistence activities of the Hatchet Lake Chipewyan are classified. The five major categories include Food getting activity (FGA), Food processing activity (FPA), Sheltering activity (SHA), Hide preparing activity (HBA) and Manufacturing activity (MA). In each major category, minor categories of subsistence activities are further classified. The five major categories of activities are the central pillars of Chipewyan subsistence. Food getting activity is hunting, fishing and gathering activities. Food processing activity is the treatment of raw food prior to consumption. There are two minor categories in this activity: food
preparing activity and food preserving activity. The former is the cooking of a meal for immediate consumption, and the latter is food preserving activity for future use. Preparation of dry fish and meat is included in this activity.

The third major category is sheltering activity. This activity includes moving, house building, and housekeeping. The fourth category is hide preparation. This activity, in general, could be included in the fifth category: manufacturing. However, the hide preparation plays a significant role in the Chipewyan subsistence activities in terms of time use. Therefore, it should be separated from the manufacturing activity and established as a major category itself. The fifth and the last category is manufacturing activity. This includes such activities as making tools and equipment.

Then, time-space use of the Chipewyan subsistence activities is described, on the individual and on the camp levels. Time use of activities in the yearly cycle is characterized by seasonality of activities. Five seasons in a year are distinguished and described from the viewpoint of the seasonal changes of the subsistence activities. The aspect of space use for each subsistence activity is examined in terms of the distance from the seasonal camp. The activity space is
divided into three categories: in-camp area, near-camp area, and out-of-camp area. The in-camp area is the camping ground where the abodes of the Chipewyan are constructed. The near-camp area is the ground within a distance of 1.0 km of the camp. This area is outside camp, but still within a short distance of the camp. The out-of-camp area is, however, the ground farther than 1.0 km from the camp. The subsistence activities conducted in each space are described on the basis of the empirical data at the winter camp and the summer camp. The activities which are carried out in the out-of-camp area are hunting, trapping, and fishing. However, fishing in autumn and winter is also conducted in the near-camp area. Similarly it is also observed that small-scale trapping can be done in the near-camp area. Then, the in-camp area is used for food processing, hide preparation, sheltering activity and manufacturing.

Then, the third problem on the structure and the adaptability of the Chipewyan caribou hunting system is examined. Activity is a basic term not only for individuals, but also for populations. To examine the structure and function of activity systems, the relationships between the individual and the subsistence unit should be discussed in terms of the
individual variations and the structural principles on which the system is formed. The three major principles for structuring systems of activities on the basis of individual variation; that is, the temporal sequence of activities, the allocation and the combination of activities, are clarified on the basis of the following investigation.

The frequency and the temporal sequence of the activities during the period October 10 to December 15, 1975 are revealed as: from moose hunting to moose hide preparation; from caribou hunting to caribou hide preparation; from hide preparation (including moose and caribou hides) to manufacturing with leather. It should also be noted that manufacturing activity provides positive feedback for food getting activity. The temporal sequence of minor activities in the category of hide preparation is also found. Moose hide is prepared in a series of minor activities; i.e., cutting moose hair, making wooden framework for scraping; stretching skin; scraping inside; scraping outside; tanning; smoking (first time); softening; and smoking (again).

From an ecological point of view, the division of labour can be expressed as the process of allocation and combination of different kinds of activities to different individuals in
the population. On the basis of the data on the time use for each activity for each individual in the winter camp, the characteristics of the Chipewyan allocation of activities by sex can be described as follows. Hunting and trapping are male dominant activities. Trapping, however, has been observed among female individuals. In this case, trapping is combined with gathering activity. Gathering, on the other hand, is dominantly female activity, although it can be also conducted by male members. Both male and female members participate in fishing. However, open water fishing is mainly conducted by males. The female members were observed participating in ice fishing though, at the time when the male members were hunting caribou. They check the net and transport the catch to the camp, although the initial setting of the fish net is done by the male members. Food processing is a dominantly female activity and includes the production of both dry fish and meat. Hide Preparation is also dominantly female activity. However, making wooden frameworks for scraping hide is conducted by male members. It is noted that, in the summer camp, the author also observed a male Chipewyan stretching a moose skin on a frame aided by his wife. In general, however, all aspects of hide
preparation would be done by the female members.

As described, activities are allocated to individuals on the basis of sex. From the individual's viewpoint, some activities are allocated to the same individual as a set: i.e., the individual combines the different kinds of activities. Various categories of activities are frequently observed being conducted at the same place by the same individual. In fact, some activities are carried out simultaneously by the same individual in terms of time and space, which could be seen as a strategic arrangement of activities. This phenomenon is denoted here by the term combination of activities. On the basis of the data on the time use for Chipewyan food acquisition which includes hunting, trapping, gathering and fishing activities, the following combinations of activities are noted: i.e., the combination of hunting and trapping; the combination of gathering and trapping; the combination of hunting and fishing; and the combination of hunting and retrieving a cache located at a distant from camp. The time use for these combined activities constitutes 72.3% of the total time use of 1,066.0 hours for food acquisition at the winter camp in the period October 10 to December 15, 1975.
The relationship between the temporal sequence of Chipewyan subsistence activities and the allocation and the combination of activities is examined. The space use for each activity is also taken into consideration. It is noted that the initial part of the sequence of activities, or food getting activity (FGA) is dominantly carried out by males. Although trapping activity (TA) and fishing activity (FA) could be done either by males or females if the activity space is the near-camp area, and gathering activity (GA) is a dominantly female activity, hunting activity (HA) is exclusively a male activity. Hide preparation activity (HPA) and food processing activity (FPA) which follow food getting activity (FGA) in the temporal sequence are female dominant activities. The last process of the temporal sequence, manufacturing activity (MA), is done by both males and females who allocate the minor activities on the basis of the material and technique of each activity. In the category of food processing activity (FPA), food preserving could be taken over by food preparation if the cached food needs to be cooked before consumption.

Thus, the sex of the participants for each activity in the temporal sequence is changed from male to female, and again returns to male. Similarly, the space use of activities
in this sequence alternates from the out-of-camp area to the in-camp area and again to the out-of-camp area. It is interesting to note that between the out-of-camp area and the in-camp area, the near-camp area is used by both male and female. This area is also the transitional zone for the young Chipewyan men as they learn techniques and skills for food acquisition and later expand their activity space to the out-of-camp area. And for the Chipewyan women, the area provides security in obtaining food particularly when the Chipewyan men are absent from the camp on a hunting expedition.

Thus, it is pointed out here that the various categories of the Chipewyan subsistence activities are organized into a system of activities which is called here the Chipewyan caribou hunting system. And the three major principles for structuring systems of activities on the basis of individual variations are ascertained as: the allocation of activities, combination of activities, and temporal sequence of activities.

Then, the adjustment and the adaptability of the Chipewyan caribou hunting system is examined. Here, the historical comparative method as well as the structural-operational levels of analysis are used. In order to obtain the information on the subsistence ecology in the past, the indirect
observation method is used in the chronological setting, in which anthropologist indirectly examines the peoples activities through the informants' descriptive information on the actual events.

The yearly changes of the natural environment as well as the ecological changes over the years in the Wollaston Lake region are described in relation to the process of adjustment of the Chipewyan caribou hunting system. It is revealed that the structural principle of the caribou hunting system has been relatively consistent, even though its operation varied in accordance with the changes in environmental reality. Therefore, the adaptability of the Chipewyan caribou hunting system combined with the plasticity of Chipewyan group structure contributes to the subsistence of the Caribou-Eater Chipewyan in the environmental changes of the Wollaston Lake region.

The ecological method presented in this thesis is an effective means of demonstrating the dynamic aspects of Caribou-Eater Chipewyan group structure, subsistence ecology, and caribou hunting system. In the systems of activities, it is the Chipewyan people who mediate, through their activities, the relationships between man and environment.
Instead of undergoing deculturation, the Chipewyan are making continuous adjustments of their ecological relations through their activities. This case study of the Caribou-Eater Chipewyan supports the theoretical framework for ecological anthropology proposed in Chapter 1. Human activities are the primary factor in the establishment and adjustment of biological-environmental relationships.

On the basis of the conclusion, the prospects for future study may be seen as follows. First, the adjustment and the change of the Chipewyan activity system can be studied from a long-range perspective. Although the structure of the caribou hunting system was relatively stable in the past fifty years, it should not be assumed that it will be in the future. Possibly drastic changes in their environment and economy (e.g., disappearance of caribou, mining exploration, industrialization, etc.) may require full scale restructuring of their way of life. It is important to ascertain, from the human activity systems point of view, how the system adjusts, or changes and what kind of new system emerges.

Secondly, it may be suggested that extensive studies of human activity systems of groups other than the Caribou-Eater Chipewyan would provide more comprehensive picture of man.
environment relationships. A complete list of human activities has not yet been established in ecological anthropology. Neither have any systematic comparisons and generalizations of activity systems of *Homo sapiens* been done. Both the intensive and the extensive studies on human activity systems from an ecological anthropological viewpoint may contribute to the general understanding of ecology of man and the process of its change.
FIGURES, TABLES AND CHARTS
Fig. 1. Wollaston Lake settlement of northern Saskatchewan (Location: 103°10'W, 58°07'N).

Notes: The aerial photograph was taken by the author from a Cessna 185 on April 12, 1976. The housing arrangement of the settlement was schematically drawn. The public facilities which are indicated by number on the map are as follows. 1: Boundary line of Reserve land (Band-31, Lac La Hache), dividing the Reserve on the right side and the Crown land on the left; 2: Roman Catholic Church; 3: Cemetery; 4: Department of Northern Saskatchewan (DNS); 5: School building; 6: Public health nurse station; 7: Royal Canadian Mounted Police (RCMP) patrol station; 8: Local Government (Band Council) building; 9: Evangelical Church field station; 10: Assembly hall; 11: Post office and general store (Northern Cooperation Trading Services); 12: Fish Filleting Plant (Cooperative Fisheries); 13-14: Ice house for commercial fishing; 15: Air strip (4000 ft.; surface type: gravel); 16: Winter road on Lake Ice (in use from January to April).
The posts and the church were used mainly by the northern group of Chipewyan. The posts were used by both the northern and southern groups of Chipewyan.

**Fig. 2.** Chronological chart of history of trading posts and churches on Wollaston Lake region.
Fig. 3. Hatchet Lake Chipewyan categories of the different ethnic groups and their spatial arrangement.

Note: The solid line represents the boundary between *dene* and *enna*. The dotted line represents the limit of the accurate knowledge of the Hatchet Lake Chipewyan on the different ethnic groups.
Fig. 4. Political-economical structure of the Wollaston Lake settlement of northern Saskatchewan in 1975-76.
Fig. 5. Forest regions and distribution of the four major populations of barren-ground caribou on mainland Canada.

Note: Forest regions of Canada are adopted from Rowe (1972) and the information on distribution and migration routes of barren-ground caribou is based on Thomas (1969), Parker (1972) and Kuyt (1972).
Key:
- Location of Wollaston Lake
- Spring migration route (May-June, 1967/68)
- Summer/fall migration route (June-October, 1967/68)
- Winter migration route (November-April, 1966/67/68)
⊙ Calving area
⊙ Wintering area
Fig. 6. Schematic diagram of Hatchet Lake Chipewyan kin-group terminology.

Note: Kin-group terms in this figure are used by ego 1 except some terms used by ego 2 which are indicated in parentheses.
Fig. 7. Hatchet Lake Chipewyan summer camps and the movement of the domestic units at the different camps in 1975.

Note: In the summer of 1975, 8 camps were established in the Wollaston Lake region which were composed of 2 to 9 domestic units. The other 7 camps were also recorded, but those camps were composed of only male members not accompanied by their families. In this figure, the fish camps of the Cree as well as those of the Chipewyan were recorded, although the different ethnic groups were always separated into the different camps.
Fig. 8. Tent arrangement, kinship and partnership relations among the members of summer camp $\theta$ai nu-1 (upper part) in 1975.
Fig. 9. Tent arrangement, kinship and partnership relations among the members of camp ʔai nu-1 (lower part) in 1975.

Note: In addition to the key shown in Fig. 8, the temporary (short time) fishing partnerships are indicated by dotted lines connecting the individuals in the genealogical chart.
Fig. 10. Tent arrangement, kinship and partnership relations among the members of camp θai nu-2 and camp Gabriel be nue-2 in 1975.
Fig. 11. Tent arrangement of Chipewyan camp Gabriel bne nue-1 in 1975.

Note: Kinship and partnership relations among the members of the camp have already been shown in Fig. 8 and Fig. 10.
Fig. 12. Tent arrangement of Chipewyan camp Hoobai nu in 1975.

Note: The data on tent arrangement of camp Hoobai nu was based on indirect-observation. Kinship and partnership relations in the camp have been shown in Fig. 8 and Fig. 10.
Fig. 13. Types of inter-domestic unit kinship relations in Chipewyan summer camps in 1975.

Note: Aa: Kinship relation between the first ascending and descending generations within an elementary family (parenthood); Ba: Kinship relation in the same generation within an elementary family (siblingship); Ab: Kinship relation between the first ascending and descending generations beyond an elementary family (uncle and niece or nephew); Bb: Kinship relation in the same generation beyond an elementary family (cousins).

The solid line connecting the members shows kinship relations within an elementary family, and the dotted line between the members shows kinship relations beyond an elementary family. The circle with a solid line schematically represents each domestic unit. The number of cases for each kinship types is also indicated in parentheses in the figure. For further information, see text as well as Table 6.
Fig. 14. Domestic units and kinship relations among the members at camp Kaikaze.

Notes:
1.) The circle with a solid line indicates a domestic unit. Domestic unit K-104 was composed of two tents, each of which is circled by a dotted line.
2.) One of the members of domestic unit K-101 was absent in camp, but stayed at Carai tue in the Nueltin Lake region.
3.) Inter-domestic unit kinship relation between K-101 and K-103 is between a man (ego) and ego's BS. Since the man adopted his BS after the man's B died, the relation could also be expressed as adopted father and son relation.
4.) After 'freeze-up', the camp Kaikaze divided into two parts: one was composed of the domestic units K-101, K-102 and K-103; and the other was domestic unit K-104. The former moved north to set up a winter camp at Phelps Lake, but the latter established a winter camp near the fall camp Kaikaze where they lived in a single log cabin.
Fig. 15. Domestic units and kinship relations among the members of Chipewyan winter camp-T(Ta tue) in ca. 1930.

Notes:
1.) The locations of the members who were absent in this camp were also indicated in the figure. They were on camp-D (Te čo nilini desi če), camp-N (Tabani tue), Stony Rapid (SR), or Carai tue (CT).
2.) The domestic unit T-103 was dissolved after the death of two members of the unit, and joined domestic unit T-102.
3.) The informant recalled that the domestic unit T-104 joined later at the fall caribou hunting camp, and that it stayed at winter camp T (Ta tue).
4.) The domestic unit T-106 and T-107 stayed in a joint log cabin which shared a wall.
5.) There were about 10 more children, but detailed information could not be recalled.
6.) The wife of the domestic unit T-111 originally came from Patuanak, a Chipewyan settlement on English River drainage. In late winter, the domestic unit T-111 and T-112 left the camp to go to Patuanak.
Fig. 16. Domestic units and kinship relations among the members of Chipewyan winter camp-N (Tabani tue) and camp-D (Te čo nilini desi če) in ca. 1930.

Note: The other members at camp-N and camp-D are shown in Fig. 15.
Fig. 17. Kinship relations among the members of the winter camps of the southern group of Chipewyan in 1934-39.

Notes:
1.) They called each other by the term of younger brother and elder brother. Thus, the kinship relation would be siblings or cousins, although detailed kinship relation was not obtained from the informant.
2.) The detailed kinship relation was not known, but the informant speculated that some kind of kinship relation existed between the Crees.
3.) The death was in 1936.
4.) The marriage was in 1925, and the death of the wife was in 1935.
5.) The marriage was in 1932, and the birth of the second son was in 1935.
6.) The marriage was in 1930, and the death of the wife was in 1937.
7.) The marriage was in 1937.
8.) Partnership remained after the dissolution of the hunting unit in 1937/38/39.
Key: - - - - : Domestic unit; ○ : Visiting member; □ : Trapping partnership; (BR.): Resident at Brochet (north end of Reinder Lake in Manitoba Province); ←→ : Adoption.

Fig. 18. Kinship relations among the members of winter camp 3uzaze in 1975.
Fig. 19. Plan of winter camp 3uzaze in 1975-76.
Fig. 20. Kinship relations among the members of Chipewyan winter camp Desi če in 1975.

Note: The circle with a solid line represents a domestic unit. And the circle with a dotted line is a tent. At the winter camp Desi če, one tent was occupied by the domestic unit E-101, but the other tent was shared by the domestic units E-102 and E-103. The dotted line connecting the individuals represents a trapping partnership, which was observed among the members of the domestic unit E-101. A female member of the domestic unit E-103 was absent from the winter camp, since she stayed at the boarding school at Prince Albert.
Fig. 21. Home range of Hatchet Lake Chipewyan estimated by the Provincial Government trapping area, census data on beaver house and winter fishing area.

Note: Trapping area is divided into two sections, N-93 and N-26. The latter is further divided into three zones: Zone-1 (Z-1), Zone-2 (Z-2) and Zone-3 (Z-3).
Key:
- Beaver house
- Winter fishing area
- Location of the Wollaston Lake settlement

Scale: 0 10 20 30 40 50 Kilometres
Fig. 22. Summer range and winter range of Hatchet Lake Chipewyan with trapping routes and the location of summer camps and winter camps.
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**Months**

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**Fig. 23.** Seasonal movement pattern of the Hatchet Lake Chipewyan.

**Note:** Solid line: movement on dog-teams; Dotted line: movement on canoes.
Fig. 24. Travelling routes between winter camp juzaze and the Wollaston Lake settlement on canoe and dog-team.
Fig. 25. Patterns for Chipewyan mittens.
Fig. 26. Patterns for Chipewyan moccasins.
Fig. 27. Schematic model on procedure for netting Chipewyan snowshoes.
Fig. 28. Frequency and seasonal changes in subsistence activities in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).
Fig. 29. Seasonal change in time use for hunting and/or trapping activities in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).
Fig. 30. Seasonal change in time use for food processing activity in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).
Fig. 31. Seasonal change in time use for hide preparing activity in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).
Fig. 32. Seasonal change in time use for manufacturing activity in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).
Fig. 33. Space use for subsistence activities in seasons I, II, III and V.
Key:

- Winter camp (white triangle)
- Summer camp (black triangle)
- Space use for activities in season I (October 10-November 10, 1975)
- Space use for activities in season II (November 10-December 15, 1975)
- Space use for activities in season III (March 3-March 15, 1976)
- Space use for activities in season V (August 8-August 16, 1976)
Key: Hf: Hunting on foot/canoe; Fw: Open water fishing; Kc: House cleaning (collecting spruce twigs); Ki: Firewood getting.

Fig. 34. Space use for activities in near-camp area at fall camp (Oct. 9 - 12, 1975).
Key: Hf: Hunting on foot; Hs: Hunting on snowshoes/toboggan; T: Trapping; G: Gathering; Fi: Ice fishing; Ki: Firewood getting.

Fig. 35. Space use for activities in near-camp area (and part of out-of-camp area) at winter camp 3uzaze (Oct. 13 - Dec. 15, 1975).
Key:  
H: Hunting (on canoe);  
G: Gathering;  
Fw: Open water fishing;  
Kc: House cleaning (collecting spruce twigs);  
Ki: Firewood getting.

Fig. 36. Space use for activities in near-camp area at summer camp Θai νu (Aug. 1 - 3; Aug. 7 - 17, 1975).
Fig. 37. Temporal sequence of hunting, hide preparing and manufacturing activities in the period September 30 to December 15, 1975 (seasons Ia, Ib and II).
More hunted, but hide was stored in Hut 3 under unprepared condition.

First caribou input to Camp 2.

Caribou hide from 1974-75 winter season.
Key: HTA: Hunting and/or trapping activity; GA: Gathering activity; FA: Fishing activity; FPA: Food processing activity; HPA: Hide preparing activity; MA-1: Manufacturing on skin, feather and bone; MA-2: Manufacturing activity on wood.

Fig. 38. Time use for activities by individuals in the period September 30 to December 15, 1975 (seasons Ia, Ib and II).
Key: FGA: Food getting activity; FPA: Food processing activity; HPA: Hide preparing activity; SHA: Sheltering activity; MA-1: Manufacturing activity on skin, feather and bone; MA-2: Manufacturing activity on wood.

Fig. 39. Time use for activities by individuals in the period March 3 to 14, 1976 (season III).
Fig. 40. Chipewyan caribou hunting system in relation to temporal sequence of activities, allocation of activities by sex and space use of activities.

Notes:
1.) Material for manufacturing activity on wood (MA-2) is obtained on near-camp area by male members.
2.) Food processing activity (FPA) is followed by the activity for consumption.
Table 1. Classification and terminology of the people by the Hatchet Lake Chipewyan.
Hatchet Lake Chipewyan terminology | English translation
--- | ---
hot'еna | The barren land enemy, or the Eskimo
енна | The enemy, or the Cree

dene | The western people

Classified based on the four cardinal points on the ground

voda dene | The western people
saaisi dene | The eastern people
vonna di | The southern people
yatena di | The northern people

dene | The Dog rib
tincene | The Yellowknife

groups of dene | tanzotini

Notes:
1.) Birket-Smith (1930:9) states that the Eskimos are called *эт Ena*, or construction of otrel-ен'a, "the enemies from the flat- i.e. woodless-land".
2.) Their name en'a is almost synonymous with enemy on the whole (Birket-Smith, 1930:8).
3.) The people at Fond du Lac gанikwen dene and the Black Lake телzentе dene are included in this category. J.G.E. Smith (1973a: 51) records the term yodai dene; also Jarvenpa (1975:95) notes the term yadaut'не.
4.) It is also expressed sahaigisi dene by the Hatchet Lake Chipewyan. The group is sa-yin'-si'-dene (sun under; i.e., eastern people) noted in Handbook of American Indians (Curtis, 1928:4); sayisi dene (people of the rising sun) recorded by J.G.E. Smith (1973a:49); saiizi (sunset people) noted by Jarvenpa (1975:95).
5.) The people of Ille-а-la-Crosse kesiyo dene are included in this category. The term is also expressed as vonna dene by the Hatchet Lake Chipewyan. J.G.E. Smith (1973a:50-51) records the term nunarna dene (people of the south).
6.) The people are also called hot'ela dene by the Chipewyan who live south of Brochet. This group is hâthel-hotїнne (lowland they dwell) noted by Curtis (1928:3); and is also identified as otelnadi dene (people of the lowland: barren land) by J.G.E. Smith (1973a:50); et'iladi (northerners) noted by Jarvenpa (1975:95).
Table 2. Meteorological record on Wollaston Lake region in 1975.

<table>
<thead>
<tr>
<th>1975</th>
<th>Average temperature (°C)</th>
<th>Number of observations (days)</th>
<th>Precipitation (mm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Snowfall</td>
</tr>
<tr>
<td>January</td>
<td>-27.6</td>
<td>31</td>
<td>178</td>
</tr>
<tr>
<td>February</td>
<td>-17.8</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>March</td>
<td>-19.9</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td>April</td>
<td>0.8</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>May</td>
<td>5.7</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>June</td>
<td>11.7</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>July</td>
<td>15.2</td>
<td>12</td>
<td>68</td>
</tr>
<tr>
<td>August</td>
<td>8.7</td>
<td>6</td>
<td>61</td>
</tr>
<tr>
<td>September</td>
<td>1.9</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>October</td>
<td>0.9</td>
<td>23</td>
<td>312</td>
</tr>
<tr>
<td>November</td>
<td>-9.5</td>
<td>30</td>
<td>284</td>
</tr>
<tr>
<td>December</td>
<td>-24.1</td>
<td>29</td>
<td>373</td>
</tr>
<tr>
<td>Annual total</td>
<td></td>
<td></td>
<td>1310</td>
</tr>
</tbody>
</table>
Table 3. Major mammals of Wollaston Lake region with reference to terms and use by the Hatchet Lake Chipewyan.

<table>
<thead>
<tr>
<th>Scientific term</th>
<th>English term</th>
<th>Chipewyan term</th>
<th>Method for catch</th>
<th>Type of utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Family Soricidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorc sp.</td>
<td>shrew</td>
<td>ṣa</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.) Family Vespertilionidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nyctice lucifugus</td>
<td>little brown myotis</td>
<td>ṣar̮t'anana</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3.) Family Ursidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ursus americanus</td>
<td>black bear</td>
<td>ṣa</td>
<td>H(T)</td>
<td>F; P</td>
</tr>
<tr>
<td></td>
<td>cinnamon phase</td>
<td>ṣa delces</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>black phase</td>
<td>ṣa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4.) Family Mustelidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martes americana</td>
<td>marten</td>
<td>ṣa</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>Mustela erminea</td>
<td>short tail weasel</td>
<td>ṣar̮kerti</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>Mustela vison</td>
<td>mink</td>
<td>ṣar̮kuna</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>Lutra canadensis</td>
<td>river otter</td>
<td>ṣar̮ha</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>Gulus lucius</td>
<td>wolverine</td>
<td>ṣar̮s</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>5.) Family Canidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canis lupus</td>
<td>gray wolf</td>
<td>ṣar̮pa</td>
<td>(H)</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>red phase</td>
<td>ṣar̮pa delkos</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>black phase</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>gray phase</td>
<td>ṣar̮pa delbai</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vulpes fulva</td>
<td>red fox</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>red phase</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>black phase</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>cross phase</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>silver phase</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alopec lagopus</td>
<td>arctic fox</td>
<td>ṣar̮pa delsen</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6.) Family Felidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lynx canadensis</td>
<td>lynx</td>
<td>ṣ̄ie</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>7.) Family Soricidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamiasciurus hudsonicus</td>
<td>red squirrel</td>
<td>ṣ̄ie</td>
<td>(H); T</td>
<td>P</td>
</tr>
<tr>
<td>Glaucomys sabrinus</td>
<td>northern flying squirrel</td>
<td>ṣ̄ie</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>8.) Family Castoridae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Castor canadensis</td>
<td>beaver</td>
<td>ṣ̄ie</td>
<td>T; H</td>
<td>P; P</td>
</tr>
<tr>
<td>9.) Family Cricetidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ondatra zibethica</td>
<td>muskrat</td>
<td>ṣen</td>
<td>T; H</td>
<td>(P); P</td>
</tr>
<tr>
<td>Mus musculus</td>
<td>house mouse</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10.) Family Erethizontidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erethizom dorsatum</td>
<td>porcupine</td>
<td>ṣi</td>
<td>H</td>
<td>P</td>
</tr>
<tr>
<td>11.) Family Leporidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lepus americanus</td>
<td>snowshoe hare</td>
<td>ṣa</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>12.) Family Cervidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alces alces</td>
<td>moose</td>
<td>ṣa</td>
<td>H</td>
<td>P</td>
</tr>
<tr>
<td>Rangifer arcticus</td>
<td>barren ground caribou</td>
<td>ṣa</td>
<td>H</td>
<td>P</td>
</tr>
</tbody>
</table>

Notes:
1.) The arrangement of the Families and Species is based on A Field Guide to the Mammals (Burt and Grossenheider, 1964).
2.) H: Hunting; T: Trapping; Secondary method is indicated in parentheses.
3.) F: Food; P: Pelt; Secondary use is indicated in parentheses.
4.) The species could be one of the following: Sorex cinereus, Sorex arctinus, Sorex palustris.
5.) Hunting activity is only sporadically conducted.
Table 4. Hatchet Lake Chipewyan kinship terminology.

Notes:
1.) An informant claimed that he used the term se?e for FyB and MyB, while he employed the term se?eene for FeB and MeB.
2.) According to the relative ages of ego and the person addressed, the term sonnagai for elder person and the term se?e for younger person are used. Beyond the first cousins, the sibling terms are not extended, but the cousin term sela is exclusively used.
3.) According to the relative ages of ego and the person addressed, the term saare for elder person and the term sedeze for younger person are employed.
4.) Ego's HyB could be also addressed by the term sonnagaze, while ego's HeB is always called se?eai.
5.) Ego's yBS and yBD could be also addressed by the term sintse and selie, respectively. In this case, ego's eBS, eBD, eZS and eZD are called by the term saaze (mn. sp.).
6.) Ego's BS and ZS could be also addressed by the term sonnagaze (wn. sp.).
7.) Ego's BD and ZD could be also addressed by the term saaraze (wn. sp.).
1. **Second ascending generation**

   FF, MF  
   FM, MM

2. **First ascending generation**

   F  
   M  
   FB, FZH, MB, MZH  
   FZ, FBW, MZ, MBW  
   Stepfather  
   Stepmother

3. **Affinal relatives in first ascending generation**

   WF(mn. sp.), HF(wn. sp.)  
   WM(mn. sp.), HM(wn. sp.)

4. **Ego's generation**

   H  
   W  
   eB  
   yB  
   eZ  
   yZ  
   FZS, FBS, MBS, MZS  
   FZD, FBD, MBD, MZD

5. **Affinal relatives in ego's generation**

   EW, WZ  
   ZH, WB  
   EW, HZ  
   ZH, HB

6. **First descending generation**

   S  
   D  
   BS, BD, ZS, ZD  
   BS, ZS  
   BD, ZD  
   SW  
   DH

7. **Second descending generation**

   SS, DS  
   SD, DD
Table 5. Kinship relations in domestic unit and formation of tents by the domestic unit in each Chipewyan summer camp in 1975.
<table>
<thead>
<tr>
<th>Code of domestic unit</th>
<th>Kinship type (population)</th>
<th>Code of number of tents in summer camps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dai-ny-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dai-ny-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gillib-nun</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deniya-nun</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gabriela-b-abh-nus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gabriela-b-bh-bh-nus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ten Kwen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hoobai-nu</td>
</tr>
<tr>
<td>S101</td>
<td>EF</td>
<td>10 A-01/A-02</td>
</tr>
<tr>
<td>S102</td>
<td>CP</td>
<td>4 A-03</td>
</tr>
<tr>
<td>S103</td>
<td>EF</td>
<td>5 A-04</td>
</tr>
<tr>
<td>S104</td>
<td>EF+FP</td>
<td>8 E-04/E-05</td>
</tr>
<tr>
<td>S105</td>
<td>WD+U2+FP+AD</td>
<td>4 E-03</td>
</tr>
<tr>
<td>S106</td>
<td>EF</td>
<td>6 A-07</td>
</tr>
<tr>
<td>S107</td>
<td>EF</td>
<td>11 A-08/A-09</td>
</tr>
<tr>
<td>S108</td>
<td>EF+AD</td>
<td>7 A-10</td>
</tr>
<tr>
<td>S109</td>
<td>EF</td>
<td>3 A-11</td>
</tr>
<tr>
<td>S110</td>
<td>EF+AD+FP</td>
<td>9 B-01/B-02</td>
</tr>
<tr>
<td>S111</td>
<td>EF</td>
<td>7 B-03</td>
</tr>
<tr>
<td>S112</td>
<td>EF</td>
<td>9 C-01</td>
</tr>
<tr>
<td>S113</td>
<td>EF</td>
<td>5 C-02</td>
</tr>
<tr>
<td>S114</td>
<td>EF+FP</td>
<td>4 C-03</td>
</tr>
<tr>
<td>S115</td>
<td>EF+FP</td>
<td>4 C-04</td>
</tr>
<tr>
<td>S116</td>
<td>EF</td>
<td>4 D-01</td>
</tr>
<tr>
<td>S117</td>
<td>EF</td>
<td>6 D-02</td>
</tr>
<tr>
<td>S118</td>
<td>EF</td>
<td>7 D-03</td>
</tr>
</tbody>
</table>

Note: EF: Elementary family; CP: Compound family; FP: Fishing partner; AD: Adopted child; WD: Widow. Kinship relations of each domestic unit to FP and AD are as follows. S104: No kinship relation for FP; S105: Widow's BS for FP and widow's DD for AD; S108: Father's SDD for AD; S110: Father's WZD for AD and no kinship relation for FP; S114: Father's FBS for FP; S115: Father's B for FP.
Table 6. Types of inter-domestic unit kinship relations in Chipewyan summer camps in 1975 (10 kinship relations among the 18 domestic units in summer camps).  

<table>
<thead>
<tr>
<th>Types of inter-domestic unit kinship relation</th>
<th>Inter-domestic unit kinship relation</th>
<th>Number of cases (N=10)</th>
<th>Examples of inter-domestic unit kinship relation at summer camps in 1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aa</td>
<td>F-S</td>
<td>3</td>
<td>S101/S102; S108/S109; S116/S117</td>
</tr>
<tr>
<td></td>
<td>WD-S</td>
<td>1</td>
<td>S104/S105</td>
</tr>
<tr>
<td>Ab</td>
<td>FB-BS</td>
<td>1</td>
<td>S106/S107</td>
</tr>
<tr>
<td></td>
<td>FB-BD</td>
<td>2</td>
<td>S101/S103; S110/S111</td>
</tr>
<tr>
<td>Ba</td>
<td>B-Z</td>
<td>1</td>
<td>S112/S113</td>
</tr>
<tr>
<td>Bb</td>
<td>FBS-FBS</td>
<td>1</td>
<td>S116/S115</td>
</tr>
<tr>
<td></td>
<td>FBS-FBD</td>
<td>1</td>
<td>S102/S103</td>
</tr>
</tbody>
</table>

Notes:
1.) Types of inter-domestic unit kinship relation (Aa; Ab; Ba; Bb) are described in text. Key for inter-domestic unit kinship relation is: F: Father; S: Son; WD: Widow; B: Brother; D: Daughter; Z: Sister.
2.) In the case of domestic unit S111, father (ego) married ego's BD. Then, the inter-domestic unit kinship relations between domestic unit S110 and S111 were Z-Z as well as FB-BD.
Table 7. Kinship composition and size (population) of domestic units at camp-T (Tabani tue), camp-N (Tabani tue) and camp-D (Te oo nilini desi ge) of the northern group of Chipewyan in ca. 1930.

<table>
<thead>
<tr>
<th>Domestic unit</th>
<th>Kinship composition of domestic unit</th>
<th>Size (population)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp-T (Tabani tue)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-101</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T-102</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T-103</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T-104</td>
<td>EF</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>T-105</td>
<td>PR</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>T-106</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T-107</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T-108</td>
<td>PR</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>T-109</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>T-110</td>
<td>EF</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>T-111</td>
<td>EF</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>T-112</td>
<td>PR</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(Subtotal)</td>
<td></td>
<td>12(11)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>41(39)</td>
<td></td>
</tr>
<tr>
<td>Camp-N (Tabani tue)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-101</td>
<td>PR</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>N-102</td>
<td>PR</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>N-103</td>
<td>EF</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>N-104</td>
<td>CF</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>N-105</td>
<td>EF</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>N-106</td>
<td>EF</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>(Subtotal)</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Camp-D (Te oo nilini desi ge)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D-101</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>D-102</td>
<td>EF</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>D-103</td>
<td>EF</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>D-104</td>
<td>EF</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>D-105</td>
<td>WD+UC</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>D-106</td>
<td>WD+UC</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(Subtotal)</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Total 24(23) 88(86)

Note 1.) At the camp-T, the domestic unit T-103 was dissolved after the death of two members of the unit, and joined domestic unit T-102. As a result, the number of domestic units was reduced from 12 to 11 as well as the population from 41 to 39.
Table 8. Types of kinship relations between domestic units at winter camp-T (Ta tue), camp-N (Tabani tue) and camp-D (Te čo nilini desi če) of the northern group of Chipewyan in ca. 1930.

<table>
<thead>
<tr>
<th>Type of inter-domestic unit kinship relation</th>
<th>Inter-domestic unit kinship relation</th>
<th>Number of cases (N=18)</th>
<th>Examples of inter-domestic unit kinship relation at camp T, camp N, and camp D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenthood (Aa)</td>
<td>M-S</td>
<td>1</td>
<td>T-108/T-109</td>
</tr>
<tr>
<td></td>
<td>F-D</td>
<td>6</td>
<td>T-102/T-103; T-105/T-106; N-101/N-102; N-101/N-103; D-101/D-102; D-101/D-103</td>
</tr>
<tr>
<td>Siblingship (Ba)</td>
<td>B-B</td>
<td>3</td>
<td>T-103/T-104; T-104/T-106; N-103/N-104</td>
</tr>
<tr>
<td></td>
<td>Z-Z</td>
<td>2</td>
<td>N-102/N-103; D-102/D-103</td>
</tr>
<tr>
<td></td>
<td>M-S</td>
<td>2</td>
<td>N-103/N-105; N-104/N-105</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parenthood (Aa)</td>
<td>M-S</td>
<td>1</td>
<td>T-108/N-106</td>
</tr>
<tr>
<td>Siblingship (Ba)</td>
<td>B-B</td>
<td>2</td>
<td>T-110/D-104; T-109/N-106</td>
</tr>
<tr>
<td></td>
<td>Z-Z</td>
<td>1</td>
<td>D-102/N-106</td>
</tr>
</tbody>
</table>

Note:
Aa: Kinship relation between different generation within an elementary family (= parenthood);
Ba: Kinship relation in the same generation within an elementary family (= siblingship);
M-S: Kinship relation between mother and son's family; in this case, affinal relation between stepfather and son's family is at the same time observed;
F-D: Kinship relation between father and daughter's family; in this case, the kinship relation between mother and daughter's family is at the same time observed;
B-B: Kinship relation between brothers;
Z-Z: Kinship relation between sisters;
B-Z: Kinship relation between brother and sister.
Table 9. The number of domestic units and size (population) of camps of the northern group of Chipewyan in ca. 1930.

<table>
<thead>
<tr>
<th>Chipewyan camp</th>
<th>Number of domestic units</th>
<th>Size of camp (population)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp Kaikaze (no.1)</td>
<td>4</td>
<td>17</td>
<td>Fall camp without caribou hunt.</td>
</tr>
<tr>
<td>Camp Phelps L. (no.2)</td>
<td>3</td>
<td>13</td>
<td>Winter camp without successful fall caribou hunt.</td>
</tr>
<tr>
<td>Camp Kaikaze (no.3)</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Camp Ta tue (no.4)</td>
<td>12(11)</td>
<td>41(39)</td>
<td>Early winter camp after a successful fall caribou hunt.</td>
</tr>
<tr>
<td>Camp Tabani tue (no.5)</td>
<td>6</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Camp Ta 60 nibini deel aq (no.6)</td>
<td>6</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Note: Camps no.1, no.2 and no.3 were made in the previous year of camps no.4, no.5 and no.6. Camp Kaikaze (no.3) was set up near the fall camp Kaikaze (no.1). The former consisted of a log cabin, and the latter was composed of 5 tents. After the death of two members of camp Ta tue (no.4), a fusion of the domestic units occurred. As a result, the number of domestic units was reduced to 11 and the population from 41 to 39.
Table 10. Weight (kg) of major items for transportation in Gray canoe for wintering activity in 1975 (September 29 and October 7, 1975).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Hunting &amp; fishing gear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toboggan (10)</td>
<td>x 1 10</td>
<td>-</td>
</tr>
<tr>
<td>Dog-harness (5)</td>
<td>x 1 5</td>
<td>-</td>
</tr>
<tr>
<td>Collar &amp; chain (1.5)</td>
<td>-</td>
<td>x 8 12</td>
</tr>
<tr>
<td>Dog (10)</td>
<td>-</td>
<td>x 8 80</td>
</tr>
<tr>
<td>Gill net (5)</td>
<td>x 1 5</td>
<td>-</td>
</tr>
<tr>
<td>Steel trap (0.5)</td>
<td>x 20 10</td>
<td>-</td>
</tr>
<tr>
<td>Axe (1)</td>
<td>x 1 1*</td>
<td>x 2 2</td>
</tr>
<tr>
<td>Gun (.30-.30: 2.5)</td>
<td>x 1 2.5*</td>
<td>x 1 2.5</td>
</tr>
<tr>
<td>(.22: 1.5)</td>
<td>x 1 1.5*</td>
<td>x 1 1.5</td>
</tr>
<tr>
<td>Bullet (0.5)</td>
<td>x 1 0.5</td>
<td>x 10 5</td>
</tr>
<tr>
<td>2.) Domestic items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tent (10)</td>
<td>x 1 10</td>
<td>-</td>
</tr>
<tr>
<td>Blanket (5)</td>
<td>x 2 10*</td>
<td>x 2 10</td>
</tr>
<tr>
<td>Clothes (25)</td>
<td>-</td>
<td>x 2 50</td>
</tr>
<tr>
<td>Tableware (5)</td>
<td>x 1 5*</td>
<td>x 1 5</td>
</tr>
<tr>
<td>3.) Food stuff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lard (0.5)</td>
<td>x 36 18</td>
<td>-</td>
</tr>
<tr>
<td>Flour (10)</td>
<td>x 4 40</td>
<td>-</td>
</tr>
<tr>
<td>Sugar (12.5)</td>
<td>x 4 50</td>
<td>-</td>
</tr>
<tr>
<td>Salt (5)</td>
<td>x 1 5</td>
<td>-</td>
</tr>
<tr>
<td>Tea (1)</td>
<td>x 1 1</td>
<td>-</td>
</tr>
<tr>
<td>Macaroni (2.5)</td>
<td>x 1 2.5</td>
<td>-</td>
</tr>
<tr>
<td>4.) Gasoline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cache (20 gal.)</td>
<td>ca. 60</td>
<td>-</td>
</tr>
<tr>
<td>Transportation (10 gal.)</td>
<td>ca. 30</td>
<td>ca. 30</td>
</tr>
<tr>
<td>5.) Person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (60)</td>
<td>x 1 60</td>
<td>x 1 60</td>
</tr>
<tr>
<td>2 (60)</td>
<td>x 1 60</td>
<td>x 1 60</td>
</tr>
<tr>
<td>3 (75)</td>
<td>-</td>
<td>x 1 75</td>
</tr>
<tr>
<td>4 (20)</td>
<td>-</td>
<td>x 1 20</td>
</tr>
<tr>
<td><strong>Total (weight: kg)</strong></td>
<td>387</td>
<td>413</td>
</tr>
</tbody>
</table>

* These same items were transported in both the first and second trips.
Table 11. Time and speed of moving activity by canoe (6.0 h.p.) for September 29 - October 1, 1975.

<table>
<thead>
<tr>
<th>Place</th>
<th>Time of arriving &amp; departure</th>
<th>Net travelling time(min.)</th>
<th>Total net travelling time(min.) &amp; speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Wollaston Lake settlement to Modice be nue</td>
<td>15:40 (Sept. 29)</td>
<td>16:30</td>
<td>100</td>
</tr>
<tr>
<td>From Wollaston Lake settlement to Gabriel be nue</td>
<td>16:15</td>
<td>16:30</td>
<td>105</td>
</tr>
<tr>
<td>From Island 1 (overnight camp 1) to Island 2</td>
<td>19:00</td>
<td>08:00 (Sept. 30)</td>
<td>30</td>
</tr>
<tr>
<td>Island 2</td>
<td>10:30</td>
<td>11:45</td>
<td>150</td>
</tr>
<tr>
<td>Island 3 (cache)</td>
<td>14:00</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>From Island 3 to Wollaston Lake settlement</td>
<td></td>
<td>15:00</td>
<td>Load: 390 kg Distance: 87 km</td>
</tr>
<tr>
<td>From Island 3 to Ten kwon (overnight camp 2) to Wollaston Lake settlement</td>
<td>17:50</td>
<td>08:45 (Oct. 1)</td>
<td>170</td>
</tr>
<tr>
<td>Nanbe can ke (09:00)</td>
<td>14:10</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Moevic be nue</td>
<td>18:10</td>
<td>19:00</td>
<td>220</td>
</tr>
<tr>
<td>Wollaston Lake settlement</td>
<td>21:00</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Total net travelling time(min.) and speed</td>
<td>1085 (9.5 km/h.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1.) They hunted moose.
2.) The time for Blue canoe. The Gray canoe had engine trouble and arrived at 13:20.
Table 12. Categories of subsistence activities of Hatchet Lake Chipewyan.
1. FOOD GETTING ACTIVITY

1-1. Hunting Activity
   a. Hunting on Foot/Canoe ......... Hf
   b. Hunting on Snowshoes/Toboggan .. Hs

1-2. Trapping Activity .......... T

1-3. Hunting and Trapping Activity .... H/T

1-4. Gathering Activity .......... G

1-5. Gathering and Trapping Activity .. G/T

1-6. Fishing Activity
   a. Open Water Fishing ............ Fw
   b. Ice Fishing .................. F1

2. FOOD PROCESSING ACTIVITY

2-1. Food Preparing Activity
   a. Bannock Baking ............... Cb
   b. Cooking ..................... Ck
   c. Dish Washing ................ Cw

2-2. Food Preserving Activity
   a. Dried Fish Making .......... Pf
   b. Dried Meat Making .......... Pm
   c. Dried Meat Pounding ........ Pp
   d. Bone Marrow Extracting ...... Pb
   e. Lard Making ................ P1

3. SHELTERING ACTIVITY

3-1. Moving Activity ............. N

3-2. House Building Activity .... B

3-3. House Keeping Activity
   a. House Cleaning .............. Kc
   b. Laundering .................. Kl
   c. Water Drawing ............... Kw
   d. Fire Making .................. Kn
   e. Fire Generating ............. Kf
   f. Dog Feeding ................ Kg
   g. Fire Wood Getting .......... Kl
   h. Fire Wood Chopping .......... Kr

4. HIDE PREPARING ACTIVITY

4-1. Moose Hide Preparing Activity
   a. Cutting Moose Hair ........... m-Dh
   b. Wooden Framework Making .... m-Do
   c. Stretching Skin .............. m-Dr
   d. Scraping inside .............. m-Di
   e. Scraping outside ............ m-Do
   f. Tanning ..................... m-Dt
   g. Smoking(First Time) ........ m-Dm
   h. Softening(Drying/Scraping) ... m-Ds
   i. Smoking(Second Time) ........ m-Dm

4-2. Caribou Hide Preparing Activity
   a. Cutting Caribou Hair .......... c-Dh
   b. Scraping inside .............. c-di
   c. Scraping outside ............ c-Do
   d. Tanning ..................... c-Dt
   e. Softening(Drying/Scraping) ... c-Dm
   f. Smoking ..................... c-Dm

4-3. Fur-bearers Skin Preparing Activity
   a. Skinning .................... b-Dk
   b. Scraping/Drying ............. b-Dd

5. MANUFACTURING ACTIVITY

5-1. Manufacturing Activity on Leather/Canvas
   a. Leather String Making .......... M1
   b. Thread Making ................ Mn
   c. Skin Bag(container) Making ..... Mx
   d. Hunting Bag Making .......... Mn
   e. Toboggan Bag Making .......... Ma
   f. Gun Case Making .............. Mg
   g. Dog Harness Making .......... Mx
   h. Mitten/Gloves Making .......... M1
   i. Moccasins Making ............. Mn
   j. Caribou Hide Blanket Making ... Me
   k. Snowshoes Netting ............. Ms

5-2. Manufacturing Activity on Feather
   Wadding Feather in Blanket ....... Me

5-3. Manufacturing Activity on Bone
   Bone Scraper Making ............ Mb

5-4. Manufacturing Activity with Bead
   Bead Working ................... Mj

5-5. Manufacturing Activity on Wood
   a. Constructing Rack ............ Mr
   b. Pitching Smoke-tent .......... Mw
   c. Wooden Plate Making for Drying Fur .. Mo
   d. Pup’s Shelter Making .......... Mp
   e. Axe Handle Making ............ Mx
   f. Toboggan Making ............. Mt
   g. Snowshoes Framework Making ... Mc

5-6. Manufacturing and Repairing Activity on Modern Equipments
   a. Repairing Motorized Toboggan ... Et
   b. Repairing/Adjusting Rifles ... Eg
   c. Wire-snares Making .......... Es
   d. Wood Stove Making from oil can ... Ev
   e. Repairing Clothes ............ Ec
Table 13. Temporal sequence and time use of minor activities in caribou hide preparation.

<table>
<thead>
<tr>
<th>Activities</th>
<th>c-Dh</th>
<th>c-Di</th>
<th>c-Do</th>
<th>c-Dt</th>
<th>c-Dm</th>
<th>c-Dm</th>
<th>Total (hrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual number</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>102 302</td>
<td>102 302</td>
<td>102 302</td>
<td>102 302</td>
<td>102 302</td>
<td>102 302</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>0.5</td>
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<td></td>
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</tr>
<tr>
<td>12</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1.5 → 1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (hrs.)</td>
<td>1.5</td>
<td>1.5</td>
<td>3.5</td>
<td>0.5</td>
<td>5.0</td>
<td>3.0 1.0</td>
<td>16.0</td>
</tr>
</tbody>
</table>

Key: ➔: Temporal sequence of activities; ---→: Reverse direction; ______: Cooperative activity.
Table 14. Temporal sequence of minor activities in snowshoe making activity.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Ml</th>
<th>Mc</th>
<th>Ms</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td>Mc: Finish making frame on 2nd pair of snowshoes.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>2.5</td>
<td>2.0</td>
<td>Ms: Start netting on 1st pair of snowshoes.</td>
</tr>
<tr>
<td>5</td>
<td>1.5</td>
<td>5.0</td>
<td>1.0</td>
<td>Mc: Finish making frame on 3rd pair of snowshoes.</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>2.0</td>
<td></td>
<td>Ms: Finish netting on 2nd pair of snowshoes.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>2.0</td>
<td>1.0</td>
<td>Mc: Finish making frame on 4th pair of snowshoes.</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>4.5</td>
<td>2.5</td>
<td>Ms: Finish netting on 3rd pair of snowshoes.</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>4.5</td>
<td></td>
<td>Mc: Start making frame on 5th pair of snowshoes.</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>1.5</td>
<td>21.5</td>
<td>8.5</td>
<td>Total (hrs.)</td>
</tr>
</tbody>
</table>

Key:
- Ml: Leather string making with caribou hide; Mc: Snowshoe frame making;
- Ms: Snowshoe netting; B: Birch (material for wooden frame) getting activity;
- Time sequence to the next step of activity; Continuing the same kind of activity.
Table 15. Time use for food getting, food processing and manufacturing activities by individuals (hours) in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).

<table>
<thead>
<tr>
<th>Activity</th>
<th>101</th>
<th>102</th>
<th>103</th>
<th>104</th>
<th>105</th>
<th>201</th>
<th>301</th>
<th>302</th>
<th>303</th>
<th>x</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Getting Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HTA</td>
<td>226.0</td>
<td>4.0</td>
<td>174.0</td>
<td>-</td>
<td>55.5</td>
<td>225.0</td>
<td>278.5</td>
<td>-</td>
<td>9.5</td>
<td></td>
<td>972.5</td>
</tr>
<tr>
<td>GA</td>
<td>-</td>
<td>4.5</td>
<td>2.5</td>
<td>2.5</td>
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Key: HTA (Hunting and/or Trapping activity: Hf;Hs;H/T;G/T;H/F;H/C), GA (Gathering activity), FPA (Fishing activity: Fw;Fi), FPA (Food Processing activity: Cb;Ck;Pf;Pm;Pp;Pb), HPA (Hide Preparing activity: m/c-Dh; Dc;Dr;Di;Do;Dt;Dm), MA-1 (Manufacturing activity on skin, feather and bone: Mk; Mn;Ms;Mg;Md;Ml;Mn;Me; Mf;Mb;Mj), MA-2 (Manufacturing activity on wood: Mr;Mw;Mo;Mp;Mx;Mt) and FDA (Food Digesting activity)
Table 16. Time use for activities by individuals in the period March 3 to 14, 1976 (season III).

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Key: FGA: Food getting activity; FPA: Food processing activity; HPA: Hide preparing activity; SHA: Sheltering activity; MA-1: Manufacturing activity on skin, feather and bone; MA-2: Manufacturing activity on wood.
Table 17. Time use for hunting, gathering, trapping and fishing activities by individuals (hours) in the period October 10 to December 15, 1975 (seasons Ia, Ib and II).

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<th>Subtotal(%)</th>
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Chart Ia  Hatchet Lake Chipewyan kinship terminology.  
(Case 1)
Note: Male informant is shown as a black triangle.

Chart Ib  Hatchet Lake Chipewyan kinship terminology.  
(Case 2)
Note: Female informant is shown as a black circle.

Chart II  Hatchet Lake Chipewyan kinship terminology.  
(Case 3)
Note: Female informant is shown as a black circle.
Chart IIIa  Hatchet Lake Chipewyan kinship terminology.  
(Case 4)

Note: Male informant is shown as a black triangle.
Chart IIIb Hatchet Lake Chipewyan kinship terminology. (Case 5)

Note: Female informant is shown as a black circle.
PLATES
(a) A canvas tent (frontal view).

(b) A canvas tent (side view; 380 cm x 380 cm, height 195 cm).
(a) A canvas tent for hunting-trapping trip (frontal view).

(b) A canvas tent for hunting-trapping trip (side view; 180 cm x 210 cm, a stove inside).

PLATE II
(a) A smoke tent and dried moose meat.

(b) A smoke tent and dried fish.

PLATE III
(a) A wooden framework for preparing moose hide.

(b) A wooden framework leaned on standing tree.

PLATE IV
Plate A

(b) Log cabins at winter camp, Zuzaa,

(a) A log cabin under construction.
(a) A smoke tent and a moose hide.

(b) A smoke tent and a caribou hide inside.

PLATE VI
(a) A rack under construction.

(b) Cached fish on the rack.

PLATE VII
(a) A rack with a ladder.

(b) Cached caribou meat on the rack.
PLATE IX

An end-scraper made of moose bone.
(a) Use of the bone end-scraper for preparing moose hide.

(b) Grip on the bone end-scraper.

PLATE X
An iron end-scaper.

PLATE XI
PLATE XII

An iron end-scraper.
(a) Moose hide preparation at winter camp 3uzaze.

(b) Use of the iron end-scaper.

PLATE XIII
PLATE XIV

A side-scraper made of caribou bone.
APPENDIX
APPENDIX

PHONETIC KEY

Vowels:

a, as in father
æ, nasalized
é, open as in met
ë, nasalized
e, closed as in they
ə, as in pin
i, as in pique
i, nasalized
o, as in note
œ, nasalized
u, as in rule

Consonants:

y, as in yes
w, as in will
m, as in met
n, as in net
ŋ, as ng in sing
r, a tongue-tip trilled r related to d or t, one or the other of which may be used correctly in the place of r
l, as in let
z, a surd lateral spirant; the breath escapes between the back teeth and the sides of the tongue
ʒ, the last sound with glottal affection
s, as in thin, a sonant interdental spirant
θ, as th in thin, a surd interdental spirant
ð, the last sound with glottal affection
z or ð, nearly as in lizard or azure. It seems the same sound was heard sometimes with one value and sometimes with the other.
s or ʃ, as in sit or sh in shall
t, as in shall
τ, a palatal sonant spirant similar to the sound of g in Tace as spoken in Northern Germany
x, a palatal surd spirant as ch in German nach
h, as in hit, but often confused with x in writing

455
Consonants continued:

b, as in bit; a fully sonant bilabial stop
d, as in did; a fully sonant dental stop
t, a strongly aspirated surd dental stop
t', a glottally affected surd dental stop
g, as in go, a fully sonant palatal stop
'g, an intermediately sonant palatal stop
k, a strongly aspirated surd palatal stop
'k, a glottally affected surd palatal stop
j and ʒ, sonant affricatives
ç and ć, surd affricatives
ʃ and ʂ, glottally affected affricatives
ʔ, used for the glottal stop
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BIBLIOGRAPHY

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Li, Fang-Kuei

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