

THE CHANGING ECOLOGY OF INDIAN WILDRICE USE

by

Edward van de Vorst

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Master of Arts
in
Anthropology

Winnipeg, Manitoba

(c) Edward van de Vorst

Permission has been granted to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film.

The author (copyright owner) has reserved other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without his/her written permission.

L'autorisation a été accordée à la Bibliothèque nationale du Canada de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur (titulaire du droit d'auteur) se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation écrite.

ISBN 0-315-37404-7

THE CHANGING ECOLOGY OF INDIAN WILDRICE USE

BY

EDWARD VAN DE VORST

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF ARTS

© 1987

Permission has been granted to the LIBRARY OF THE UNIVERSITY OF MANITOBA to lend or sell copies of this thesis, to the NATIONAL LIBRARY OF CANADA to microfilm this thesis and to lend or sell copies of the film, and UNIVERSITY MICROFILMS to publish an abstract of this thesis.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

ACKNOWLEDGEMENTS

Many people have contributed to this thesis in important ways. First of all, I sincerely thank all the people with whom I have had contact during the field research, especially those who warmly extended their hospitality. Dr. John Nichols of the University of Manitoba Department of Native Studies provided invaluable assistance in laying contacts with interviewees. I also thank Dr. Jennifer S.H. Brown of the University of Winnipeg for introducing me to untapped archival sources. I gratefully acknowledge the use of documents of the Hudson's Bay Company.

I would like to express gratitude to each thesis committee member, my thesis advisor, Dr. John Matthiasson, and my thesis examiners, Dr. E. Leigh Syms and Dr. David Punter, for their professional input and personal attention. In particular, I thank Dr. Matthiasson for his steady encouragement, Dr. Syms for introducing me to the field of study and for his constructive criticism and Dr. Punter for his rigorous review of the text of all drafts. Finally, for all the help and total support I received from one special person in my life, my appreciation is inexpressible.

CONTENTS

<u>Chapter</u>	<u>page</u>
I. INTRODUCTION	1
II. METHODOLOGICAL ORIENTATION	6
Theoretical Approach	6
Research Design	11
Entering the Field	22
III. OVERVIEW OF THE LITERATURE	26
IV. RICING AS A DISCIPLINE	33
Some Aspects of Wildrice Ecology	33
Implications For Human Wildrice Production	37
The Traditional Role Of Ricing Authorities	39
Monitoring And The Traditional Regulation Of Harvest Times	43
Traditional Disciplined Poling	52
Traditional Disciplined Flailing	59
Ricing Ethic: Socialization and Sanctioning	62
A Case Study: Ricing In Minnesota In G.H.'s Youth	69
V. HAND-HARVESTING OBSERVED IN MINNESOTA, 1985	76
Conditions of Field Observations	76
Observations	78
VI. CONCERNS AND CRITIQUE	89
Indiscriminate Poling	92
Indiscriminate Flailing	97
Current State Regulation of Wildrice Harvesting in Minnesota	102
VII. PRODUCTIVITY OF TRADITIONAL DISCIPLINED HAND- HARVESTING	112
Bundling	121
Sowing	126

VIII.	HISTORICAL CONDITIONS EFFECTING CHANGE IN RICING . . .	129
IX.	CONCLUSION	152

<u>Appendix</u>	<u>page</u>
A.	MAP OF WILDRICE HABITAT IN NORTH AMERICA 156
B.	LIST OF INFORMANTS CITED 157
C.	SKETCHES OF FLAILING TECHNIQUES 159
D.	"GATHERING WILD RICE", (DENSMORE, 1928:313-317) 160
E.	VARIABLES AFFECTING WILDRICE GROWTH 164
F.	SKETCHES OF POLING TECHNIQUES 165
G.	WILDRICE PRODUCTION, 1852-1898 167
H.	WILDRICE PRODUCTION, 1963-1982 168
REFERENCES 169

Chapter I

INTRODUCTION

Wildrice * is a food staple which has sustained the Indian people who have harvested it for millenia. Processed wildrice, supplied by Indians to fur brigades, was essential to the fur trade between the Great Lakes and Lake Winnipeg. Wildrice remains an important source of food and/or income to Native people. At the same time, ricing, the production of wildrice along traditional lines with all its attendant practices, evokes strong feelings of affiliation with Indian cultural traditions.

Until the 1930s virtually all wildrice produced in North America was harvested by Indian people. They harvested and processed it by hand, largely for family consumption. Hand-harvesting was, and still is, carried out by two people who harvest as a team in a canoe. One poles or paddles while the other wields two flailing sticks with which wildrice stalks are bent over the sides of the canoe and struck to dislodge the grains. In recent decades, the nature of wildrice production has changed considerably. A number of trends can be discerned. Procurement of wildrice among Indian people as a food staple in family provisioning has been replaced largely by production for

* Wildrice has conventionally been written as two words. There is a recent trend toward writing it as one word to avoid confusion between species of Zizania and wild forms of Oryza sativa or common table rice.

sale. Women's role in wildrice harvesting has become marginal whereas they once were the main producers. In Minnesota, non-Native handharvesters have come to outnumber Native harvesters. In Canada, mechanical pickers are being used more and more in natural wildrice stands. Furthermore, mechanized processing has largely replaced processing by hand. Finally, artificial paddy production has been introduced and now far exceeds natural lake production.

This thesis describes some of the changes in the ecology of wildrice use by Indian people in ricing habitat, that is, northern Minnesota, northern Wisconsin, southeastern Manitoba and northwestern Ontario.* These are the primary wildrice hand-harvesting areas of North America. The thesis is based on ethnohistorical and field research. Field observations and most of the interviews were carried out in Minnesota. Some information was also gathered through interviews with Canadian Ojibwa.

Field research has revealed that significant changes have occurred in the way in which hand-harvesting is carried out. The adoption of new practices in recent decades, in response to the growing commercialization of wildrice production, has been a source of concern among many Indian elders. As a result, they talk readily about how new practices differ from traditional ones. They describe traditional practices in a novel manner. In

* A map of wildrice habitat in North America is included in Appendix A.

so doing, elders reveal facets of traditional ricing which are not highlighted in existing literature. One such facet is the regulation of wildrice hand-harvesting. Regulatory discipline in hand-harvesting and the social and ideological reinforcement of this discipline are topics of investigation in this thesis. Specifically, the thesis documents traditional Native ricing, that is, the body of knowledge, techniques, rules of conduct, and sanctions on behaviour which Ojibwa peoples applied in hand-harvesting wildrice. It also describes and explains the changes in wildrice hand-harvesting practices. Finally, the potential of traditional, disciplined ricing for producing high quality wildrice in greater amounts than are being produced presently on natural stands through hand-harvesting, is explored.

The study is timely in Manitoba and Ontario where policy-makers in government and Indian organizations face two controversies. One is the question of exclusive Native access to wildrice stands in certain areas of these provinces. Indian rights to wildrice harvesting in these areas have been contested by non-Indian entrepreneurs and there is pressure on the provincial governments to open stands to all. A second debate concerns the desirability of promoting mechanical picking at the expense of hand-harvesting.

Some public officials and entrepreneurs, sensitized by a depressed economy to any new economic opportunities, have come to think of wildrice as an underdeveloped provincial resource. Several wildrice industry experts like Brooks (1981) and Winchell

and Dahl (1948) see hand-harvesting as a cause of this underdevelopment and view mechanical picking as the logical means of increasing harvest yields. Mechanized harvesting is associated with progress and is perceived to be the harvesting method of the future. The belief that it is more efficient and productive than hand-harvesting is quite widespread and gaining proponents, most significantly in government decision-making circles. However, a major concern of Indian people is the maintenance of hand-harvesting as part of their heritage. Replacement of hand-harvesting by machines would sever a valued link with their past. There is also concern about the loss of work opportunities due to displacement of workers by machines. In addition, there is a concern about how economic benefits would be redistributed if production is concentrated through mechanization.

Proponents of mechanical picking support their argument by comparing productivity figures for mechanized harvesting with hand-harvesting. Productivity figures cited for hand-harvesting are very low and compare unfavourably with mechanized harvesting. However, little systematic research has been done on the productivity of either mechanical picking or hand-harvesting. Moreover, I contend that the low productivity figures cited for hand-harvesting reflect recently adopted hand-harvesting methods, not traditional hand-harvesting. The term hand-harvesting is used indiscriminately to designate both. However, although similar tools are used, they are not synonymous. Analyses

presented in this thesis demonstrate the need to re-evaluate hand-harvesting before comparisons are made with mechanized harvesting.

The second chapter provides an overview of the methodological orientation of the thesis. This is followed by a review of the major literary sources on Indian wildrice use. In chapter four, some aspects of wildrice ecology are presented which lay the basis for the description and analysis of traditional regulatory practices in hand-harvesting. The chapter is concluded with a case-study of one Indian informant from Minnesota. In the following chapter, recently adopted hand-harvesting methods are documented through an account of field observations in Minnesota, in 1985. In chapter six these methods are contrasted with traditional hand-harvesting practices. In addition, Minnesota state regulations on hand-harvesting are compared with traditional regulations on harvest times and techniques. This is followed by a tentative discussion of the productivity of traditional hand-harvesting in chapter seven. The eighth chapter outlines some of the major historical conditions which have brought about changes in Indian wildrice use.

Chapter II

METHODOLOGICAL ORIENTATION

2.1 THEORETICAL APPROACH

The methodological orientation of this thesis is a combination of cultural ecology and general systems theory. Cultural ecology is a research strategy which developed in the United States around the 1930s in reaction to the Boasian historical particularist strategy common in anthropological research at the time.* Historical particularism is an idiographic research strategy aimed at describing the unique history of each culture and emphasizing the cultural differences between societies rather than explaining similarities and variations.** As a result of this approach causal processes were overlooked and even ignored at times. This greatly impeded theory building. Yet, theory building lies at the root of enhancing our understanding of human cultures in general and human behavior in particular.

With the development of the cultural ecological method in anthropology the nomothetic strategy was reintroduced in research. Harris defines the nomothetic research strategy as one in which the assumption is made that cultural phenomena exhibit a

* See Harris (1968:250-290) and De Waal Malefijt (1975:153-158).

** *ibid.*

"considerable degree of uniformity and lawfulness" (1980:118). In his book Cultural Materialism he notes that "nomothetic explanations deal with recurrent types of conditions, general causes, and general effects" (1979:78). The resurgence of the nomothetic method in anthropological research was not a coincidental development. It reflected a trend within cultural anthropology which was aimed at lifting the discipline out of its theoretical poverty caused by the historical particularist emphasis on the uniqueness of sociocultural phenomena.

Greatly influenced by the work of Julian Steward, cultural ecology "embraces the strategy of techno-environmental and techno-economic determinism (Harris, 1968:606). Sociocultural phenomena are explained in terms of underlying material conditions. As Harris points out in The Rise Of Anthropological Theory: "in the cultural ecological strategy, techno-environmental and techno-economic variables are accorded research priority [which] is done in conformity with the hypothesis that social organization and ideology tend to be the dependent variables in any large diachronic sample of sociocultural systems" (1968:658). Having adopted this approach to anthropological research himself, Harris has refined the parameters of the cultural ecological research method. He has labelled the priority given to identifying material conditions of sociocultural phenomena the "principle of infrastructural determinism" (1979:56-58) and has called the research strategy to which this principle applies "cultural materialism".

Harris has defined infrastructure as being the "etic and behavioral activities by which each society satisfies minimal requirements for subsistence -- the mode of production -- and regulates population growth -- the mode of reproduction" (1980:117). In Cultural Materialism he explains that infrastructure:

is the principal interface between culture and nature, the boundary across which the ecological, chemical, and physical restraints to which human action is subject interact with the principal sociocultural practices aimed at overcoming or modifying those restraints. The order of cultural materialist priorities from the infrastructure to the remaining behavioral components and finally to the mental superstructure reflects the increasing remoteness of these components from the culture/nature interface (Harris, 1979:57).

I have adopted the principle of infrastructural determinism in my thesis. Accordingly, I have given material conditions under which ricing takes place among Ojibwa Indians priority for understanding the sociocultural aspects of Indian wildrice use. In doing so I have employed the etic method. With this method the researcher employs concepts and categories which are meaningful to the researcher as well as to the discipline as a whole. The concepts and categories do not necessarily have to coincide with those that are meaningful from the point of view of the people under study. Consistent use of well defined and operationalized concepts allows for the development of "scientifically productive theories" (Harris, 1979:32) in that they make intra and inter-cultural comparison possible. The etic method requires that hypotheses which develop through research be consistent with the previous body of science, with logic and,

finally, with observations which can be repeated by other researchers. Only then can hypotheses acquire the status of being valid. Within this context Harris' definition of cultural materialism as a research strategy in anthropology is a useful typification of the research method adopted in this thesis.

By a scientific research strategy I mean an explicit set of guidelines pertaining to the epistemological status of the variables to be studied, the kinds of lawful relationships or principles that such variables probably exhibit, and the growing corpus of interrelated theories to which the strategy has thus far given rise. The aim of scientific research strategies in general is to account for observable entities and events and their relationships by means of powerful, interrelated parsimonious theories subject to correction and improvement through empirical testing. The aim of cultural materialism in particular is to account for the origin, maintenance, and change of the global inventory of sociocultural differences and similarities. Thus cultural materialism shares with other scientific strategies an epistemology which seeks to restrict fields of inquiry to events, entities, and relationships that are knowable by means of explicit, logico-empirical, inductive-deductive, quantifiable public procedures or "operations" subject to replication by independent observers (Harris, 1979:26-27).

The etic method is often juxtaposed with the emic method. The emic method, generally associated with the Boasian tradition in anthropology, emphasizes data collection "in order to preserve the original (i.e., "native") meaning of the information" (Pelto, et.al., 1978:55). Proponents of this strategy make the assumption that only the categorization of human behavior by the people under study themselves is meaningful and correct.

Harris points out that:

A common source of misunderstanding about the emic/etic distinction is the assumption that etic operations preclude collaboration with native informants. But as

a matter of practical necessity, observers must frequently rely on native informants to obtain their basic information about who has done what. Recourse to informants for such purposes does not automatically settle the epistemological status of the resultant descriptions. Depending on whose categories establish the framework of discourse, informants may provide either etic or emic descriptions of the events they have observed or participated in. When the description is responsive to the observer's categories of time, place, weights and measure, actor types, numbers of people present, body motion, and environmental effects, it is etic (Harris, 1979:36).

In my research I had to rely primarily on interviews for collecting data on the topic under research. This, as the quote asserts, does not preclude the use of the etic method.

The adoption of the etic method does not entail that cultural materialists find emic facts, that is, the mental and ideological aspects of culture, unworthy of study. Emic aspects of culture are as much subjected to study by cultural materialists as are etic aspects, that is, behavioral and ecological components of culture. This is in accordance with the cultural materialist's adherence to the principle of holism.

The holistic approach adopted in this thesis is embedded within general systems analysis. Emilio Moran writes in his book Human Adaptability that:

Essentially, systems theory is a perspective that bears a great deal of similarity to anthropological holism: a system is an integral whole and no part can be understood apart from the entire system (Moran, 1979:54-55).

The last sentence in particular indicates that emic and etic aspects are functionally related and, as such, are equally important research objects.

2.2 RESEARCH DESIGN

My choice of topic is a direct outcome of requests by Indian people to fill a gap in ethnohistorical information on Native wildrice use. From the beginning, my thesis research was intended to be applicable to current concerns of Indian people regarding the production of wildrice. In November of 1982 I was approached by Dr. Leigh Syms, Curator of Archaeology at the Manitoba Museum of Man and Nature. At the time, he was working on a position paper dealing with the socio-economic importance of wildrice to Indian people. In light of the current controversy within the Canadian wildrice industry, the Indian Wild Rice Producers' Association of Manitoba had asked Dr. Syms to undertake what would amount to an ethnohistorical study documenting the traditional access of Ojibwan peoples to wildrice resources. He compiled information on the archaeological evidence on prehistoric wildrice use, as well as on the historic economic, social and religious importance of wildrice (Syms, 1982). Because of constraints on his time I became involved in the historic component of the research.

Based on preliminary research into hand-harvesting, the research problem which I devised contained the following questions:

1. What are the contemporary variations in hand-harvesting procedures and regulatory practices?

2. What are the historical variations in hand-harvesting procedures and regulatory practices?
3. How do variations in hand-harvesting procedures and regulatory practices affect the quantity and quality of wildrice produced?
4. How do variations in hand-harvesting procedures and regulatory practices affect the ecological integrity of wildrice stands?
5. How did changes in Indian culture after European contact affect ricing?

Answering these questions required that relevant concepts be defined.* These concepts are: ricemaking, wildrice stewardship, ricing, wildrice use, ricers and pickers.

Ricemaking: refers to the physical tasks involved in hand-harvesting, processing and storing wildrice.

* Perhaps the most important step in safeguarding the reliability in field research using such techniques as interviewing and participant observation is a consistent operationalization of concepts used throughout the research. A consistent complaint within Anthropology is that concepts are not adequately operationalized (Blok, 1977). Pelto et.al. argue that "Research methods and descriptions that fail to provide sufficient operational description to satisfy the requirements of intersubjectivity are extremely common in the social sciences and are an indicator of disciplinary immaturity" (1978:39). These authors emphasize the importance in adhering to the scientific method of specifying research procedures as well as operationalizing the concepts used in research. Both are necessary to permit interpersonal replicability of research results.

Wildrice Stewardship: refers to the regulation of wildrice production. It includes monitoring wildrice growth and development; setting opening dates, days and hours of hand-harvesting; controlling access to wildrice stands; and controlling hand-harvesting techniques.

Ricing: refers to ricemaking plus wildrice stewardship.

Wildrice Use: refers to all economic, social and ideological aspects of ricing. It includes a body of knowledge of wildrice ecology; rules of conduct in ricing; sanctions on hand-harvesting practices; and socialization into ricing.

Ricers: refers to individuals who hand-harvest wildrice in a traditionally prescribed manner. Traditional ricing refers to traditional hand-harvesting carried out before commercial hand-harvesting became predominant.

Pickers: refers to individuals who hand-harvest wildrice in a currently popular unprescribed manner. Picking refers to non-traditional hand-harvesting.

In accordance with the research problem, several variables were delineated to establish variations in hand-harvesting procedures and regulatory practices as well as to help answer the research question of how these variations may affect the quantity and quality of wildrice produced. These variables functioned as units of observation and structured my participant observation during the field research. They were:

1. Presence or absence of State versus local committee regulation of opening dates, days and hours of wildrice stands.
2. Number of teams on each lake.
3. Proportion of Native to non-Native harvesters.
4. Proportion of young harvesters to middle-aged and elderly harvesters.
5. Proportion of male to female harvesters.
6. Position of polers in their boats.
7. Proportion of frontpolers to rearpolers.
8. Technique of flail use.
9. Proportion of pickers to ricers on each lake.
10. Movement of boats through the wildrice stand.
11. Proportion of boats moving in a random as opposed to a patterned fashion.
12. Quantity of wildrice harvested by individual teams.
13. Quality of wildrice harvested by individual teams: a) amount of debris amongst harvested yield, and b) amount of immature grains amongst harvested yield.

I designed a research plan which embodied ethnohistorical research of archival sources, interviewing and participant observation of wildrice harvesting and processing. Ethnohistory entails the application of historical methods of documentary source analysis to augment ethnographic information on past cultures. It combines critical historiography with ethnographic concepts to give direction to the study of historical documents

and oral history in order to understand better the past of a group of people and the culture change experienced by them.*

Source criticism is the pivotal focus of historical methods. Two questions are asked: 1. Is a given source genuine? 2. How is it significant? It behoves the ethnohistorian to become aware of possible or probable distortion through cross-referencing and through a thorough study of when, why and under what conditions a document has been produced.

Ethnohistorical sources relevant to a study of North American Indian cultures in early contact times include censuses, trade ledgers, and reports by explorers, missionaries and traders on the weather, habitat, flora and fauna. These accounts can usually be considered to be free of intentional misrepresentation when relating to the environment. However, reports from these sources on indigenous populations and their practices need to be reviewed very critically. Indians were either allies or objects of economic or religious interests of Europeans in North America. It follows that traders and missionaries may have tinted, if not distorted and exaggerated, their experiences with Indians when it served their interests as well as when it resulted simply from ignorance or prejudice. Inaccuracies in reporting arose, too, as a result of time lapses between an event and its transcription. A trader may not have reported on the year's events until year's end, when many memories would already have faded. Moreover,

* For a discussion on ethnohistorical research see Pitt (1972:3-11;46-62).

where an explorer, trader or missionary included interpretations of events, a description of the reasons for making these interpretations may be lacking. Cross-referencing is therefore essential. Not only does it help prevent the perpetuation of misconceptions, it also helps catch editorial mistakes included in reprints and summaries of narratives.

Ethnographic accounts can also be regarded as historical documents. Cross-checking information from ethnographies with other sources and an evaluation of every ethnographer's personal and theoretical biases, sources of information and methods of gathering information, are desirable in order to determine the authenticity and significance of information contained in ethnographies. Knowledge of the history of anthropological theory and method is essential to a thorough critique of ethnographic sources. All anthropologists are a "product of their time", and their analyses are only as good as their data and ultimately their methods of gathering data.

The available literature on wildrice use turned out to be inadequate for the purpose of studying the traditional hand-harvesting methods used by Indian people and the changes therein. It was necessary to supplement the existing ethnohistorical sources by conducting field research through interviewing and participant observation.

Before entering into interviews I had designed a structured set of questions which had bearing on particular aspects of the

research problem. The nature of the questions for which I desired elucidation by each informant determined whether the interview strategy was to be directive or non-directive. However, in some instances the passivity of an informant influenced whether I asked directed questions. Other interview situations called for a non-directive approach to questioning. This approach does not call for adherence to a set of predetermined questions. Its purpose is to allow the informant to talk freely about matters which are of concern to him or her. The interviewer merely summarizes intermittently what the informant has said. This summation serves to verify that the interviewer understands what the informant has expressed and allows the informant to reflect on this.* In my research the non-directive approach was useful in discovering what informants' concerns were with respect to contemporary hand-harvesting. My purpose was to inventory these concerns which allowed me to formulate more specific questions for follow-up interviews with other elders.

Some interviewees have contributed to the research in a large way. Two of these people became key informants.**

* For a discussion on the non-directive approach to interviewing see Whyte (1960:352-356) and Aarden et.al. (1972:83-88).

** Whyte has said of key informants that: "The best informants are those who are in a position to have observed significant events and who are quite perceptive and reflective about them" (1960:358). Pelto et.al. (1978:71-72) point out that key informant interviewing as a research instrument has been "indispensable for recovering information about ways of living that have ceased to exist, or have been sharply modified by the time the field worker arrives on the scene." It has been especially important in reconstructing American Indian cultures.

They were individuals who had well-developed insights in the nature of past ricing practices and changes which have occurred. One of these informants, Alex Moose, who was 82 years of age at the time of the interview, wrote a booklet on Indian hunting, fishing and ricing ways, entitled Indian Compass (1969). He was considered to be an expert on matters of ricing lore, regulation and techniques by other people in his community near Mille Lacs Lake, Minnesota. He was renowned in other Minnesota ricing communities as well. My second key informant, 74 year old G.H., had functioned on ricing committees as had Alex Moose and had witnessed the increasing predominance of commercial production of wildrice in his lifetime. He, too, was considered to be an expert on ricing by other people in his community, the Bois Fort Reservation at Nett Lake in northern Minnesota. By virtue of his acute memory of ricing before commercial production became prominent, a long excerpt from my interviews with him has been included in this thesis as a narrative account. The public recognition of these individuals' knowledge of ricing helps to establish their reliability as informants. In addition to these key informants, two other informants proved to be extremely helpful in my research. They provided their own analyses of conditions and events, above and beyond descriptive information. They were informants on whom I could test my understanding. They supplemented my knowledge where it was lacking, thus helping to fill in the gaps of my analyses.*

* A list of informants from each community in which field research was done, their ages and ethnic affiliation is provided in Appendix B.

A comment is in order on the use of projective aids in interviewing.* Given the need to gather information about past harvest practices from informants, mnemonic devices were used to stimulate memory. I used photographs and sketches from literary sources that depicted harvesting in the past. By pointing at details in these pictures I tried to elicit very specific information on certain aspects of harvesting. Examples are the handling of reaping flails and the position of the poler in the canoe. In addition to these interview aids I utilized arm gestures and my own sketches to verify my observations and analyses of harvesting practices.** This proved to be extremely valuable in finetuning my understanding of wildrice harvesting.

With respect to recording techniques used in interviewing it was necessary to adapt the technique to the situation at hand. I employed three mechanisms of recording: the use of a tape recorder, note-taking during the interview and notetaking immediately after the interview had taken place. Each has advantages and disadvantages and, in general, the practicality of using a tape recorder or of taking notes during the interview and the attitude of the informant towards being recorded or my taking notes determined which recording technique was employed. The tape recorder was used as much as circumstances allowed. It afforded the advantage of accurate documenting of informants' accounts, that is, as close to verbatim as possible. I was

* For a discussion on this technique see Whyte (1960:368-371).

** A sample of my own sketches is included in Appendix C.

careful to observe whether using recording techniques during the interview would interfere with the process, for example, by causing anxiety on the part of the informant or by enticing the informant to "talk more 'for the record' with the machines than without" (Whyte, 1960: 366). I relied on note-taking to document the contents of interviews as little as possible. In the case of note-taking during interviews, I was concerned that taking notes would interfere with the interview process in that it would leave me little time to process answers and formulate questions. In addition, I was concerned that I would not be able to document the accounts as accurately as I thought was necessary. A third concern was that note-taking might inhibit the informant. I encountered this with one informant and had to resort to note-taking after the interview since tape recording was also out of the question. However, in other cases, note-taking during the interview seemed to enhance the credibility of the interview process in the informants' eyes. This resulted in greater willingness to extend the interview. Waiting until after the interview to record its contents was avoided whenever possible because of the difficulty of reconstructing the contents accurately.

A controversial aspect of interviewing as a research tool is its reliability in producing valid data. I assessed the validity of data provided by each informant by assessing their reliability as a source of information. I attempted to discern the attitudes which each informant held and what factors might influence their

willingness to speak to me. In general, to minimize the problem of the validity of data I tried to establish a good rapport with each informant thereby enhancing the informants' sincerity. Whyte wrote in this respect that, "The confidence which develops in a relationship over a period of time is perhaps the best guarantee of sincerity, an important informant should be cultivated with care and understanding" (1960:361).

Another way of establishing the reliability of interviewing as a technique and establishing the validity of interview data is to compare statements of different informants and the same informants through time. I was fortunate to find key informants with whom I had a good working relationship and who helped me in establishing the validity of statements made by other informants. Assessing the validity of interview data was further enhanced by supplementing these data by participant observation.*

A comment has to be made on the nature of the participant observation in which I engaged. I did not carry out participant observation in the classical sense of becoming immersed in a different culture. First of all, the nature of the topic did not lend itself to long-term, extensive participant observation. Ricing is a seasonal endeavor. Secondly, I was subjected to financial constraints which necessitated that I was employed and

* The value of participant observation as a tool in and of itself and as a means of verifying and assessing the completeness of the results of other research techniques is noted by Becker et.al. (1970:28). Pelto et.al. (1978:69) note the use of participant observation as a preliminary means of developing insights which can be used to formulate interview questions in addition to evaluating data already gathered through other techniques.

had to fulfill obligations during the harvest season.

2.3 ENTERING THE FIELD

My field research required extensive travel, both in Canada and in the United States. I had to find informants who could tell me about past practices and changes in the last decades. Dr. Syms introduced me to a former president of the Manitoba Indian Wild Rice Producers' Association. The intention of this introduction was to establish my credibility as a non-Native researcher which was particularly important in light of the antagonism of some Indians towards non-Indians involved in the wildrice industry as well as towards civil servants. This antagonism became apparent early in the research when rumors began to circulate among Indian producers in Manitoba that I was working for a government agency. My contact person through Dr. Syms phoned to tell me to withdraw from my research. I would not be able to work through him if I was in the service of the government. This was a crisis in my research since he was the only person through whom I could gain entry to Indian ricing communities at the time. Fortunately, I was able to convince him of my independence and our working relationship continued.

In the summers of 1982 and 1983 I asked my first contact person for permission to observe his mechanical harvesting operation in Manitoba. He granted access and told me where to find his wildrice stands. I ventured out by canoe in the hope of observing mechanical picking in progress but was disillusioned to

find a vacant lake. My contact's employees, their airboat and the wildrice were gone. After these two failed attempts it was no longer possible to observe wildrice harvesting since the season had ended. I had no choice but to wait until the following year. Unlike many other social researchers whose field of study is accessible all year round, I was restricted by the seasonal character of the activity under study. In 1983 I tried to enter the field again. This time in Northwestern Ontario where I had established a contact with a non-Native employee of Grand Council Treaty Three, in Kenora. Due to the fact that it was already late in the season when I met this contact and the fact that he did not have the same kind of immediate rapport with Indian ricers that a Native person would have had, I missed out on a second season for observing both hand-harvesting and mechanical picking in the area.

Through a third contact person, a University researcher, I was finally able to establish a number of contacts in Mille Lacs, Minnesota, in the spring of 1985. From here on, I fell into an existing network of acquaintances which greatly facilitated my entry into the field. I was able to use the "informant-referral method" (Beck, 1970:16) to expand my network of informants throughout Indian ricing communities in Minnesota. The expansion of my informant network lent credibility to my research endeavor in the eyes of informants. I was also successful in laying contacts in Kenora, Ontario. My interviews were running smoothly and the months of May and June were spent carrying out this

aspect of the field research. I had plenty of time to establish enough rapport with people in the ricing community of Mille Lacs, Minnesota, which was to lay the groundwork for doing participant observation during the harvest season in the coming fall. Between June and September I prepared for the field event and maintained contact with several key people in Mille Lacs through correspondence so as to safeguard my entrance into the field. Through a contact at Mille Lacs I received the names of several potential contacts in other reservation communities in Minnesota: White Earth, Leech Lake and Nett Lake. I pursued these contacts before harvesting began in late August. Through them I was able to interview other informants as well as to arrange the possibility of participant observation at harvest time.

By the time that the Minnesota State Wild Rice Commissioner set a date for opening the harvest season I travelled to Mille Lacs. I arrived on the 27th of August, two days ahead of the State opening. Time in the field was restricted due to job obligations at home. Because of this, I witnessed the harvest on state-regulated lakes since the state-determined harvest opening on August 29, 1985 was earlier than opening dates set by local committees for most stands on other Minnesota reservations.

Rather than staying with informants I decided to camp in a campground in the vicinity so as not to impose. However, I did accept several invitations to dinner and one to a pow-wow. They provided me with a welcome opportunity to socialize as well as to ask for elucidation about observations. During my stay of 5 days

at Mille Lacs I observed and participated in both hand-harvesting and processing wildrice. I also conducted several more interviews. I observed wildrice harvesting at two lakes in the vicinity of Mille Lacs and participated in ricemaking at one of these lakes.

Chapter III

OVERVIEW OF THE LITERATURE

Early accounts about Indian people written by explorers such as Schoolcraft (1953) and Doty (1953), Henry (1901) and Carver (1779), missionaries like Hennepin (1974) and writers such as William Warren (1984) provide valuable descriptions of the way wildrice was harvested and give evidence of its importance as a food in the past. Descriptions of wildrice use in these archival sources vary somewhat in the details provided but are quite consistent. They highlight major elements of the ricemaking process: tying and flailing, parching and drying, threshing, winnowing and storage. They are, on the whole, limited in scope since their authors had other intentions than providing detailed ethnographies of wildrice use. For example, Doty and Schoolcraft were members of the same exploratory party organized in 1820 with the mandate to gather information on the resources and inhabitants of the Mississippi headwaters region. William Warren, author of a history of the Ojibwa people, focussed his attention in particular on major political events (Buffalohead, 1984). Nevertheless, many of these accounts harbour specific details on elements of ricing which are of special interest to this thesis. In addition, they provide information which is useful for the purpose of developing a historical perspective on wildrice use through the ages. As such, they are

essential supplements to archaeological and anthropological field research.

Three studies form the main body of ethnographic literature on wildrice use by Indian people in the ricing habitat. Two are monographs: Die Reisernte der Ojibwa Indianer: Wirtschaft und Recht eines Erntevoelker ("The Rice Harvest of the Ojibwa Indians; Economy and Law of a Harvester People") by Eva Lips (1956), and Wild Rice Gatherers of the Upper Great Lakes by Albert Jenks, published in 1901. In addition, Frances Densmore has published accounts of ricemaking in her books How Indians Use Plants for Food, Medicine and Crafts (1928/1974) and Chippewa Customs (1929/1979). Various articles on ricemaking have been published in anthropological journals. Notable articles are those of Stickney (1896), and Coleman (1956). Current sources on wildrice use are included in the body of the thesis. None of these are major ethnographic accounts.

Densmore's work is highly descriptive. She provides a succinct overview of the entire process of hand-harvesting and processing wildrice based on her field research done between about 1907 and 1925. An excerpt on "Gathering Wild Rice", from her 1928 study is included in Appendix D. It embodies information which is commonly included in descriptions by other authors yet is more detailed and nuanced than most.*

* The excerpt provides pertinent background information for the upcoming analysis of traditional ricing.

Eva Lips' monograph is a case study of wildrice use among the Bois Fort Ojibwa of Nett Lake, Minnesota. It contains an account of ricing and relations between the Bois Fort people and the state with regard to wildrice harvesting. The study provides a novel presentation of several facets of ricing. Eva Lips includes a compilation of examples of other hunter-gatherer peoples who harvest one food staple intensively. In addition, she provides a list of explanations for bundling which have been documented in archival sources. She also documents the existence of a ricing committee at Nett Lake and the regulatory tasks for which it was responsible in 1947. Lips' description of the Nett Lake ricing committee and the role of the reishaubtling as its chairperson is important since similar descriptions are lacking in Jenks' and Densmore's studies. She also documents the cultural and religious significance of wildrice to Indian peoples. Unfortunately, most people interested in ricing will not consult this book because of the language barrier. In my opinion, however, it is a very authoritative work, containing unique analyses based on information from archival, anthropological and contemporary government publications as well as personal observations at Nett Lake.

Jenks' monograph is considered to be a classic work. His study included pertinent information on a variety of facets of Indian wildrice use. For example, he described ricemaking techniques and paraphernalia in some detail. He also presented information on the economic, social and religious significance of

wildrice within Indian societies as well as for European traders, explorers and settlers. This information is based on fieldwork at Lac Courte Oreille Reservation in Wisconsin, on archival accounts and on extensive correspondence with Indian leaders, missionaries and government agents in Wisconsin, Minnesota, Michigan and Rat Portage (Kenora), Ontario. In addition, Jenks published a long list of place names in Wisconsin and Minnesota which incorporate the words manomin, rice or wildrice. The length of the list attests to the prominence of wildrice in the lives of the inhabitants and explorers who gave these places their current names. In the section on the economic importance of ricemaking, Jenks makes reference to sources which document the amount of wildrice harvested. He includes a table of data on wildrice production in the late 1800s compiled from Indian agents' reports to the Bureau of Indian Affairs. These data provide some indication of aggregate wildrice production at this time.

Jenks' work is the most comprehensive of English language studies of wildrice use by Indian people. As such, it has been used as a source of information for almost every subsequent study to date. A problem arises in that some of Jenks' general conclusions are not well-founded and may be perpetuated by other authors. In using Jenks' study as a source of information on Indian wildrice use one has to be aware of the societal and theoretical context of his writings. This context should be considered when interpreting data derived from his work.

Researched and published as it was at the turn of the century, Jenks' study should be seen in the context of anthropological thinking common at this time. Many anthropologists were preoccupied with placing cultures on a unilinear evolutionary continuum (Harris, 1968). The extremes on this continuum ranged from most 'primitive' to most 'civilized' (Blok, 1978). Criteria used by nineteenth century social philosophers for ascribing relative 'primitiveness' were numerous. The most common ones included mode of production, political complexity and morality.

European and North-American social philosophers of Jenks' time considered their own society to have reached the pinnacle of cultural development after a long history of advancement. Hunter-gatherer peoples were thought to be representatives of an original, primeval society of human beings who had progressed the least on the road to higher plateaus of cultural evolution and had remained stagnant in a less productive and less efficient mode of existence. That populations of hunter-gatherer peoples had undergone equally long histories of cultural change and adaptation to changing ecological conditions, as had European civilizations, was not recognized by Jenks' contemporaries.

As a rule, hunter-gatherers were seen as victims of their environments, unable to meet their basic needs. This bias has persisted within Anthropology until the 1970s, when it was radically challenged by the outcome of studies such as Richard Lee (1968, 1969), Lee and DeVore (1968), McCarthy and McArthur (1960), Sahlins (1972) and others. John Bodley summarized this development:

[...] anthropologists have sometimes dramatically overemphasized the supposed technological deficiencies of primitive economies. Primitive systems have been described as if they were barely able to meet subsistence needs, and it has been assumed that primitive peoples faced a daily threat of starvation which forced them to devote virtually all their waking moments to the food quest. This traditional view remained almost unchallenged until careful studies of productivity and time-energy expenditure in primitive societies revealed that even the most technologically simple peoples were able to satisfy all their subsistence requirements with relatively little effort (1976:51).

Jenks upholds the notion that egalitarian peoples were barely able to meet subsistence needs. He made some general assertions at the beginning of several sections of his study which betray the biases about the nature of hunting-gathering peoples common at his time. For example, he wrote:

The hungry primitive man was satisfied when he found food to eat. His want was a present want, but he was often hungry when he could not find the desired food; so at the moment when he conceived the thought of keeping food from a stock of present plenty until a time of future need he took a highly important step in the varied progress of civilization (1977:1056).

The primitive Indians do not take production very seriously. Indeed, they do not take it seriously enough for their own welfare, for often they are in want in an unnecessarily short time after the harvest. In the case of wild rice, their want was due not to overproduction and underdistribution, but to underproduction (1977:1073-4 emphasis added).

A final commentary is in order on Jenks' description of wildrice harvesting. He compiled descriptions of the different ricemaking paraphernalia and practices and concluded that: "There is, in the gathering, great variety in means and method" (1977:1061). He does not attempt to explain the

variations nor does he attempt to point out similarities in paraphernalia and practices, such as poling and flailing, among different Indian ricing communities. However, analyses of both variations and similarities are the foundation of scientific knowledge. By recognizing both variations and similarities in ricemaking it is possible to gain a clear understanding of the nature of wildrice use and its importance to ricing peoples. During my field research I became aware of some noteworthy similarities in ricing from one area to another. Many of these have been overlooked or taken for granted in the literature on wildrice use. Jenks, for example, does not mention regulatory practices of any kind. To my knowledge, other ethnographic sources do not deal with restrictions on harvesting either, with the sole exception of Eva Lips. This oversight has resulted in a lack of information on an important element of ricing, that is, harvest regulation.

Chapter IV

RICING AS A DISCIPLINE

In order to understand the organizational complexities and traditional regulatory practices in ricing, a preliminary review of some aspects of wildrice ecology is necessary. Several elements of wildrice biology, that is, wildrice reproduction and plant development, are examined together with some of the environmental conditions affecting wildrice growth. The description and analysis which follow have been distilled from extensive interviews with elders and discussions with Dr. D. Punter, botanist at the University of Manitoba. In addition, three articles were consulted: Weir and Dale (1960), Lee (1979), and Garrod (1984).

4.1 SOME ASPECTS OF WILDRICE ECOLOGY

Wildrice plants go through several stages of growth. The seedling, submerged leaf, floating leaf, and areal leaf stages precede flowering and grain development. Grains on the panicles or 'seed heads' of wildrice plants ripen gradually, not all at the same time. The uppermost grains on the seed head usually ripen first and grains ripen progressively later the lower they are on the seed head, although ripening can take place randomly. A wildrice grain develops in the course of several weeks. Once

pollinated, the ovary develops into an embryo. This embryo grows within a hull. As it develops it goes through a 'milk stage', then a 'dough stage'. The grain slowly hardens within the hull, developing a light green outer layer or 'epicarp'. As the grain matures fully this layer becomes a glossy dark green colour. The grain hardens and dehydrates to a lower moisture content. Wildrice stands ripen at different times from one locale to another, depending on specific, local growing conditions. Moreover, different sections of one stand may ripen at different rates.

Unlike the cereal grains cultivated today with which we are familiar, wildrice grains do not remain attached to the plant. Upon becoming fully ripe, grains are readily dislodged from the stalk. During the milk stage, the rachilla, a stem connecting the spikelet or grain to the panicle, begins to develop an abscission layer of cells which gets weak and brittle. This abscission layer becomes fully formed as the ripening process is completed. As a result, ripe grains shatter readily when disturbed by wind, hail, rain, birds and other animals.

The speed with which grains ripen is influenced by the amount of sunshine and temperature. In addition, fluctuating water levels and high water early in the growing season can impair growth in wildrice stands. First of all, rapidly fluctuating and rising water levels caused by wave action and rain storms are critical in the floating leaf stage of wildrice growth. They may give the floating ribbon-like leaves enough bouyancy to lift

shallow wildrice plant roots from the mire, thus killing the plant. Secondly, high water levels favour plant species which can successfully compete with wildrice. Water lilies, for example, once established, can out-compete wildrice plants in water deeper than about eighteen inches. They are perennial plants; they develop massive root networks and mat the water's surface with broad leaves which shield sunlight from wildrice seedlings. Extra deep water in the spring may also reduce oxygen transfer to the bottom of the water body and may diminish the strength of sunlight reaching wildrice seedlings. These conditions may reduce the vigor of seedlings and therefore reduce the natural production of wildrice beds.

There is no clear indication how much of the standing wildrice must go to seed to ensure successful reproduction. According to E.V., a wildrice biologist charged with research and development of wildrice growth in natural stands on a Minnesota reservation, only about two percent of the standing crop must go to seed. Dr. D. Punter estimates that about five percent would be sufficient. Inherent in these estimates is the assumption that all the grain going to seed is viable, that is, will germinate in the coming year and grow to maturity. However, wildrice growth must be seen in an ecosystemic context. Wildrice populations interact with biotic and abiotic components in their habitat which affect plant growth and the viability of grains that go to seed.

First of all, heavy precipitation and winds can damage wildrice plants by breaking the stems before the grains growing

on each stalk have developed enough to shatter. The underdeveloped grains will deteriorate on the severed stems. Secondly, bad weather can dislodge grains which have developed enough to shatter but are not yet fully mature. Although immature grains that are still in the milk stage can undergo after-ripening once they have fallen into the water, they are less likely to become viable seed than are grains that shatter when fully mature. Furthermore, proper pollination can be impeded in large sections of wildrice stands by climatic conditions. As a result, ovules will not develop in their hulls. In addition, micro organisms can damage wildrice plants, impairing their development. Finally, predation removes grain from the reproductive cycle. There are several avid consumers of wildrice besides humans. Insects, muskrats and blackbirds consume immature wildrice while it is still on the plant. Some animals such as dabbling ducks feed on fallen wildrice as well.

Given that ecosystemic conditions of weather, fluctuating water levels, inter-species competition and predation are potential threats to successful reproduction, wildrice populations produce a surplus of grains beyond the two to five percent required under ideal conditions, as a buffer. Moreover, a decline in reproductive capacity is initially guarded against by a residue of viable seed from previous years. This dormant viable seed makes the continued existence of a stand possible in case a stand is prematurely destroyed by a storm or the like. This residue is comprised of seed which has not germinated in the

year immediately following the growing season in which it was produced. Dormant seed may germinate up to several years after it has fallen into the water. However, as successive seasons pass, a smaller and smaller proportion of this seed is likely to germinate. In a sense, dormant, viable seed can be thought of as a reserve of reproductive potential which depreciates rapidly as years pass. If this reserve of viable seed is not replenished each year, the ability of the stand to maintain its reproductive capacity will deteriorate.

4.2 IMPLICATIONS FOR HUMAN WILDRICE PRODUCTION

Humans take advantage of the natural surplus production of grains by wildrice populations through harvesting. To avoid depleting this economic resource, controls must be exercised on harvesting to ensure that sufficient viable grains are returned to the biological cycle to reproduce the stand. By allowing wildrice to ripen well before harvesting, the reproductive potential of grains falling into the water before and during the harvest is maximized since their chances of going to seed are higher than those of immature grains which may not undergo successful after-ripening. Therefore, placing controls on the harvesting of wildrice before it has reached maturity reduces the risks of seriously interfering with stand reproduction.

An equally important reason for exercising control on harvesting is to maximize the quality and quantity of wildrice produced. Mature grains have filled out fully within their hulls

and have dehydrated considerably. Immature grains, on the other hand, are 'milky' or 'doughy', that is, the endosperm is underdeveloped. Therefore, they have a higher moisture content and are more difficult and time-consuming to process.* In addition, processed immature grains become short and thin or needle-like. They are much smaller than processed, mature grains. As a result, immature grains yield less finished product. This is expressed as a "finishing percentage", that is, the weight of processed wildrice compared to its weight before processing. For example, a finishing percentage of fifty percent means that two pounds of unprocessed wildrice is needed to produce one pound of processed wildrice. The riper the grain is, the higher the finishing percentage and thus the higher the relative quantity of finished product will be. Therefore, harvesting mature grains is more efficient in terms of time and energy expended in production than is harvesting immature grains.

Since the harvesting of mature grains maximizes the high quality and relative quantity of wildrice produced and, at the same time, reduces the risk of impairing the reproductive integrity of wildrice stands, Indian ricing populations devised a

* Processing in a traditional manner consists basically of two steps. First, the moisture content of the grain is reduced by drying in the sun, or over a slow burning fire or by parching in a kettle placed over a fire, followed by removal of the hulls surrounding the kernels. Reduction in moisture aids in the removal of the hull. Removing the hulls is the second step. First, hulls are loosened through friction applied using long, thick pestles or by 'treading' on the wildrice by means of a specialized movement of the feet. Then, the hulls and other unwanted matter are separated from the kernels by winnowing, that is, taking advantage of gravity, the lighter mass of hulls and air flow to draw dust and chaff away from kernels.

sophisticated system of harvest regulation that allowed for the harvesting of ripe wildrice only. Given the nature of wildrice growth, that is, uneven ripening rates, gradual ripening of grains on each stalk, proneness to shatter and the vulnerability of stalks to breakage, they developed a number of regulatory practices with regard to when, where, and how harvesting should take place. Harvest opening dates were set in accordance with the degree of maturity of each section within wildrice stands. Restrictions were also placed on harvest times, that is, days and hours. In addition, certain harvesting techniques were prescribed to ensure that harvesters did not damage wildrice plants.

4.3 THE TRADITIONAL ROLE OF RICING AUTHORITIES

The prominent role of elders in regulating when, where and how harvesting should take place was a recurrent theme in interviews with senior members of ricing communities. G.H. remarked many times on the special authority of certain elders in his community in matters regarding ricing. He said:

In the old days the older men had the entire say of when to pick and when not to because they understood the cycle that the rice took in becoming mature.

G.H. also told me that, as a child living near Bena, Minnesota, he knew that, when it came to ricing,

Joe W. acted in place of the chief. He was very, very well acquainted with the rice beds. He knew to the day when the rice was ready to pick or how long [it could be picked without overharvesting].

When G.H. moved with his parents to Nett Lake, another elder, Moses Day, was:

[...] entirely in charge of the whole harvest. He was a real elderly fellow but very, very active and his word was law! [speaker's emphasis].

G.H. mentioned that there were several other older men who advised Moses Day and who were involved in the decision-making process. He related:

When she [the rice] was getting ready [...] you would hear the old drum start up [...] [Everyone would] go up to have a pow wow [...] and they [the old men] would talk.

The old chief [Moses Day] wouldn't say much. He would sit and listen. He would get the majority's idea of what was happening. He would put that altogether and then he would decide what had to be done. Maybe that was the day we would go out and pick for a thanksgiving meal. Or maybe we would wait a week yet. Never in a hurry!

A similar description of decision-making was given to me by Mrs.C.T. of Mille Lacs. She said that after setting up camp and inspecting the wildrice stands:

They would have a meeting on an evening. They would tell us when we could harvest the wild rice; certain days.

I asked Mrs.C.T. who the people were that checked the wildrice. She replied:

Oh, the men. The men folks used to go out there, go out and then they would come in and tell us how the rice is. If it is a sandy bottom it ripens faster. Then they go out and they have a meeting out in the lake again. They gather all the rice pickers and they name a date they will go out again. That is how they used to take care of their rice! [speaker's emphasis]

Mrs.C.T. added that everyone at the meeting came to an agreement on when harvesting should start.

Elders experienced in ricing functioned as a council or ricing committee. Alex Moose wrote in his booklet:

Each area had a volunteer wild rice committee [...]. and this committee [...] acts as the tester of the wild rice beds. They were well acquainted with all of the lakes in their area (1969:51; emphasis added).

The ricing committee's job is to control each rice lake. They protect each lake for the benefit of the rice harvest (1969:71; emphasis added).

The quotes from informants show that ricing committees and elders carried a great deal of authority. Decision-making was based on consensus and, once decisions were made, they were respected by the community of harvesters.

There are few references in the literature on wildrice use to the authority of elders in ricing and to the existence of ricing committees. A rare but explicit reference was made by Leland Cooper, an anthropologist who carried out field research at Nett Lake during the 1940s. He wrote:

Some time before the actual work [of harvesting] begins, all those who wish to participate are called together for an organizational meeting. At this time the elected "Rice Chief" or "Leader" assumes charge and "all must obey him until ricing is over." Informants state that this honor is usually passed around among the competent men of the village; several said that they had been "Rice Chief" at one time or another.

As is the case for all other gatherings, the drum is sounded and the people assemble at the "pow wow" or "dance house". Since this is one of the more serious and, at the same time, exciting occasions of the year, the entire community turns out (1953:57).

Another reference comes from Robert Edman, author of a Minnesota Resources Commission publication:

Larger harvesting operations were often supervised by a tribal chief or an experienced harvester who acted as a 'wild rice chief' (Edman, 1969:58).

Unfortunately, brief references to ricing authorities like these do not reveal the nature of their responsibilities. If references to the existence of ricing authorities are rare in archival, government and academic sources, mention of their duties is rarer still. Eva Lips' monograph, Die Reisernte Der Ojibwa-Indianer is the only anthropological study which delves into the composition and workings of the ricing authorities, of which I am aware. It includes a detailed description of the role and responsibilities of Charley Day, the "reishaubtling" or wildrice chief at Nett Lake in 1947 (1956:256-257). Lips notes that the duties relating directly to the harvesting process revolve around monitoring wildrice growth and ensuring a smooth harvest. Specific tasks include:

1. Observing the conditions of wildrice plant development in stands.
2. Establishing the ripeness of the wildrice and setting harvest opening dates.
3. Regulating access to specific areas in the wildrice stand to protect the plants.
4. Determining the number of boats allowed in the stand.
5. Sanctioning transgressions of harvest discipline.

The first three duties all refer to the regulation of when and where harvesting will take place. Informants made reference to similar duties of ricing authorities in their areas. I was told that, in order to impose appropriate restrictions on harvesting times in specific sections of stands, it was necessary to

determine when the wildrice was "ready", that is, when the grain was sufficiently ripe for harvesting. Once harvesting was allowed to start, it was necessary to reassess the appropriateness of further harvesting on an ongoing basis due to the gradual ripening of grains on the stalks and the uneven ripening of plants in different sections of stands. Determining when the wildrice was "ready" and reassessing the growing conditions during the harvest season was done through monitoring plant development.

4.4 MONITORING AND THE TRADITIONAL REGULATION OF HARVEST TIMES

Monitoring was described in great detail by G.H.. Beginning in the spring, G.H. accompanied an elder on repeated trips into various areas of wildrice growth to monitor the growing process. He explained that he and Ben, whom he referred to as his instructor, would return to the same spots to judge the state of growth, its density and general health. Trips occurred regularly, sometimes every few days. In this way current knowledge of wildrice plant development was maintained through the seedling, submerged leaf, floating leaf, aerial leaf, flowering, and fruit development phases. G.H. accompanied Ben on these rounds of wildrice beds in and around Nett Lake for at least four years. This indicates that monitoring wildrice growth occurred season after season. The commonplace occurrence of monitoring is evident from interviews with other people in different parts of ricing habitat as well. Dr. J. Nichols, a

linguist who carried out research in the vicinity of Mille Lacs Lake, Minnesota, witnessed conversations about the state of wildrice growth in early summer. He was struck by the knowledge that Indian people displayed about the growth of wildrice throughout their area, well before it had emerged from the water or could be recognized as wildrice by laymen (John Nichols,p.c.). I asked G.C. of Mille Lacs whether anyone used to watch how the wildrice was growing throughout the growing season. He replied that:

there was always a person going out and checking. All the lakes are different you know. They just go to see how the rice is going to grow.

G.C. confirmed that wildrice growth was checked throughout the summer (G.C.,p.c.).

One archival source documents monitoring activities in the area of Lake Winnebigoishish, Minnesota in 1820. Henry Schoolcraft reported a chance meeting, during his explorations of the Mississippi headwaters territory, with two women on their way to check the wildrice beds in his July 20th, 1820 journal entry:

On passing through Little Lake Winnipeg [Lake Winnebigoishish], we met a couple of Indian women in a canoe [...]. They had come down the river for the purpose of observing the state of the wild rice, and at what places it could be most advantageously gathered. None, however, was yet sufficiently ripe to admit of harvesting, but this precaution evinces a degree of care and foresight [...] (1953:166).

Monitoring wildrice growth became more frequent as the wildrice neared maturity. G.H. related how Ben told him:

Sometimes it grows fast, sometimes it's slow. You got to look more. You got to go out there more and examine it to see how fast it is coming, to have an idea of when to expect it to be getting ripe!

Frequent inspection of wildrice is similarly documented by Leland Cooper: "Around the middle of August, as harvest time approaches, the rice is closely watched and frequently inspected to determine the quality of the grain and its degree of readiness for gathering" (1953: 57). Cooper does not indicate whether this applied generally or to ricers in one or more localities at Nett Lake. However, several informants in locales other than Nett Lake noted that inspections took place. Mrs.N.L., a resident of the Mille Lacs area, told me that:

They waited. [Ricers] waited for the wildrice to ripen. They built their wigwams and checked the rice everyday.

Mrs.C.T., another resident of the Mille Lacs area, related:

See, when my folks used to go out to rice, to gather wildrice, we used to move by the lake; camp there. Certain ones go out and check the rice, whether it is ripe.

At Crowduck Lake, in the heart of Canadian wildrice habitat, Mrs.V.X., 92 years of age at the time of our interview, told me:

My brother and A.D. used to be among the ones who looked all over the place to see if it was ripe. If it was ripe they started to pick.

"Checking" the wildrice to determine when it was ripe enough to be harvested was done through a number of tests. Farmers use a variety of indicators to decide whether their grain crops are ready for harvesting. Some of these indicators include observing the colour and rigidity of the plants and the fullness of the kernels. In addition, they assess the moisture content of the grain. Indian elders employed many similar methods to determine the readiness of wildrice for harvesting. A practice common to

both Indian elders and grain farmers is examining the kernel developing within the hull to check its progress. For example, G.H. remarked that Ben:

had a good knowledge of about the time it would be ripe [...] He would pull some off and he would open the [hull] and show me. Way down in the bottom [of the hull] there would be a little tiny kernel to begin with. He said in the boat, "in about ten days that thing will be kind of fat. There'll be water in there. It'll be milky."

Alex Moose, too, described in detail how wildrice was examined to assess its maturity. In an interview he explained that, given the gradual ripening of grains on each stalk, the progress of all grains from the top to the bottom of the panicles of several plants throughout a given wildrice bed is assessed. He stated that, although the lower grains usually ripen later than those higher on a given panicle, they should be starting to fill out when the harvest of the upper grains begins. Any flowers left on the panicle is evidence that the wildrice is not yet ready.

Alex Moose noted that grains were removed from plants throughout the stand. These grains would be examined to see how they had filled out within the hull. They would be broken open to expose the embryos. Split-open grains exposing a white substance of a white liquid or doughy consistency are not ripe. They will take from several days to a week or more to become mature. Grains that snap cleanly in half, exposing a hard core, are well matured. This simple test, comprised of breaking open a hull to see how liquid, or brittle its contents are, is actually a test of moisture content. In addition, the hulls were stripped

off these kernels to examine the colour of the kernels' epicarp or outer tissue layer. Alex Moose explained that a shiny, dark green colour is a sign of well-ripened wildrice.

Another method of testing wildrice, described by G.H., takes account of the close relation between grain maturity and the ease with which it can be dislodged from the plant.

When we expected it to be getting ripe then we would go out and he [Ben] would take his paddle, get it wet and just push it across through those heads [sweep over the seed clusters] and then he would count those [kernels that adhered to the wet paddle blade]. When we first started doing that maybe two or three would come off. When there was about nineteen or twenty he would say it's getting ready.

Alex Moose described the testing procedure used by ricing committees in the vicinity of Mille Lacs (1969:51-53).

Two tests are generally made by the committee. The first or temporary test is made seven or eight days prior to "dead centre" of the three past normal years of ripening for that particular lake. The second test is usually made just prior to picking. Each lake has its own testing time as rice ripens at different times on each lake and even at different times according to the nature of the lake bottom.

The committee tests the rice all the way to the shoreline over a large area of sand-bottom and deep green bottom and they use the same spot each year.

A stalk of rice with the head on it is brought to the meeting and there, examined very carefully. Is it filling out on the very tip of the head? Is it filling out slim? Does it have airpockets or wrinkles? Is it filled out tightly with shiny kernels but no airpockets or wrinkles? Special notation would be made of any blossoms left on the stalks in the lake. The presence of blossoms indicate the rice is milky not ripe enough to pick. Rice that is still ripening or growing is green in color while rice that is ripened is dark green and shiny.

The testers usually pick samples from each said bottom lake. A green bottom lake can usually be picked five

or six days after a sand bottom lake. Pickers must recognize this difference between beds and pick only ripe rice.

If picking should begin, the pickers are ordered to be at their lake on a certain day at a certain time. A second test is done in the same manner as the first and only if the rice meets all the requirements, the picking will begin.

Alex Moose mentioned in the quote that wildrice grains and stalks were brought to meetings of the ricing committee. I witnessed this at a meeting of the ricing committee on Leech Lake Reservation. Here samples from all of the wildrice beds on the reservation were made available for examination by all present. Decisions were made about when to permit harvesting on each stand separately. It was decided that several stands would not be opened for harvesting until several days after the official, state-determined opening date for harvesting on off-reservation stands. This was in spite of pressure placed on individual committee members by eager pickers to open stands earlier.

Objective assessments of the state of wildrice growth occurred in the context of formal consultation among several experienced ricers. This is evident from the accounts of several interviewees. G.H. related that Moses Day collaborated with other people in inspecting the wildrice at Nett Lake and nearby Pelican Lake: "There was a lot of older people who would advise him about other parts of the lake where he didn't go [with respect to] how far it was in maturity."

Besides monitoring wildrice plant growth through "testing the rice", Indian people used several general indicators to mark the approach of the harvest period and establish harvest opening dates, days and hours. Alex Moose wrote, for example:

At a meeting of the committee the experts report the weather for the year. An early or late spring will affect the time of maturity. The water level of the lake as well as the temperature and the sunshine all affect the ripening of the rice (1969:51).

One young woman in her thirties told me that, in her childhood, people looked at the colour changes in the leaves of a certain tree (she could not recall which tree).^{*} This was a sign of wildrice maturity. Another informant recalled that people took note of maple leaves. When the maple leaves are half discoloured ricing was about ready to start. Eva Lips, too, noted a similar indicator of the readiness of wildrice for harvesting:

Taeglich laufen die Kinder in den Wald, um nach dem Zustand der noerdlichen Wildkirschen zu sehen, denn: "When the choke-cherries are ripe, the rice is ripe, too" (1954:226).^{**}

Another indicator was the onset of the ricing months or moons. Jenks compiled information on names given to the months of August, September and October by Ojibwa, Dakota and other Indian people living in prime ricing habitat. He remarks, for example,

^{*} The fact that this informant could not remember the name of this particular tree is an indicator of the loss of ricing knowledge among younger Indian harvesters in recent times.

^{**} The children walk through the woods daily to see how the choke cherries are, because: "when the choke-cherries are ripe, the rice is ripe, too."

that "In the Ojibwa language the September moon is called Manominike-gisiss or Manomini-gisiss, 'the moon of the gathering of wild rice'." Among the Dakota, too, "two moons, roughly corresponding to our September and October, have received their names from wild rice. September is called Psin-na-ke-tu-wee, or 'the ripe rice moon', and October is designated wa-zu-pee-wee, 'the moon when wild rice is gathered and laid up for the winter'" (Jenks, 1977: 1089-1090). A close account of the passing months or moons and even passing days was kept. For example, Nodinens told Frances Densmore:

When I was young everything was very systematic [...]. My father kept count of the days on a stick. He had a stick long enough to last a year and he always began a new stick in the fall. He cut a big notch for the first day of a new moon and a small notch for each of the other days (1979: 119).

Accurate recording of the passage of time was valuable in predicting the date for the harvest opening. As Alex Moose wrote:

In normal years when the water level, weather and sun are all normal, the rice in any given lake will usually ripen within a 3 day center, let's say between the 12-14 of the month. These days have been historically established by observation as the average weather picking days for this lake. The rice will be filled out solidly and will be of good grade and weight. However, each lake has its own schedule and must be observed for its own time. Under abnormal conditions the time and quality will vary (1969:60).

It is noteworthy that Alex Moose stated that each stand has a different ripening time but that, under normal growing conditions, the ripening times of wildrice within the same stand can be expected to occur within three days from one season to

another. Keeping a close track of passing days is, therefore, very important. The quote also indicates that the growth of wildrice and conditions such as sunlight, temperature and water level affecting this growth were carefully observed. Knowledge of the nature of wildrice ecology was based on experience and accumulated year after year. This body of knowledge was used to predict both when harvesting should start and what could be expected with respect to yield and quality.*

Knowledge about these conditions was kept up to date as the harvest progressed, as well. Experienced ricers were asked by committee members to report daily on the amounts of wildrice harvested in their respective areas and the length of time it took them to harvest these amounts (Alex Moose, p.c.). The reports received from these ricers helped establish when a point of diminishing returns was being reached in production in different sections of wildrice stands. In fact, ongoing monitoring through daily reports allowed ricing authorities to anticipate how much mature wildrice would be available to a specific number of harvesting teams for a given duration without overharvesting (Alex Moose; G.H., p.c.). On the basis of this knowledge the ricing committee regulated the number of hours and days during which harvesting was permitted in certain sections of

* The anticipated effects of variables which affect wildrice growth are illustrated in the tables which Alex Moose published in his booklet, two of which are reproduced in Appendix E. It must be noted that a full and accurate interpretation of these and other tables in Alex Moose's booklet cannot be given here. Such an interpretation would require further consultation with Alex Moose and other Indian ricing authorities.

the stand. The number of teams was also regulated.

Analyses of growing conditions before harvesting commenced not only helped determine harvest opening dates, it also helped ricing authorities anticipate whether wildrice stalks would be more brittle than usual and, therefore, whether extra special care was necessary in harvesting the grain (Alex Moose, 1969:64). This leads us into the next issue of regulations on harvesting techniques. In the past, certain conventions were upheld with regard to techniques employed in harvesting. Ricing authorities regulated how harvesting should take place. Indian elders told me of the disciplined techniques of poling and flailing.

4.5 TRADITIONAL DISCIPLINED POLING

Several elements of poling technique were subject to regulation:

1. Speed.
2. Turning of the canoe.
3. Direction of the canoe.
4. Placement of the pole among the plants.
5. The position of the poler.

These elements and their implications for the harvesting process are illustrated in the following excerpt from an interview with a young ricer and his father.

Son: Everything I was taught was taught to me by him [my dad]. I guess, myself, I go somewhat to an old method. But things change so quick. The best method, I guess, is to go with the elders. I know I used to

catch hell alot for doing things improper, that I thought was right but you find out that it wasn't proper.

Interviewer: So they'd get on your back if ...

Son: Oh yeah! There's no doubt about that! They wouldn't say it in so many words. It's kind of indirectly told to you. They'll let you know when you're goofing up. The sad thing about it is that it's too bad there isn't a few more young people my age who will take a few minutes to listen to what these people [their elders] have to say.

Interviewer: So what kind of things did you do that they [your elders] got on your case for?

Son: Well, you know, one of the things was the method of travelling through the rice. As far as I was concerned, as long as I was staying in the rice, I was doing good. But we would see the old people talking about going in a formation type line through the rice bed; in one direction. It was kind of like a flock of geese. You weren't following one another or you weren't cutting across one another. And it helped you know. A day later, a couple of days later the rice would stand back up and it would be back already for another day of good ricing on that same lake whereas if you criss-crossed you ran into all kinds of problems.

Interviewer: So it wouldn't stand up if you criss-crossed?

Son: It wouldn't stand up and they'd break it and what else not.

Interviewer: I was told by someone at Mille Lacs that if you're wishy washy, if you were going all over the place then you'll twist the rice up so it doesn't come back up.

Father: That's right! That's what we're trying to get at now. It gets all twisted up.

Interviewer: In fact, he was telling me that if the wind was blowing, if the wind was bending the rice over, you had to go crossways to the wind so that you didn't break...

Father: So that you didn't break the stems.

Son: Well, the rice lays...

Father: Yeah, you have to go the way the rice lays. You see alot of them that don't. They go in any damn direction.

Interviewer: What else did they criticize you [son] for ?

Son: Well that was the main thing.

Father: And going like a motor boat through the lake! Poling too fast.

Son: [somewhat meekly] I used to catch alot of hell for that, especially from him for going faster than he could harvest the rice.

Appropriate speed was emphasized in learning to pole. The son, B.C.Jr, was corrected for going too fast. Poling too fast has disadvantages. The most obvious one was illustrated by the comments of B.C.Jr. and Sr.; the flailer can not harvest the grain on all the plants immediately surrounding him as the canoe passes through the stand. Another disadvantage of poling too fast is that it interferes with the ability to maintain control over the direction of the boat.

In the past, ricers avoided turning the canoe amongst the wildrice plants whenever possible. They travelled from one side of a stand to the other, turning ideally beyond the edge of wildrice growth (Alex Moose,p.c.). If turning amidst the wildrice plants was necessary, for example, to avoid a section of immature wildrice (or stay within one's allotment), precautionary turning tactics were adopted. Alex Moose explained that the turn would be made on the downwind side of the canoe, that is, towards the direction in which the wildrice was naturally inclined by the prevailing wind. Furthermore, turns were made in a fairly wide

loop as opposed to pivoting. Turning in this way was necessary to minimize matting and to prevent stalks from twisting and becoming permanently entangled. In addition, when ricing diagonally into the wind, polers had to make a loop in a downwind direction and continue turning until they again proceeded diagonally upwind through the stand.

Ricers harvested systematically in parallel lines, travelling "in a formation type line through the beds, in one direction, [...] like a flock of geese". At Lower Rice Lake on White Earth Reservation, Minnesota, a wildrice biologist told me how harvesters lined the shore of the oblong lake and riced from one side to the other. Likewise, Mrs.V.X. remarked that ricers at Crow Duck Lake, Ontario, "lined up" along the shore awaiting the call to start, at which time they all began harvesting at once. By steering a straight course in parallel passes through the stand, more thorough harvesting is possible. The expenditure of effort is more efficient. When parallel passes are made, the stand is covered systematically by the harvesters and no sections of the stand are left unharvested. This is less likely to occur when harvesters criss-cross the stand at random. Thorough coverage of the stand enhances yield. In addition, yields are enhanced by avoiding entanglement and matting caused by random turning. Entangled stalks are more difficult to draw over the gunwale of the canoe for flailing.

During the interview with B.C.Sr. and B.C.Jr., they explained that it was necessary to harvest according to "the way the rice

lays". Wind bends wildrice plants over. The resulting angle of inclination determines the direction from which the harvesters approach the wildrice. This was pointed out by several informants. For example, E.B. of White Earth told me that ricers took account of the wind when harvesting. If the wind speed was especially high harvesting did not take place at all. Alex Moose, too, noted how account was taken of the wind and the inclination of the plants. He told me that poling the canoe directly into the wind, against the natural inclination of the plants, was absolutely not allowed. Plants can break more easily. In order to understand this it is necessary to note the influence poling has on flailing. When the poler propels the canoe into the wind, the plants are bent in the downwind direction. The flailer, in drawing stalks over the gunwale, bends them against their inclination. This increases the possibility of stalk breakage.

Poling crossways in relation to the wind was allowed but, in that case, the flailer had to harvest the wildrice on the windward side of the canoe, that is, from plants bent over the side of the canoe by the wind. Harvesting on the leeward side would mean "bending plants over backwards". Poling diagonally into the wind was also done, but, according to Alex Moose, a special pattern of movement in relation to the wind had to be adhered to.*

* This pattern is illustrated in Alex Moose's booklet, along with crosswind harvesting. These illustrations are reproduced in Appendix F. The illustrations also show how polers had to turn the canoe under windy conditions.

With regard to regulation concerning the placement of the pole, Alex Moose explained to me that polers must avoid inserting their poles in such a way as to damage stalks. If forked poles are inserted in the water against the stems of the plants and then driven into the lake bottom, these stems will bend and break. To avoid this, polers must set the poles directly into the lake bottom without snagging stalks.

The position of the poler in the canoe was subject to scrutiny in the past as well. Mr.C.N., who was 83 years at the time of the interview, said that he had always poled from the front. In frontpoling the poler stands in the bow while the flailer sits in the stern. Mr.C.N. remarked that when he was growing up on White Earth reservation everyone poled from the front. In the vicinity of Mille Lacs, the people of retirement age with whom I spoke remarked that frontpoling was the rule in the past. Alex Moose, for example, said that harvesters were not allowed to pole from the back. Likewise, G.H. told me that everyone poled or paddled from the front in the wildrice beds at Nett Lake in the past. In Canada, too, paddling from the front seems to be the rule, even today. This is evident from the documentary "Rice Dancer", filmed in Northwestern Ontario, as well as from 1986 CBC news footage, taken during harvesting in the Whiteshell area of Manitoba.

The evidence indicates that, throughout the ricing habitat, frontpoling was the rule in the past. Informants told me that frontpoling has several advantages. One is that the poler is

not exposed to flying grains which are notorious for causing serious eye injury. Another advantage is that the weight of the poler and flailer is balanced in the canoe thus enhancing stability considerably. A well-balanced canoe is also an advantage in that control of the direction of movement is facilitated. The effect of water pressure along the entire length of the canoe moderates the lateral movement caused by poling on one side of the boat. It is therefore easier to keep the canoe going straight which, in turn, enables ricers to cover the stand systematically.

The most important advantage of frontpoling lies in the nature of the poler/flailer configuration. With the poler in the bow the flailer occupies the stern, which is the narrowest part. As a canoe passes through a bed of wildrice the plants under the canoe are displaced or bent away from the canoe by its draught. Displacement is relatively minor at the two tips of the canoe but increases towards the canoe's mid-section, its broadest portion. In light of this, flailing from the back is important because stalks are displaced least at the stern and the flailer does not need to bend them backward severely to draw them over the gunwales. Stalks are less prone to breakage during flailing as a result.

4.6 TRADITIONAL DISCIPLINED FLAILING

The main elements of flailing technique which were subject to traditional regulation were:

1. The force used in striking wildrice stalks.
2. The angle at which wildrice stalks are struck.
3. The number of times wildrice stalks are struck.
4. The length and weight of flailing sticks used.
5. The manner in which wildrice stalks are gathered over the side of the canoe.

Several informants remarked that, traditionally, little force was applied in flailing so as to reap only mature wildrice grains (Mrs.V.X., Alex Moose, C.C., E.B.). Alex Moose wrote:

Pickers must exert care to knock loose only the rice which has ripened before picking. Ripe rice does not have to be hit hard to be knocked loose (1969:58).

Likewise, Frances Densmore wrote:

It was considered a test of a good rice gatherer to free the ripe rice kernels without dislodging those which were unripe (1928:314).

To avoid dislodging immature grains, the flailing sticks were wielded in a specific way. First of all, stalks bent over the gunwale using one stick, were struck in a light, horizontal stroke with the other stick which glances off the stalks, jostling the ripe grains free in the process (Mrs.V.X., Alex Moose, G.H., Mrs.C.T. and Mrs.N.L., p.c.). Densmore described this as "a sweeping but gentle stroke" (1928:314). Secondly, stalks were struck only two times on average. One informant told me that:

You hit the rice twice. If you don't get the ripe rice with two hits you won't get anymore at all (Dh.T.,p.c.).

With respect to the length and weight of flailing sticks Alex Moose wrote:

The Indians realized the value of not destroying the green rice that still remained in the head of the stalk until it was fully ripened and also of not damaging the stalk itself. In order to make sure they were only getting the fully ripened rice [at] each picking they used lightweight knockers. [...] A lightweight knocker permits the picker to control the force and weight he wishes to use for a longer period of time. [...] The clubs are 23, 24, 25 and 26 inches in length and weigh 3, 4, 5 and 6 ounces each and are made of dry cedar. The knockers are matched by weight and length according to the preference of the individual and the nature of the stalks (1969:58-59).

The weight of flailing sticks has a bearing on maintaining the integrity of the stalks while harvesting. Weight is related to the force that can be applied in flailing. The greater the weight, the larger the force that can be used and, therefore, the more likely that stalks are damaged. Flailing sticks also had to be thick. The striking surface of thick sticks is broader than that of thin sticks. The pressure on stalks of the force applied is less concentrated when thick sticks are used as opposed to when thin are used. Thick sticks therefore minimize the risk of stalk breakage ("Rice Dancer", G.C. and Mrs.C.T.,p.c.).

With respect to the manner in which stalks were gathered over the side of the canoe for flailing, there were certain conventions as well. Stalks were carefully drawn over the gunwale to avoid breaking them in the process. Only the stalks which were immediately adjacent to the canoe were gathered over

the gunwale. Flailers did not reach out to gather in all stalks within reach but, rather, maintained an erect posture. In this way, they avoided entangling freestanding stalks with those displaced by the canoe.

Traditional flailing techniques were motivated by a desire to harvest high quality, mature wildrice and preserve the integrity of the stand throughout the ripening period. Given the nature of wildrice growth, that is, gradual ripening, uneven ripening rates of sections within a stand, and proneness to shatter, harvesting within a particular stand would last as long as the ripening period for that stand. Depending on weather conditions, this was usually two weeks to a month. During this period ricers harvested in the same stand several times. They made passes through the stand daily or every few days, depending on how fast the wildrice ripened in various sections of the stand. This allowed ricers to take full advantage of the natural production of grains within a stand throughout the ripening period. Traditional hand-harvesting techniques made this maximum exploitation of natural stand production possible since disciplined flailing, in combination with disciplined poling, prevented stalk entanglement and plant damage.

4.7 RICING ETHIC: SOCIALIZATION AND SANCTIONING

Interview accounts demonstrate that, in the past, young ricers were enculturated into what Indian elders called "proper ricing practices". For example, Alex Moose told me in an interview: "Ricing is like school. You have to know what grade you are in". Alex Moose underwent schooling in ricing under Nay-Gwon-A-Be. He noted that where he was a ricing committee member, a selection of ricers occurred based on skill and experience. G.H. accompanied his instructor on his monitoring round of wildrice beds for several years to learn the characteristics of wildrice growth and to predict the course of the ripening process. He told me that elders would postpone the harvesting to allow the wildrice to ripen. This tested the patience of eager young ricers.

Instruction in ricing lore, that is, the knowledge of wildrice growth and the effects of harvesting on wildrice stands, was formalized. It can be likened to an apprenticeship. Learning to pole and flail were more experiential in nature. They were learned through practice. G.C. of Mille Lacs expressed this when I asked him how he learned to rice. He replied:

Oh, it just came naturally. All Indians are like that. Of course we learned. You can't learn just looking at it, you have to go out and learn.

Likewise, another informant, Mrs.V.X. of Kenora, Ontario related the following:

Interviewer: Did you have to learn how to use the flailing sticks properly?

Mrs.V.X.: Yes, you had to try not to break it [the stalks]. You destroy the rice if you break it. You just put the rice into the canoe and hit it like this

[arm gesture of sweeping motion] -- not to hit it hard!
You break the straw and spoil the rice.

Interviewer: How did you know where to rice?

Mrs.V.X.: I went with the ones who know how to rice. I didn't know.

Direct involvement in harvesting was preceded by participation in wildrice processing in childhood. While adults were harvesting, children kept adults who stayed ashore company. Sometimes, elderly women in the ricing communities tended to the parching and drying of the wildrice as it was brought in by the harvesters. Children helped in small ways such as keeping a supply of poplar for the fire. At the age of ten or twelve, young teenagers at Mille Lacs, such as G.C., went with a group of agemates from one ricemaking camp to another to thresh the wildrice with large pestles in mortars, called botagan, placed in holes in the ground. Each youngster received some finished wildrice in return for his or her help and would amass a fair amount by day's end -- a proud achievement. Teenagers usually became involved in actual harvesting when a relative such as a grandmother or aunt was in need of a partner to pole or paddle the boat. All the Indian ricers with whom I talked said they learned to rice by accompanying older experienced ricers who needed someone to pole for them. Mrs.N.L. was twelve years old when she first started poling while her grandmother flailed; D.T., from Fort Alexander, was about fourteen and poled while his father flailed; and, in yet another example, G.C. was sixteen when he first accompanied his aunt as poler. Flailing was

learned later, but, as Alex Moose pointed out, you needed experience as a flailer to understand how to pole best, and vice versa. In other words, learning to flail and pole well was a dialectical process whereby experience in one enhanced skill in the other. Alex Moose delineated several specific elements of skill and knowledge which had to be learned and adhered to. On the subject of training he wrote (1969:70-75):

The training meant that a ricer was to be skilled both as a flailer and poler. Learning both positions at the same time is very technical and important. And it is most important to learn how the rice ripens from day to day. The rice must be picked according to how it ripened over the last five or six weeks. The pickers must be very careful and learn how to save rice heads, tops, and stalks.

An expert rice poler is controlled by the wind. Rice stalks will lean with the wind. Polers must switch if the wind changes direction. If a poler did not conform to these rules, he used to lose his poling job by mid-day. This was carried out under the supervision of the committee and the ricing regulations.

The ricing laws provide that a ricer should meet and learn six very important subject points. First, there are two types of rice beds possible per lake. These are sand bottom rice beds and deep mud rice beds. Rice will not ripen in both beds at the same time. Five days is considered to be the difference in ripening. Although in each rice bed the rice will ripen the same, yet should not be picked at the same time or day.

Secondly, there is a definite dividing line between sand bottom beds and the deep green rice bed with mud bottom. There are two characteristics to show the difference. The color is different and so is how tall and thick standing is the rice bed. The sand bottom does not have real thick standing stalks. The rice heads and stalks are short. The color is semi-faded, not a deep green color.

The solid mud bottom produces a deep green rice bed. It is easy to spot this rice bed, with the heavier and thicker standing bed. Each stalk is real tall and rice heads are extra long. The color will not change from its deep green either.

The season between picking sand bottom rice and mud bottom has a definite dividing line. The first five days of ricing belongs to the sand bottom rice bed. The side with the mud bottom may be tall and deep green, but you must keep out of the heavier standing stalks. The mud bottom ripens five days later.

The final points of ricing regulations are to know when the rice should be picked according to how the rice will ripen overnight and every night. My fourth step is that a poler has to pole sidewind, when going back and forth. If there is no wind, a poler must pole according to how the rice stalks are leaning sideways. Picking and poling going straight against the wind is absolutely not allowed. One mistake and you may lose a job poling.

Then the fifth step is to know the special turns. Both have been illustrated in my book, by angling upwind on a turn to pick and pole. Finally, the sixth point has to be a limit on the canoes ricing on a lake.

"Proper" ricing practices had to be adhered to. Positive and negative sanctions existed to guard against deviation from the standard practices. During the learning process novices were subjected to corrective sanctions. For example, B.C.Jr. of White Earth recalled that his father reprimanded him for criss-crossing through the stand and for going too fast. In another example, D.T. from Fort Alexander, Manitoba, recalled that his father was a strict teacher when it came to ricing. He told me that when he was learning to flail and he broke a stalk his father would make a comment about it: "If I broke too many, my dad would make me paddle again [and] if I did not paddle properly he sent me back to camp to help the old ladies [process the rice]." Such sanctions had an impact among young ricers. "After all", D.T. explained, "you had waited a whole year for the harvest". The lake, not the shore, was where the most excitement was. Flailing

was an especially prestigious harvesting activity. Besides the more severe sanction mentioned here, there were less distressing sanctions. "Kidding around" and "verbal correction" were mentioned by one of my informants as examples of these milder sanctions (Q.L.,p.c.).

The harvest was continuously policed by committee members who were out ricing themselves. Serious sanctions were imposed on seasoned harvesters who broke rules. For example, Alex Moose wrote that "going against the wind was absolutely not allowed and you may lose a job poling" (1969:75). Commenting on a few pieces of seed heads amongst the wildrice which he had harvested at Deerwood Lake, Mr.C.N. told me:

In the past [at White Earth] we weren't allowed to have as many in there. If someone was doing wrong, there was no fooling around, we'd kick him out.

In yet another example, Alex Moose told me how, as a ricing committee member, he had to confront a ricer out on the lake and tell him he had to leave. I asked Alex why this individual had to leave the wildrice bed. He answered:

[...] he's got rice heads in there, vines [stalks] in there and everything. He was ruining the wild rice. I told him.

I asked Alex if people normally followed the rules. He replied:

Most of them, otherwise they get them out. [The harvest can last] 30 days, 31 days. If you got them kind of guys in there you won't even pick in there a week.

His comment was consistent with his writing:

The committee used to have the jurisdiction to order polers and pickers off the lakes who were not picking correctly or destroying the stalks and rice beds. Whenever they learned to pick and pole correctly they would be permitted to return (1969:54).

Similarly, Mrs.N.L. of Mille Lacs said that:

If anyone breaks up the rice, he is told to leave the lake. If he will not obey, his canoe is broken up. They always rice properly (Nichols, 1979:27).

Harvesting at an inappropriate time, that is outside of the time prescribed by the harvest committee, met with similar sanctions. Mrs.C.T. of Mille Lacs told me that if a team entered a stand too early or on a day when the bed was to be "allowed to rest" they would be met by local ricing committee and community members and their canoe would be overturned. All of the harvested wildrice would go to seed and they would be asked to leave.

Sanctions were also imposed on harvesters who were ricing in restricted areas of the lake. G.H. told me that anyone caught in an immature area of the stand would be barred from harvesting for a specific period and could even lose harvesting privileges entirely.

While sanctions could be severe, Alex Moose pointed out that they were seldom necessary. This comment illustrates that, in general, standard practices in ricing were adhered to and deviation seldom occurred. This, in turn, indicates the existence of a ricing ethic in traditional Indian ricing communities. The following comments by informants illustrate

elements of this ethic. For example, Mrs.N.L. noted that: "They always rice properly". Mrs.C.T. at Mille Lacs told me, in the context of adhering to time restrictions: "That's how they used to take care of their rice!"

Ricers developed pride in their ability to harvest well. D.T. of Fort Alexander, told me that good harvesters were widely known and accorded high esteem. In his youth, respect as a good harvester was sought after by young people. He said "There is a level of mastery in rice harvesting". It is achieved through the willingness to "perfect technique and style". The reward is "recognition as a good rice harvester".

Self-restraint in ricing was important too. In this regard D.T. told me:

A rice harvester can be proud of his ability when you can look back on a harvested area and see that the rice is standing up and no stems have been broken. This is the hallmark of good ricing.

Alex Moose, too, expressed a sentiment of pride which serves as an indicator of the ricing ethic. He said:

It used to be a real pleasure to view a lake after it was picked properly because it would look as though it had never been disturbed (1969:54).

The following excerpt from thirteen hours of interviews with key informant G.H. documents the different aspects of ricing as a discipline. With reference, in particular, to the 1920s, it illustrates traditional regulatory practices regarding harvest times and hand-harvesting techniques. It also sheds more light on the place of ricing in Indian culture.

4.8 A CASE STUDY: RICING IN MINNESOTA IN G.H.'S YOUTH

My first memories of ricing are from when I was a child and lived with my parents in Cass County. I remember my parents used to collect wood along with Jim X. and his brother John for parching the rice once the harvesting began. Jim acted in place of the chief. He was very, very well acquainted with the rice beds. He knew to the day when the rice was ready to pick and how much there was to pick or how long [it could be picked]. You see, in the old days the older men had the entire say of when to pick and when not to. They understood the cycle that the rice took in becoming mature. I didn't know anything about it at that time but, looking back, that was the first knowledge [I received] of the importance of letting the rice become mature before ever touching it.

[After moving to Red Lake in 1918 Fred's parents did not harvest rice.] My mother was a school teacher and my father was a forest ranger. They were busy and bought rice when they needed it for food. When we moved here [Nett Lake] it was a different proposition. This lake is like a horseshoe. It's about seven miles from one end to another. We had about twenty-one square miles of rice. There was very little open water. This was the best ricing lake in the state and if a person didn't rice there was something wrong with his head! So dad and mother went back to ricing again. Dad would take his annual leave during ricing time so he could just be with the crowd. Ricing was a great festival period of the year. There were Indians here from many different villages and some from Canada. There was about one thousand Indians here during ricing, camped around and living with relatives and [other] people. The people would go into the rice early in the season and they have a special day before the opening of the rice season. They would be allowed to go out and pick rice by hand; just pull it off the plants; choose certain ripe plants and pick a little rice off of each one until they got enough fresh rice to come in and have a big feast and have a big dance. That would start the rice season. Probably we would get about three or four pounds of finished rice that first picking. Everybody would go out and, very carefully, select the ripe plants and just strip it off with their fingers. They would take no tools to gather it with. They would just come in very carefully not to break it down and not to hit it. They understood at that time that if you damaged the green rice, it would immediately stop growing. It would never ripen again.

After that day they would probably dance for a week. Every night they would dance almost night and day. They were in a festival mood. They would just celebrate the coming of the rice. The old fellows would talk and give thanks to God for the rice crop and have different ceremonies during this week. They would have feasts. Every day there would be a feast honoring the Great Spirit, thanking him for the things he had brought to them. Then the time would come for the start of the real rice harvest.

The old man that was entirely in charge of the whole harvest, his name was Moses Day. He was an old man, a real elderly fellow but very, very active and his word was law! He would say "we'll go out and we'll pick two hours today." He would stand on a big rock out back of the tribal office toward the lake. There is a big rock there and that's where he would stand and he would shout to let the people know that it was time to go. Then they would go out [to pick rice]. And when he thought that they had picked over as much rice [as was ripe] -- they had made a trip into the ripe rice and hadn't damaged it any -- he would holler again and everybody would start hollering all over the lake and then they would leave. They would leave the lake immediately. [They would] come in and everything they brought in they would finish off immediately, each night. They would never leave any over. That was the best ricing of the season, these first few days. But they would never leave any lay over [unprocessed]. Later [in the season] it didn't make any difference because, as the rice matured it got harder and the quality is not as good for eating as the earlier rice. The older rice was much heavier and not so valuable for table use.

They would get so much of it during the season that they would bury it. They would put it in birch bark containers and dig a hole in the ground and cover it. Sometimes there was two hundred pounds in a container. They would find a gravelly spot where the water wouldn't accumulate in the hole and just bury the containers in the hole. They call them makuks, birchbark makuks. They would seal all the seams with spruce pitch and make them airtight.

From day to day, when the ricing season opened, that old man knew exactly the hour to go out. Then he would be out there looking. And when, to his thinking, as much ripe rice as was going to be available that day [had been picked], he'd say: "this is it, we got it now, we'll go home." He would holler again: "everybody leave the lake." He would never overpick any patch. He would wait out there; well, he would rice himself.

When it quit falling in the patches that they were in -- it wouldn't quit falling but the ripe rice would be all gathered and it would come off harder and they would have to knock it off -- then he would call them in. That would go on probably for, oh, maybe two weeks. Depending on the day and the weather, he would govern which days to pick; how long to pick. He would judge by his knowledge of the rice's maturity. There was a lot of older people who would advise him about other parts of the lake where he didn't go [with respect to] how far it was in maturity. Some days he'd say: "Don't go over in this bay or North Bay. Don't go over there, it's green. We'll have to all pick down here and don't go in bunches, scatter out, pick here and there. If there's a good patch of rice, don't all go in there, just a few go in there. Go find yourself another place. Don't cramp it down there. Don't bind it up."

We'd start ricing. After they got done ricing at Pelican Lake [a lake neighboring on Nett lake], they would come home and rice from here. Pelican Lake always riced about two or three weeks earlier. That was a heavier grained rice and ripened earlier. So they would pick down there first, then come home when ricing began here two or three weeks later. When they were in the midst of the rice [harvest period] the old man would say: "Just be careful but go any place."

In the early part of the season they would put flags out where the rice was immature and not ready to pick. Anybody caught in there would be penalized in some way. They would tell them not to go in there. But, if they persisted in breaking the law, their privilege to go ricing would be taken away from them. If they were strangers, they would have to leave the village. But if they were home people, they would just have to stay off the lake, sometimes for three or four days, sometimes a week. If they persisted, it was for the entire season.

Every night they had a pow-wow. Some people went and some did not. But, on the special pow-wows, when the old chief would get some tobacco and he would go from house to house inviting people to go to the pow-wow, that was an important gathering. He was going to talk about something that would affect the whole village. He would start the speeches himself. He would talk about what he wanted to know, what he wanted them to talk about. And the older men would always get up and talk about the condition of the rice, the condition of the rice beds: which were getting overpicked and where he thought the pickers should concentrate more. How the harvest was being conducted

by the pickers was discussed many times. If there were some pickers that were destroying the rice, then that would be talked about.

It is so important to do it right! Sometimes they would reach over and they'd get a great big bundle in their arms and they would just club it off. And you can just see the rice laying down, broken off. It looks like somebody went walking through there with snowshoes. That was not allowed at all! But you can track the boat that was doing that right to the person that was doing it. And he was reprimanded by somebody right there. And if that happened he would never be told at a pow-wow, he would be told by the chief, or one of the subchiefs would be delegated to go and tell this man or this woman to quit destroying rice. It was very, very important that it was carefully picked and only as much in a day as they could take care of each evening when they got home.

They were very, very careful that they didn't rice in the green patches. They paddled with a long handled paddle and the man stood up always in front. The man stood up with this long paddle and navigated the canoe. [Always in front?] Always in the front in the old days. [Is there a reason why he was in the front?] He probably could see the rice better. Or the old lady didn't have to reach out so far. I think that was the reason for it.

They always used just the paddles at the beginning of the season. They wouldn't use anything else to push the boat until the rice was ripe. The third week in September some of them would use a pole with a crotched stick on the end of it, about four to eight inches wide and the prongs would be about a foot long. They would use that, not all of them just the very ambitious people, probably getting enough rice put away so they could feed some to their horses. They used a lot of it for pony feed. They would just bring it in and parch it so it was thoroughly dry and feed that to their animals. There was lots of that.

They would rice until it was freezing up. The ice would be forming on the lake. It would be too cold to be out there but there would still be rice.

They would never take the rice that was immature. I've gone out in my first days of ricing, poling my mother or my old grandmother and we'd go out there and the canoes would be just sitting -- "it's not ripe yet." They wouldn't rice. They'd say it's not ready, and then they'd come back. Many times I was out there and I was very disappointed because we wouldn't rice!

But I didn't know about it, those people would know and they just wouldn't pick.

When I was beginning to be in a little capacity of leadership, I must have been about, oh, twenty years old, I began to have people coming to me for advice and things they would like to know, the old chiefs began to take me onto the lake for instructions. My instructor was an old man named Ben. We'd go out and look around. We would go in the summer, in June. There wouldn't be a sign of rice. We would paddle around out there and he would go to where he knew there was always a good rice bed and he'd look through the water. The average depth was about eighteen inches here in the lake. But he would go to where it was about a foot deep, and he'd look in there. He could see the rice starting to pop through the mud. Then he would tell me to look and he would tell me: "This time of the year that's how it looks." He said "next time we come it'll be green all over." Probably a week or so later, he would say "come let's go look again." We would take a survey on it and, sure enough, it would look like a blanket under there. It would just be coming out of the mud. The next time we would go out they would be floating. I'd say "not going to be much rice, eh Ben? Not going to be much, I'd think by looking at what's floating at the top." He would just laugh a little bit, you know. Then we would go and stop and have a little lunch or he would smoke his old pipe, I'd have a cigarette and then he would tell me things. "When you see that rice, then in so many days come back and look, then come back again in about three or four days and see how much comes. Then you can tell how much there is going to be. How much comes up quick. If it comes up slow, there ain't going to be much. But if it appears quickly, there is lots of rice coming. There will be a lot of rice." We would generally take the same route and he would get an idea how it was developing. "If we went to different spots," he said, "you couldn't tell, because you couldn't tell how that rice came up in the first place."

He had a good knowledge of about the time it would be ripe. Then he would tell me. He would pull some off and then he'd open the kernel [hull] and show me. Way down in the bottom there would be a little tiny kernel to begin with. He said in the boat, "in about ten days that thing will be kind of fat. There'll be water in there. It'll be milky." Then he said, "sometimes it grows fast, sometimes it's slow, you got to look more. You got to go out there more and examine it to see how fast it is coming, to have an idea when to expect it to be getting ripe."

When we expected it to be getting ripe, then we would go out and he would take his paddle, get it wet and just push it across through those heads of rice and then he would count those [grains] on it. When we first started doing that maybe two or three would come off. When there was about nineteen or twenty he would say "it's getting ready." When he could get fifteen or twenty every time, when there would be that many stuck on a wet paddle: "rice tomorrow!" When he'd do it every time, twenty or more: "we'll rice tomorrow."

I would go out with him. I had been going with him for four or five years, four or five seasons, [and when] it looked good to me, [I would said] "we're going to rice, we're going to rice pretty soon!!" [But] he would laugh. He wouldn't say anything, he'd laugh. He'd sit and smoke. "Ten days more" he'd say. I didn't have any idea about it and I had been with him four or five years. Sure enough, about ten days more, he'd go out and take that paddle and about that much rice [twenty grains] would be on it.

He wasn't the only one. There were more older men inspecting. When you'd hear the old drum start up, [they would] have a pow-wow. That was when she [the rice] was getting ready, before you could get twenty on a paddle. He would go up there and they would talk. The old chief wouldn't say much, he would sit and listen. He would get the majority's idea of what was happening. He would put that all together and then he would decide what had to be done. Maybe that was the day we would go out and pick for a thanksgiving meal. Or maybe we would wait a week yet. Never in a hurry. The young people would be [complaining]: "Oh that rice is falling in the lake. It's all going to be gone." But that don't bother them old guys. [They would say] "no, not yet, not yet!" They would hold it. When you went out there it was just fantastic, because that rice would just fall in the boat. You were just scraping it, just pulling it over and scraping it [brushing the bent over stalks lightly]. From where the old rice knocker was sitting on her knees [to] up near where the man stood, [the canoe] would be about full across from one gunwale to the other. There would be about one hundred pounds of finished rice in there! The way they are ricing now, you would probably get sixty or seventy pounds of rice out of it, because they go too early. They keep all the rice picked so clean that it don't fall off, just the green stuff is hanging on there. See, today might be a windy day; all that rice that is ripe will blow off. That is what we were supposed to pick tomorrow. That rice has blowed off. So if we go out there and we start picking then we got to knock it off! We're a day ahead of the ripe rice, and we'll

keep a day ahead until we lay up a day. See, when the old people, when the old chief had the say, he would go out if there was a big windstorm. Sometimes he would come in [and say] "we won't rice for three days." He would know that the rice wouldn't be ready to pick for three days. You can get rice out there, but from that day on until you did wait for it you would be about three days ahead of nature.

Several facets of traditional ricing come to light in this account: the authority of elders in regulating when, where and how harvesting will take place; monitoring plant development; a body of knowledge about the nature of wildrice growth; the imposition of sanctions on delinquent conduct with respect to harvesting; the socialization of youth into ricing by elders; and the existence of a ricing ethic.

The following chapter documents hand-harvesting as observed during field research. It contrasts traditional ricing practices as it is still carried out by a minority of Indian people today with currently popular hand-harvesting methods.

Chapter V

HAND-HARVESTING OBSERVED IN MINNESOTA, 1985

5.1 CONDITIONS OF FIELD OBSERVATIONS

In August and September of 1985 I observed and participated in harvesting in the vicinity of Mille Lacs Lake, Minnesota. The harvest opening date on lakes near Mille Lacs is set by the state Department of Natural Resources (D.N.R.). In contrast with other Minnesota reservations, Mille Lacs reservation does not have jurisdiction over any wildrice beds because its land base does not encompass wildrice stands. Local Mille Lacs area wildrice stands fall under Minnesota D.N.R. regulation as do all public wildrice stands in Minnesota.

I watched harvesting on opening day from the landings of two wildrice lakes near Mille Lacs: Deerwood Lake and Blomgard Lake. Deerwood Lake is a mushroom-shaped lake of 700 to 800 acres. It is accessible from the highway which runs adjacent to its shore for several hundred feet. Much of the lake can be seen from the highway's shoulder which is well above water level. Blomgard lake is considerably smaller at 80 to 100 acres. It has a small landing consisting of two pallets floating on bog. The landing is partially enclosed by trees which block the view of portions of the lake.

The small landing at Blomgard Lake made it possible to chat briefly with each team of harvesters as they launched their boats single file, one after another. In contrast, the long landing at Deerwood made it possible for all teams to land their boats and unload at the same time making it difficult for me to talk with many harvesters.

I met with two problems while observing hand-harvesting. One problem was that wildrice growth obscured my view of the teams to a considerable extent. Polers could be seen standing in their boats despite being surrounded by tall plant growth but the view of flailers sitting in their boats was usually blocked. This problem made observing flailing practices especially difficult at Blomgard Lake where the landing was at water level. Here, most teams could be observed flailing for only a brief time at the very start of harvesting, and the rhythm of their flails could be heard for only a short time thereafter. I was better able to observe flailing practices at Deerwood Lake. Perched on top of my car which I had parked on the shoulder well above the lake's surface, I was able, with binoculars, to observe several teams for extended periods.

A second problem encountered in interviewing teams and observing harvesting, specifically at Blomgard Lake, was that many pickers seemed to suspect that I was a Conservation Officer. Several pickers asked if I was a Game Warden, their curiosity probably having been aroused because I was alone, asking a lot of questions and clearly not there to harvest myself. Although I

assured them that I was not working for the D.N.R. but, rather, a student doing research, they were not all convinced. This is significant because my presence on the landing may have inhibited suspicious pickers from acting in the way they would have had I not been there.

5.2 OBSERVATIONS

On opening day, August 29, 1985, I witnessed the start of harvesting at Blomgard Lake. When I arrived at the water's edge shortly after 8:00 A.M. several teams had already launched their canoes and were waiting until 9:00 A.M., the official opening time. I counted nine teams. There was only one team that included a woman. This team was comprised of an Indian woman and her non-Native spouse. I could not inquire about the ancestry of all the pickers but the Mille Lacs Reservation Resources Commissioner, Don Wedll estimated that, in general, non-Native pickers outnumber Native harvesters in the order of about six to one.

The people with whom I talked told me how long they had harvested. There was a range in years of harvesting experience from one person who had harvested for eleven years to several who were novices.

As nine o'clock approached the waiting harvesters kept looking at their watches, then at each other. At 9:00 A.M. sharp everyone got underway. I watched from the landing for about half

an hour. I made notes of such things as the positions of the persons who poled and the techniques which polers and flailers used because, in past interviews, Indian elders had expressed concern about these practices. I could not fully comprehend the bases for their concerns until I witnessed harvesting myself. Only one team, the Native woman and her spouse, poled their canoe from the front. The man poled in the bow while the woman harvested, seated in the very back of the canoe. In the case of all other teams both persons positioned themselves in the rear half of the boat. The poler stood in the back end behind the flailer who sat facing forward. Many flailers "pounded" the wildrice plants with elan, striking each armful of stems which they drew over the gunwale often. Since, as one eager young harvester told me, "you can pick a pound a minute in good rice and last year they [buyers] were paying over a dollar a pound!" It seems that 'time is money' when you are picking rice.

While the teams fanned out over the lake in all directions one team, the Native woman and her spouse, stayed closer by in less dense growth along the shore. They moved back and forth in this area several times before moving on. They had arrived just after 9:00 A.M. and had avoided the rush at the small landing in this way. They seemed less hurried; more relaxed. The husband poled steadily and at an even pace. The woman's posture was straight as she gathered plants over the gunwale. She did not strain to reach for them, as the others seemed to be doing. Rather, she gathered in only those stalks which were immediately alongside

the canoe. She swung the flailing stick horizontally, hitting the stems lightly, at a low angle once or twice as the canoe slowly passed by. I had the opportunity to talk with this couple later. They were members of the Mille Lacs Reservation community. I learned that they did not sell their wildrice. Rather, they processed or "finished" it themselves for family consumption and to give as gifts to family and friends.

Around 9:30 a.m. I left Blomgard Lake and arrived at Deerwood Lake shortly thereafter. At Deerwood Lake I counted thirty-five boats. The ratio of Native to non-Native harvesters was about 6:35 which corroborated Don Wedll's estimate. The ratio of women to men was 4:66 which coincided closely with the ratio of 1:17 at Blomgard. Women harvesters were by far in the minority at both lakes.

Of the thirty-five boats, three were poled from the bow. The remainder were poled from the rear, again with the poler standing behind the harvester. All of the teams which poled from the front were comprised of Indian people. Three other teams of Native people poled from the rear. I observed that the members of the frontpoling Indian teams were all middle-aged or over while rearpoling teams were invariably young adults. One of the three frontpoling teams was comprised of two middle-aged men. The other two were married couples of which the husbands were respectively 71 and 83 years of age. The 71 year-old gentleman proudly told me that his wife was Scottish by descent, and that she was the best ricing partner he had ever had. She added that

her husband had taught her to rice the first year they were married 21 years previously and that they had riced together ever since. I was able to watch this couple rice from the time they launched their canoe at about 10:00 a.m. until they returned to the landing at 12:00 noon. They set off for a section of the lake just off a point of land which encloses a bay. They remained there for the entire two hours. The husband poled the canoe in a distinct pattern: back and forth, disappearing behind the point and then reappearing again about 15 minutes later; moving ever closer to the point in the process. Through binoculars, I could see this couple harvesting once they emerged from behind the point of land. My vision of the woman in particular was not obscured by plant growth. This is notable because I was seldom able to observe any other teams as consistently as this couple. The only exceptions were the frontpoling team of middle-aged men and another team of young adults of Indian ancestry both of which moved back and forth in areas of sparser wildrice growth. All the other teams were scattered throughout the lake in dense areas of growth and moved randomly so that, in the distance, it was difficult to identify and keep track of them.

I was able to watch one team at Deerwood very closely. It was comprised of two men whom I also had the pleasure of meeting. Both were in their late thirties. One was a minister, the other a member of the minister's congregation. These two gentlemen, like many others with whom I talked, were picking for the first

time. They caught my attention when they suddenly crawled out of the reed choked water onto the landing pulling their canoe behind them. Having tipped their canoe, they had spent over half an hour struggling to get themselves and their canoe out of the mire or "loon shit" as it is colloquially called. After drip-drying and hot coffee they tried again. Their first time out, following the lead of the other teams, the minister stood behind his partner in the back half of their 17' canoe. During their second attempt they both sat in opposite ends of the canoe. They also stayed closer to the landing and, as a result, I could see and hear them harvesting at close range from my vantage point. This allowed me to observe how the minister, as a novice harvester, used the flailing sticks. Watching the minister harvest wildrice at close range for an hour or so made it easier to discern how his technique differed from that of the Native woman at Blomgard. First of all, he reached out, extending his arm and stick to gather in as many stalks as he could reach over the gunwale. The woman did not extend her arm fully. She kept the elbow of the arm with which she gathered close to her side. Moreover, she did not lean over to reach out. She kept her back straight, much like a typist would. Secondly, the minister hit the bent wildrice plants quite hard at an angle which was close to ninety degrees. He administered jarring blows in a way similar to how one would use a flail to thresh grain or a machete to slash through brush. The Native woman in contrast applied the flailing sticks in a glancing motion whereby the plants were lightly jostled. A final observation was of the number of times the

minister struck the bent bunches of wildrice. I counted the strikes each of twenty-five consecutive times as the canoe passed among the plants. The minister hit each bunch of stalks an average of four times, ranging from two to nine times depending, it seemed, on how smoothly his partner pushed the canoe through the stand. This was, on average, twice as many strikes as the one, two and occasionally three light glances which the woman applied. If the canoe slowed or came to a standstill the woman stopped flailing whereas the minister continued to strike the plants.

The technique of the Scottish woman at Deerwood who had been taught by her Native husband was similar to that of the Native woman whom I had watched harvesting at Blomgard Lake. Through binoculars I could readily observe the posture and arm action of the Scottish woman and I could clearly discern that she swept over each bunch of bent stalks once or twice as she passed by in order to jostle kernels free.

An additional observation which I made after the minister and his partner stopped picking, was of the quality of the wildrice which they had harvested. They had about five pounds of wildrice in the bottom of their canoe which seemed to disappoint them considering their effort. Their canoe was littered with a large amount of debris including leaves, broken stalks and pieces of seed heads. Much of what they had harvested was visibly chaff and immature kernels which oozed a thick, white fluid when their hulls were split open, due to being immature grains which were still in the milk stage.

With 12 noon approaching the wildrice buyer employed by a major commercial wildrice processing company arrived and began to set up his operation from the back of his pickup. The price he was authorized by his employer to offer was 60 cents a pound; lower than the previous year's price. As the harvesters returned to the landing I looked over their harvests and asked a few questions as they quickly bagged their wildrice. Most people were too busy, too tired or too disappointed with the price the buyer was willing to pay to want to answer my questions.

There was considerable variation in amounts harvested from one team to another as well as in the amount of broken seed clusters or "heads", stalks, and leaves which were strewn among the grains. One team of harvesters who had had a few years of experience were pleased with the 100 - 110 pounds of wildrice which they had gathered. This included a large amount of visible leaves, stalks and heads. Another set of harvesters, two teenagers, seemed tired and disappointed with the 40 pounds of wildrice littered with chaff, heads and stalks which they had to show for three hours of hard work.* One of these teenagers had harvested twice before and had shown his friend how to do it. His friend was not planning on doing it again.

* The presence of chaff amongst the yield of some pickers indicates that they either picked in poorly pollinated areas of the stand, which suggests inexperience, or that they broke very immature grains off along with bits of the stems attaching the grains to the panicle.

The 71 year old gentleman and his Scottish wife told me they had about seventy pounds of wildrice after two hours of ricing. Their wildrice had the appearance of a carpet in the bottom of the canoe. There were no stalks or heads among the grain only a few leaves. The seed which they had gathered appeared to be full, with few immature grains. I examined several grains and found that they were hard and did not ooze a soft substance. This couple planned to use the wildrice themselves and planned to harvest a few more times that season. They packed up as quickly as they had unloaded for they were in a hurry to escape the bustle of the crowded landing.

It was on the landing after the harvest that I met the second retired couple, Mr. and Mrs.C.N. who riced at Deerwood that opening day. Mr.C.N. at 83 years of age had lived in the vicinity of Mille Lacs Reservation for several decades but came originally from White Earth Reservation. He and I talked for some time as I helped him and Mrs.C.N. pack up the 60 or 70 pounds of wildrice they had harvested, and load their canoe. They would process and conserve their wildrice themselves. Mr. and Mrs.C.N.'s wildrice, just as that of the other retired couple, was "clean" in that there was very little debris amongst it. Mr.C.N. did comment on a few pieces of seed clusters which could be seen amongst the wildrice, saying that "In the old days I wouldn't have gotten away with having so many heads in the rice".

The second day of the harvesting season I had the opportunity to take part in harvesting myself. My partner was a middle-aged Native gentleman. He harvested from the rear while I poled from the front. As the poler, I found myself being attracted to areas of denser wildrice growth in which I quickly found it difficult to keep moving at a steady rate. I pushed the canoe in jerks and jolts. When the canoe slowed down or came to a halt my partner administered the usual two glancing sweeps over the plants he had bent over the side and then stopped harvesting. My partner wielded the flailing sticks in the same way as the Indian woman at Blomgard had and the Scottish woman at Deerwood. He bent the plants immediately alongside the canoe over its gunwale with one stick. He swung the other in a horizontal sweeping motion allowing it to glance lightly off the bent stalks. In this way the plants were lightly jostled once or twice in order to free the ripe grain. After three hours of work we had harvested about 80 pounds of wildrice which lay like a mat in the bottom.

I had had one previous opportunity to try my hand at poling. I accompanied a middle-aged gentleman from White Earth Reservation, B.C.Sr., while he checked the wildrice in a local lake to determine when it would be ready for harvesting. He asked me to pole from the back, just behind where he was seated. I poled him through the stand for half an hour while he harvested wildrice in the way I had seen other Indian ricers do it: horizontal glances off adjacent bunches of stalks bent over the gunwale. His purpose was "to see how the rice is falling", that

is, whether his light strokes would free enough wildrice so that it would "drop into the canoe like hail".

Poling from the back was quite a different experience than poling from the front. I found that it was harder to keep the canoe going straight when poling from the rear. This was probably due, in part, to my lack of experience. With the weight concentrated in the back of the canoe, less of the keel was submerged. Because the water acting against a shorter section of the keel had less of a moderating effect, the canoe was more prone to lateral movement each time the pole was set. When the weight in the canoe is balanced, such as when I poled from the front, and the keel is submerged, water pressure along the entire keel helped diminish side to side movement. To compensate for lateral movement we needed to shift the pole from side to side over the inside of the canoe. When I poled from the back I could lean back against the pole because it could be set more directly behind my body. But this could be unsettling. The canoe was much less stable with both occupants in the back half. There was less room to plant my feet solidly in the tapered tip of the canoe whereas, when frontpoling, I could plant my feet in a position which allowed me to exert force over the pole but remain well-balanced since the canoe is wider behind the poler.

During the fieldwork I was able to observe actual harvesting and participate in it myself for only a short time. Participant-observation allowed me to recognize nuances in harvesting practices which I would otherwise have overlooked. First-hand

experience and observation enabled me to comprehend the concerns which elders have expressed about changes in wildrice harvesting.

Chapter VI

CONCERNS AND CRITIQUE

In a 1976 interview on harvesting wildrice, conducted by Chief Philip Fontaine of Fort Alexander Reserve, Manitoba, Mr. John Abraham, then age 77, began his account with the reply:

The best way I'll start is, the Indians did it the right way (Fontaine, 1976:76).

This kind of response is remarkably common. Elderly Indian people whom I interviewed often replied in a similar way. Whether they lived at White Earth, Nett Lake, Mille Lacs or Lake of the Woods, part of their responses to my questions was almost always "In the old days it was done properly"; "They did it right".

Senior members of Indian communities were most outspoken about contemporary harvesting practices. Those who seemed best able to explain the basis for their concerns were a distinctive category of elders: people of about seventy years of age and over. They had been enculturated in Indian culture and ricing practices in the first third of the twentieth century.

The temptation may exist to disregard such sentiments as simple nostalgia about "the good old days". But expressions of general dissatisfaction with changes in the way wildrice is harvested are accompanied by criticism of specific aspects of

harvesting. Furthermore, the nature of complaints is quite consistent from one place to another. Concerns which were expressed by many of the Indian people whom I interviewed can be categorized as critique of when harvesting takes place, how it is done and attitudes held by pickers towards harvesting. For example, an ubiquitous complaint in Minnesota among older Native ricers is that the Department of Natural Resources (D.N.R.), "opens the lakes too early"; the harvesting is allowed to start even though "the rice is not ready yet". At the same time, many people complain that the D.N.R. allows harvesting in early ripening stands only after much of the wildrice has ripened and fallen in the water. These criticisms reflect concerns with how wildrice harvesting in Minnesota is regulated. Actual harvesting practices also come under fire:

They [pickers] go too fast.
Pickers pole canoes through the stand instead of paddling as much as they used to.
They pole from the back instead of the front of the canoe.
Boats criss-cross through the stands.
They go every which way.
The rice gets flattened [so it] doesn't stand up straight anymore.
They twist the rice.
It gets 'wigwamed' [or entangled] so you can't harvest anymore.
Nowadays they 'beat' the rice.
They hit it too hard.
They break the stalks and kill the rice.
The rice they harvest isn't clean.
They get too many broken stalks and heads in the canoe.
The rice is 'being destroyed'.
Stands that we used to harvest for two weeks or more are finished in two or three hours now.

This is strong criticism of the manner in which wildrice is harvested today, that is, the techniques which are used and how harvesting practices are controlled.

Finally, Indian people have shown strong concern about less tangible aspects of wildrice harvesting. Elders have told me that,

Nowadays, there is no respect for the rice.
People don't care about the rice.
There is no pride in doing it right.
People just want to get as much as they can as fast as they can.

Indian people, most commonly elders but also many young people, are expressing, in this way, their dismay with changes which have taken place in the attitudes and underlying values of people who harvest wildrice. Alex Moose wrote a very specific critique of the manner in which harvesting is carried out today.

A great deal of green [immature] rice is picked annually because the rice is not ripe on the first day of the season. Canoes go in no specific direction, but criss-cross and chop down the rice beds, resulting in utter destruction of much of the rice crop and stalks. Inexperienced ricers go in and out of the rice beds because they are not aware that they should keep out of real deep green beds for the first five days of the new season. Most of the rice stalks are ruined in the first couple of hours of picking (1969:71).

Similar criticisms and concerns were expressed spontaneously in all Minnesota communities. In Canada, too, similar concerns were expressed with overexuberant, destructive harvesting practices and changed values.

6.1 INDISCRIMINATE POLING

Besides poling too fast, propelling the canoe through the wildrice stand in a random fashion was commonly criticized by Indian elders. Random travelling through the stand has several undesirable effects. First of all, making tight turns flattens the wildrice plants causing them to become matted and entangled among each other. Alex Moose referred to this entanglement as the rice plants becoming "wig-wamed" or "twisted like a teepee". Such twisting can be permanent. When the canoe pivots or turns in a small radius, stalks are flattened under the canoe, often below water level. The heads of these plants can become "hooked" or meshed with adjacent plants in such a way that they will not stand up straight again. Permanent entanglement precludes any further harvesting in the spot where it occurs. Trying to undo the damage by simply pulling the entangled stalks apart requires force which can break stems.

Breakage occurs on a large scale when pickers canoe unsystematically through a stand, criss-crossing each other's paths in the process. As B.C.Jr. said during the interview, when pickers criss-crossed each other's paths amidst the wildrice "it wouldn't stand up and they'd break it and what else not". When a canoe crosses the path of another canoe which, in passing, has displaced wildrice stalks, these angled stalks are raised and bent over the side of the second canoe in flailing. In so doing, they are bent sharply against the angle at which they lie and break more easily. Breakage impairs or stops further maturation

of remaining grains which can affect the reproductive process of wildrice plants. Moreover, it inhibits harvesting in successive passes for the remainder of the ripening period. Therefore, the potential yield of harvesting is reduced.

Poling from the rear of the canoe, whereby the poler stands behind the person flailing, is very common in Minnesota today. Rearpoling teams far outnumbered frontpoling teams during my fieldwork. It is noteworthy, however, that the three canoes which were poled from the front at Deerwood Lake were occupied by older people who upheld traditional poling practices.

Under conditions of unbridled competition, there are certain advantages to rearpoling which explain why it was adopted in recent years. When asked about why so many people poled from the rear, several people answered: "It's just the way it is done nowadays". Further questioning revealed that "you can go faster". Going faster is somewhat easier with rearpoling than with frontpoling. The canoe tapers off at the bow and stem and is wide in the middle. While the canoe widens behind the front poler, it tapers off to a point behind the rear poler. The rearpoler can place the pole in the water alongside the canoe more directly behind the body. The rearpoler can "lean" into the pole and, in this way, apply greater force more conveniently. The value placed on speed is a new development. It is no doubt related to the desire to move quickly through the stand in light of the the competition between large numbers of pickers who are all harvesting for profit.

Rearpoling is also advantageous for getting through dense areas of wildrice growth early in the season. This is considered to be beneficial by most pickers today who gravitate to dense areas since these areas look like the best places to get lots of wildrice. Elders hold, however, that dense areas may ripen somewhat more slowly and that harvesting in these areas should often be avoided for the first few days of harvesting. The immaturity of these areas relative to other more mature parts of the bed is not recognized by most pickers, especially novices, for whom dense growth holds great appeal.

The reason why rearpoling eases access to dense areas is the distribution of weight in the canoe. With two people positioned in the rear half of the canoe, the canoe rides high at the front; it slices through the plants at a point which is relatively high up on the stalks. Why rearpoling makes it easier to travel through dense growth can be easily understood when compared to walking in a field through tall dense grass. Body weight and leverage are used by raising one's legs and trampling the grass to the side as one walks as opposed to shuffling through the growth and trying to displace it with one's foot low to the ground. It is noteworthy, in this respect, that the harvest teams that poled from the front were consistently more visible during my observations in the field. They harvested in less dense sections and were therefore more easily seen.

Rearpoling has drawbacks as well, however. One obvious drawback is instability. With the weight of both occupants

concentrated in the back half of the canoe, the stability which the canoe has when weight is balanced is undermined. Stability is affected further by the ease with which a pole can be planted in the mud bottom to exert power and the difficulty extracting the pole without breaking the forward momentum of the canoe or losing balance. Rearpoling is not only potentially treacherous because of instability but also because the poler faces towards the locus of flailing activity which increases the chance of damage to the poler's eyes by flying kernels having sharp, burred "beards", as several informants pointed out. Another drawback of rearpoling is the need to lift the pole from side to side over the inside of the canoe. This is awkward. Besides, the water dripping off the pole makes the inside of the canoe wet. In this regard, frontpoling is more convenient. Frontpolers pass the pole from side to side beyond the tip of the bow where the pole does not have to be raised nearly as much.

Apart from these minor drawbacks, rearpoling has two major disadvantages. Mrs.C.T. mentioned that rearpoling teams "go every which way". This effect of rearpoling was demonstrated in the example of the father-son harvest team. B.C.Jr. had been reprimanded for propelling the canoe in any direction at random. His remark in this regard typifies the attitudes of inexperienced pickers:

"As far as I was concerned, as long as I was staying in the rice I was doing good".

Although steering straight when rearpoling is inherently more difficult, it can be mastered. When poled from the rear, the canoe is more subject to lateral or sideways movement than when the canoe is poled from the front. This is so, in part, because the mass of the canoe lies in front of the source of power. One can compare this to a rear wheel steering mechanism or to driving backwards. In addition to this factor, change in direction is harder to avoid because the weight is concentrated in the back half of the boat thereby lifting the front out of the water. Less of the keel is submerged and, as a result, there is less pressure from the water against the length of the boat. This renders the boat more prone to lateral swaying because it has a shorter turning radius.

The second major disadvantage is severe displacement of plants which is related to rearpoling in combination with flailing. When the poler stands behind the flailer, the flailer sits closer to the mid-section of the canoe. As a result, the action radius of the flailer is about two feet closer to the widest part of the canoe than when the flailer sits at the very back of the canoe. At the mid-section of the canoe the wildrice plants surrounding the canoe are displaced and bent the most. In other words, the angle at which the wildrice is bent away from the canoe is greatest precisely where the flailer must draw the wildrice plants over the gunwale. Since these plants are drawn over the gunwale against the angle at which they are bent, they are easily broken.

6.2 INDISCRIMINATE FLAILING

A distinctive style of flail use was observed among the majority of teams at Deerwood and Blomgard Lakes. These teams were generally comprised of young people and novices.

The presently popular flailing technique contrasts sharply with the traditional technique in the effects it has on the integrity of wildrice stands. By pounding the wildrice, hitting the plants as often as possible at a high angle, the plants are severely jarred. This results in the indiscriminate reaping of both the mature and immature grains on the stalks. The high proportion of immature grains observed among the wildrice harvested by people employing presently popular flailing techniques is a direct result of their desire to pick as much wildrice as possible in the allotted time. They do not discriminate between immature and mature wildrice. Furthermore, as is evident from the broken stalks and seed clusters amongst the wildrice harvested at Deerwood Lake, the indiscriminate technique results in damage to plants.

The likelihood of plant damage is increased by the manner in which stalks are drawn over the side of the canoe. By reaching out to gather in as many stalks as possible over the gunwale, freestanding wildrice plants are drawn in amongst the plants displaced by the canoe. This causes entanglement, adding to the problem caused by random poling. Once stalks are permanently entangled, they can no longer be easily harvested. In attempting

to draw them over the gunwale in subsequent passes, the flailer must use greater force. In the process, stalks are more liable to being broken. Matting, caused by random poling and turning, contributes to breakage for the same reason. The greater the angle at which the stalks are matted, the more they must be manoeuvred and bent in order to draw them over the side. This increases the chance of breakage.

When there is an influx of pickers using detrimental flailing techniques in the same stand, breakage occurs on a large scale. The harvest is aborted as a result and harvesters can no longer take maximum advantage of the natural production of the stand during the full ripening period. Pickers respond to this situation by intensifying their flailing activities during the short harvest season. This quickens stand destruction since they hit the plants harder and reach out further to gather in more stalks.

When a stalk is broken or panicle severed, that stalk no longer contributes to the reproductive process. Wholesale destruction of a stand impairs its reproduction in later years. Pounding the wildrice plants may interfere with the reproductive capacity of stands in yet another way. In harvesting, some grains go to seed when they 'miss the boat' and fall into the water. By beating the wildrice forcefully, premature shattering of unripe grains is induced. They are dislodged before the abscission layer is fully formed. Even though these grains may undergo after-ripening, they are less likely to become viable as

seed than are mature grains. When this occurs over a number of years, the replenishment of the reserve of dormant, viable seed is impeded. If this happens in combination with poor growing conditions, the stand may go into decline.

The indiscriminate style of flail use has implications for the quality and quantity of wildrice harvested as well. I observed a large variation in the quality in wildrice harvested at Blomgard and Deerwood Lakes. Compared to the teams employing traditional hand-harvesting techniques, those who had used presently popular techniques had less high grade wildrice and more debris such as leaves, broken stalks and sheared seedheads. I had the opportunity to take a few grains from each boat and examine their contents. The yields of ricers contained predominantly mature wildrice. Grains taken randomly from the wildrice of Mr. and Mrs. C.N. snapped readily exposing a hard kernel with a dark green epicarp. In contrast, I noted a large proportion of immature wildrice amongst the yields of pickers. This was obvious from the doughy or milky nature of the grains. When I split open the hulls a milky substance oozed out.

The poor quality of the yield is reflected in the quantity of wildrice after processing. Although, the team of experienced pickers at Deerwood had a yield of unprocessed wildrice which was comparable to the yields of ricers, they had harvested a large amount of debris and immature grains.* A high proportion of

* The total yield of this team was 110lbs. that is, thirty-seven pounds per hour compared to thirty to thirty-five pounds per hour for ricers. It should be noted that the ricers took breaks

debris and immature grains results in a lower finishing percentage. Robert Edman cites finishing percentages for yields of harvesters employing different styles which demonstrate this:

In most of Minnesota and Wisconsin stands, [...] there are so many people ricing and taking green [immature] as well as mature rice that it takes 2.5 to 3 pounds of green [unprocessed] rice to make one pound of processed rice [this is a finishing percentage of 33 to 40 percent].

In Canada and on lakes in Minnesota such as Nett Lake, where the Indians control the rice harvest, only the mature rice is harvested resulting in a conversion factor of 45 to 53 percent (1969:83).

Several ricers told me that a forty to fifty percent return was common in the beginning of the season and that sixty percent was the norm later in the season. Mr.C.N. said that sixty to seventy percent was possible very late in the season.

The differences in finishing percentage of yields of varying quality are reflected in the price that buyers are willing to pay to harvesters. I was told by four informants including two buyers that a better price per pound is paid to harvesters who are known to produce high grade wildrice.

The problem of destructive flailing which I observed in Minnesota also occurs in Canada. This was evident from conversations with a Canadian Indian ricer, Q.L. my informant from Lake of the Woods. I showed him a sketch I had made which depicted a picker wielding a flail in a slashing motion as well as one wielding a flail in a sweeping motion. I was interested

during harvesting whereas pickers harvest non-stop. Breaks are not taken into account here. Therefore, the estimate of 30-35 lbs./hour is low.

to know if his perception of flailing would concur with my depiction in order to find out whether the pounding technique is also popular in Canada at present. He concurred that the glancing stroke was conventional in the past (This stroke is demonstrated in the Canadian film "Rice Dancer"). He expressed dismay, however, that many harvesters today apply excessive force. They imitate the glancing stroke of elders by crossing the flailing arm over the arm holding the stick used to bend the plants over the gunwale and striking the stems at a low angle. However, this variation of the glancing stroke incorporates an additional feature. The flailer applies a quick, forceful motion of the stick, arched slightly downwards as it hits the stems. In this way, the stalks are further depressed causing the seed bearing tips to whip upwards at which time they are struck by the flail. In so doing the flail may shear off portions of the stems and seed bearing tips of the wildrice plants, resulting in the impairment of further development. Q.L., contrasted the action of the two styles in terms of tapping versus whipping.

The forceful glancing stroke is actually more similar to the slashing stroke popular in Minnesota today. It jars and batters the seed head in accordance with the desire to gather as much wildrice as possible irrespective of maturity. Although the non-traditional flailing technique, popular in Canada at present, resembles the traditional glancing stroke in form, its ecological effect is the same as that of the slashing stroke in Minnesota.

6.3 CURRENT STATE REGULATION OF WILDRICE HARVESTING IN MINNESOTA

Since the late 1930s, the State of Minnesota, through its Department of Natural Resources (D.N.R.), has imposed regulations on the harvesting of wildrice in natural stands.* By this action, the D.N.R. assumed some of the regulatory tasks of traditional ricing committees.

Current regulations on hand-harvesting include the stipulation of harvest opening dates, days and hours during which harvesting is allowed, a limit of two persons to a boat, restrictions on the width of the boat, on the length of the poles used to push the boat, and on the length and weight of the flails. In addition, all harvesters must purchase a licence to gather wildrice through a state agency or, in the case of band members, through reservation officials (Edman, 1969:8-13). These regulations apply statewide with the exception of the date of harvest opening and daily time restrictions. Reservations which encompass wildrice beds such as Leech Lake, Bois Fort and White Earth have local committees which set opening dates and times for their stands in accordance with local conditions, "sometimes in informal consultation with the D.N.R." (Winchell and Dahl, 1984:10).

D.N.R.-regulated stands are generally open for licensed pickers between 9:00 a.m. and 12:00 noon of every second day, once the harvest season opens. On public stands, "The harvest

* Public stands produce about sixty percent of all hand-harvested wildrice in Minnesota (Winchell and Dahl, 1984:9).

season opens toward [sic] the end of August; the exact date depending on the D.N.R.'s estimate of crop maturity" (Winchell and Dahl, 1984:10; emphasis added). Several elders speaking of public stands near Mille Lacs, complained that this was too early for most of the better stands (G.C., Alex Moose and E.X., p.c.). They asserted that, in the past, these stands were opened by local ricing committees later in the month of September.*

In contrast with the traditional local ricing committees, the D.N.R. is further removed from the source of information, that is, individual wildrice stands. It is therefore not as sensitive to local growing conditions. As a higher order regulator it responds to aggregate information like the average ripening times for lakes throughout the state and, hence, sets an average opening date. Roy Rappaport, who pioneered the application of the method of general systems analysis to social systems, notes that: "higher order regulators do not 'know' [...] everything known by the lower order regulators [...]" (1978:54). He points out further that higher order regulators: "often operate in terms of highly aggregated variables" (ibid.).

* I was told that the opening dates of reservation stands are also sooner than they used to be. Dh.T. of White Earth said that Indian people, through their committees, "used to open lakes in mid-September, but slowly lakes began to be opened sooner and sooner." E.B., also of White Earth, corroborated this: "Big Rice Lake opens nowadays around the first of September; in the old days, it opened around the twentieth of September." At Leech Lake, C.C. told me that "the Blackduck stand used to open on the fifteenth of September; lately, it opens at the end of August."

In contrast to government regulation, the traditional Indian ricing committees, as lower order regulators were:

[...] concerned with the regulation of specific material and behavioral variables. [They] operate more or less continuously, reacting very quickly to slight changes in conditions. The directives of lower order regulators are, typically, highly specific commands relating to immediate states of affairs (Rappaport, 1978:53; emphasis added).

Traditional ricing committees set opening dates for specific lakes and parts of lakes on the basis of information on specific growing conditions which was immediately at their disposal through testing. They met at short notice to discuss evidence of the readiness of wildrice and established opening dates, days and hours of harvesting accordingly. Wildrice growth and development was monitored before and during the harvest season in order to adjust decision making.

Because the state D.N.R. sets an average opening date, some stands may be ripe but others may not have matured yet. Premature opening dates exacerbate the problem of stand destruction caused by indiscriminate pickers. When stands are entered before the wildrice is ripe, pickers find that the grain does not shatter easily. The grain on immature plants is less easily dislodged because the rachilla connecting the grain to the stem has not yet developed a fully formed abscission layer. Pickers harvesting in immature stands or sections of stands in which the wildrice grains are not yet ready to shatter, are inclined to hit the plants harder. As a result, they break the stalks. When breakage occurs early in the ripening season, the

grains remaining on the severed stalks will not develop further. As a result, few grains will become viable as seed. On its own, this reduction in reproductive capacity may not affect stand viability on a grand scale, but is insidious in causing stand decline. When other conditions such as poor weather, artificially maintained high water levels and carp, combine with a reduction in reproductive capacity caused by despoiling harvesting methods and premature opening dates, the stand's ability to 'bounce back' is reduced.*

Traditional ricing committees regulated not only harvest times but also techniques. The D.N.R. has not assumed this aspect of harvest regulation. It does not scrutinize hand-harvesting techniques nor does it encourage the use of discretion in harvesting. Sanctions against indiscriminate, despoiling

* In Minnesota, the damming of local water courses began around the turn of the century for the lumber industry. Around the 1930s, small dams were erected as make-work projects which raised the water levels of lakes to enhance local tourist fishing industries. Carp were introduced into the United States from Germany in the nineteenth century. They feed by thrashing through shallow waterways in which wildrice plants thrive, stirring up organic debris on the bottom which they then filter and digest. This thrashing action dislodges the roots of wildrice seedlings early in the growing season, severely reducing wildrice growth in the process.

Many informants have expressed grave concern with the problem of stand decline. For example, G.H. remarked on the depletion of wildrice at Pelican Lake and expressed concern with the visible decline in wildrice growth at Nett Lake. Concern was also expressed by a young adult at Mille Lacs who explained that wildrice beds just west of the Twin Cities, which were used by her ancestors until just a few decades ago, have now disappeared entirely. Alex Moose and others at Mille Lacs were distressed by the severe decline in wildrice in a major wildrice producing chain of lakes in the area. Concern is great in Canada as well, especially along the Rainy River, in the Lake of the Woods, and along the Winnipeg River (D.T., Q.L., Mrs. N.T., M.X., p.c.)

harvesting techniques are not imposed. Therefore, government regulation is not as comprehensive nor is it as rigorous as traditional regulatory practices. This finds expression in the following quote:

Non-skilled ricers or inexperienced pickers and polers were not allowed by the Indians in years back to participate in the rice harvest. Today, non-skilled ricers do not receive any instructions, nor are they required to understand basic ricing practices. Earlier Indian regulation and knowledge seem to be presently disregarded (Alex Moose, 1969:71).

Government regulation of the length and weight of flailing sticks differs from traditional standards as well. At present, a maximum weight of sixteen ounces and a maximum length of thirty inches is allowed (Edman, 1969:8). This contrasts with the maximum weight and length of six ounces and twenty-six inches, cited by Alex Moose (1969:58). The greater weight of flails used currently by pickers allows them to apply more force to the plants which, in turn, increases the problem of plant damage. The greater length allows pickers to reach out further to gather in more stalks in flailing, thus exacerbating the problem of plant entanglement.

Regulation of the number of teams allowed in a given stand no longer exists under government control. On public stands, any Minnesota resident is allowed to hand-harvest. Most Minnesota reservations are legally obliged to allow all residents to harvest. They can therefore not restrict the number of boats on stands. Several informants noted the large numbers of teams harvesting on stands today in contrast with the past. Alex Moose mentioned, for example:

Previously, 60 canoes were used, but today no limit is set. Some lakes have 250 to 300 canoes coming for the rice harvest (1969:71).

The lack of regulation on the number of teams, a larger allowance for flail weight and length, lack of regulation of techniques, and premature opening times result in a rapid destruction of wildrice stands which, in turn, results in a harvest period of short duration. Whereas harvesting in the past lasted for about a month or longer on some stands, in recent decades it has been as short as a couple of hours to a maximum of about fourteen days, depending on the number of pickers in the stand. (E.B., C.C., G.H., Alex Moose, p.c.)*.

A final comment is in order on the nature of government regulation of wildrice harvesting. Rappaport notes that when higher order regulators adopt the tasks of lower order regulators:

[...] the degree to which regulatory operation is directly determined by environmental or other material factors seems to diminish. That is, higher order regulation may be more arbitrary or more affected by conventional considerations than that of lower order (1978:55).

This situation has occurred in wildrice harvesting inasmuch as government regulation is affected by political considerations. In contrast to the pragmatic functioning of committees as lower order regulators: "higher order regulation enunciates [...] more general directives which may be called policy statements or

* An indication of the length of the harvest season in the past is E.B.'s comment that on Big Rice Lake "there was about a month of ricing until ice began to form along the shore."

principles" (Rappaport, 1978:55). Such principles are generally embedded in value laden terminology, as Rappaport points out, and reflect certain ideals which affect the decision-making process.

The issue of Native and non-Native rights to harvesting in Manitoba exemplifies a situation in which political and ideological considerations are dominant factors in government decision-making. The provincial Natural Resources Department has implemented an affirmative-action program allowing Native people preferential treatment for licenses. The Winnipeg Free Press of May 16, 1985 reported that:

Under the provincial proposal, Indian bands would have priority for licences in designated regions during 1985-86. Individual treaty Indians would have priority in 1986-87 and all persons of native ancestry would be given preference in 1987-88.

Soon after its implementation the non-Native Manitoba Wild Rice Farmers Association accused the affirmative-action program promoted by the government of being discriminatory and racist. The issue of wildrice licensing is before the Manitoba Court of Queen's Bench at present. Government regulation on Native and non-Native rights to harvesting is being contested on the basis of: "Sec.8 of the Manitoba Human Rights Act and Sec.15(1) of the Canadian Charter of Rights and Freedoms, which prohibit discrimination on the basis of ethnic origin" (Winnipeg Free Press, July 5, 1985).

The principle of equality of all people, based on statements stipulated in the Human Rights Act, may ultimately reverse

decision-making in the area of access to wildrice stands in Manitoba. As such, regulatory directives with respect to who may and who may not harvest are not based on harvesting skills and maintaining wildrice stand integrity through allowing access on the basis of such skills but, rather, on increasingly arbitrary and value laden considerations such as the principle of equality of all people.*

Other examples of value laden terms which are bandied about in the wildrice industry are 'development', 'progress', 'modernization' and 'free enterprise'. As one government civil servant told me: "Indians aren't doing anything to develop the rice" (X.Y.,p.c.). Several of these terms are implied and stated in an assessment by Winchell and Dahl of the entry into the industry of Saskatchewan lake producers who use mechanical harvesters:

The success of the program is partly attributable to the absence of a wild rice tradition among the Cree Indians, who form most of Saskatchewan's native population (1984:13).

Winchell and Dahl assert that "traditional customs" impede commercial development by promoting hand-harvesting and communal control of lakes. Free access, private enterprise and competition are underlying concepts which are seen in a positive light in this publication. However, it has become clear that

* The principle of equality appears to have been a factor in government regulation of access to wildrice stands on open reservations in Minnesota also. The Minnesota Wild Rice Law states that open reservations: "are required by law to extend harvesting privileges to [non-Native] residents" (Winchell and Dahl, 1984:10).

inadequately regulated competition is responsible for the degradation of a sophisticated and productive system of hand-harvesting. Government will have to weigh these material facts against the political and economic considerations of free enterprise. In this context it is appropriate to note that society restricts competition in stringent ways. This is especially clear in almost every profession or trade. There is strict control of practitioners in occupational disciplines; not just anyone can hang up a shingle and call himself or herself a doctor, electrician or autobody repairperson. Traditional ricing is a discipline in the same sense. It encompasses a body of knowledge, a program of training, a set of prescribed and prohibited practices, negative sanctions on unacceptable behaviour and positive sanctions on excellence.

The only kind of government regulation on harvesting techniques which exists in Minnesota applies to the use of mechanical pickers. The Minnesota D.N.R. prohibits the use of machines for commercial harvesting of natural stands, stipulating that, in Edman's words: "The harvesting technique permitted in Minnesota state law preserves the traditional Indian method, requiring that on public waters hand flails and small hand-operated boats be used" (1969:54; emphasis added).

The legislation was designed to "preserve the traditional Indian method" of hand-harvesting. However, as the thesis shows, the use of hand-operated harvesting tools such as canoes and flails is not synonymous with traditional wildrice harvesting.

It is not merely the tools but the manner in which they are used that determines whether hand-harvesting occurs according to traditional standards. As a result of this oversight, the term "traditional Indian harvesting methods" is used as a blanket designator for all hand-harvesting techniques.

An undiscerning perception of hand-harvesting has led officials and wildrice industry commentators, such as Rossman et.al. (1974), Winchell and Dahl (1984), Edman (1969), Brooks (1981), Moyle (1944), among others, to confuse presently popular indiscriminate hand-harvesting techniques with traditional, disciplined ones. Winchell and Dahl, for example, write that in Minnesota harvesting in natural stands is "restricted to the traditional canoe-and-flail method" (1984:10;emphasis added). They have analyzed prospects for industry development in which comparisons are made between the productivity of mechanical picking and hand-harvesting. However, they use data for hand-harvesting which reflect the productivity of indiscriminate picking rather than traditional ricing. Therefore, a discussion of the productivity of traditional, disciplined hand-harvesting is in order.

Chapter VII

PRODUCTIVITY OF TRADITIONAL DISCIPLINED HAND-HARVESTING

Present-day wildrice production through hand-harvesting is perceived as being inefficient and lower than it could be. Writers such as Brooks (1981), Edman (1969), Steeves (1952), Moyle (1944) and Rossman et. al. (1974) project this perception into the past as well. They are reinforced in this by Jenks' conclusion regarding the underproduction of wildrice by Native harvesters of the past. Winchell and Dahl, two scientists with the department of agricultural and applied economics at the University of Minnesota, actually see ricing traditions as a barrier to commercial development:

The traditional wildrice harvesting customs among the Ojibway bands in Ontario, Manitoba, and Minnesota were appropriate and efficient in the hunting and gathering era. However, traditional Ojibway customs such as hand harvesting and communal control of lakes have impeded the commercial development of lake wild rice in areas where they still influence wild rice harvesting (1984:13).

Mechanical harvesting is seen as the means of boosting yields in order to promote commercial development of the wildrice industry in Canada. Robert Edman notes that:

When machines are used for harvesting, 25% to 30% of the rice produced can be collected against 5% to 10% by hand harvesting. In the United States, because of prohibitions against mechanical harvesting of natural stands, the only equipment in use is involved in wild rice paddies. The increased use of mechanical harvesting of rice in Canada is being promoted by many

officials as an answer to competition with United States paddy rice production (1969:summary).

Bob Peterson, formerly with the Manitoba Department of Natural Resources, stated in an interview that hand-harvesting yields only about two to five percent of the standing crop of wildrice, while mechanical picking will yield about twenty-five percent of the crop. Erwin Brooks, a wildrice consultant, has prepared a report for the Canadian Department of Indian Affairs (1981) in which he suggests that mechanical picking is superior. In this report Brooks published a table (1981:17) which was intended to show the greater productivity of mechanical versus hand-harvesting. He compared the harvested yield of different harvesting methods with the production of the standing crop. For example, out of 1500-2000 pounds per acre of standing crop, mechanical pickers were said to produce between 300-500 pounds per acre (that is about twenty to twenty-five percent). Hand-harvesters, on the other hand, were said to produce only 300 pounds per acre, under "controlled" conditions (that is about twenty percent) and merely 100 pounds per acre under "uncontrolled" conditions (about five to six-and-a-half percent) (Brooks, 1981:17). Brooks concluded that:

[...] the only easy and logical way to increase harvests is to switch to machine pickers. Pickers not only increase threefold or more the harvest from the same stand, but they are able to pick rice where it is too short or thin for hand harvesting (1981:17).

Unfortunately, Brooks does not specify what is meant by "controlled" and "uncontrolled" hand-harvesting but the context

suggests that "controlled" refers to ownership of a stand by one person or company who or which employs hand-harvesters to pick the crop. For example, he pointed out that, "Information on controlled hand harvesting and mechanical picker [sic] came from Manitoba sources as neither method was practiced in the U.S. at that time" (1981:17). Furthermore, he asserted that, "controlled hand harvesting is only possible on one man controlled stands" (1981:17). It is important to realize that Brooks was not contrasting traditional, disciplined hand-harvesting and present-day indiscriminate hand-harvesting versus mechanized harvesting. Rather, it appears that he was comparing indiscriminate hand-harvesting in Minnesota with machine picking in Manitoba where he argued that the latter is three times as productive. He mentioned that the production data on uncontrolled hand-harvesting was based on Minnesota research. The very low productivity of uncontrolled hand-harvesting leads me to suspect that research was carried out in areas where indiscriminate techniques were being used. Figures cited for the productivity of controlled harvesting were derived from a Manitoba source. Under the employer's directives, hand-harvesters, who are not competing amongst each other, are more disciplined than is the case with indiscriminate hand-harvesting whereby a stand is quickly depleted of harvestable wildrice due to unbridled competition. This is probably why Brooks' figures for the productivity of controlled hand-harvesting are higher than those for uncontrolled hand-harvesting. Although controlled hand-harvesting may be more disciplined it is probably still less than

what can be anticipated under traditional Indian ricing discipline.

The conclusion that mechanical pickers increase the harvest three-fold or more is unwarranted. There are, to my knowledge, no reliable data which permit a representative, statistical comparison of the productivity of mechanized harvesting and hand-harvesting. Experts do not agree about the virtues of mechanical harvesters. Dr. D. Punter told me that, until better machines are developed little more than twenty percent of the standing crop can be harvested on average by machines. Proponents of mechanical harvesting seem to be downplaying its shortcomings and overrating its productivity while, at the same time, using the worst figures for hand-harvest productivity to bolster their arguments. For maximum harvested yields, close regulation and proper procedure is mandatory, whether harvesting takes place by hand or using machines. Machine harvesting, like hand-harvesting, is wasteful, produces a product of inferior quality and is damaging to stands when improperly carried out and regulated (Q.L. and D.T.,p.c.).

The low productivity percentages cited by people such as Edman (five to ten percent,1969), Peterson (two to five percent,p.c.), Brooks (five to six-and-a half percent,1981) and Moyle (less than ten percent;1944:30), reflect indiscriminate hand-harvesting. In contrast, Eva Lips wrote that, based on her own eyewitness observations of traditional, disciplined hand-harvesting at Nett Lake, she estimated that about one-third of ripe wildrice fell

into the water upon harvesting. In other words, Lips suggested that two-thirds or about sixty-six percent of the standing crop was harvested. She compared this figure with those provided by Mark L. Burns who estimated that Indians harvested about sixty to seventy percent (Lips, 1956:81).*

Several archival sources document quantities of wildrice produced by traditional hand-harvesting in certain areas of ricing habitat. For example, of the wildrice production in the vicinity of the North West Company post at Rainy Lake in 1800, Daniel Harmon wrote:

This grain is gathered in such quantities, in this region, that in ordinary seasons, the North West Company purchases, annually, from twelve to fifteen hundred bushels of it, from the Natives; and it constitutes a principle article of food, at the posts in this vicinity (Harmon, 1957:92; emphasis added).

At sixty pounds to a bushel this figure equals 72,000 to 90,000 pounds annually in normal years. Another example is that of Thomas Miller who, in 1807-8, established a temporary trading centre at Lac du Bonnet, Manitoba. He arrived in August of 1807 with a party of twelve men and planned to stay the winter. His journal was heavily infused with remarks about provisioning problems. The team depended very heavily on food obtained from local Indians for they were not adept at fishing or hunting. Miller and his men traded for a total of 190 gallons of rice between September 18 and October 12, 1807 (B.103/a/1 1807-8).

* Eva Lips may not have taken shattering occurring overnight or caused by wind into account in this estimate, in which case the figure of sixty-six percent does not refer to the proportion of standing crop harvested but to the proportion which fell into the boat as opposed to in the water during harvesting.

This amounts to just under twenty-four bushels or, roughly, 1440 pounds. In his section "Dependence of White Man on Wild Rice", Jenks, too, cites sources such as Alexander Henry who traded for one hundred bushels of wildrice at Rat Portage, near present-day Kenora, Ontario in July, 1775 (1977:1101-1106). This indicates that Indian ricers at Rat Portage had produced so much that they were in a position to trade a considerable quantity of wildrice two months before the current year's harvesting started. These sources indicate the large amounts of wildrice which ricing peoples had available for trade beyond their own food provisioning needs.

It is curious that Jenks should assert that in traditional times wildrice was underproduced. He himself provides a great deal of information which demonstrates that wildrice was produced in abundance. For example, Jenks cites a reference to the wildrice production in a letter dated January 6, 1843 from Mr. Alfred Brunson, an Indian agent at La Pointe, Wisconsin, to Governor Doty: "There are about 1000 families [...] The same number of families average 25 bushels each" (1977:1096). This amounts to 1500 pounds per family.

Jenks also presents a table of figures and several references to specific amounts of wildrice produced between 1852 and 1898 (1977:1074-1077). Both very high and very low productivity numbers for hand-harvesting in different areas of ricing habitat are shown.* The wide range in amounts reported in the table can

* See Jenks' table in Appendix G.

be attributed, in part, to the shortcomings of Jenks' sources which he himself acknowledges. His data are largely based on Indian Affairs reports.

There are some fundamental reasons why the following statistics do not tell the whole truth. Unless the Indian agent is personally interested in the natural production of Indians he does not know accurately the amounts of wild rice they produce. Agents' reports are frequently sent in before or during the harvest, in which case the amount of wild rice gathered is either only estimated or not mentioned at all. Agents were frequently changed, and the new ones often did not speak of the rice crop in their first reports. Attention is also called to the utter lack of uniformity in making up the Indian Affairs Reports (1977:1075).

Jenks qualifies the data further: "It is regretted that no data could be obtained from the four reservations where wild rice is now produced in greatest quantities, viz, those of Red Lake, Pine Point, Wild Rice River, and White Earth agency, all in Minnesota" (1977:1078).

The wide range in productivity figures leaves Jenks' table open to interpretation. Nevertheless, the high productivity figures in the table indicate the very large productive potential of traditional hand-harvesting. At Lake of the Woods, Canada, in 1852, production was twenty bushels per family or 1200 pounds of finished wildrice per family (Jenks, 1977:1075).

Apart from the literary sources, informants have also provided data on family production which indicate the high productive potential of traditional, disciplined hand-harvesting. For example, a Mille Lacs informant told me her grandfather stored ten to fifteen sacks of one hundred pounds each (Mrs.K.X., p.c.).

Mrs.V.X. told me that, at Crowduck Lake, Ontario, she and her mother made 1200 pounds of wildrice each year. She related:

Long ago we picked six bags of grey rice [ripe rice harvested early in the season and immediately processed] and six bags of black rice [smoke cured rice]. Six bags of each [six bags of hundred pounds of each].

Another informant, G.H., told me that at Nett Lake each team,

would probably, over a whole season, get a thousand pounds or more [of processed wildrice]. A thousand pounds was about what each picker gathered. Some of them got twice that much, of course, because they were much better pickers.

Assuming that yearly production of wildrice per family amounted to about twenty bushels or 1200 pounds, a comparison can be made between the per capita consumption of wildrice and per capita consumption of Oryza sativa (common, cultivated rice) in areas where this is a staple food. For example, on Java the amount of rice which was available per capita in 1900 was 110 kgs. or 1210 pounds for a family of five (Geertz, 1963:96). Provided that Indian families were comprised of five individuals, the number used by Jenks to estimate population in the ricing habitat then per capita consumption would be almost exactly that of Javanese, that is, 109 kgs. Of course, this rough comparison is inappropriate without also comparing consumption of other foods such as meats, fish or tubers and berries. Nevertheless, it suggests a similarity in amounts of wildrice consumed which can not be ignored.

The consistency of the level of production per family reported for different areas throughout the ricing habitat of Minnesota,

Wisconsin, Ontario and Manitoba, provides the basis for comparing total amounts of wildrice produced through traditional, disciplined hand-harvesting in the past with total amounts produced through indiscriminate hand-harvesting, predominant today. If one were to consider only the wildrice production for the Indian agency at La Pointe, Wisconsin, as reported by Alfred Brunson, then a conception of past hand-harvest production can be achieved. The 25,000 bushels produced by 1000 families reported in 1843 equals 1,500,000 pounds of finished wildrice. This is greater than the amount of hand-harvested wildrice estimated for the whole of Minnesota, by a larger number of pickers, during the best crop year in the twenty years up to 1982.*

The comparison suggests that traditional, disciplined hand-harvesting is by far more productive than presently popular, indiscriminate hand-harvesting. This is not surprising, considering that, in the past, rigorous regulation of harvest times and techniques enabled ricers to take full advantage of the natural production of grains during the entire ripening period whereas, in recent decades, many stands have become unharvestable early in the ripening period due to despoiling practices. Moreover, the disciplined practices of ricers which are geared to the harvesting of mature grain only, result in higher finishing percentages. It should be noted that, formerly, some Indian

* For a table of wildrice production in recent years see Appendix H.

communities adopted certain ricing practices which facilitated the production of more wildrice. The two most prominent practices were bundling and sowing.

7.1 BUNDLING

Bundling has been noted as a major variation of flailing practice in wildrice harvesting. It deserves special mention as a further refinement in harvesting techniques. Descriptions of bundling can be found in the studies of Jenks (1977), Densmore (1928) and Lips (1956) as well as in Alex Moose's booklet. Alex Moose wrote:

They would tie the rice in the following manner. First they gathered the heads and stalks together from an area of about 2' [two feet] on the bottom. These heads and stalks were brought to the very center of this 2' area and tied just even with the water line. They had to be exactly careful when tying the rice and they had to be certain not to crush the stalks. Since the tying had to last the entire season it had to be firm enough to be sure the rice worms and blackbirds could not get underneath the tie but yet permit the rice to mature.

They would start tying even with the bottom of the rice head and seal all the way to the very top and on the very end of the head. The Indians used a flat string usually made from basswood. No air holes were permitted. Then the top end of the string was curved and pulled back down the main body and tied together. This last tying was to protect against wind and hail. You do not untie the rice heads until the rice season is over. You merely shake the ripe rice into the canoe (1969:59).

Preparations for bundling began in June. At this time, the inner bark of basswood trees could best be stripped off the trunks in large ribbons (Mrs.N.L.,p.c.). These bast ribbons were processed in a special way for the purpose of tying wildrice

stalks; they were boiled for two or three hours. Ribbons were then tied together and, for ease of use, rolled into a ball which unwinds from the inside so as to prevent accidental unwinding during tying (Jenks, 1977:1059-61). As much as twelve feet of bast ribbons were used in tying one bundle (Jenks, 1977:1059-61; G.H., p.c.). A special garment was worn for the purpose of tying. Mrs.N.L. told me:

Sometimes an old lady goes out, takes a big ball of string [basswood bark ribbons]. We had to have a different shirt on [with] little holes in there. The string comes inside the holes so the ball wouldn't roll.

Jenks provides a photograph of this special garment as well as of bundling implements and bundles of tied wildrice in a stand.

I asked Mrs.N.L. if her grandmother tied wildrice. She said "yes" and added "I used to do that too [...] We'd go and tie the rice where the thickest part is. I'd start tying it up. Back and forth I'd go."

Mrs.N.L.'s description of bundling contains two novelties which I had not read in literary accounts. First of all, she told me that "We had special bundles. We had to make one short bundle [that was] kind of thick so that the hawk would get in there and would sit in there [and] get after the blackbirds." This was useful since Mrs.N.L. tied wildrice only in the thickest part of the stand, leaving less dense areas exposed to birds. Secondly, the fact that wildrice was tied in the thickest part was novel. Wildrice is probably not bundled in thin areas because of the danger of uprooting plants since they are further removed from each other.

Mrs.N.L.'s description is also important because it establishes, along with Jenks' and Densmore's eyewitness accounts, that bundling was done in the early twentieth century. One informant at Kenora had been told of bundling by elders (Mrs.N.T.,p.c.). Another interviewee from Lake of the Woods told me that bundling in his area had been common in the 1930s and 1940s. It became less common thereafter, although he saw one man bundling wildrice in 1975 using cotton twine. He had not seen it being done since.

Jenks lists six different locations where bundling occurred before the turn of the century, among the Ojibwa and the Dakota throughout Minnesota and Wisconsin (1977:1058-9). In addition to these locations, Lips reported that wildrice was bundled by her informants' ancestors at Nett Lake (1956:86). Informants at Mille Lacs, White Earth, Leech Lake and Lake of the Woods recalled hearing of, seeing, or taking part in bundling in the past.

Several reasons have been offered for bundling in existing literary sources. Lips summarizes these as well as those given to her by her informants (1956:89):

1. To protect the wildrice against consumption by birds.
2. to guard against too many wildrice kernels falling into the water instead of the harvesters' boats.
3. To create paths through dense growth so that harvesters can move more easily through the stand.

4. To protect against strong winds which under certain circumstances can blow the crop into the water.
5. To provide access to wildrice when the water level is too low to allow passage by boats.
6. To establish property rights.

The last point, establishing property rights, has received emphasis in Stickney's article (1896:117) and in the studies by Densmore (1928:313;1929:128). Some of my informants note this reason for bundling as well. This explanation is valid but limited. While bundling is an age-old practice, tying for the sole purpose of establishing a claim to the wildrice is probably a recent development. Establishing a claim was, at best, an ancillary reason for tying wildrice since other means of establishing harvest rights to certain areas of a stand existed in the past.*

Protection against weather and predation are stronger factors. For example, Q.L. told me that the main harvest area of his band lies in a bay which opens in the direction from which prevailing winds come. The wildrice was therefore exposed to strong winds and storms. Bundling facilitated higher yields by protecting the crop from shattering before ricers could harvest it. Alex Moose notes the use of bundling for increasing productivity in his booklet. He wrote that tying the wildrice stalks "enabled them [Indian ricers] to get all the rice kernels" (1969:59). A Leech Lake elder put it equally succinctly: "By making bundles Indian

* See Jenks (1977:1073) and Densmore (1928:313).

people made sure the rice don't fall off. When it was all ripened, if you shake it you get it all at once" (C.C. p.c.).

There is no doubt that bundling increased the productivity of hand-harvesting. For example, Doty, in a letter to Governor Cass in 1820, wrote that at Rice Lake:

It was formerly the practice of the Indians, when the grain was in the milk, to pass around in canoes and gather up the tops in large shocks [...] and fasten them [...]. By this means they obtained it in much larger quantities than at present (Doty, 1953:440; emphasis added).

Apart from enabling ricers to increase the quantity of harvested crop, bundling also maximized crop quality. For example, Alex Moose wrote that "the rice kernels that are on the heads of tied rice were well filled out and usually will weigh in over 60 percent [...] when finished" (1969:59-60).

While the harvested yield of grains from bundled stalks can be closer to their entire natural production, Alex Moose asserted that this strategy has an important shortcoming:

While this method increases the quality and quantity of the rice, it is not good for the lake as it does not have a chance for reseeding. If the water level, weather and sun are the same the next season the rice will be very thin in the area where the rice was tied (1969:60).

In response to the threat which the bundling of entire stands poses for natural reseeding, ricing peoples may have adopted sowing to maintain the stock of seed in the wildrice bed.

7.2 SOWING

Ethnohistorical sources attest to the use of sowing in the past. For example, Frances Densmore wrote that: "It was not the intention [...] to harvest all the rice, a portion being allowed to fall into the water or being sown on the water as seed" (1928:314). In addition, Diamond Jenness wrote of an old Ojibwa woman who told him that:

'When I was a little girl, I used to help my parents gather the seeds of the wild rice that grew around the bay. Grandmother always warned me to wrap a few seeds in clay and to throw them into the water to make new plants for the next year' (1931:477).

Sowing increased natural production through the development of new stands as well as by enhancing growth in existing stands. This is illustrated by Forde who explained that: "Some of the hunting peoples such as the Ojibwa of Georgian Bay dropped wild rice seeds wrapped in little mud balls into the swamps to increase the crop for the next season [...]" (1934:257). Another author, William Danziger, wrote that: "the Chippewas planted a third of their harvest to ensure a yearly increase" (1978:13). In addition, Lovelace described how a woman, Mary Buckshot sowed a small bag of wildrice gathered at Rice Lake in southern Ontario in nearby Mud Lake. He noted that: "Today there exists an abundant crop [at Mud Lake]" (1982:29). Finally, Jenks lists several accounts of sowing (1977:1057-8). One is a description by Perrot, dating to sometime between 1644 and 1718, of sowing among the Assiniboine to the west and northwest of Lake Winnipeg. Another report is of the sowing of two lakes by Ojibwa people

near Shoal Lake on the Ontario-Manitoba border "where they procure quite a harvest." A third example comes from the Ojibwa at Rice Lake in Forest County, Wisconsin. Yet another source documents sowing at five different new stands in the vicinity of Lac Courte Oreille reservation which became harvest fields for the Ojibwa. Finally, Jenks remarks with respect to Lac Courte Oreille Reservation that:

Several other families on the reservation gather wild rice in harvest fields which they themselves have sown. In the fall of 1899 at least one family gathered grain with which to sow a private field (1977:1058).

Apart from the literary sources, two informants had direct knowledge of sowing by Indian ricers. One informant, Q.L. from Lake of the Woods, told me he had known his grandmother to sow wildrice in different areas to see if it would grow. The second informant, a biologist working for a Minnesota reservation, told me that, even today, when a wildrice bed is in decline, Indian ricers coming in at the end of harvesting will donate a coffee-can full of their freshly harvested wildrice to be dispersed as seed (K.T.,p.c.). These accounts demonstrate that sowing as a ricing practice was very widespread. By increasing the natural production of wildrice stands, larger yields were possible for ricers.

A number of other practices can be analyzed in the same light of production intensification. One such practice is weeding. Jenks noted that the "Ojibwa Indians at Rice Lake near Crandon, Forest County at times both sow the grain and weed out the large

flat grass which grows among the stalks" (1977:1057). Another practice performed by Mrs.N.L. at Mille Lacs was the bundling of wildrice in such a way that bundles formed comfortable perches for hawks which prey on blackbirds. This practice serves the same function as scarecrows in farm fields. Mrs.N.L. also remarked how her grandmother trapped muskrats in the area of the wildrice. Both muskrats and blackbirds can affect the natural production of wildrice stands negatively. Controlling undesirable predator populations in addition to competitor populations like weeds, constitute pest management practices which safeguard natural stand production for human harvesting.

A final ricing practice was water level control through damming. G.H. described a temporary dam which was constructed every year at Nett Lake to raise water levels. This facilitated wildrice harvesting. Water levels were raised enough to allow boats to pass over mud banks, thus giving access to otherwise unreachable areas of growth in the lake.

Water and pest management practices are not well-documented in the existing literature. However, their use by traditional Indian ricers reinforces the assertion that traditional ricing was a highly organized, sophisticated system of production. Bundling, sowing, and other management practices, as means of intensifying production, resulted in greater productivity of traditional, disciplined hand-harvesting in the past. Therefore, they should be considered in any assessment of the productivity of traditional hand-harvesting.

Chapter VIII

HISTORICAL CONDITIONS EFFECTING CHANGE IN RICING

The thesis has shown that the traditional system of ricing has undergone major changes since the 1930s. However, there is evidence that the process of change in wildrice use had begun much earlier, that is, in the first half of the seventeenth century, when Europeans first contacted the aboriginal peoples of North America.

Diseases brought by Europeans reached ricing peoples even before the furtrade did.* Native American populations lacked immunity to a host of infectious diseases from the Old World. As a result, smallpox, measles, whooping cough, yellow fever, diphtheria, chicken pox, typhus, typhoid, malaria and venereal diseases reached epidemic proportions and recurred frequently.** The frequency of epidemics probably reached a plateau during the height of the furtrade, in the latter half of the eighteenth century. Booming inland trade routes were established via Hudson's Bay and the Nelson and Churchill Rivers, via the Great Lakes and the Rainy River - Winnipeg River systems, and, in the

* This information is derived from Thorpe (1982), Bailey (1969), and Ray (1976) who provide data on diseases that raged through North America in the 1600s and thereafter.

** *ibid.*

south, through American traders using the Missouri River. These routes formed major pathways for the spread of epidemics (Taylor, 1977 and Ray, 1976). Epidemics were also spread through warfare of neighbouring Native peoples as well as through missionary establishments in the New World.

The role of disease in population decline among ricing peoples probably affected their ricing activities. Doty reported in 1820 that the Sandy Lake Ojibwa formerly bundled their wildrice but were not doing so at that time (1953:440). It is conceivable that, being a means of increasing harvested yield, bundling was no longer necessary due to reduced demand.

Eva Lips (1956:89) supports this hypothesis. She mentions that it is difficult to provide a plausible explanation for the discontinuation of bundling wildrice since it had considerable merits. She suggests that, in past times, so many people used to gather at wildrice lakes that they utilized all possible means to harvest as much wildrice as possible for food provisioning. However, at present, Indians have alternative sources of food and employment because of their participation in mainstream society. She notes further that in the few cases of relatively isolated Indian groups which still rely heavily on wildrice for nourishment, enough wildrice can be produced without going through the trouble of bundling to meet needs.

The arrival of missionaries, explorers and fur traders marked direct European contact. It is not completely clear how the

furtrade, in and of itself, affected the demographic characteristics and provisioning activities of ricing peoples between the mid-1600s and late 1800s. One component of ecological change occurring after the establishment of the furtrade was the decline in numbers of large fauna which had been major sources of food and pelts. Warren documented the changes in availability of game which seem to have affected Ojibwa wellbeing drastically. Speaking of the Mississippi headwaters region, he writes around 1850, "In former times this region of country abounded in buffalo, moose, deer, and bear, and till [sic] within thirty years past, in every one of its many courses, the lodges of the valuable and industrious beaver were to be found" (1984:176). Similar observations are recorded by Schoolcraft (1953) for the same time period. Close agreement is apparent between Warren's documentation of game depletion and the accounts of traders described by Bishop (1974) and Martin (1978). Bishop (1972) writes, in fact, that the decline in numbers of large game species became acute by the end of the 1820s in the precambrian shield area.

With the reduction in population numbers of game species in their habitat, ricing peoples began to adopt less nomadic economic pursuits such as trapping and the hunting and gathering of a broader range of foods and materials within a specific territory. The land base for traditional Native pursuits eroded further after reservations were formed. The correlation between the beginning of land cession in the Great Lakes area and the

depletion of game is noteworthy. The period of land cession began in the second and third decades of the 1800s, coinciding with the rapid decline in game populations as a source of food and exchange. The North American treaty period, whereby territorial expanses were signed away in return for reservations and financial retribution, developed full-force around 1837 in the Great Lakes area (Hickerson, 1974). The implication is that the decimation of large faunal food species, probably combined with the social havoc caused by the devastating epidemic diseases, disrupted traditional economic and social organizations. This may have been a major factor contributing to the 'willingness' among Indians to accept the conditions of the treaties. The encroachment of Euro-American and Canadian mining, timber and agricultural interest in the mid and late 1800s restricted the expansive land-based occupations of hunting and trapping even more.

There is no clear indication how demographic change following recurrent epidemics, decline in availability of major faunal foods and a shrinking land base affected wildrice use. However, these ecological conditions may have led to changes in the sexual division of labour in ricemaking.

Historical sources suggest that, in early contact times, women were prominent in ricemaking, men being involved only marginally in treading the wildrice to remove the hulls. The earliest reference to the sexual division of labour in ricemaking, of which I am aware, is by Father Louis Hennepin. He noted in 1697

that the Dakota women at Mille Lacs bundled the wildrice stalks:
"The country about Lake Issati [Mille Lacs Lake] is a Marshy
Ground, wherein grows abundance [sic] of wild Oats, [...]. The
Savage Women are oblig'd to tie several Stalks together with
White Bark of Trees, [...]" (Hennepin, 1974:224).

In 1820, Henry Schoolcraft made reference to two women whom he
had met on their way to check the progress of wildrice growth.
This is an indication that women were involved in regulatory
decisions arising from the monitoring process (1953:166).

In a letter of September 27, 1820 James Doty describes the
roles of men and women in ricemaking (1953:440):

It was formerly the practice of the Indians, when the
grain was in the milk, to pass around in canoes and
gather up the tops [bundling] [...] This work of
harvesting is [...] performed by the females. It is
now gathered by two of them passing around in a canoe,
one sitting in the stern and pushing it along, while
the other with her back to the bow and with two small
pointed sticks about three feet long, one in each hand,
collects it by running one of the sticks into the rice
and bending it over on the edge of the canoe, while
with the other she strikes the heads suddenly and
rattles the grain into it.* This she does on both sides
of the canoe alternately, and while the canoe is
moving. [...] One method of curing the rice, and that
which makes it most palatable, is by putting it in a
kettle in small quantities, and hanging it over the
fire until it becomes parched. A round hole is dug in
the ground about one and a half feet deep, and three in
circumference, into which a moose skin is usually put.
Into this hole the grain is then poured, where it is
trodden by an Indian until completely hulled. This is
very laborious work, and always devolves upon the men.

* The description of flailing as striking the heads suddenly is
an example of an undiscerning perception of flail use which is
not uncommon in the literature on wildrice harvesting.

Doty's description clearly establishes that, at Rice Lake, wildrice harvesting was carried out by women and the dehulling of wildrice was done by males. The descriptions of ricing by Jenks (1977) and Smith (1932) corroborate this. Jenks provides information on the traditional sexual division of labour in ricemaking for a number of reservations. In almost all cases the women undertook bundling, harvesting, drying, curing, winnowing and storage activities while the men usually did only the work of removing hulls (1977:1056-1079).

It should be noted that men were not always involved in dehulling wildrice. Informants pointed out that children carried out this aspect of processing in their youth. G.H. and G.C. had participated in treading as boys, as had Mrs.N.L. when she was a young teenager. In addition to this exception, women usually did the processing themselves when dehulling was done through pounding rather than treading. A picture of pounding wildrice, included in Densmore's book (1928:plate 42b), shows three women using long pestles and a mortar to dehull wildrice.*

Jenks' descriptions of gender roles in ricemaking are supported by the oral traditions of the Ojibwa, recorded by William W. Warren. Warren writes of the area around Leech Lake that: "It abounds in wild rice in large quantities, of which the Indian women gather sufficient for the winter consumption of their families", and "The shores of the lake are covered with

* Photographs depicting other tasks whereby the traditional division of labour in ricemaking is evident, are included in Densmore (1928:314-315).

maple which yields to the industry of the hunters' women, each spring, quantities of sap which they manufacture into syrup" (1984:186). This last quote from Warren gives insight into the general division of labour by sex in Ojibwa economy. Women appear to have been prominent in the collection and processing of all plant foods. Men were prominent in the procurement of animal foods.

Ethnographies of other peoples such as the Montagnais-Naskapi (Leacock, 1975) or the !Kung (Lee, 1979; Shostak, 1983) indicate that women are usually engaged in the gathering of plants and hunting of small animals, while men, in general, are responsible for the hunting of large game. Ojibwa gender roles occurred along the same lines. Ruth Landes (1938) noted, for example, that women collected and prepared plant foods, prepared hides and manufactured garments and household items. They also fished with nets and weirs and did some hunting, using primarily snares although they were adept at wielding bow and arrow. Men, on the other hand, hunted large game as well as smaller animals. They fished too, sometimes using spears. This is not to say that men never gathered plant foods. They did, but as a rule, limited their gathering activities to immediate needs while on hunting excursions.

European contact triggered change in gender-specific economic activities which, in turn, resulted in changes in the traditional sexual division of labour. Male economic pursuits, in particular, were subject to pressure. After cervine and

furbearer populations declined, male occupations of hunting and trapping could no longer provide adequate subsistence. This was exacerbated by the shrinking land base caused by reservation formation and encroaching Euro-American and Canadian interests in agricultural land, lumber, minerals and water control. As a result, Indian men experienced economic and socio-psychological pressures to seek alternative means of making a livelihood.

As male hunting occupations dissolved, the traditional sexual division of labour in ricemaking was not left unaffected. Interestingly, Smith notes that, "[...] women are busily caring for various food harvests" but that both "men and women are busy [...] harvesting wild rice" (1932:403). Apparently, men did not adopt the whole array of women's food gathering and processing tasks, just ricemaking. They had a specific economic motive for increasing their involvement in ricemaking as opposed to the gathering of other plant foods. Wildrice was increasingly turning into a commercial commodity. Cash sales of wildrice had been common since the last decades of the nineteenth century. Several thousand pounds were sold annually to missionaries, lumber camps, gun clubs, local settlers and a few merchants (Jenks, 1977:1105). In fact, wildrice had become an essential staple of missionaries and fur traders. As traditional male occupations were being undermined, Indian men had little choice but to pursue the commercial production of this local resource, among others.

Euro-American and Canadian institutions of commerce, government and church reinforced the trend toward male predominance in traditional pursuits that were becoming increasingly commercial. The influence of these institutions reflected male predominance in similar occupations and the dominance of men in public life in general, in Europe. Here, a clear distinction existed between public and private spheres of political and economic interaction and the differential participation of men and women in these realms. Women were generally restricted to the private realm of domestic activities. Therefore, irrespective of established, pre-contact gender roles in Indian societies, institutions of Euro-American and Canadian culture directed their political, religious and economic affairs primarily through men, often at the expense of women who may have held important positions in traditional life. For example, colonial administrators sought to install males in the position of 'chief' or 'captain' and government representatives in land cession negotiations approached prominent males, even though many women were highly esteemed, authoritative members of their bands (Leacock, 1975).

Male bias in European institutions of trade, industry, government and the church seems to have contributed significantly to the ultimate form which changes took in the sexual division of labour among Native North Americans. The Jesuits were crucial agents through which European values on gender roles and relationships were imposed on Indian peoples. The huge death

toll and the general social disruption caused by epidemics facilitated missionary activity.

The influence of missionary teachings, modelled as they were after European gender roles and relationships, exerted social and psychological pressure on Indian men to support themselves and their families. New economic opportunities in the commercial exploitation of such local resources as fish, lumber, fuel wood and wildrice were grasped when hunting and trapping was no longer able to supply the needs of households.

Twentieth century economic development programs targetted at Native peoples, also helped to entrench Euro-American and Canadian stereotypes of male-female roles in economic activity. For example, in Minnesota male participation and increasing prominence in the wildrice industry was reinforced by the policy of agencies such as United States Works Project Administration (W.P.A.) and the National Youth Administration. These federal organizations operated infrastructural improvement and skills-development programs in cooperation with the Consolidated Chippewa Agency, from 1934 to 1938, on the White Earth Reservation. These programs provided cash incomes for most of the Indian families. Hilger writes that, "Employment for men under the various projects consisted of the building of roads and truck trails, [...] of the building of dams for water control, of wild rice culture and development, [...] Women employed by W.P.A. were engaged in sewing projects sponsored by the counties" (1939:28; emphasis added).

The ecological effects of European contact and the entrenchment of European values on gender roles and relationships, had caused a shift in the traditional Native sexual division of labour in ricemaking. Participation in hand-harvesting by men became established by the early decades of the twentieth century. Documentary sources provide ample information on this situation. For example, Landes writes (1938:127):

Women harvest and preserve aquatic rice, assisted by their husbands. A man poles the canoe while his wife harvests the grain. Each woman spreads her rice on the ground upon a bark spread, or upon a rack to dry in the sun. Then it is placed upon a rack over the fire, to loosen the husks; then his wife fans the trodden rice. When it is prepared it is stored in a fawnskin sack.

Densmore's description of the ricemaking process concurs. She wrote, for example, "The manner of going through a rice field by means of a canoe or boat pushed along by a pole [...] was a heavy task and was usually performed by a man while a woman sat in the stern of the boat and harvested the rice" (1928:314). Coleman, too, noted in her study that, "The man as a rule guided the canoe among the rushes and the woman, bending the rice plants over the canoe, beat the kernels from the stalk with a stick" (1953:80).

The sources indicate that within the first few decades of this century male roles in wildrice production had changed from being limited to treading the wildrice in processing to being extended into the harvesting process itself. Close male kin, especially husbands, established themselves in wildrice production, primarily as polers. This is corroborated by G.H. who told me that, in his youth [1920s], teams were usually comprised of married couples. He remarked:

They very seldom had anybody but married couples, except when it was two men who lived together or something like that, or an old lady who didn't have a husband, or a man who didn't have a wife. Then there would be a mixed team, but generally it was a man and wife.

Another documentary source showing the participation of men in contemporary wildrice production is the film "Mahnomen: Harvest of the North", produced by Robert Spading and Sherman Holbert. An inventory of scenes in which people can be seen working illustrates the sexual division of labour. The harvest scenes were taken at Platte Lake, Minnesota, in 1958. They consist of a number of shots of pairs of people harvesting in canoes. The first two shots were of two woman/man teams. The men in both scenes were the polers. The next three scenes, however, show all-male teams. At this point, the film turns to scenes depicting the buying of wildrice and processing using machines. The buying scenes were shot at Mille Lacs. Two buyers were filmed, both males. All of the harvesters selling wildrice are males as well. The film closes with a wide angle scene of a large number of harvesters coming out of the wildrice stands to unload their wildrice at lakeside. Of the teams which were readily recognizable, two were woman/man teams and four were all-male teams.

The film corroborates the descriptions by Landes (1938), Densmore (1928) and Coleman (1953) on gender roles in ricemaking. However, it provides evidence that women were becoming a minority in ricemaking in the 1960s. All-male teams outnumbered woman/man

teams and, in the case of scenes depicting mechanized processing, women were excluded entirely.

The predominance of males in hand-harvesting was also evident during my field research. Of a total of eighty-eight pickers making up forty-four teams at Deerwood and Blomgard Lakes, only five women were counted. I was unable to talk with two of these women who appeared to be a mother/daughter team but the three other women, who were harvesting with their husbands, all harvested for their own provisioning and not for sale. Although I spoke to a number of Indian men on other occasions who related that they harvested for food and ceremonial use, all of the all-male teams with whom I spoke at Deerwood and Blomgard harvested for money. Most told me that they harvested to pay bills and buy school supplies and clothing for their children. Wildrice harvesting supplemented their income.

A plausible explanation for the increasing predominance of all-male teams in wildrice production lies in that, by the 1930s, a sizeable demand for wildrice as a commodity had developed and has grown ever since. Ricemaking was becoming a truly commercial enterprise within a market economy in which traditional subsistence pursuits, including wildrice harvesting for domestic use, were no longer adequate. As commercial wildrice production expanded, Indian men moved to the forefront.

Eva Lips recognized this trend. She wrote:

Je aelter die Berichte sind, die ueber die
Ernteprozedur der frueheren Zeiten vorliegen, um so
oefter hoeren wir, dass die mit der Reisernte

zusammenhaengenden Taetigkeiten von den Frauen ausgeuebt wurden; besonders, als noch mehrere Monate des Jahres ausschliesslich der Jagd, die ueberall Maennerarbeit ist, gehoerten. Je ausschliesslicher nun der Reis in den Wirtenschaftlichen Mittelpunkt ruekte, um so oefter wird die Mitarbeit auch der Maenner erwaeht, bis wir in der modernen Zeit dann alles, was mit dem "ricing" zusammenhaengt, als Maenner und Frauenarbeit [...] vorfinden werden [...] (1956:81-82).

To paraphrase Lips, the older the reports, the more frequently it is mentioned that women did the ricemaking in early times. This is especially the case since men were engaged in hunting during several months of the year. However, as wildrice became increasingly important economically, the cooperation of males in ricemaking is recorded more frequently in reports. At present [around 1947], all ricemaking activities have become the work of both men and women.

Since Lips' research, women's participation in ricemaking has become marginal. Where machine harvesting has been adopted in Canada, women are no longer involved at all, to my knowledge. This trend bears out Lips' analysis of gender role change.

The change in gender roles in ricemaking did not change disciplined harvesting practices as such at the time. However, preconditions for later changes in this respect had been established. With the continuing decline of traditional pursuits, dependency on cash generating activities grew. Major changes in hand-harvesting practices occurred in Minnesota by the 1930s. Two events occurred which, together, caused a sudden increase in interest in wildrice harvesting. Firstly, the Depression caused widespread hardship among Native and non-Native

northern Minnesotans. Secondly, market prices for wildrice rose. As a result, there was an influx of pickers who needed the extra income. Harvesters received thirty-five cents a pound for processed wildrice compared to four to five cents as was common in the early 1900s (G.H.,p.c.).* Buyers began to buy freshly harvested wildrice at lakeside. By 1940 harvesters received ten cents a pound for raw rice (Edman,1969:107). This was a considerable financial incentive and, as G.H. pointed out, they caused a decline in traditional ricing ethics and regulation. He related:

The rice was so tall and thick that when you stood up in your boat you couldn't see shore. That was back in the 1920s. It went that way until there was a famine of rice, for no apparent reason, just nature, for about three years. That was in the 1930s. Then it came back again. Then we got hoggish as pickers. We just defied the authority of the rice committees. We just riced as we pleased and that [was when] the crop started diminishing. And the beds were getting smaller and it's been getting that way ever since. The less crop we had, the greedier the pickers got. I was talking to Arnold Benjamin down at Mille Lacs [...] and he's a good ricer. He says the same thing! About that same time, Mille Lacs began to notice depreciation in the crop. Right in the thirties sometime.

See, there was an awful depression at that time. Probably, that's when we really began to get better prices for the rice. We were getting thirty-five cents a pound [of finished rice]. In the old days it was only four or five cents a pound. But when she [the price] came up to about thirty-five cents you could go out there and get all the rice you can and not rice according to the old people's standards. We could make a hundred dollars a day so that's when everybody began to be rice hogs instead of going out and picking rice in the proper way. The less rice grew in the state, the higher the price became and, the higher the price became, the more hoggish we became.

* Coleman (1953:83fn) writes that Indian producers received about three to six cents per pound of finished wildrice in the early 1900s.

I sold two pounds of year-old rice yesterday for six dollars a pound. And at six dollars a pound I'd think I'd be pretty violent out there as a knocker myself. And I know I am killing the rice! But what the heck, might as well get my share! You can't conserve the rice crop alone. I might as well get my share before the other guys do.

If it don't change, the best rice bed in the world will be gone and that is this one right here. This is the best rice bed in the world and it will be gone if we don't change our method of picking, just like the ducks years ago. The Conservation Department saw the writing on the wall and put a limit on [when and] how many you could shoot. The rice situation has got to be handled in the same way so the people from outside can't come in just to get all the rice they can get. It's got to be made so the available price won't control the picking. If we can keep it so that we can control it and get ricing back with only paddles for navigation and very, very strict rules on the days they pick [we can save the rice].

Economic need, high prices and open access attracted large numbers of pickers to public and reservation stands. This is a classic example of the "Tragedy of The Commons", a notion developed by Garrett Hardin (1972) to express the potential for degrading an ecosystem through overuse by self-interested inhabitants. Hardin provides the example of communal grazing lands where each farmer is allowed to graze a regulated number of cattle. When individual farmers break the convention out of self-interest this leads to overgrazing which, ultimately, causes ecosystemic degradation. Analogous examples can be found in the international whaling industry or international conventions with regard to pollution control.

Recognizing the effects of the large influx of undisciplined pickers, the Minnesota state government passed restrictive

legislation in 1939 and the 1940s. For example, Minnesota Statue 84.09 states:

[...] The great present market demand for this wild rice, the recent development of careless, wasteful and despoiling methods of harvesting, together with water conditions of the past few years, have resulted in an emergency requiring immediate stringent methods of control and regulation of the wild rice crop. The traditional methods of the Indians in such harvesting are not destructive. On the other hand, the despoliation of the rice fields as now progressing under commercial harvesting methods will result in imminent danger of starvation and misery to large bands of these Indians. (Edman, 1969:9-10).

With these considerations in mind the state restricted access to reservation wildrice stands by non-Natives. It was legislated that non-Natives would be allowed to harvest on reservation stands only if they owned land within reservation boundaries.

After the Second World War demand for wildrice continued to grow as a result of what T.I., a pioneer in wildrice merchandizing, called a "gourmet renaissance" (T.I., p.c.). Demand drove prices up further. Buyers sought new sources of supply in more remote areas of Minnesota and Canada. Robert Edman (1969:107) provides tables which indicate prices from ten cents per pound of unprocessed wildrice in 1940 to \$1.50 per pound in 1966. Buyers paid two dollars per pound of green wildrice in 1978 (K.T. p.c.). The number of licensed harvesters in Minnesota increased from 2,389 in 1940 to 16,391 in 1968 (Edman, 1969:83). The majority of these harvesters were, by far, non-Natives. The number of non-Native pickers in Minnesota grew rapidly. This trend had already started in the 1930s, as Coleman writes:

By the 1930s white harvesters were in the majority if we may judge by the records of licences issued. In 1939, for example, out of a total of 2,514 licences, only 993 were issued to Indians. It should be noted however that these figures may not reflect accurately the full amount of Indian participation since a license issued to the head of an Indian family permitted all members of the family to harvest rice, whereas this was not the case in regard to licenses issued to white applicants (1953:83).

Despite Coleman's qualification of these numbers, they show a strong presence of non-Native harvesters. Edman notes that:

Indians held 38.1 percent of the licenses in 1939 and 34.9 percent in 1940. Of the licenses issued for harvesting of wildrice in Minnesota today [1969], 25.25 percent are obtained by Indians (1969:60-61).

Edman's tables documenting the sale of licenses (1969:84-86) indicate that even on many 'open' reservations, where non-Natives are allowed to pick wildrice, Native harvesters were outnumbered. On 'closed' reservations, non-Natives who married into the communities were allowed to harvest also, but here they were not as numerous. Non-Natives do not have a ricing heritage. Most are not trained in traditional, disciplined hand-harvesting.

In Manitoba, a similar influx of pickers took place. Only Natives hand-harvest in Manitoba but not all Manitoba Native people have a heritage of ricing. An informant whose family riced at Lone Island Lake in Manitoba's Whiteshell explained that:

Forty years ago the rice harvesting tradition was strong at Lone Island Lake. The people who gathered there to rice came from Fort Alexander, Hollow Water, Little Black River and Brokenhead Bands. When roads were built into the area [Indian] people came in who didn't have a background in ricing. They didn't have the tradition of gathering around campfires to hear stories [about ricing] from the elders. They were not

experienced at harvesting nor good at it. Some of these newcomers married into traditional ricing communities (D.T. p.c.).

The influx of novice pickers in Manitoba ricing habitat was not, by far, as large as that of non-Native pickers in Minnesota, but they were equally unseasoned.

Given the influx of undisciplined harvesters, hand-harvesting became intensely competitive. The competitive nature of contemporary hand-harvesting was apparent during my fieldwork at Blomgard Lake. Most of the pickers had arrived well before 9:00 a.m., the official opening time of the stand for harvesting. They positioned themselves in the stand ready to fan out in all directions and fidgeted anxiously as they waited to get going. One team had already begun harvesting on the other side of the lake and I suspect that several of the teams waiting near the landing would have done likewise were it not for the fact that they suspected me of being a Conservation Officer. Competition triggered the decline in the ricing ethic on the part of Native harvesters who did have a ricing heritage but who were suddenly faced with competition from 'outsiders' for the same resource.

Unbridled competition in hand-harvesting has led many Indian youths with a ricing heritage to adopt the same practices as indiscriminate pickers. Individuals like B.C.Jr., who attempt to adjust by conforming to traditional conventions, are subject to the pressures from other harvesters which makes conformity to conventions on hand-harvesting techniques difficult to maintain. Practices such as entering dense but immature growth, which is

made easier by rearpoling, and shearing wildrice heads, which adds weight and therefore profit, give a competitive edge under conditions of fierce competition; they allow pickers to get all they can while they can before the stand is destroyed for further harvesting. In Manitoba, young pickers have been held responsible for premature destruction of stands and the short duration of the harvest (CBC "Rural Roots", 29-9-1985).

Several elders with whom I spoke expressed distress at the disregard for traditional ricing practices and harvest committee authority. For example, G.H. explained that:

[If] we have a big hailstorm or a big windstorm and the rice is blown off, then the rice committee tries to hold it [the harvest] up [but] there will be so much pressure from the pickers that they [the committee] will have to let it go or they [the pickers] will go out anyway. As generations changed, the absolute control was lost.

Some young men exhibit outright defiance. G.H. told me how committee members had been ostracized, intimidated and even subjected to physical abuse at the hands of young men who did not agree with committee directives. B.C.Sr., whom I accompanied as he checked the wildrice for maturity at White Earth, displayed considerable anxiety with this responsibility. This was the first time he had been a member of a harvest committee. He was being asked daily when he was going to open the stand for harvesting. He was accused of holding it back and was told that he was allowing the wildrice to mature and shatter before pickers got a chance to harvest. He was under considerable pressure to open the stand in spite of assurances from more experienced

committee members that the stand ripened later than most and could not be ready yet. He was anxious to get out to the lake to have a look at the wildrice since he had not seen it for half a week. When we poled through the stand and entered an area with sparse growth from which the wind had blown off the grains, he said: "They are going to give me a hard time when they see the rice has fallen here".

The defiance of elders by some young pickers can be understood in terms of pressures which young Native people face today. D.T. told me in this respect that:

Camping circles aren't as peaceful as they used to be forty years ago. Roads have been built. There is more and more tourism. Children have left; gone off to school or the city. They are often frustrated. Elders don't get a chance to talk with young people about old times. Elders are often quiet. Sometimes they are even afraid.

In this quote note is made of the frustration which can underlie defiance. It also touches on the interruption of cultural continuity resulting from the removal of young Indian people to schools and cities, out of reach of Native socializing agents.

The means of making a living have changed radically in recent generations as the ability of Indian peoples to procure food and material needs from the land has decreased. Most Indian people have become dependent on a cash income to provide for themselves and their families. Reservations and reserves offer very limited economic opportunities. At the same time, however, Indian youths are increasingly being socialized with Euro-North American values through school and media. Young males, in particular, grow up

with the ideals that they should be financially independent and successful, that achievement through competition is healthy and that they should be able to support a family as 'heads' of their households. They are socialized into the role of 'breadwinner' yet are caught between the ideals of Western industrial society and the reality of inadequate economic opportunities. As a result, young people have become "frustrated", as D.T. pointed out. Many young men are inclined to see the harvesting of wildrice -- a traditional Indian food source -- as a means to achieve some of their economic goals. To deal with economic realities many Indian people seek permanent, full-time employment off reservations. They return home to harvest wildrice during vacations although their motive is not always exclusively to make big money. Wildrice harvesting is still important symbolically for many of them, as a reaffirmation of their Indian identity. Nevertheless, some people place a great deal of pressure on harvest committee members to open stands before their vacations are finished and they have to return to their jobs (G.H., D.T., p.c.). G.H. remarks on these developments in the following interview excerpt.

Our problem is our young people. A lot of them are moved out to the cities. The only time they come home is ricing time. And the only reason they come home is the enormous price of a pound of rice. They come home here and go out with the push poles, push their canoes in those big, thick, green patches and get six or seven hundred pounds of green rice in their canoe and bring it in and sell it to the rice plants.

That's what is happening. People coming in from the cities on a home visit, go home with a thousand bucks or so for a week's work. That's a lot of money. Probably they're on vacation and getting their salary too. So, they go home and buy themselves lots of

breathing time as far as their payments and stuff are concerned.

People are here to make money so they just go out there and just flail the tar out of it and get whatever falls in the boat, stick it in a sack and go to the rice plant, get it weighed, take the percentage and go and never come back. Most of them have only riced about a week, but by the end of the week the whole lake is [finished]. [Normally] you can rice for about a month or five or six weeks, but you are just picking [carefully]. Now, the rice bed, as far as reseeding is concerned, is almost killed. See, what's happening is that people are going in there who don't care if the rice comes up next year. [They say], "today, I'm going to make this much money. I got a good job down there [in the city]. This year is a new car for me or a payment on my home."

As far as they know that's the way the rice has always been. But had they looked at it for three or four generations, like I have looked at it, they'd see the seriousness of the situation. And the reason for it is obvious.

With the passage of one or two generations since major changes in the traditional ricing system have occurred, the benefits of traditional regulation of harvest times and techniques are no longer apparent to young pickers. Likewise, many may not be aware of the destructive consequences of their indiscriminate picking practices, as G.H. asserts in the last paragraph of the interview excerpt. In the case of pickers who are aware of this change, their recognition of the need for care and discretion in hand-harvesting is dulled by the reality of unbridled competition.

Chapter IX

CONCLUSION

Since the 1930s the production of wildrice has been transformed from what was largely a food provisioning pursuit to a full-fledged commercial activity. Economic need and high prices for wildrice resulted in an influx of Native and non-Native harvesters who were attracted by the financial prospects of wildrice production but who did not have a ricing heritage. At the same time, young people in ricing communities began to disregard ricing discipline.

Under pressure from unbridled competition, the system of traditional, disciplined hand-harvesting is rapidly eroding. It is disappearing with the passing of the elders. This constitutes a loss of an unique cultural adaptation to wildrice habitat and is an example of the loss of cultural diversity which is occurring throughout the world. Preserving knowledge of traditional ricing discipline is therefore important. The thesis has highlighted facets of ricing within Indian society which are conceptually distinguishable as components of ricing ecology, social structure and ideology. Facets of ricing ecology reflect conditions of wildrice stand biology. Wildrice growth and reproduction are subject to variables such as water levels, weather, nutrient availability, disease and predation. The

maturation of wildrice grains is characterized by gradual ripening and, once ripe, by ready shattering. These facets of the biological system of wildrice reproduction had a direct bearing on cultural responses in the past.

Ojibwa ricing technology formed the interface between the biological conditions of wildrice stand reproduction and human consumption of wildrice as a staple food. Traditional ricing techniques involve the use of poles, boats and flailing sticks in such a way as to minimize breakage, entanglement and the harvest of immature grains.

The application of ricing technology was coordinated, regulated and monitored by ricing committees. Committees were composed of elders who were recognized authorities in ricing. Young adults underwent structured instruction, that is, a form of apprenticeship under experienced elders. These are elements of the social structure of Indian ricing communities.

Learning how to rice properly was part of the enculturation process which culminated in the adoption of a ricing ethic or ideology associated with traditional, disciplined hand-harvesting. The ricing ethic, or set of principles regarding correct conduct, reinforced the function of authoritative elders in regulating and policing the harvest.

Traditional ricing discipline prevented premature harvesting and damage to plants during the harvest. In this way, wildrice stand integrity was upheld for the entire ripening period. As a

result, repeated passes over the stand were possible and, in combination with thorough stand coverage, ricers were able to take optimal advantage of the natural production of a given wildrice bed. This permitted a high level of productivity in hand-harvesting. Where ricing practices such as bundling, sowing and water and pest management were undertaken, productivity was enhanced even more.

The adoption of despoiling methods in hand-harvesting in recent decades has become a cause of concern to Indian elders. Some of the poling practices which evoked strong criticism were going too fast, changing direction at random, turning inappropriately, criss-crossing the paths of other canoes and rearpoling. Likewise, flailing practices such as reaching out for the stalks and beating them forcefully were criticized. Indiscriminate hand-harvesting has resulted in harvest seasons of short duration. This is exacerbated by Minnesota state regulation of hand-harvesting which is less sensitive to local wildrice growing conditions and less responsive to the effect indiscriminate hand-harvesting methods have on stands. Consequently, the productivity of indiscriminate hand-harvesting is relatively low.

The argument presented for the relatively high productivity of traditional, disciplined hand-harvesting should be tested in areas where traditional hand-harvesting methods and regulatory practices have been upheld. There are still areas of Minnesota and Canada where hand-harvesting occurs along traditional lines

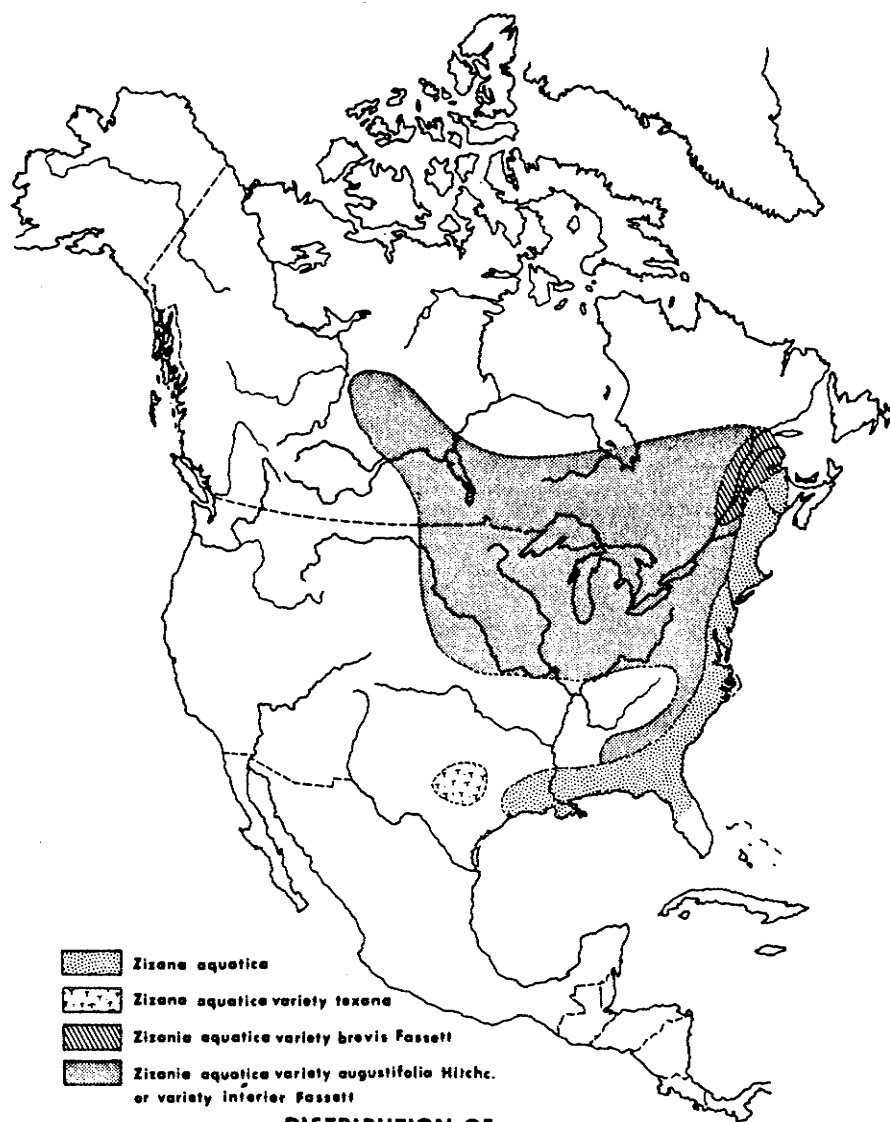
by virtue of geographical isolation or legal restrictions on access. The analysis presented in this thesis provides the basis for further research of this nature.

At present, choices are being made within the Canadian wildrice industry, and especially within Indian wildrice producing communities, about maintaining hand-harvesting as a major means of producing wildrice. Hand-harvesting is not recognized as being highly productive. Nevertheless, many Indian people are reluctant to abandon it. Hand-harvesting upholds their heritage and, at the same time, it provides many with an important source of income. The implication of this thesis for Indian wildrice producing communities which would like to uphold hand-harvesting but desire to raise production, is that rigorous adherence to disciplined ricing practices will do both.

Appendix A

MAP OF WILDRICE HABITAT IN NORTH AMERICA

(after Edman 1969:6)



**DISTRIBUTION OF
WILD RICE IN NORTH AMERICA ***

*Adapted from U.S.Department of Agriculture, Technical Bulletin 634.

Appendix B

LIST OF INFORMANTS CITED

WHITE EARTH RESERVATION, MINNESOTA

Initials	Approximate Age
B.C.Jr.	21
B.C.Sr.	62
Dh.T.	68
E.B.	69

LEECH LAKE, MN.

C.C.	68
------	----

MILLE LACS, MN.

Alex Moose	82
Mr. and Mrs.C.N.	83
Mrs.C.T.	70
E.X.	35
G.C.	68
Mrs.G.T.	68
Mrs.K.X.	35
Mrs.N.L.	73

NETT LAKE, MN.

G.H.	74
Mrs.K.W.	40

KENORA/LAKE OF THE WOODS, ONT.

B.H.	65
Mrs.N.T.	50
Q.L.	50
Mrs.V.X.	94

WHITESHELL, MAN.

D.T.	50
------	----

Non-Native Informants Cited

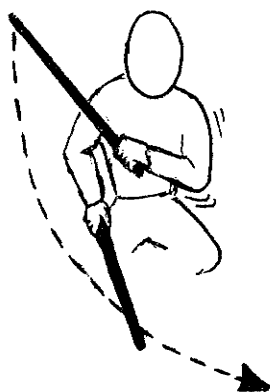
Dr. D. Punter, Botanist
Dr. J. Nichols, Linguist
Mr. B. Peterson, Manitoba Department of Natural Resources
Mr. D. Wedll, Mille Lacs Reservation Resources Commissioner
E.V., Biologist
K.T., Biologist
M.X., Grand Council Treaty Three, Ontario
S.D., buyer
S.V., buyer
T.I., wildrice merchandizer
X.Y., provincial civil servant

Appendix C

SKETCHES OF FLAILING TECHNIQUES

Contemporary Postures

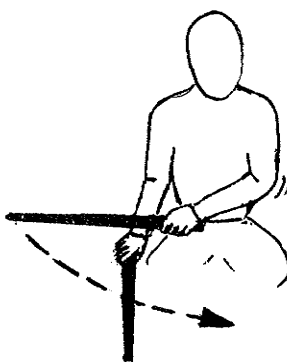
Common Posture



Extreme Posture



Traditional Disciplined Posture



Appendix D

"GATHERING WILD RICE", (DENSMORE, 1928:313-317)

Wild rice constitutes the chief cereal food of the Chippewa. It abounds in certain lakes, ripening earliest in the shallow lakes fed by streams and later in the lakes fed by springs. The soil of some lakes seems to produce more rice and larger kernels than that of other lakes. By a wise provision of nature the seed of the rice is carried by wild ducks, which also afford food for the people at the season when the rice is ripe. In the old days each family or small group of families had a portion of a rice field, as it had a "sugar bush" for making its maple sugar. The portion of a rice field was outlined by stakes, and a woman established her claim to it by going to the field about 10 days before the rice was ripe and tying portions of it in small sheaves. Basswood fiber is used without twisting for the tying of rice. One length is tied to another, making a large hard ball that unwinds from the middle. The ball is placed in a tray behind the woman as she sits in the canoe. For this work she wears a special waist, which, with the care of Chippewa women, was reinforced on the shoulder where the basswood fiber passes through a little birch-bark ring. This method of carrying the "twine" keeps it ready to her hand and free from becoming tangled. She draws a little group of rice stalks toward her with the "rice hoop" and winds the fiber around them, bending the tip of the sheaf or bundle down to the stalks. The rice is left standing until ripe, when the sheaf is untied, the rice shaken out, and kept separate from the rest of the crop. It has a slightly different flavor than other rice and the kernels are said to be heavier, requiring longer boiling. When the time came for harvesting the rice a camp was established on the shore of a lake where rice was abundant. In this, as in the making of maple sugar, the unit was the family or group of immediate relatives, all of whom assisted in the process. Three rice camps were visited and photographed by the author during the harvest season. The equipment for "rice-making" comprised a canoe or boat with a propelling pole and two rice-beating sticks, one or more birch-bark rolls, the same size as for a wigwam cover, a kettle or tub for parching rice, and a peculiar paddle used for stirring the rice in the kettle; also a barrel sunk in the ground for the first

pounding of the rice, and several pestles used for that purpose, several "winnowing trays" made of birch-bark, and a small barrel sunk in the ground and having two bars beside it, this portion of the equipment being for "treading out" the final chaff from the rice. Receptacles for storing the rice were also provided, these in the older days being bags woven of cedar or basswood bark. The manner of going through the rice field was by means of canoe or boat pushed along by a pole forked at the end. This was a heavy task and was usually performed by a man while a woman sat in the stern of the boat and harvested the rice. In the early morning the canoes started for the rice field and did not return until about the middle of the afternoon, the time depending on the distance to be travelled. Sometimes the rice to be harvested was at the farther side of a lake, requiring considerable time to reach the spot. A canoeful of rice was considered a day's gathering. The harvesting of the "free rice" (that which had not been tied) was done by knocking the kernels off the stalk and allowing them to fall into the canoe. Two "rice-sticks" were used for this purpose. The stalks were bent down with one of them, and a sweeping but gentle stroke with the other stick liberated the kernels. The rice at the right as well as the left of the boat was harvested in this manner, a woman using one hand as easily as the other in knocking off the kernels. It was considered a test of a good rice gatherer to free the ripe rice kernels without dislodging those which are unripe. Thus it was possible to go over the same part of a rice field several times at intervals of a few days, allowing time for more rice to ripen. It was not the intention, however, to harvest all the rice, a portion being allowed to fall into the water, or being sown on the water as seed. The ideal weather for rice gathering was warm and still, as wind or rain dislodged the kernels. In some camps the parching and threshing of the rice was done in the late afternoon and evening, and those who gathered the rice assisted in this portion of the work, but in a large camp this part of the process was carried on simultaneously with the gathering, those who remained in the camp parching and threshing while the rest were gathering. When the canoes arrived the loads of rice were carried to the camp and spread on sheets of birch bark. These had been placed where the sun would shine upon them, but not with such directness as to heat the rice, which was frequently stirred so it would be evenly dried. This was important, as at the season of rice gathering the nights are frequently cold with very hot sun in the middle of the day. About 24 hours was usually allowed for this preliminary drying, after which the rice was either parched in a kettle or dried over a slow fire.

The first was the more common process, the rice being placed in a large kettle, or a metal tub, which was propped in slanting position over the fire so that a woman seated beside it could stir the rice with a paddle. The fire was carefully regulated and considerable skill was required to parch the rice without burning it. The quantity parched at a time was usually about a peck, and the required time about an hour. This parching loosened the husk and also imparted a flavor to the rice. The stirring paddle was slender and different in shape from that used with a canoe. The second is undoubtedly the oldest process, and produced what was known as "hard rice". This was greenish black in color, much darker than parched rice and requiring longer to cook. This rice could be kept indefinitely, and could be used for seed. In preparing "hard rice", a frame was made similar to that on which berries were dried. It was covered by a layer of hay on which the rice, either on stalks or in the husk, was spread to a depth of about 3 inches. A slow fire was kept burning beneath the frame. In this manner the rice was dried as vegetables or berries are dried. The next process was the "pounding" of the rice. For this process the rice is frequently put into a barrel, but the best container for the purpose is a wooden mortar with sloping sides. This was about the size of an ordinary barrel, and was made by the Indians and kept for this purpose. With this were used wooden pestles somewhat pointed at the end. In pounding the rice these moved up and down near the edge of the mortar, the pointed ends being adapted for this purpose. It is said these disturbed the kernels with the least breaking of the kernels. Another form of a pestle was blunt at the end, nearly resembling a mallet. Both varieties were about 5 1/2 feet long, and in the correct pounding of the rice they were not heavily forced downward but allowed to drop of their own weight. This process was supposed to loosen the husk entirely without breaking the kernel. If the work was done carefully, the rice kernel was entirely freed from the husk. The rice was then winnowed, either by tossing it in a tray or by pouring it slowly from a tray to birch bark put on the ground. The place chosen for this work was a place where the breeze would assist the process by blowing away the chaff. The final step in the process was the treading of the rice to dislodge the last fragments of the husk. For this purpose a small wooden receptacle, holding about a bushel, was partially sunk in the ground, and on either side of it was placed a stout pole, one end of which was fastened to a tree about 4 feet above the ground, the other end resting on the ground. The treading was done by a man wearing clean moccasins, and the poles were for him to rest his arms upon during the process.

The sole of the foot was peculiarly adapted to this work, as the husks having been removed, the kernels would have been easily broken by wooden instruments. In treading rice the action resembles that of dancing, the entire body being in action, with the weight not heavily placed on the feet. Leaning on the poles, straightening to full height, or moving his body with undulating, sinuous grace, the treader accomplished his part of the task. It is said that in old times a hole was dug in the ground and lined with deerskin, the rice being placed in this instead of a barrel. The chaff from this treading was usually kept and cooked similarly to the rice, having much the flavor of the rice, and being considered somewhat of a delicacy. The stored rice was sewn in bags of various sizes, which were somewhat similar in use to the makuks in which maple sugar was stored. On top of the rice was laid straw, and the bags, like the makuks, were sewed across the top with basswood twine. While rice making was an industry essential to the food supply, it had, like the sugar camp, a pleasant social phase, which was appreciated by old and young. Thus the writer in driving through the rice country late one afternoon came upon a camp of three or four tipis. The rice gatherers had returned from the fields, and the men were sitting on rush mats and smoking while the younger women stirred two parching kettles and an older woman tossed a winnowing tray. At a fire one woman was preparing the evening meal and at a distance another was seen chopping wood. Dogs and little children were running about, and the scene with its background of pines and shining lake was one of pleasure and activity. An important part of the camp was its provisioning. Indians did not carry many supplies with them, and it is probable that in the old days many carried no provisions to a rice camp except maple sugar, which was used for seasoning all foods. At night the women set their fish nets and in the morning they drew them in, thus securing fish, some of which they dried. In one of the camps visited by the writer the top branches of a young Norway pine had been broken, and it was said that fish had been dried on these branches, the splinters forming a convenient frame. If ducks were available the hunters went out in the morning, and occasionally a deer was secured for the camp. The principal food, however, was the fresh rice, which was eaten either parched or boiled (Densmore, 1928:313-317).

Appendix E

VARIABLES AFFECTING WILDRICE GROWTH

(after Alex Moose 1969:63,67)

Conditions	Days of month for picking	WILD RICE PICKING CHART CHART SCALES		
		High Average Picking Days Only	Days	Weight In Pounds That An Average Picker Can Pick In One Day
Normal except low water; rice fills out a little faster and heavier	10 - 12			Percentage Weight Finished Rice In Relation To Raw Rice Picked
Fairly warm weather with extra low water, rice still filling out slowly and solidly	9 - 11		1 2 3 4 5 6	120 120 135 140 160 180
Real perfect weather, lots of sun with extra low water; rice well filled out finishing out to a good grade	8 - 10		7 8 9	200 240 300
Perfect warm weather and sun with extra high water; fairly good rice filling out well	14 - 16	1 2 3 4	10 11 12	300 300 300 300
Fair weather and sun with extra high water; slim filling rice, grade not as good	15 - 17		5 6 7 8 9 10 11 12	300 300 300 300 300 300 300 300
Unusual weather, not much sun, cold high water; rice not really ripe often ready on very last day, slim filling, very poor grade, yield down considerably	16 - 18		13 14 15 16 17 18 19 20 21	300 300 300 300 300 300 300 300 240
Ricing is done in four quarters, with the percentage weight of the rice increasing each quarter. The quantity or best weight of rice is highest during the second quarter.			22 23 24 25 26 27 28 29 30 31	200 180 160 140 120 90 70 60 50 40

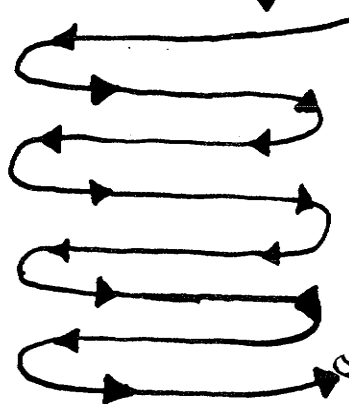
Appendix F.

SKETCHES OF POLING TECHNIQUES

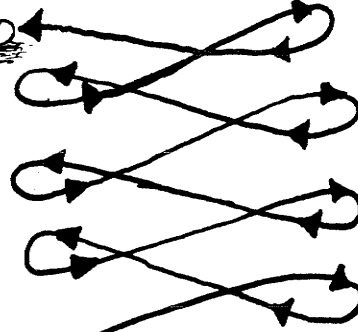
(after Alex Moose 1969:52,70,72,73)



STRAIGHT LEFT AND RIGHT
TURNS, SIDE WIND PICKING
NOTHING BREAKS



PROPER RICE PICKING
TURNS FOR CANOE NO. 1.

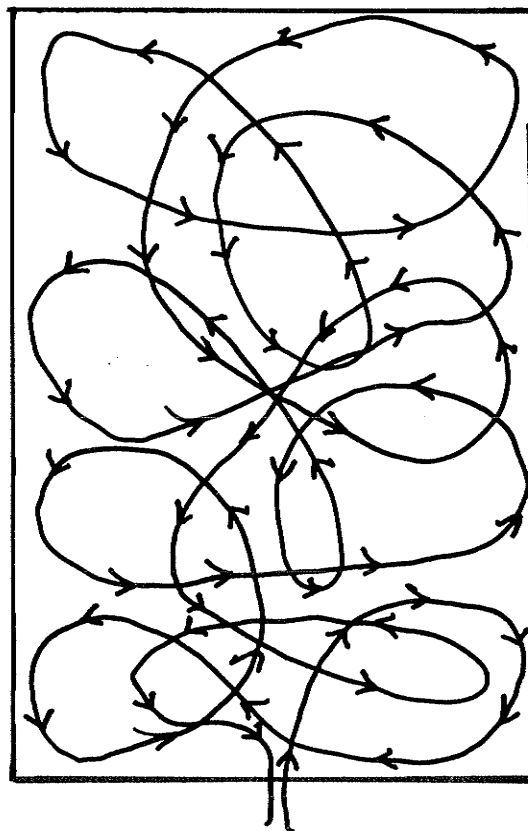


ANGLE LOOP TURNS
AGAINST A WIND PICKING
NO TIEUP OR TWIST.

NO. 2 - WRONG WAY.



NO. 2 - WRONG WAY



Appendix G

WILDRICE PRODUCTION, 1852-1898

(after Jenks 1977:1075-1077)

[Note—Wild rice has no legal weight per bushel. Letters of inquiry to various reservations have resulted in the information that the weight of a bushel is 60, 36, 36, and 30 pounds. In some fields, as at Lac Courte Oreille river, Wisconsin, and Rat Portage, Ontario, the grain averages 50, 60, and at times 75 bushels per acre. There are some fundamental reasons why the following statistics do not tell the whole truth. Unless the Indian agent is personally interested in the natural production of the Indians he does not know accurately the amounts of wild rice which they produce. Agents' reports are frequently sent in before or during the harvest, in which case the amount of wild rice gathered is either only estimated or is not mentioned at all. Agents were frequently changed, and the new ones often did not speak of the rice crop in their first reports. Attention is also called to the utter lack of uniformity in making up the Indian Affairs Reports. The statistics which follow are sometimes given in the text and again in various tabulated forms. In some of the reports wild rice can not be distinguished from other rice or even other cereals which were produced.]

Indians	Year	Popula- tion	Rice		Value	Remarks	References
			Pounds	Bush- els			
Ojibwa (Lake of the Woods), Canada	1852			2,000		About 100 families harvested.	Pither, letter, Dec. 5, 1896.
Mississippi, Pillager, and Winnepigishish Chippewa	1864	3,966		5,000	\$25,000	See note a, p. 1078.	Ind. Aff. Rep., 1864, p. 417.
Menomini (Green Bay agency)	1866	1,376		50	100		Ind. Aff. Rep., 1864, p. 363.
Chippewa (Ojibwa) of Lake Superior (Michigan agency)	1866	1,056		650	1,950		Ind. Aff. Rep., 1866, p. 363.
Mississippi band (Chippewa agency of Mississippi)	1866	2,186		4,000	16,000	"A fair yield"	Ind. Aff. Rep., 1866, p. 264.
Pillager and Lake Winnepigishish (Chippewa agency of Mississippi)	1866	1,899		2,500	10,000	do	Do.
Red Lake Indians (Chippewa agency of Mississippi)	1866	1,183		500	2,000	do	Do.
Chippewa (Ojibwa) of Lake Superior	1867	1,080		1,000	2,000		Ind. Aff. Rep., 1867, p. 386.
Kickapoo (Kickapoo agency, Kansas)	1867	282		320	720		Ind. Aff. Rep., 1867, p. 383.
Chippewa (Ojibwa) of Lake Superior	1868	1,080		2,000	4,000		Ind. Aff. Rep., 1868, p. 364.
Chippewa (Ojibwa) of Saginaw	1868	1,555		1	2		Do.
Chippewa (Ojibwa) of Mississippi river	1868			1,000	4,000		Do.
Pillager and Lake Winnepigishish Indians	1868			2,000	8,000		Do.
Do	1869			1,000	4,000		Ind. Aff. Rep., 1869, p. 473.
Chippewa (Ojibwa) of Mississippi river	1869			800	2,400		Do.
Do	1870			2,150	3,563		Ind. Aff. Rep., 1870, p. 342.
Seneca and others (New York)	1870			7,250	8,074		Do.
Menomini (Green Bay)	1870			80	150		Do.
Seminole agency (Indian Territory)	1870	2,136		50	500	See note d, p. 1078.	Ind. Aff. Rep., 1870, p. 341.
Yakima reservation (Washington Territory)	1870	2,700		300	1,400	See note b, p. 1078.	Ind. Aff. Rep., 1870, p. 336.
Chippewa of Lake Superior (Bois Fort bands)	1871			20,000			Ind. Aff. Rep., 1871, p. 626.
Chippewa of Lake Superior, viz, Bad River, Red Cliff, Lac du Flambeau, Lac Courte Oreille, Fond du Lac, and Grand Portage bands.	1871	5,125		50,300			Do.
Chippewa of Lake Superior (Michigan)	1871	1,135		380	\$1,105		Ind. Aff. Rep., 1871, p. 684.
Menomini (Green Bay, Wisconsin)	1871	1,948		30	150		Do.
Chippewa of Lake Superior (Michigan)	1872	1,195		1,220			Ind. Aff. Rep., 1872, p. 401.
Chippewa of Mississippi and other bands, as Pillager, Red Lake, etc.	1872	4,774		950			Do.
Menomini (Green Bay, Wisconsin)	1872	1,862		300			Do.
Creeks (Indian Territory)	1872	13,000		500		See note d, p. 1078.	Ind. Aff. Rep., 1872, p. 406.
Seminole (Indian Territory)	1872	2,366		500		do	Do.
Peah (near Denver, Colorado)	1872			60			Ind. Aff. Rep., 1872, p. 409.
Cocos (Alsea subagency, Washington)	1872	110		300		See note b, p. 1078.	Ind. Aff. Rep., 1872, p. 413.
Umpqua (Alsea subagency, Washington)	1872	40		50		do	Do.
Alsea (Alsea subagency, Washington)	1872	107		100		do	Do.
Menomini, Stockbridges, Munsee, Oneida	1873			300			Ind. Aff. Rep., 1873, p. 346, table.
Chippewa of Lake Superior (La Pointe agency)	1873			1,800			Do.
Chippewa of Lake Superior and other bands	1873	4,637		3,200			Do.
Seminole (Indian Territory)	1873			25		See notes c and d, p. 1078.	Do.
Menomini, Stockbridges, Munsee, Oneida	1874			300			Ind. Aff. Rep., 1874, p. 122.
Chippewa of Lake Superior (La Pointe agency)	1874			30,000			Do.
Seminole (Indian Territory)	1874	2,438		25			Ind. Aff. Rep., 1874, p. 124.
Santee Sioux (Flandreau special agency on Missouri river, northern Nebraska)	1874	791		30		This report was made September 5, which was too early to know total amount.	Ind. Aff. Rep., 1874, p. 125.
Chippewa, Bad River band (Wisconsin)	1875	732		4,000		This crop exceeded 4,000 pounds	Ind. Aff. Rep., 1875, p. 371.
(Ojibwa) White Earth (Minnesota), Mississippi Pembina, and Ottertail Pillager bands.	1878	2,872		150		This report was dated August 30; crop was about 150 bushels.	Ind. Aff. Rep., 1878, p. 82.
Chippewa, Bad River (Wisconsin)	1878			10,000		Total harvest for the year was 140,000 pounds.	Ind. Aff. Rep., 1878, pp. 146, 311.
Chippewa (Wisconsin), Fond du Lac, Bois Fort, Grand Portage, Red Cliff, Bad River, Lac du Flambeau, and Lac Courte Oreille bands	1879	5,150		129,000			Ind. Aff. Rep., 1879, p. 163.
	1881			6,500		Total amount gathered	Ind. Aff. Rep., 1881, p. 306.
	1882	1,500		50			Ind. Aff. Rep., 1882, p. 364.
Menomini	1884			1,400		Total amount gathered	Ind. Aff. Rep., 1884, p. 320.
	1885			40		Total value of wild rice sold	Ind. Aff. Rep., 1885, p. 394.
Bad River reservation, Wisconsin	1888	1,200		200	per lb., 10 cts.	50 per cent of crop gathered	Patterson, letter, Dec. 5, 1898.
Fond du Lac reservation, Minnesota	1898	400		650	per lb., 6-10 cts.	41.3 per cent of crop gathered	Phalon, letter, Dec. 27, 1898.
Lac Courte Oreille reservation, Wisconsin	1898	1,150		300	per lb., 8-10 cts.	Could have gathered much more.	Redman, letter, Nov. 11, 1898.
Nett Lake reservation, Minnesota (Vermilion Lake, Bois Fort)	1898	300		100	per lb., 7 cts.	do	Gheen, letter, Nov. 15, 1898.

The Indians at Bad River, Fond du Lac, and Lac Courte Oreille reservations harvested about the same amount of wild rice in 1899 as in 1898. A storm destroyed nearly the entire crop at Vermilion lake in 1899. The Menomini Indians annually harvest from 50 to 100 bushels, but the whites who own the land adjoining Shawano lake—their harvest ground—frequently forbid them to camp there: thus their crop is uncertain.

Appendix H

WILDRICE PRODUCTION, 1963-1982

(after Winchell and Dahl, 1984:9)

Production of Wild Rice by Producing Area, United States and Canada, 1963-1982*

Year	UNITED STATES				CANADA			Total Canada	Grand Total
	Minne- sota Lake ¹	Minne- sota Cultivated ²	Calif- ornia Cultivated ³	U.S. Total (1,000 Processed Pounds)	Ontario ⁴	Manitoba ⁵	Sas- katche- wan ⁶		
1963	1,286	—	0	1,286	22	—	0	22	1,308
1964	514	—	0	514	23	—	0	23	537
1965	435	—	0	435	12	—	0	12	447
1966	429	—	0	429	18	—	0	18	447
1967	1,051	—	0	1,051	226	—	0	226	1,277
1968	524	36	0	560	126	—	0	126	686
1969	392	160	0	552	63	—	0	63	615
1970	489	364	0	853	26	60	1	87	940
1971	487	608	0	1,095	121	200	9	330	1,425
1972	414	1,496	0	1,910	481	240	22	743	2,653
1973	406	1,200	0	1,606	57	251	5	313	1,919
1974	400	1,036	0	1,436	4	55	9	68	1,504
1975	200	1,233	0	1,433	41	57	17	115	1,548
1976	800	1,809	0	2,609	501	141	39	681	3,290
1977	437	1,031	10	1,478	414	462	34	910	2,388
1978	220	1,761	29	2,010	68	190	24	282	2,292
1979	304	2,155	67	2,526	131	239	60	434	2,960
1980	1,000	2,320	230	3,550	427	560	128	1,115	4,655
1981	400	2,274	544	3,218	301	181	205	687	3,905
1982	440	2,697	800	3,937	75	166	208	449	4,386

*Estimated using 40 percent yield rate of processed wild rice from unprocessed wild rice.

¹Minnesota Department of Natural Resources. Data are estimates and subject to error.

²Data from 1968-1973 are estimates (University of Minnesota Extension Bulletin AG-BU-0546, Wild Rice Production in Minnesota, 1982). 1974-1982 figures are actual production data (Wild Rice Promotion Council).

³Estimated from acreage and average yield obtained from the industry.

⁴Ontario Ministry of Natural Resources + 10%. Data are more accurate after 1975; however, all data subject to error.

⁵Manitoba Department of Natural Resources. Data are estimates only.

⁶Saskatchewan Economic Development Branch, Northern Saskatchewan. Data prepared from actual production.

REFERENCES

Aarden, M.
1972

Nou Vraag Ik Je; Een Boek Over Interviewen.
Amsterdam

Bailey, Alfred G.
(1937) 1969

The Conflict of European and Eastern Algonkian Cultures, 1504-1700. Toronto: University of Toronto Press (second edition)

Beck, B.
1970

"Cooking Welfare Stew." in: R.W. Habenstein (ed.) Pathways to Data: Field Methods for Studying Ongoing Organization. pp.7-29. Chicago: Aldine

Becker, H.S. and B.Geer
1970

"Participant Observation and Interviewing: a Comparison" in: W.J. Filstead (ed.) Qualitative Methodology: Firsthand Involvement with the Social World pp.133-142. Chicago

Berde, S.
1981

"Wild Ricing: The Transformation of an Aboriginal Subsistence Pattern" in: J.A.Paredes (ed.) Anishinabe: Six Studies of Modern Chippewa pp.101-126. Tallahassee: University Presses of Florida

Bishop, Charles
1972

"Demography, Ecology and Trade Among the Northern Ojibwa and Swampy Cree" in: Western Canadian Journal of Anthropology 3(1):58-71

1974

The Northern Ojibwa and the Fur Trade: an Historical and Ecological Study. Toronto: Holt, Rinehart and Winston

Bodley, John H.

1976

Anthropology and Contemporary Human Problems. Los Angeles: Cummings

Blok, Anton

1977

Antropologische Perspectieven. Muiderberg: Dick Coutinho

Brooks, Erwin

1981

A Wild Rice Program for the Northwestern Ontario Indian Reserves. Ottawa: Department of Indian Affairs, Northwestern Ontario Division

Buffalohead, W.R.

1984

"Introduction" in: W.W. Warren History of the Ojibway People pp.ix-xvii. St. Paul: Minnesota Historical Society Press

Carver, Jonathan

1779

Travels through the Interior Parts of North America in the Years 1766, 1767 and 1768. London

Coleman, Sr. Bernard

1953

"The Ojibwa and the Wild Rice Problem" in: Anthropological Quarterly 26(3):79-88

Danziger, Edmund Jr.

1978

The Chippewas of Lake Superior. Norman: University of Oklahoma Press

Densmore, Frances
(1928) 1974

How Indians Use Plants for Food, Medecine and Crafts
(originally published as Uses of Plants by the
Chippewa Indians) New York: Dover

(1929) 1979

Chippewa Customs. Smithsonian Institution, Bureau of
American Ethnology Bulletin no.86. Washington:
Government Printing Office

De Waal Malefijt, A
1975

Beelden van the Mens: Geschiedenis van de Culturele
Antropologie Baarn: Ambo (originally published as
Images of Man: A History of Anthropological Thought.
New York: Alfred A. Knopf, 1974)

Dore, William
1969

Wild Rice
Ottawa: Canadian Department of Agriculture Research
Branch Publication no.1393

Doty, James
1953

"The Journal and Letters of James Duane Doty" in:
Mentor L. Williams (ed.) Henry Rowe Schoolcraft,
Narrative Journal of Travels pp.401-460. East
Lansing: Michigan State College Press

Edman, Robert
1969

A Study of Wild Rice in Minnesota. St. Paul:
Minnesota Resources Commission (reprinted 1975)

Fontaine, Janet
1976

"Making It At Sagkeeng" Fort Alexander, Manitoba:
Cultural Education Centre

Garrod, Roger
1984

Ecology of Wildrice (Zizania Palustris L.): Fruit Production and Habitat Relationships M.Sc. Thesis.
University of Manitoba, Winnipeg

Geertz, Clifford
1963

Agricultural Involution: The Process of Ecological Change in Indonesia. Los Angeles: University of California Press

Hardin, Garrett
1972

"The Tragedy of the Commons" in: R.L. Smith (ed.)
The Ecology of Man: An Ecosystem Approach pp.382-390.
New York: Harper and Row

Harmon, Daniel
1957

Sixteen Years in the Indian Country W.K. Lamb (ed.).
Toronto: Macmillan

Harris, Marvin
1968

The Rise of Anthropological Theory: A History of Theories of Culture. New York: Harper and Row

1979

Cultural Materialism: The Struggle for a Science of Culture. New York: Random House

1980

Culture, People, Nature: An Introduction to General Anthropology (third edition). New York: Harper and Row

Hennepin, Fr. Louis
(1698) 1974

A New Discovery of A Large Country in America R.G. Thwaites (ed.). Toronto: Coles

Henry, Alexander
(1809) 1901

Travels and Adventures in Canada and the Indian Territories between the Years 1760 and 1776 James Bain (ed.). Toronto: George N. Morang

Hickerson, Harold
1974

Ethnohistory of the Chippewa of Lake Superior. New
York: Garland

Hilger, Sr. Inez
1939

A Social Study of One Hundred and Fifty Chippewa
Indian Families of the White Earth Reservation of
Minnesota. Washington, D.C.: The Catholic University
of America

1951

Chippewa Childlife and Its Cultural Background
Smithsonian Institution, Bureau of American Ethnology
Bulletin no.146. Washington: Government Printing
Office

Jenks, Albert
(1901) 1977

The Wild Rice Gatherers of the Upper Lakes.
Reprinted from the Annual Report of the Bureau of
Ethnology, 19(part 2):1013-1137. Washington:
Smithsonian Institution Press. Originally published
by the United States Department of the Interior,
Bureau of Ethnology, Ninth Report (1899)

Jenness, Diamond
1931

"Wild Rice" in: Canadian Geographical Journal June,
1931 pp.477-482

Johnson, Elden
1969a

"Archaeological Evidence for the Prehistoric Use of
Wild Rice" in: Science 163:276-277

1969b

"Preliminary Notes on the Prehistoric Use of Wild
Rice" in: The Minnesota Archaeologist 30(2):31-43

Landes, Ruth
1937

Ojibwa Sociology.
New York: Columbia University Press

1938

Ojibwa Woman.
New York: Columbia University Press

Leacock, Eleanor

1975

"Class, Commodity and the Status of Women" in: R. Rohrlich-Leavitt (ed.) Women Cross-Culturally: Change and Challenge pp.601-616. The Hague: Mouton

Leacock, Eleanor

1978

"Women's Status in Egalitarian Society: Implications for Social Evolution: in: Current Anthropology 19(2):247-276

Lee, Peter

1979

Biological, Chemical and Physical Relationships of Wild Rice, Zizania Aquatica L., in Northwestern Ontario and Northeastern Manitoba. PhD. Dissertation. University of Manitoba, Winnipeg

Lee, Richard

1968

"What Hunters Do For A Living, Or How To Make Out On Scarce Resources" in: R.B. Lee and I. deVore (eds.) Man the Hunter pp.30-44. Chicago: Aldine

1969

"!Kung Bushmen Subsistence: An Input-Output Analysis" in: Contributions to Anthropology: Ecological Essays. National Museums of Canada Bulletin no. 230 pp.73-94. Ottawa

1979

The !Kung San: Men, Women and Work in a Foraging Society. New York: Cambridge University Press

Lee, Richard and I. deVore (eds.)

1968

Man the Hunter
Chicago: Aldine

Lips, Eva
1956

Die Reisernte Der Ojibwa-Indianer: Wirtschaft und
Recht eines Erntevolkes. Berlin: Akademie-Verlag

Lovelace, Bob
1982

"Manomin" in:
Ontario Indian 5(8):28-39 August, 1982

Moose, Alex
1969

Indian Compass. (c) Alex Moose

Martin, Calvin
1978

Keepers of the Game: Indian-Animal Relationships in
the Fur Trade. Berkeley: University of California
Press

McCarthy, F.D. and McArthur, M
1960

"The Food Quest and the Time Factor in Aboriginal
Economic Life" in: C. Mountford (ed.) Records of
the Australian-American Scientific Expedition to
Arnhem Land vol. 2 Anthropology and Nutrition
pp.145-194. Melbourne: Melbourne University Press

Moran, Emilio
1979

Human Adaptability: An Introduction to Ecological
Anthropology. Massachusetts: Duxbury Press

Moyle, John
1944

"Wild Rice in Minnesota" in: Journal of Wildlife
Management 8(3)

Nichols, John
1979

At the End of the Trail. Minnesota Archaeological
Society, Occasional Papers in Minnesota Archaeology
no.7

Pelto, Perti and G. Pelto
1978

Anthropological Research: The Structure of Inquiry
(second edition). New York: Cambridge University
Press

Pitt, David
1971

Using Historical Sources in Anthropology and
Sociology. New York: Harper and Row

Rajnovich, Grace
1981

"A Study of Possible Prehistoric Wild Rice Gathering
on Lake of the Woods, Ontario". Paper presented at
the annual meeting of the Canadian Archaeological
Society Association, Edmonton

Rappaport, Roy
1975

"The Flow of Energy in an Agricultural Society" in:
S. Katz (ed.) Biological Anthropology pp.117-132.
San Francisco: V.H. Freeman

1978

"Maladaptation in Social Systems" in: J. Friedman
and M. Rowlands (eds.) The Evolution of Social
Systems pp.49-87. Pittsburgh: University of
Pittsburgh Press

Ray, Arthur
1976

"Diffusion of Diseases in the Western Interior of
Canada, 1830-1850" in: The Geographical Review
66(2):139-157

Rossman, George, A. Rossman and B. Rossman
1973

Wild Rice.
Grand Rapids, Minnesota: Northprint Company

Sahlins, Marshall
1972

Stone Age Economics. Chicago: Aldine

Schoolcraft, Henry
1953

Narrative Journal of Travels Through the Northwestern Regions of the United States Extending from Detroit Through the Great Chain of American Lakes to the Sources of the Mississippi River in the Year 1820
Mentor L. Williams (ed.). East Lansing Michigan:
Michigan State College Press

Selltiz C. and M. Jahoda (eds.)
1971

Research Methods in Social Relations.
New York

Shostak, Marjorie
1981

Nisa: The Life and Words of a !Kung Woman. New York:
Random House

Smith, Huron
1932

"Ethnobotany of the Ojibwa Indians" Bulletin of the
Public Museum of the City of Milwaukee 4(3):327-525

Stanchfield, Daniel
1901

"History of Pioneer Lumbering on the Upper Mississippi and Its Tributaries, With Biographical Sketches" in: Collections of the Minnesota Historical Society IX pp.325-362. St. Paul: Minnesota Historical Society

Steeves, T.
1952

"Wild Rice - Indian Food and Modern Delicacy" in:
Economic Botany 6(2):107-142

Stickney, Gardner
1896

"Indian Use of Wild Rice" in: American Anthropologist 9(4):115-121

Stone, G., J. Stewart, D. Woods and D. Punter
1975

Wild Rice Production in Manitoba. Winnipeg: Manitoba
Department of Agriculture Publication no. 527
(revised)

Syms, E. Leigh
1982

"Manomin: Life Source of the Ojibwa Peoples (A Preliminary Statement)".
(unpublished position paper)

Taube, Edward
1951

"Wild Rice" in: Scientific Monthly 73:369-375

Taylor, J.F.
1977

"Socio-cultural Effects of Epidemics on the Northern Plains: 1734-1850" in: The Western Canadian Journal of Anthropology 7(4):55-81

Thomas, A.G. and J. Stewart
1969

"The effects of Water Depth on the Growth of Wild Rice" in: Canadian Journal of Botany 47:1525-1531

Thorpe, E.L.
1982

Culture, Evolution and Disease. M.A. Thesis,
University of Manitoba, Winnipeg

Warren, William
(1885) 1984

History of the Ojibway People Fletcher J. Williams
(ed.). St. Paul: Minnesota Historical Society Press

Weir, Cynthia and H. Dale
1960

"A Developmental Study of Wild Rice, Zizania Aquatica L." in: Canadian Journal of Botany 38:719-739

Whyte, William F.
1952

"Observational Fieldwork Methods" in: C. Selltitz and M. Jahoda (eds.) Research Methods in Social Relations pp.493-513. New York

1960

"Interviewing in Field Research" in: R.N. Adams and J.S. Preiss (eds.) Human Organization Research: Field Relations and Techniques pp.352-374. Homewood, Illinois: Dorsey Press

Williams, Fletcher J.
1984

"Memoir of William W. Warren" in: W. Warren History of the Ojibway People pp.9-20.
St. Paul: Minnesota Historical Society Press

Williams, Mentor L.
1953

"Preface" and "Introduction" in: H.R. Schoolcraft
Narrative Journal of Travels
M.L. Williams (ed.). East Lansing: Michigan State
College Press

Winchell, Elizabeth and R. Dahl
1984

Wild rice: Production Prices and Marketing.
Miscellaneous Publication no. 29 Agricultural
Experiment Station, University of Minnesota

Media References

Canadian Broadcasting Corporation

1986

"24 - HOURS" September 16, 1986

Canadian Broadcasting Corporation

1986

"Rural Roots" with Delores Flaggerty, September 29,
1986

Spading, Robert and S. Holbert (producers)

1960

"Mahnomen: Harvest of the North"

Nichols, G. and Associates (producer)

1980

"Rice Dancer"
Wintario Project, Ontario Ministry of Culture and
Recreation

Winnipeg Free Press

May 16, 1985

July 5, 1985

Archival Sources

Hudson's Bay Company Archives

B.103/a/1 1807-1808