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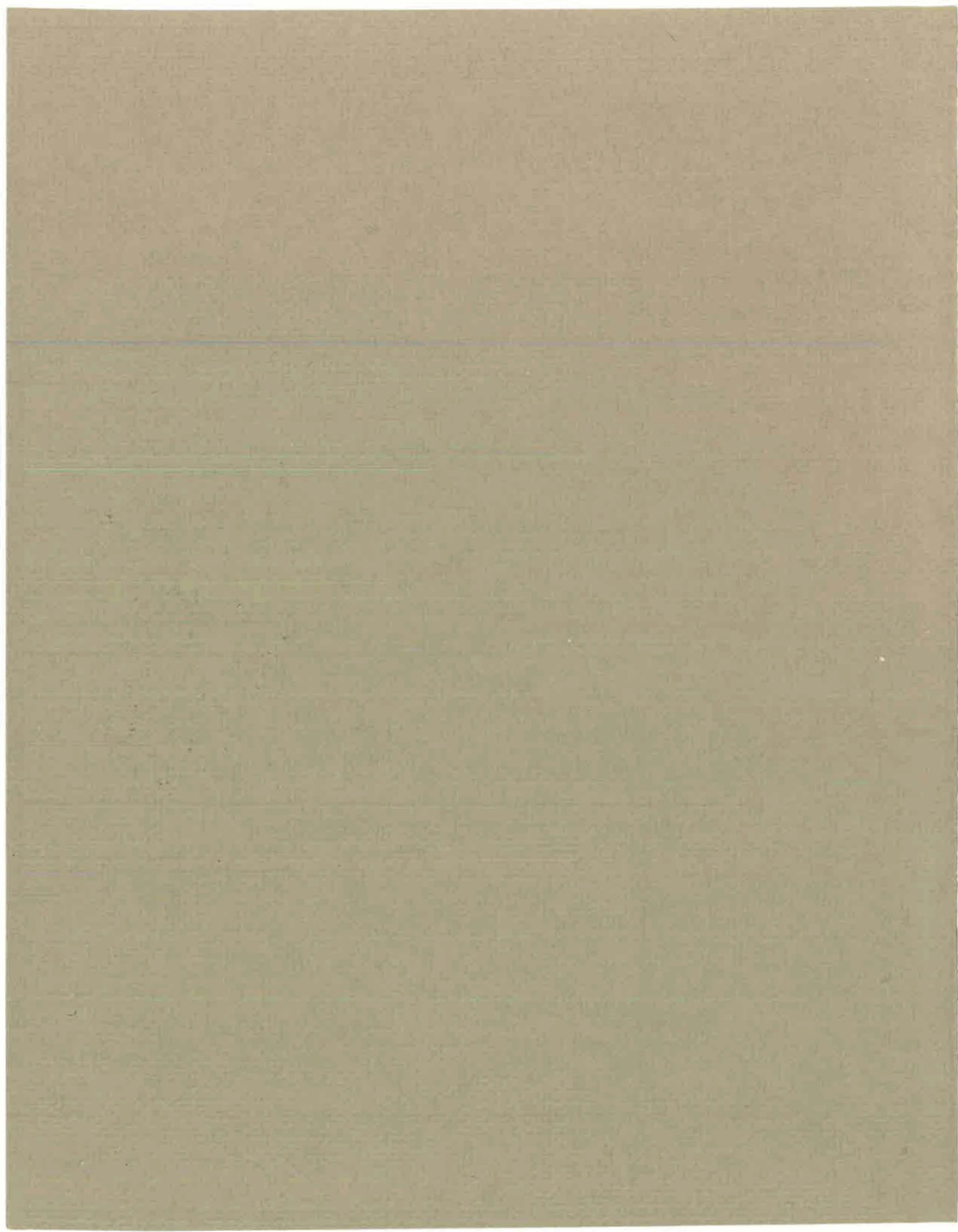
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17th annual meeting

april 18 - 21, 1984

victoria, B.C.





ABSTRACTS

17th ANNUAL MEETING

CANADIAN ARCHAEOLOGICAL ASSOCIATION

APRIL 18-21, 1984

VICTORIA, B.C.

RESUMES

17^e REUNION ANNUELLE

L'ASSOCIATION CANADIENNE D'ARCHEOLOGIE

18-21 AVRIL, 1984

VICTORIA, C.B.

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SESSION 1
Thursday A.M. April 19

NEW PALEOINDIAN SITES OF THE ROCKY MOUNTAINS AND PEACE RIVER REGION

Chairperson/Direction: Knut R. Fladmark
(Simon Fraser University)

Daryll Fedje and James M. White (Parks Canada)
THE VERMILLION LAKE SITE: AN EARLY POSTGLACIAL RECORD FROM THE NORTHERN
ROCKY MOUNTAINS

During 1983, archaeological reconnaissance was carried out by the Parks Canada Archaeological Research Unit at the Vermillion Lakes Site (EhPv 8) in Banff National Park, Alberta. Preliminary results indicate more than 11,000 years of human occupation at this well stratified multicomponent site. The site, situated on a colluvial fan fronting the infilled north shore of Vermillion Lake, evinces at least seven vertically discrete cultural components within three major silt units.

Temporally diagnostic projectile points associated with the lower of two tephra charged Ae horizons within the upper silt unit suggest the fan has been stable for at least 7,000 years. The lower silt unit includes at least three cultural components with associated radiocarbon dates of $8,900 \pm 350$ to $11,700 \pm 350$ years B.P. This site appears to hold considerable potential in the interpretation of the early post-glacial record both locally and regionally.

K.R. Fladmark, J.C. Driver, J.M. White and D. Alexander (Simon Fraser University; Simon Fraser University; Parks Canada; Simon Fraser University)
ENVIRONMENT AND STRATIGRAPHY OF THE CHARLIE LAKE CAVE SITE

This paper summarizes the history of archaeological research at the Charlie Lake Cave site in northeastern British Columbia and describes the site's general environment and stratigraphic sequence. The latter consists of at least nine sequential sedimentary zones, supported by approximately twelve radiocarbon dates, which indicate a gradually increasing dominance of organic vs. mineral slopewash accumulation through the last ca. 10,000 years. Organic preservation is excellent throughout the deposits and cultural materials occur in at least six of the nine stratigraphic zones.

Diana Alexander (Simon Fraser University)
ANALYSIS OF THE LITHIC MATERIALS FROM CHARLIE LAKE CAVE

The cultural deposits of Charlie Lake Cave range in time from the historical period to ca. 10,000 years B.P. This deep, stratified site provides a unique opportunity to improve the poorly developed, cultural chronology of northeastern British Columbia. Based on an analysis of lithic materials from the 1983 field season and earlier test excavations at the site, this paper outlines the cultural chronology of Charlie Lake Cave and discusses the importance of tool reuse and curation, regional trade and exchange and site function in the interpretation of culture history. The data from this site are then combined with the evidence from other archaeological sites in the Peace River drainage in an attempt to develop a regional, cultural historical framework.

K.R. Fladmark and Richard Gilbert (Simon Fraser University; Prince George)
THE PALEOINDIAN COMPONENT AT CHARLIE LAKE CAVE

This paper describes the small collection from the earliest occupation of Charlie Lake Cave, radiocarbon dated ca. 10,500 B.P. This includes a single broken, re-worked, fluted point, a small green-schist bead, a large quartzite boat-shaped core tool, a side-scraper and chert debitage; as well as a rich faunal assemblage, all found at a depth of about 3.5 m below surface. The possible significance of this assemblage to questions concerning the overall spatial and temporal distribution of fluted point complexes in northwestern North America will be discussed.

Jonathan C. Driver (Simon Fraser University)
PRELIMINARY REPORT ON EARLY POST-GLACIAL FAUNA FROM CHARLIE LAKE CAVE

The 10,000 year sequence at the Charlie Lake site contains an abundant and varied fauna of fish, bird and mammal. Of particular interest is the earliest assemblage, associated with the fluted point cultural horizon. Remains of at least four bison have been recovered, most specimens coming from the appendicular skeleton. Human exploitation of these animals is demonstrated by well defined cut marks on at least two specimens. In addition to bones brought to the site by human activity, there are numerous specimens which probably owe their origin on the site to the activities of other predators. These include lagomorphs, sciurid and microtine rodents, birds (ducks, grouse, owl, numerous passeriformes) and fish. These contribute to a reconstruction of the early post-glacial environment in this area.

measures for archaeologists; and (5) suggest certain ecological models based on diversity that may prove useful in future archaeological endeavors.

Larry Carbone (Simon Fraser University)
ENVIRONMENTAL CHANGE AND CULTURAL TRANSITION IN THE EARLY PREHISTORY OF
SOUTH-COASTAL CALIFORNIA

The discussion of this paper centers upon the cultural discontinuity between the paleoindian San Dieguito tradition and the succeeding archaic La Jolla tradition of south-coastal California. It is evidenced that a major cultural change occurred in the latter stages of the early Holocene (ca. 8,000-7,000 B.P.). By correlating palaeoclimatic data with the known archaeological record it is shown that there is a clear co-variation between the two. That is, environmental change occurred with a coincidental cultural change. It is explained that adaptive strategies, both social and economic, were initiated because of proximate climatic and environmental change. The problem of whether these comparatively disparate cultural groups represent the same population is addressed within the perspective of resource exploitation, technology, and settlement patterns. Hypotheses regarding the effects of transience are reviewed with a focus upon evidence that best presents a likely explanation to the problem of culture change in the region.

David Sanger and George L. Jacobson (University of Maine)
VEGETATIONAL AND CULTURAL HISTORY IN THE NORTHEAST: AN OLD HYPOTHESIS
REVISITED

Two decades ago, William Ritchie pointed out the coincidence of the emergence of near modern deciduous forests and the Late Archaic in New York state. The concept has been elaborated on by Fitting and others in papers that either support or reject the basic vegetation-culture relationship.

With few exceptions, previous papers have employed broad biotic zones to assess the relationships. In this paper we examine the history of a single, yet ecologically dominant species, hemlock (*Tsuga canadensis*). A "crash" in the populations of hemlock about 4800 B.P. was an event of major ecological importance in some regions of vegetation from the Great Lakes to the Maritimes. Succeeding forests had a very different character with enhanced possibilities for human occupation. We test our expectations of the cultural response to the increased carrying capacity of the forests by examining the two in selected forest regions of northeastern North America.

Richard Hebda (British Columbia Provincial Museum)

PALEOENVIRONMENTAL INTERVALS: PROPOSED UNITS OF ENVIRONMENTAL HISTORY
THAT AID INTERPRETATION OF CULTURAL SEQUENCES

The relationship between paleoenvironments, determined from paleoecologic and stratigraphic studies, and site-specific archaeological assemblages, although recognized as important, has been examined seldom in a systematic manner. The reason for this may be that there has been no consistent analytical framework in which to relate paleoenvironmental and artifactual data. I propose a two-step approach to this problem. First, the time represented by an archaeological deposit and its cultural constituents is divided into intervals of relatively stable paleoenvironments. A paleoenvironmental interval can be recognized by the general vegetation and geomorphic setting of a site. Detailed paleoecologic studies in the vicinity of the site might reveal the unique local mosaic of resources associated with the cultural assemblages deposited during the same interval. Indicator species such as those recognized in pollen analysis will be useful in determining local habitats. For example, a sequence of paleoenvironmental intervals for the Glenrose Cannery Site on the Fraser Delta might be: 10,000 - 6000 BP Douglas fir woodland - River bluff; 6000 - 5000 BP Western hemlock-Douglas fir forest - Coastal headland; 5000 - 4000 BP Western hemlock-Douglas fir forest - Estuarine channel bank; 4000 - 0 BP Western hemlock-Douglas fir forest - Riverbank.

Within this framework of environmental time, cultural deposits are interpreted and related to temporal and areal distributions of each assemblage in a site. The second step is to compare the occurrence of specific assemblage constituents or morphologically consistent artifact types to temporal ranges of specific resources at a site. Using these approaches it may be possible to determine whether assemblage changes were related to external non-cultural events or to cultural developments during intervals of environmental stability. Assemblage/artifact - environment relationships from a number of sites can then be compared to reconstruct cultural evolution in a region.

Richard T. Will and Rebecca Cole-Will (University of Alberta)

BONE TECHNOLOGY STUDIES: BEYOND DESCRIPTION

Recent studies of prehistoric bone technology focus on identifying criteria to differentiate morphological evidence of human activity from biological and geological processes. Others draw attention to the recognition and description of the technological process and its byproducts. Few investigations, however, have proceeded beyond identification and description.

Here, two studies are described in order to illustrate how data on bone technology may be used to investigate other kinds of archaeological questions.

The first example is an examination of cultural continuity and discontinuity in the archaeological records. Analysis of a large sample of bone tools excavated from the Turner Farm site, a coastal shell midden in central Maine, demonstrate that at least two technological traditions are present. This result, in conjunction with other archaeological information, suggests an interesting hypothesis for interpreting northeast Prehistory.

The second example describes analysis of bone tools from several nineteenth century Copper Inuit sites on Banks Island, Northwest Territories. A classification of bone tools into stages of manufacture was created. By comparing inter- and intra-site frequencies of stages of manufacture, indications of site function (in terms of bone tool processing and use) were derived.

Richard Garvin (Simon Fraser University)
CARNIVORES, SCAVENGERS AND BONE DESTRUCTION

The modification of bone elements and their destruction by carnivores and scavengers has become a popular topic in zooarchaeological research. This paper explores the dynamics of bone destruction in the context of biological theory as it applies to carnivores and scavengers in general. Emphasis is placed on optimal energy extraction strategies employed by carnivores and scavengers in their environment and its implications in the patterning of bone assemblages.

Keith Hobson and Stephen Collier (Simon Fraser University)
TERRESTRIAL AND MARINE PROTEIN IN AUSTRALIAN ABORIGINAL DIETS

Stable carbon isotope measurements of bone collagen have been made for populations of Australian Aborigines inhabiting coastal and lower riverine territories. Measurements made on individuals from Swanport, on the lower Murray River in South Australia, gave an average $\delta^{13}\text{C}$ value of (-20.1 ± 0.8) per mil supporting ethnographic reports that these people subsisted primarily on freshwater fish and other non-marine foods, despite their proximity to the ocean. The value of (-16.6 ± 1.2) per mil for individuals from the coastal site of Broadbeach in Queensland indicates a maximum marine contribution to the diet of (51 ± 14) per cent, and suggests a broader dietary base than has hitherto been proposed.

Walter Kowal (University of Alberta)

COMPOSITIONAL ANALYSIS AND ARCHAEOLOGICAL APPLICATIONS

The purpose of this paper is to outline the properties of compositional analysis in easily assimilable terms. It also introduces a comparatively new analytical technique that is currently receiving a great deal of attention; namely, RF-ICAP-AES. A preliminary analysis of bone material using this technique is presented with a discussion on how compositional analysis of bone may be applied to certain archaeological problems.

SESSION 3
Thursday A.M. April 19

RECENT APPLICATIONS OF THE MICROCOMPUTER IN ARCHAEOLOGICAL RESEARCH

Chairperson/Direction: Terrance H. Gibson
(University of Alberta)

William T.A. Ferris (Saskatchewan Research Council)
TRAP: TIPI RING ANALYSIS PROGRAM

As interest in stone circles increases, particularly those circles termed "tipi rings" a variety of techniques for both recording and analysing these structures have been utilized. To date these techniques have been and have tended to rely on manual subjective judgments. The use of microcomputers for the purpose of mapping analysis has only begun to be applied to such structures.

This author has devised a series of programs to provide new methods of stone circle analysis which not only simplify field collection of data but provide new avenues of interpretation. These programs (under the acronym TRAP) have been designed to be user friendly. The first purpose of these programs is to simplify the field recording methodology, making it practical to accurately record the physical nature of the structure itself.

Further components of the program provide graphic presentation of data gathered in the field. It presents the user with a variety of graphic (such as map plots) and tabular displays providing alternatives to examination of the stone feature's structure and its meaning. These components along with the ease of storage of ring data will provide a means of consistent interpretation over time. There also is as a long term goal the amassing of a large data base to be used for larger scale synthetic studies. Use of these programs will greatly aid in the analysis of tipi rings and it is hoped that this presentation will provide guidelines and encouragement for other researchers to develop similar type programs.

Richard Will (University of Alberta)
MICROCOMPUTER APPLICATIONS TO ZOOARCHAEOLOGY

Microcomputer technology has made available an inexpensive and flexible system for coding, storing and manipulating zooarchaeological data. Faunal data collection methods rather

than programming techniques are the focus of this paper. Mainframe computer faunal programs extant in the literature are reviewed in terms of (1) their compatibility with microcomputer systems, and (2) their overall utility to zooarchaeological research. Two implications of microcomputer application to zooarchaeological studies are explored. They include field data collection and faunal coding procedures.

T. Gibson, O. Klimko and J. Finnigan (University of Alberta; Saskatchewan Research Council; Saskatchewan Research Council)
ARCHAEOLOGICAL DATA BASE MANAGEMENT/ANALYSIS AND THE NIPAWIN RESERVOIR HERITAGE STUDY

The Nipawin project is a multi-year archaeological mitigation program operated by the Saskatchewan Research Council. Survey and excavation for the past three years has yielded millions of artifacts which must be catalogued as they are collected, and will require detailed analysis as site reports are prepared. To cope with this archaeological inventory, a comprehensive data base storage and analysis system was devised which is entirely based on a microcomputer system.

The software, which operates on an Apple II, consists of a data coding and management program, a site inventory generator, and several data analysis programs which provide inventory summaries and spatial analyses of all artifact classes which are coded in the system. During the coding process, a catalogue number and printed tag are provided for each artifact as it is washed, largely eliminating the need to label most artifacts by hand. The encoded catalogue descriptions, which are stored on floppy discs, can be reproduced on site inventory sheets in fully readable form for archival purposes. Coded data can be selectively searched by area, level and attribute, and can be contour plotted by frequency or weight at any scale.

The above system is described and examples of its use are provided, both in preparing an artifact inventory and in developing techniques to analyze data which are machine interpretable.

R.E. Morlan, P. Homulos and B.A. Bowen (National Museum of Man; Canadian Heritage Information Network; Carleton University)
AN AUTOMATED ARCHAEOLOGICAL DATA ACQUISITION SYSTEM (ADAS): ELECTRONIC PROVENIENCE RECORDING AND CATALOGUE PRODUCTION

This paper describes the capabilities and operation of a system which provides computer assistance to the field archaeologist in recording artifact provenience attributes. The system maintains a catalogue for reference and analysis in a format compatible with CHIN.

The system consists of two parts: an automatic coordinate locator which computes the X, Y, Z coordinates of a newly found artifact relative to a datum; and a software package for recording data and providing user access. In addition, a bar code generator can be used to provide a tag for the artifact, and for future identification and retrieval using a bar code reader.

Three sensors are mounted on vertical stakes located at the corners of the excavation area. These are connected by shielded cable to a coordinate processor. This in turn is connected by cable to the control microprocessor (any small computer system). An artifact is located by a set of signals from a small sensor positioned on the artifact. This begins the process of coordinate computation and data entry. A bar code is generated and attached to the artifact and the appropriate data entries are made automatically. Future reference to the artifact is either through a bar code reader or through queries formulated at the keyboard. A wide variety of statistical and graphical manipulation of data is now possible. A communication package provides for upline loading of the data base to a central mainframe computer.

C.G. Hickey (University of Alberta)

THE MICROCOMPUTER IN ARCHAEOLOGICAL DATA COLLECTION: A CASE EXAMPLE INVOLVING LARGE ARCTIC SURFACE SITES

This paper will discuss the development of a microcomputer-based data collection system for use in the Arctic, but with potentially wider applicability. The specific case involves large surface sites on Banks Island, N.W.T. Some of these contain many thousands of discrete items, while others are data poor. Employment of an Apple II+ (including its use in the field powered by a wind generator) and digitized plotter, along with vertical overhead photography, allowed rapid data collection. Later, the computer was used as a terminal for data transfer as well as a data processor in its own right. Problems and difficulties of the method are also addressed.

The primary value of this approach may lie in its potential for studying sites whose contents are either very high or very low in density. If so, this may remove a strong research bias in the discipline, brought about by data collection strategies favouring the study of a limited range of archaeological phenomena.

David N. Proudfoot (University of Alberta)

AN INTEGRATED USE OF THE MICROCOMPUTER AS A STAND-ALONE DATA MANAGER AND MAINFRAME TEXT AND GRAPHICS TERMINAL

An Apple II Plus microcomputer has been used as an offline data manager and then as a text and graphics terminal to interact

with an Amdahl mainframe computer to display graphical and analytical results. This particular application is geological, but is very analogous to many archaeological - anthropological applications.

About 5,000 multivariable (15) records were interactively stored on disk using the screen input format of a data management package called General Manager. This package provides for some automatic data input verification and has a flexible search/retrieval capability. It allows for a hierarchical, relational data base design with linkages between file types. Simple data verification is performed using search algorithms and then data required for large scale applications are retrieved and stored on disk. The Apple is then linked with the University of Alberta Amdahl computer via Data Pak and the retrieved data are transferred. Data processing on the Amdahl includes the use of large statistical packages and mapping programs. Computer generated maps are previewed on the apple using the Teksim Tektronix graphics terminal simulator before being plotted on a mainframe Calcomp plotter.

This application has proved to be cost effective, taking advantage of offline microcomputer data storage and selective retrieval with large mainframe facilities used only for large statistical manipulation and graphics. It has the further advantage of being portable, with remote mainframe linkage via telephone.

Scott Hamilton (University of Alberta)

MICROCOMPUTERS, REMOTE SENSING AND SITE ASSESSMENT: QUESTIONS OF COST EFFECTIVENESS AND DATA RELIABILITY

Over the past three years the Manitoba Historic Resources Branch has been investigating fur trade posts in Southwestern Manitoba using several computer-assisted remote sensing techniques. These techniques, designed to permit rapid preliminary assessment of these forts, rely heavily upon the use of the Proton Magnetometer. In order to facilitate rapid, infield magnetic data management, microcomputers have been extensively used. These techniques and the software programs developed by Mr. T. Gibson have been incorporated into the research design that also utilizes metal detectors, probe corers, shovel testing, detailed contour mapping and test excavation in order to control for biases inherent with magnetometer survey.

The time and cost saving aspects of both the magnetometer survey techniques and computer processing of the data, the interactive nature of the Gibson programs, and their value to short-term salvage/assessment projects will be emphasized.

SESSION 4
Thursday P.M. April 19

ARCHAEOLOGICAL SITES AND COLLECTIONS: THE OWNERSHIP PROBLEM

Chairperson/Direction: Arthur S. Charlton
(Heritage Conservation Branch)

Ian Dyck (Saskatchewan Museum of Natural History)
SASKATCHEWAN'S COLLECTION REGISTRATION PROGRAM

It is estimated that there are 5,000 to 12,000 private archaeological collections in Saskatchewan. Though, in some measure, their existence is a matter of common public and professional knowledge, they are really an unexplored resource. In 1983 the Saskatchewan Museum of Natural History began a systematic registration program. Several objectives include: (1) to document existing concentrations of archaeological information and store the documentation in a public repository; (2) to create a means by which the government can distinguish Crown-owned archaeological specimens collected after 1980 from privately owned specimens collected before 1980; and (3) to provide a mutually beneficial connection between lay people interested in Saskatchewan archaeology and professionals who are trying to develop and conserve the province's archaeological resources. Problems, procedures and progress after one year are described. Costs, scientific returns and public relations values all indicate that the program is strongly on the positive side of the cost/benefit ratio.

Arthur S. Charlton (Heritage Conservation Branch)
THE ROLE OF THE RESOURCE MANAGER IN THE ANTIQUITIES TRADE

No abstract received.

Bjorn O. Simonsen and Arthur S. Charlton (The Bastion Group; Heritage Conservation Branch)
THE ARTIFACT OWNERSHIP QUESTION: IS POSSESSION NINE POINTS OF THE LAW?

In the past, archaeologists, ethnologists and museum curators have often assumed that artifact collections made in the field, or which have been in the care of their sponsoring institution for a long time, are also owned by such institutions. Unfortunately, this is often not the case and the whole question of legal ownership to collections is a subject that should be looked at very seriously by all.

This paper examines various legal issues related to the question of collections ownership and recommends steps which can be taken by curators and archaeological resource managers to legalize their institutions' claims of ownership. The issue of ownership is also looked at in the context of the Federal Government's Heritage Property Import and Export Act and the specific case of two anthropomorphic stone bowls recently taken to the U.S. from British Columbia.

Barbara Winter (Prince of Wales Northern Heritage Centre)
THE CULTURAL EXPORT/IMPORT ACT AND ARCHAEOLOGICAL COLLECTIONS

No abstract received.

Kathryn Bernick (Vancouver)
AS LONG AS THERE ARE BUYERS, THERE WILL BE SELLERS: A CASE FOR
PUBLIC EDUCATION

No abstract received.

SESSION 2b
Thursday P.M. April 19

PALEOECOLOGICAL, CHEMICAL AND PHYSICAL ANALYSIS IN ARCHAEOLOGY
(Continued)

Chairperson/Direction: Richard J. Hebda
(British Columbia Provincial Museum)

Gaye Burton (Simon Fraser University)
MICRODEBITAGE: THE RECOGNITION PROBLEM

Since the introduction of the study of the microscopic by-products of lithic reduction, several problems have been indicated in the practical application of microdebitage analysis. This paper focuses on problems in the recognition of microdebitage in sediments. Practical aspects of sediment pretreatment, particle size fractions, and microscope methodology are discussed. Particular attention is paid to distinguishing microdebitage from naturally occurring particles, based on principles of sedimentary petrography. The function and methods of control sampling and preliminary analysis of sediments to determine suitability for microdebitage analysis is discussed.

John Tomenchuk (Wilfrid Laurier University)
TOWARD A WHOLLY PARAMETRIC METHODOLOGY IN USE-WEAR STUDIES

Ongoing research and development of middle range theories and models in use-wear studies has yielded some unexpected and positive results. With concrete examples from the author's own studies of Old and New World prehistoric lithic remains, an unprecedented information retrieval potential can now be demonstrated for a strictly mechanically-based, parametric use-wear methodology.

D.I. Godfrey-Smith and J.M. D'Auria (Simon Fraser University)
NEW DATA ON OBSIDIAN EXCHANGE ROUTES IN WESTERN CANADA AND ONTARIO

Research into X-ray fluorescence characterization and sourcing of obsidian artifacts is alive and well at Simon Fraser University. New data, collected over the past year, are now available on the local obsidian distributions of indigenous obsidian from northern and central British Columbia, and on the eastern and western Canadian distributions of artifacts

manufactured in obsidian of United States' origin. As of this writing, the data base consists of over 40 artifacts from a number of sites in British Columbia, Alberta, and Ontario. Possible routes of exchange will be discussed and compared with previously published results.

D.J. Huntley and G.W. Berger (Simon Fraser University)

TOWARDS APPLYING THERMOLUMINESCENCE TO THE DATING OF SEDIMENTS

A new method of dating which can be applied to some types of sediments is described. It is based on the idea that some exposure to sunlight occurs at the time of sediment formation, and that this exposure reduces the number of electrons in traps in the mineral grains. Thermoluminescence is used to sample the trapped electron population and hence determine the radiation dose since the sunlight exposure; this dose is then combined with the dose rate to calculate the age. Results from some archaeological and geological sites will be described and show encouraging agreement with C-14 ages for some kinds of sediments.

SESSION 5
Thursday P.M. April 19

FEDERAL GOVERNMENT INITIATIVES IN THE FIELD OF
ARCHAEOLOGICAL HERITAGE MANAGEMENT: AN ONGOING PROCESS

Chairperson/Direction: E. Leigh Syms
(Manitoba Museum of Man and Nature)

Discussants: Jacques Cinq-Mars (National Museum of Man)
Knut Fladmark (Simon Fraser University)

SESSION 6
Thursday P.M. April 19

FORUM ON THE CULTURAL PROPERTIES EXPORT AND IMPORT ACT

Chairperson/Direction: William Byrne
(Alberta Culture)

Panalists: Tom Loy (British Columbia Provincial Museum)
Roy Carlson (Simon Fraser University)
J.V. Wright (National Museum of Man)
Ron Vastokas (Trent University)
Leigh Syms (Manitoba Museum of Man and Nature)
Duncan Cameron (Glenbow Museum)

SESSION 7
Thursday P.M. April 19

IROQUOIAN SUBSISTENCE AND SETTLEMENT PATTERNS

Chairperson/Direction: Dean H. Knight
(Wilfred Laurier University)

Dean Knight (Wilfred Laurier University)
SETTLEMENT: ANOTHER ANALYSIS

No abstract received.

Marti Latta (University of Toronto)
CERAMIC DECORATION: TECHNOLOGICAL MECHANISMS OR SYMBOLIC COMMUNICATION?

No abstract received.

Jerome Melbye (University of Toronto)
BIOCULTURAL INTERPRETATIONS OF PALAEOPATHOLOGY AMONG THE PEOPLES OF THE
ONTARIO IROQUOIS TRADITION

Not much over a decade ago the field of palaeopathology experienced a Renaissance (e.g. Wells 1964, Brothwell and Sandison 1967, Morse 1969, et al.). Textbooks such as Anderson (1962) and Brothwell (1965) heralded the potential value of studies in palaeopathology. Amongst these values is the idea that pathology and culture influence each other and this can lead to further insights or explanations.

The prehistoric peoples of the Ontario Iroquois Tradition have been studied extensively since this Renaissance; however, the results have been less than satisfying in terms of identifying any influences between pathology and culture. The results of studies in palaeopathology on the prehistoric Ontario Iroquois are reviewed and summarized. Hypotheses are presented to interpret the meaning of these pathological conditions within their cultural context.

Gary Crawford (University of Toronto)
SUBSISTENCE ECOLOGY IN 16th CENTURY ONTARIO

No abstract received.

Sandra K. Zacharias (Vancouver)
HURON SHEET METAL WORKING IN THE 16th and 17th CENTURIES

European brass and copper kettles traded to the Huron Indians of south central Ontario near the beginning of the 17th century A.D. were often reworked by the Indians. Metallurgical studies of sheet brass and copper pieces from several proto-historic and historic Huron sites have been undertaken in order to determine what processes these metal sheets have been subjected to in manufacture and use. In addition, a series of brass working experiments have been made in an attempt to replicate some of the reworking techniques, and comparisons are made with archaeological specimens.

Robert J. Pearce (Museum of Indian Archaeology)
THE LAWSON SITE AND ITS HAMLETS: DETERMINING PREHISTORIC NEUTRAL SOCIAL ORGANIZATION

Between 1981 and 1983, the Museum of Indian Archaeology (London) discovered and investigated ten small sites located within four kilometres of the Lawson prehistoric Neutral village in London, Ontario. Four of these were excavated and are interpreted as hamlets used from spring to fall to grow crops and to serve as processing centres for products obtained from hunting, fishing, and gathering. Each consisted of a single longhouse and midden, and it is proposed that men, women and children from a single extended family occupied each hamlet. A fifth hamlet was test excavated, and four others have been surface-collected. The tenth site was excavated and is interpreted as a camp; it had no longhouse or midden but did have a hearth and isolated post moulds.

The spatial clustering of these sites around Lawson, the ceramic homogeneity of each hamlet and each cluster of hamlets, and the ceramic heterogeneity between clusters, provide data for the hypothesis that each cluster of two or three hamlets was occupied by a different group of related families, possibly one matrilineage at each cluster. These data, combined with that from the Lawson site itself, are providing a unique glimpse of prehistoric Neutral social organization in the London area circa A.D. 1500.

William C. Noble (McMaster University)
SOUHARISSEN'S CHIEFDOM: AN EARLY HISTORIC 17TH CENTURY NEUTRAL IROQUOIAN RANKED SOCIETY

Archaeology, ethnohistory, and oral history provide three streams of information to recognize and help define an early 17th century ranked society among the Neutral Iroquois of the

Hamilton-Niagara region. Specific factors contributing to this definition include the presence of: settlement unit hierarchies, sizeable population density, subsistence productivity, some local autonomy, part-time craft specialization, ranked burials, and the political role of an all powerful chief. This evolutionary stage for the early 17th century Neutrals developed, flourished, and collapsed during the lifetime and under the charismatic direction of absolute chief Souharissen.

Peter A. Timmins (McGill University)
RADIOCARBON DATING AND IROQUOIAN ARCHAEOLOGY

This paper evaluates the traditional use of radiocarbon dating in Iroquoian archaeology. The effects of radiocarbon calibration on the chronology of the Woodland period in the Iroquoian area are explored, followed by an assessment of the analytical techniques most appropriate to the interpretation of radiocarbon dates from Woodland sites. Finally, a case study is performed, interpreting the chronology of the Princess Point and Glen Meyer cultures, employing both the calibration and the appropriate analytical techniques.

SESSION 8a
Friday A.M. April 20

PLAINS PREHISTORY: RECENT ADVANCES IN
CULTURE HISTORY AND THEORETICAL PERSPECTIVES

Chairperson/Direction: David Burley and R. Vickers
(Archaeological Survey of Alberta)

James W. Helmer, Eric Poplin and Steve Malone (University of Calgary)
COMPUTER CONTOUR MAPPING OF ARTEFACT DISTRIBUTIONS: A TRIAL APPROACH TO
THE STUDY OF HORIZONTAL AND VERTICAL ARTEFACT DISTRIBUTIONS IN
NON-STRATIFIED SITES ON THE PLAINS

The Strathcona Site (FjPi-29) is a multicomponent, non-stratified, lithic workshop/habitation site currently being investigated by the University of Calgary's Archaeology Field School. A principal component of the long term research design being implemented at FjPi-29 involves the investigation of the horizontal and vertical distributions of artefacts over the extant surface of the site. This paper summarizes the results of trial efforts made to utilize computer-generated contour maps to investigate the horizontal density distributions of artefacts, both by 1x1 metre unit and by arbitrary vertical levels, over the sampled portions of the site. The strengths and weaknesses of using contour mapping approaches in the analysis of non-stratified artefact assemblages - which are ubiquitous in the northern Plains - are evaluated.

Jonathan Driver and Brian Chisholm (Simon Fraser University)
CARBON ISOTOPES IN PREHISTORIC BISON COLLAGEN

A number of studies have demonstrated that the proportion of an animal's diet made up from plants utilising C_3 and C_4 photosynthetic methods can be deduced from the $^{12}C/^{13}C$ ratios of bone collagen. Analysis of the collagen of late prehistoric bison from western Canada shows that this ratio varies between bison recovered from different vegetational zones. The variation is consistent with what is known of the distribution of C_3 and C_4 plants in the former bison range. The implications of these preliminary results for paleoecology and archaeology are discussed.

James Finnigan (Saskatchewan Research Council)
THE IMPORTANCE OF THE QUARTZITE INDUSTRY IN PLAINS CULTURE HISTORY: A
VIEW FROM SOUTHWESTERN SASKATCHEWAN

The role and importance of quartzite in northern Plains lithic assemblages has been largely ignored. This is undoubtedly because of the amorphous nature of its by-products, the wide range of variability in this material type, and because this industry has largely been regarded as atemporal. However, since it dominates assemblages ranging in age from the Paleoindian to the late prehistoric period, it would be invaluable to know whether the techniques of production or patterns of useage have varied, as would be expected, with the changing cultural traditions on the Plains. This paper examines in detail the quartzite industry from six dated sites spanning the last 3,000 years of prehistory. It seeks to determine what potential this industry has to yield culture historical information and, ultimately, solutions to culture historical problems.

Barney Reeves (University of Calgary)
CULTURE HISTORICAL SYSTEMATICS IN NORTHERN PLAINS PREHISTORY

A number of clarification schemes have been proposed and utilized to chronologically divide and organize the Holocene Culture Record. These, generally, involve a tripartate temporal division, based on major horizon style markers. Outside of the Middle Missouri, Mulloy's Early Middle and Late Prehistoric introduced in 1952, has been most widely used, as well as the basis for variations on it, such as Wormington and Forbis 1965, Paleo, Meso and Neo Indian, and Frison's 1978 Paleo Plains Archaic and Late Prehistoric system. The latter has complexed systematics, not only by the use of the term Archaic which has overtones of basic adaptive and cultural evolutionary patterns, but also there is no convenient pigeon hole to place ceramic using dart point cultures of Frison's Late Archaic. To resolve this some workers are using Middle Plains Woodland for these complexes, while others have redefined the late Prehistoric originally defined on the appearance of arrow points, to include these earlier cultures.

Mulloy's system, as used today, is economical and devoid of loaded terminology. It is based on projectile styles and weapon technologies which rapidly diffused through diversely adapted peoples of the Northern Plains and Rocky Mountains, some of whom never acquired ceramics. It is the most useable ordering system and for that reason preferred over others.

Leo Pettipas (Manitoba Historic Resources Branch)
RECENT DEVELOPMENTS IN PALAEO-INDIAN ARCHAEOLOGY IN MANITOBA

Recent re-thinking of standing interpretations of Manitoba's Palaeo-Indian archaeological record, and new discoveries in the field, have produced a somewhat revised scenario for the Plano period (10,000-7,000 B.P.) within the region:

1. Distribution of "Horner" (Alberta, Scottsbluff, Eden) points relative to the Lake Agassiz basin is now taken to mean that:
 - a) the Horner occupation of Southern Manitoba coincided with the Campbell Sub-phase (10,000-9,500 B.P.) of Glacial Lake Agassiz, and
 - b) the Horner Phase, not Sister's Hill (Agat Basin, Hell Gap) is the earliest Plano manifestation in the region;
2. The Sister's Hill Phase commenced in Southern Manitoba after Lake Agassiz had fallen from the Campbell level;
3. The initial colonists of the Lake Agassiz basin were Sister's Hill people who entered, and expanded eastward across, the Manitoba Lowlands from the west. Descendants of these people, represented archaeologically by the "Caribou Lake Complex," are believed to have been the first to have adapted themselves to the boreal forest in Manitoba on a long-term basis;
4. A subsequent population, represented by the side-notched lanceolate "Manitoba" point type that is dated at 8050 \pm 240 B.P. and 8550 \pm 270 B.P. in Wyoming and Alberta, respectively, may also have spread across Southern Manitoba from the west;
5. The occurrence in southeastern Manitoba of Agate Basin-like points made from taconite can no longer be regarded as evidence of a migration from the Thunder Bay region to the east. However, the recent recovery of another copper "McCreary" point in western Manitoba bespeaks of a late Plano incursion from the Great Lakes region.

Eugene M. Gryba (Private Consultant)
EVIDENCE OF THE FLUTED POINT TRADITION IN ALBERTA

Since 1980 Maurice Doll (Provincial Museum of Alberta, Edmonton) and the writer have been gathering information on the presence of the Fluted Point Tradition in Alberta. Distinctive

artifacts (mainly fluted points) have been reported from central and southern Alberta, roughly south of a line extending from Peace River to Lloydminster. It is estimated that roughly 80 to 100 examples will be documented when the survey is completed.

Although most of the diagnostic artifacts are surface finds made by farmers and amateurs, it is felt that they will yield valuable information about general distribution, local settlement patterns, lithic utilization, and manufacture techniques. The relatively large number of points, their wide geographic distribution, and the overwhelming reliance on local quartzites and siltstones for their manufacture, suggest that this part of North America supported a resident human population.

Only a few examples are identifiable as Folsom; most appear to be of the Clovis style, or a smaller form that displays multiple channel flake removal from one or both faces.

SESSION 9
Friday A.M. April 20

THE PREHISTORY OF THE ARCTIC ISLANDS

Chairperson/Direction: Patricia D. Sutherland
(National Museum of Man)

Ellen Bielawski (Prince of Wales Northern Heritage Center)
VARIABILITY IN PALEOESKIMO CULTURES: RESULTS FROM SOMERSET ISLAND

Paleoeskimo occupations on Somerset will be described and interpreted within the current cultural and historical framework of Arctic prehistory. Excavation and survey on Aston Bay (1977-1978) and Stanwell-Fletcher Lake (1979-1983) have yielded early Arctic Small Tool tradition material which incorporates diagnostics indicating both Pre-Dorset and Independence I influences. The Somerset Island material thus serves as an example of variability within the early ASTt. The range and meaning of this variability are examined, and working conclusions presented for discussion.

Peter G. Ramsden (McMaster University)
PALEOESKIMO OCCUPATIONS IN BACK BAY, PRINCE OF WALES ISLAND

Analysis of artifacts, structures and faunal remains from Pre-Dorset sites on raised ocean beaches and near two small lakes near Back Bay, Prince of Wales Island leads to suggestions regarding seasonal aspects of settlement and subsistence.

James W. Helmer (University of Calgary)
THE INDEPENDENCE I AND PRE-DORSET OCCUPATIONS OF THE HIGH ARCTIC: NEW DATA FROM NORTH DEVON ISLAND

Two theories concerning the relationship between the early Paleoeskimo Independence I and Pre-Dorset complexes in the Canadian High Arctic are current in the literature. One view, supported by Eigil Knuth and Robert McGhee, identifies Independence I as a culturally distinct variant of the Arctic Small Tool tradition which occupied the Arctic Islands between ca. 3,650 and 4,000 B.P. before it was replaced by an equally distinctive variant of the Arctic Small Tool tradition - the Pre-Dorset complex. Recently, Peter Schledermann has speculated on the possibility of cultural continuity between Independence I

and Pre-Dorset in the Arctic Archipelago. Schledermann, however, acknowledges that adequate typological and chronological evidence supporting his proposition has not, as yet, been forthcoming.

In the summer of 1983 excavations at the Icebreaker Beach Site (QkHn-13), located on the Truelove Lowlands of north Devon Island, yielded an assemblage characterized by a mixture of elements considered diagnostic of both Independence I and early to middle Pre-Dorset complexes. The possibility exists that this assemblage represents a transitional stage typologically linking the Independence I and Pre-Dorset occupations of the Far North. This paper examines the data from the Icebreaker Beach Site in light of their observed relationships with both Independence I and Pre-Dorset components and discusses the implications arising from the inferred transitional status of QkHn-13.

Patricia D. Sutherland (National Museum of Man)

A REASSESSMENT OF INDEPENDENCE I: SOME OBSERVATIONS FROM THE EUREKA UPLAND

The Independence I occupation of the Eureka Upland, located on Axel Heiberg and Ellesmere Islands, is examined in the context of current views on the Palaeoeskimo prehistory of High Arctic Canada and Greenland. It is suggested that there is greater variability in the technology and settlement patterns of the Independence I culture than has been previously reported. Recognition of this diversity may improve our understanding of the relationships between the Arctic Small Tool tradition variants represented north of 75 degrees latitude.

Moreau S. Maxwell (Michigan State University)

1500 B.C. TO 500 B.C. IN THE EASTERN ARCTIC: A SYNTHESIS OF ENIGMAS

Initial statements about this period of Paleoeskimo prehistory separated the cultures of Pre-Dorset and Dorset as the products of two distinct populations. Later evidence was convincing that this constituted a single cultural/population continuum. The culture but not population change between Pre-Dorset and Dorset was attributed to a number of postulated factors. More recently, a number of terms have been used to refer to this period, i.e.: Transitional Phase, Independence II, Groswater Dorset, Canadian Tundra Complex, and Sarqaq. This terminology goes beyond simple taxonomy and has strong cultural implications. This paper will review the paleoclimatological/archaeological evidence for the period. Data will be drawn from the High Arctic, Greenland, Labrador, southern Baffin Island, southern Hudson Bay, the Barrens, and the Western Canadian islands. Attempts will be made to synthesize similarities and differences and to advance propositions about their cultural relevance.

G. Mary-Roussilière, O.M.I. (Pond Inlet, N.W.T.)

UNE REMARQUABLE INDUSTRIE DORSETIENNE DE L'OS DE CARIBOU DANS LE NORD DE BAFFIN

The sites of Nunguvik and Saatut, in Northern Baffin Island, have revealed an important Dorset industry of the caribou bone and antler that remains so far without equivalent elsewhere in the Canadian Arctic. This industry specialized in a few characteristic implements which were mainly fabricated at the caribou hunting camp of Nunguvik, but were for the most part used at the sealing and fishing camp of Saatut.

Diane Lyons (University of Calgary)

THE PROBLEM OF TEMPORAL CONTINUITY IN DORSET ART--WHEN DID IT ALL BEGIN?

In the process of examining regional developments of Dorset art style it became apparent that there is a problem in determining temporal continuity of the art over the vast territory where Dorset culture is found. This problem can be examined from two aspects: inconsistent usage of the terms Early, Middle and Late 'periods' by researchers; and controversy over absolute dates of art-rich sites such as the Igloolik area and Button Point. These problems are examined and the author offers one interpretation of Dorset art chronology from current evidence.

Karen McCullough and Peter Schledermann (Arctic Institute of North America)

THE RUIN ISLAND PHASE OF THULE CULTURE

Following his archaeological investigations during the 1930's in the Thule District of Northwest Greenland, Erik Holtved defined a separate phase of Thule Culture which he named "Ruin Island" after the small island off the coast of Inglefield Land where its remains were identified. Based on trait comparisons, Holtved assigned this phase an intermediate position in the Thule cultural continuum in the region and from its many "foreign" features, he interpreted the Ruin Island occupation to be the result of a secondary immigration into the area around 1300 A.D. From the distinctive western stamp of their material culture, the immigrants were identified as Punuk peoples from the Bering Sea region. The discussion in this paper will focus on a reassessment of the chronological and cultural placement of the Ruin Island Phase based on data from the Bache Peninsula region of eastern Ellesmere Island, N.W.T.

Charles D. Arnold (Prince of Wales Northern Heritage Centre)
THULE OCCUPATIONS ON BANKS ISLAND, N.W.T.

Two distinct variants of Thule culture coalesced in the western regions of the Canadian Arctic, one centered around the Mackenzie Delta and the other along the coasts bordering Coronation Gulf. Thule occupations on the south coast of Banks Island are examined in order to assess their position with respect to those developmental continua.

Robert McGhee (National Museum of Man)
THE TIMING OF THE THULE EXPANSION INTO ARCTIC CANADA

This paper examines current evidence, from radiocarbon dating and historical sources, relating to the date of the Thule expansion to the eastern High Arctic, and concludes that Thule people most probably reached the area during the late eleventh century A.D. This conclusion leads to speculation regarding the nature and rate of Thule expansion from the Western Arctic, the causes for the expansion, and questioning of hypotheses on the influence of environmental and social factors on the eastward movement of Thule populations. It is suggested that the initial movement from the Beaufort Sea or Amundsen Gulf areas to the eastern High Arctic took place very rapidly, and for a specific reason: the acquisition of metal in the form of either meteoric iron or smelted iron obtained from the Greenlandic Norse.

SESSION 10
Friday A.M. April 20

RETHINKING COASTAL ARCHAEOLOGY:
CHANGING THEORETICAL PERSPECTIVES AND METHODOLOGIES

Chairperson/Direction: James C. Haggarty
(British Columbia Provincial Museum)

David J.W. Archer (Museum of Northern British Columbia)
ARCHAEOLOGICAL SURVEY IN THE PRINCE RUPERT HARBOUR AREA: A NEW APPROACH

The Prince Rupert Harbour area has been a focus of archaeological research since the early part of this century. Several site surveys have been conducted in the area, and there is a large site inventory. During the 1982 and 1983 field seasons, the area was examined again using a more intensive survey methodology. The result is an increase in the number of sites in all categories. More detailed information on site plans and features was also obtained.

Alexander P. Mackie (Victoria)
SHORELINE SURVEY ON MEARES ISLAND: IMPLICATIONS FOR RESEARCH AND
MANAGEMENT

This paper discusses the techniques and results of an intensive examination of the shoreline fringe of Meares Island and some nearby islets on the Westcoast of Vancouver Island. Of the 187 sites recorded along the 78 km of shoreline 162 were previously unrecorded. The effectiveness of past and present survey techniques applied to Meares Island are used as a case study for the region. The recording quality, site density, variety and distribution point out the strengths and weaknesses of the ethnographic record. It is also possible that previously unattainable research goals may now be met. The inadequacies of previous site inventory indicate real problems for heritage resource management in coastal areas surveyed even very recently. The now more obvious gaps in the ethnographic and biophysical record point to other problems for interpretation and hence management of heritage resources. Many of these gaps can probably be filled if addressed soon and would result in a powerful research tool.

Leonard C. Ham (Provenance Research Inc.)

MODELS OF THE DEVELOPMENT AND DISTRIBUTION OF THE ARCHAEOLOGICAL SITES OF
THE FRASER RIVER DELTA

Models of the development and distribution of several types of archaeological sites in the Fraser River Delta of British Columbia are discussed. This explicit modeling of observed intersite and intrasite patterning is useful in interpreting archaeological sites. It also generates potential maps isolating possible site locations requiring site survey, and pinpoints rare or significant sites and components which are candidates for preservation, research and interpretation. This modeling presents testable hypotheses suitable for mitigation research and evaluates site significance based upon existing archaeological knowledge.

Grant R. Keddie (British Columbia Provincial Museum)

ARCHAEOLOGICAL SITES AND THE HISTORIC SONGHEES SETTLEMENT PATTERN: A
PRELIMINARY VIEW

A brief overview of the ethnographic settlement pattern observed between 1790 to 1793 and later after 1842 is compared with the Archaeological landscape. Since the quality and/or completeness of data on the presently recorded archaeological sites could generate false settlement data I will undertake what might be called stage one in settlement analysis. That is, to take a judgemental view of the archaeological landscape to determine what classes of sites are probable and what is the best way to begin cataloguing patterns in the spacial and temporal distribution of this material culture.

Inland sites as opposed to shoreline sites tend to be under-represented in coastal settlement analysis. Is this because they are not looked for in the right way or simply not there in the first place?

It is predictable that most inland sites are more resource oriented in their location than shoreline sites and may provide valuable settlement information in both a spacial and temporal context. An overview of some shoreline and inland site patterns in Songhees territory is presented.

David Huelsbeck (University of Santa Clara)

APPROACHES TO THE ARCHAEOLOGICAL IDENTIFICATION OF SOCIAL GROUPS

Cultural materials other than "artifacts" are rarely employed in the archaeological identification of social groups. The analysis of resource remains (e.g. lithic debris,

floral/faunal remains) can identify differential utilization of resources. In some cases social rather than physical constraints may be inferred and social groups "identified." The utility of this approach is demonstrated through the description of the economic and social relationships of three households at Ozette, and an evaluation of whether they constituted one or more local groups.

James C. Haggarty and Richard I. Inglis (British Columbia Provincial Museum)

COASTAL SITE SURVEY: THEORETICAL IMPLICATIONS OF A NEW METHODOLOGY

Recent systematic site surveys of major sections of the modern shoreline within traditional Nuu-chah-nulth territory on the west coast of Vancouver Island have resulted in increases of 300 to over 600 percent in the number of archaeological sites located in areas previously surveyed. The new methods currently employed, developed first on the Brooks Peninsula Refugium Project in 1981 and refined during the early stages of the Pacific Rim National Park survey are directly responsible for the dramatic increases in overall site density and in the range of site types observed and recorded.

To date, approximately 15 per cent of Nuu-chah-nulth territory has been surveyed systematically. Extrapolation of these results to unsurveyed areas will result in a total of 4-5,000 sites for the Nuu-chah-nulth area as a whole. The theoretical implications of these results, especially when integrated with data resulting from a re-examination of historic period documents, are significant in terms of establishing a late prehistoric or protohistoric social context for sites on the west coast of Vancouver Island. Acceptance and application of this new survey methodology should result in similar increases to the site data base in other coastal areas.

Douglas Kellogg and David Sanger (University of Maine)

IS WHAT YOU HAVE WHAT YOU HAD? SITE SURVEY AND SETTLEMENT PATTERN ANALYSIS IN COASTAL ENVIRONMENTS

Archaeological site surveys may be required to answer a number of questions. Unless a clear idea of the end product of the survey is pre-defined, the results may be of limited value. In this paper we discuss some of the implications for using site locational data to construct prehistoric site settlement patterns in the central Maine coast area. Our sampling universe consists of 630 km of convoluted shoreline that includes islands, exposed outercoast, protected embayments, and estuarine environments.

Approximately 200 prehistoric sites have been located, most of them shell middens dating from 3000 B.P. to the Historic Period. A locational model for shell middens has been generated employing simple probability statistics to test hypotheses.

Two major questions affect the accuracy of the locational model:

1. To what extent is the site distribution a factor of the natural availability of locations, resources, etc.; and,
2. To what extent has coastal erosion on a subsiding coast affected site preservation?

In an attempt to answer these issues we present methods designed to identify choice of location from natural availability, as well as the impact of erosion on the cultural record.

The discussion assesses strengths and weaknesses in our methodology and concludes with some suggestions for future research in settlement pattern analysis.

SESSION 8b
Friday P.M. April 20

PLAINS PREHISTORY: RECENT ADVANCES IN
CULTURE HISTORY AND THEORETICAL PERSPECTIVES
(Continued)

Chairperson/Direction: David Burley and R. Vickers
(Archaeological Survey of Alberta)

Lynn Fredlund (Mineral Research Center, Montana)
PERSPECTIVES ON BESANT: A STONE CIRCLE SITE IN CENTRAL NORTH DAKOTA

No abstract received.

Olga Klimko (Saskatchewan Research Council)
NEW PERSPECTIVES ON AVONLEA: A VIEW FROM THE FOREST

Recent research in the parkland and mixedwood forest has provided additional data on the spatial and temporal range of Avonlea. The sites found in the mixedwood forest represent some of the more northerly locations recorded for Avonlea. Also late dates appear to be associated with these northern sites. In addition the data from these sites has provided insights into subsistence and lifeway patterns and inter-group relationships, indicating a successful adaptation and utilization of the local environment by this group.

T. Head (University of Calgary)
NORTHERN PLAINS PREHISTORY: THE LATE PREHISTORIC PERIOD AS VIEWED FROM
THE H.M.S. BALZAC SITE (EhPm-34)

The H.M.S. Balzac site is located approximately two miles north of Calgary on Nose Creek, a tributary of the Bow River. Since 1978, excavations have been undertaken in order to mitigate the impact occasioned by pipeline construction. Of concern to this discussion are two areas of the site that are subjected to periodic overbank flooding. These areas contain sequential Regosolic soils and associated cultural occupations including at least six Old Women's as well as a comparable number of Avonlea phase living floors. Cultural materials on the well preserved floors include quantities of bone, lithics, ceramics, fire broken rock and associated features.

This paper will examine various cultural attributes including faunal and lithic use patterns through time as

exhibited by the 150-200 year synchronous period of use/burial/reuse by Avonlea and Old Women's peoples. Also considered are data concerning intra-site variability from both a horizontal and vertical perspective.

John Brumley (Ethos Consultants)

THE ELLIS MEDICINE WHEEL: A BURIAL LODGE SITE IN SOUTHEASTERN ALBERTA

The Ellis site consists of 13 stone circles or tipi rings and a single medicine wheel, all situated on a point of prairie overlooking the South Saskatchewan River. The medicine wheel is centrally located within the site area and consists of a stone ring ca. 6 m in mean inside diameter from which radiate 9 stone spokes which are up to 20 m in length.

Work conducted at the site to date include excavation of seven 2 metres square test pits in various areas of the site; and detailed mapping of the entire site surface. A sample of approximately 800 pieces of cultural material consisting primarily of chipped stone debitage has been collected from the site during the course of both excavation and surface collection. Diagnostic projectile points suggest a late prehistoric occupation. Test pits excavated within the medicine wheel contained the remains of a painted wooden stake as well as cranial and post-cranial human skeletal material from a single individual. This data is discussed and interpreted in relation to current hypotheses concerning medicine wheels and ethnographic accounts of aboriginal burial practices.

Terrance H. Gibson (University of Alberta)

PREHISTORIC ALGONQUIAN INCURSIONS INTO THE PARKLAND/PRAIRIE:
NEW EVIDENCE AND NEW IDEAS

Recent excavations near Nipawin, Saskatchewan, on the southern edge of the boreal forest, have revealed remains of an archaeologically unique population which appears to be transitional between late prehistoric forest and plains adapted populations. This archaeological complex, called Pehonan, is most fully represented by a very large and productive site called Bushfield West. The site's single, well-defined occupation yields artifacts which indicate that the site may represent the occupation of the forest and parkland by precursors of the historically known Plains Cree. The presence of these features and unique archaeological materials also suggest that long-distance contacts were maintained with cultural groups far to the south of the boreal forest. This paper addresses the archaeological data and develops several hypotheses concerning the intercultural contacts that may have been maintained by a forest adapted ethnic group moving into the parkland and prairie.

Robert Dawe, Milt Wright and Jack Brink (Archaeological Survey of Alberta)
THE HEAD-SMASHED-IN BUFFALO JUMP: CURRENT RESEARCH AT A WORLD HERITAGE
SITE

The research component of the 1983 excavation at the Head-Smashed-In Buffalo Jump site, as conducted by the Archaeological Survey of Alberta, were directed at investigations of the nature and extent of bison butchering and processing activities on the prairie below the main killsite. Preliminary results indicate that in spite of a collapsed stratigraphic record, and evidence of numerous post-depositional disturbance factors, some activity patterning remains. This paper will examine the relationships between the hypothesized human activities conducted at this part of the site, the taphonomic factors which are believed to have modified the cultural deposits, and the subsequent modern day appearance of the remnant data base.

These relationships will be explored through examinations of the faunal material and the intact features recovered from the camp/processing site. Bison processing activities as documented in historical and ethnographic literature, as interpreted by other archaeologists, and as suggested by our own data will be discussed. The limitations of the data base from the processing site, as well as potentially fruitful avenues of future research attention, will be addressed.

John D. Speth and Alison Rautman (University of Michigan)
THE ROLE OF BISON IN LATE PREHISTORIC HORTICULTURAL ADAPTATIONS: THE VIEW
FROM SOUTHEASTERN NEW MEXICO

Bison become increasingly important after A.D. 1250 in the subsistence systems of horticulturalists occupying the eastern margins of the pueblo area. By about A.D. 1400 - 1450, many of these eastern pueblos have been abandoned. These changes in subsistence and settlement patterns are often thought to reflect the transformation of sedentary horticultural populations into nomadic bison hunters, as bison numbers increased in the Southern Plains. This paper re-examines the nature of these late prehistoric subsistence changes, using data from recent excavations in southeastern New Mexico. These data support the idea that bison became increasingly important in local late prehistoric subsistence systems, but indicate that the transformations may have been more complex than generally supposed. An alternative view is presented and evaluated.

George Frison (University of Wyoming)

SHOSHONEAN MOUNTAIN SHEEP HUNTING PRACTICES IN THE CENTRAL ROCKY MOUNTAINS

Wooden components of mountain sheep procurement complexes in the higher elevations of northwest Wyoming and the immediately adjacent areas of Idaho and Montana clearly demonstrate procurement methods involved. This data base needs to be recorded quickly due to the advanced stages of deterioration of the perishable parts of the procurement system. Two of the structures have been dated to the late 18th century and many elements of the subsistence strategy involved are in the data gathering stage.

Discussants: H. Marie Wormington (Colorado College)
Richard G. Forbis (University of Calgary)

SESSION 11
Friday P.M. April 20

ARCHAEOLOGICAL IMPACT ASSESSMENT AND MITIGATION WORK:
THE QUESTION OF RESEARCH VALUE AND DIRECTIONS

Chairperson/Direction: Bjorn O. Simonsen
(The Bastion Group)

Joe D. Stewart, Brian A.M. Phillips and William A. Ross (Lakehead University)
RESCUE ARCHAEOLOGY AND STUDENT TRAINING AT DoJh 16, THUNDER BAY, ONTARIO

In the autumn of 1983, a systematic surface collection was conducted at DoJh 16 in Thunder Bay, Ontario. At minimal expense, this essentially non-destructive student training project resulted in the controlled rescue of lithic debris and artifacts along an eroding pathway, which served as a natural sampling transect. The site is probably late Paleo-Indian in age. In this paper, its function within a regional context is examined on the basis of the spatial patterning of lithic debris, aspects of lithic technology, and the geomorphological setting.

Ray A. Kenny (Saskatchewan Power Corporation)
ELECTRICAL TRANSMISSION LINE PLANNING AND HERITAGE RESOURCES: A
SASKATCHEWAN PERSPECTIVE

Electrical transmission line planning and construction is a complex interdisciplinary process which must balance environmental, engineering, and economic constraints to ensure a reliable source of power at a reasonable cost with a minimum of disruption to the environment. The place of heritage resources, as one environmental component of Saskatchewan Power Corporation's (SPC) planning process, is described with reference to a 230 kilovolt (kV) transmission line recently constructed in southwestern Saskatchewan. This case study serves to illustrate the major issues which are common to this type of project in the northern Great Plains and to place heritage resource values in context with the multitude of other factors which influence transmission line siting. Moreover, an evaluation of the results of the project heritage resource impact assessment (HRIA) has led to a re-assessment of study requirements for this type of project. Findings with respect to this evaluation have far reaching implications in terms of HRIA requirements for similar projects.

William Finlayson (Museum of Indian Archaeology)
CONTRACT ARCHAEOLOGY IN ONTARIO: A CHARITABLE APPROACH

During the past decade, there has been a significant increase in archaeological investigations in Ontario which involve resource assessments and mitigative excavations. This paper will review the research value of these types of projects as conducted by archaeologists associated with the Museum of Indian Archaeology.

Among the projects to be reviewed will be:

- (i) archaeological investigations at the New Toronto International Airport organized by the Archaeological Survey of Canada, National Museum of Man, National Museums of Canada;
- (ii) projects undertaken by the Museum acting as a consultant to provincial government agencies and industry;
- (iii) the Museum's work with land developers in the City of London.

David Meyers (Saskatchewan Research Council)
HALFWAY THROUGH NIPAWIN: RETHINKING THE RESEARCH APPROACH

Three seasons of fieldwork have now been completed on the Nipawin Heritage Resources Study. Two more field seasons, plus a season of site monitoring, are planned to complete this project. According to the terms of reference any scientific investigation conducted in the course of this study is to be carried out "in a manner which genuinely advances knowledge of Saskatchewan's past." To this end, a detailed research design was prepared in order to guide the course of the mitigation program. As modelled, this research design includes feedback loops by which it may be adjusted to accommodate significant incoming data. This adjustment of the research design is now underway as a result of our greatly increased knowledge of the archaeology of the study area. In particular, our ongoing studies will very likely concentrate on three main subjects:

- (1) clarification of geomorphological processes and events within the river valley, particularly in relationship to occupation during the Altithermal;
- (2) the marked environmental change at the end of the Altithermal, with parkland giving way to forest, and the resulting expansion of forest-adapted peoples from the north and east into the study area;

- (3) documentation of evidence of contact between forest-adapted and grasslands-adapted peoples during post-Altithermal times.

Henry T. Epp and Brian E. Spurling (Saskatchewan Environment; Saskatchewan Culture and Recreation)

THE OTHER FACE OF JANUS: RESEARCH IN THE SERVICE OF ARCHAEOLOGICAL RESOURCE MANAGEMENT

Lately, some prominent practitioners have criticized applied archaeology, especially the quality of research and the perceived low productivity of new knowledge relevant to the interests of academics. More serious, however, has been the discipline's overall inability to show concretely the effectiveness of its methods and the importance of its goals to government and industry. This dilemma seems resolvable by turning the first problem around to address the second. That is, archaeologists need to concentrate on how to better manage the archaeological resource and how to improve the necessary attendant research, be it applied or academic in nature. This change in focus necessitates a fundamental reorientation of archaeological research goals. Good impact assessment or mitigation work must provide essential information for resource management decision-making and for the construction of scientific explanations. Ecology, undergoing difficulties and adjustments like those of archaeology, is beginning to reconcile its management and scientific responsibilities by concentrating on how better research can contribute to improved impact assessments and environmental management. Archaeology would do well to consider ecology's findings. In sum, it is time for archaeologists to improve their resource management and scientific research services to the public rather than continue to view applied research activities as opportunities to serve themselves only within a narrow, academic view of the discipline.

Discussants: Barney Reeves (Lifeways of Canada)
Paul Donahue (Archaeological Survey of Alberta)
David Pokotylo (University of British Columbia)

SESSION 12
Friday P.M. April 20

ORAL HISTORY AND ETHNOHISTORY IN ARCHAEOLOGICAL RESEARCH

Chairperson/Direction: Wendy H. Arundale
(University of Alaska)

Wendy H. Arundale (University of Alaska)

ORAL HISTORY AND ETHNOHISTORY IN NORTHERN ARCHAEOLOGICAL RESEARCH: SOME
METHODOLOGICAL AND PRACTICAL ISSUES

Over the past five years, I have been involved in several projects using a combination of oral history, ethnohistory and archaeology in Alaska. These projects have ranged from research involving land claims in several parts of Alaska to surveys of historic sites on the Lower Middle Yukon, western North Slope, and Koyukuk River. These projects have forced me to consider a wide range of methodological and practical issues that are of interest to other northern researchers. These issues include, for example, balancing research-oriented and management-oriented goals, timing and staging research efforts, obtaining confirmation-verification, considering ethical issues, getting adequate translation assistance, developing local credibility, and communicating results to local communities. In this paper I will address several of these issues with emphasis on the practical experience gained during this recent work.

Steven R. Acheson (Heritage Conservation Branch)

SANTLA GA HAADE (GHOST LAND PEOPLE): EUROAMERICAN APPROACHES TO HAIDA
COUNTRY 1774-1800

Although often cited in the literature as a form of "market linkage," the maritime fur trade represented more than the simple exchange of goods. The confrontation between Haida and Euroamericans saw the convergence of two distinct modes of production, one kin-ordered, the other capitalist. The content of this interaction reveals a complex interplay of material and social forces that both drove people into new social alignments and gave direction to these alignments. In illustrating this process using ethnohistoric methods, the "enrichment thesis," as a model for early culture contact on the Queen Charlotte Islands, is discounted. Haida-Euroamerican trade relations underwent perceptible changes with a propensity toward the negative extreme. This relationship further precipitated significant socioeconomic changes within the Haida community. The study has significant implications for archaeological interpretations of the Queen Charlotte Islands.

Phil Hobler (Simon Fraser University)

ALEXANDER MACKENZIE AND EARLY NATIVE TRADE ON THE CENTRAL COAST

No abstract received.

Denis E. St. Claire, Richard I. Inglis and James C. Haggarty (Victoria;
British Columbia Provincial Museum; British Columbia Provincial Museum)
THE PEOPLE OF THE BROKEN GROUP ISLANDS: ETHNOGRAPHIC, ETHNOHISTORIC AND
ARCHAEOLOGICAL RECONSTRUCTION

The results of recent systematic survey of the Broken Group Islands on the west coast of Vancouver Island yielded 164 native archaeological sites. Of these, at least 10 are major village sites. These sites appear to represent settlement loci for an equal number of autonomous local groups. In an attempt to understand the social units responsible for these major deposits, research focus shifted to a re-evaluation of the ethnographic record.

Today the Broken Group Islands are viewed as a portion of the traditional territory of the Sheshaht Band. As this band is the result of a series of historic period amalgamations of previously independent local groups, it was necessary to document the process of amalgamation and where possible to establish a temporal framework for change in both settlement and subsistence patterns.

To illustrate the integration of ethnographic, ethnohistoric and archaeological data sets three sites are discussed in detail with a view to establishing pre-contact settlement and subsistence patterns for the 10 local groups who traditionally occupied the Broken Group Islands.

Richard I. Inglis and James C. Haggarty (British Columbia Provincial Museum)

THE YUQUOT WHALER'S SHRINE: REDISCOVERY OF ITS ORIGINAL (?) LOCATION

The Yuquot Whaler's Shrine, consisting of all structural elements and approximately 100 effigy figures, was purchased in 1904 from two chiefs at the Nootkan Village of Yuquot on the west coast of Vancouver Island. George Hunt, on behalf of Franz Boas, undertook all negotiations and arranged for shipping to the American Museum of Natural History in New York. The exact location of the shrine, however, has remained a mystery until its rediscovery in 1983. This paper documents the research methodology employed to determine the location of this shrine. Although there is no doubt that the shrine was collected from this locale, a re-examination of historic period documents has raised questions regarding its original location.

Christopher C. Hanks and Barbara J. Winter (Prince of Wales Northern Heritage Centre)

LOCAL KNOWLEDGE AND ETHNOARCHAEOLOGY: AN APPROACH TO DENE SETTLEMENT SYSTEMS

This paper is based upon data derived from a two-year study of the historic and contemporary use of the central Mackenzie River by native and non-native hunters and trappers. Incorporating oral history and ethnographic data, it attempts to situate archaeological data in the perspective of contemporary and historic land use and perceptions of land. Much of the information was gathered through ethnographic means with the help of local history projects at the communities of Fort Good Hope and Fort Norman. We were encouraged by local people to incorporate Dene place naming patterns in our study.

Robert R. Janes and Marc G. Stevenson (Prince of Wales Northern Heritage Centre)

A PRELIMINARY EXAMINATION OF MALE/FEMALE ACTIVITY DIFFERENTIATION IN NORTHERN HUNTING SOCIETIES

Archaeological data from the Peace Point site, a deeply-stratified site of unique structural integrity and resolution in northern Alberta, form the basis of a model which illuminates male/female artifacts, activities, roles and relationships in prehistoric hunting societies. This model is tested with archaeological data from the High Arctic and then evaluated against recent data gathered from ethnoarchaeological research among Northern Athapaskans.

Even though agreement was noted in some important areas, a number of expectations did not hold. While recognizing that archaeological and ethnographic data are likely to yield different kinds of information, three explanations are advanced to account for the apparent lack of it. Specifically, it is suggested that the lack of congruence may be the result of changes that occurred in traditional men's and women's roles and relationships brought about by the introduction of religion, mechanized transport and an increasing dependence on imported foods. The implications of this model and the value of such research for building theory useful to both ethnoarchaeologists and prehistorians are discussed.

Sylvia L. Albright (Simon Fraser University)

AN ETHNOARCHAEOLOGICAL STUDY OF TAHLTAN SUBSISTENCE AND SETTLEMENT PATTERNS

This paper describes the approach and methods used in reconstructing traditional land use patterns of the Tahltan Indians of the Stikine River area of northern British Columbia.

Relationships between environmental variables, resource attributes and technology of exploitation are examined. A seasonal model of subsistence activities is used as the basis for discussing factors which affect the nature and distribution of archaeological sites in the Stikine region. Specific examples are used to illustrate the value of ethnographic observations on subsistence behaviour for understanding site formation processes.

Discussant: George F. MacDonald (National Museum of Man)

SESSION 13
Saturday A.M. April 21

CONTRIBUTED PAPERS: WESTERN NORTH AMERICA

Chairperson/Direction: Donald N. Abbott
(British Columbia Provincial Museum)

William B. Workman (University of Alaska)
THE POSITION OF THE OLD ISLANDER PHASE (CHIRIKOF ISLAND, ALASKA) IN THE
NETWORK OF NORTH PACIFIC MID-HOLOCENE MARITIME CULTURES

Limited excavations in 1963 at Site 9 on Chirikof Island, the isolated terminus of the Kodiak Archipelago in the northwestern Gulf of Alaska, yielded a small assemblage of flaked stone and ground slate artifacts. Slate and flaked stone points or knives with rudimentary shoulders and contracting stems, large thin stemless bifaces, a variety of unifaces (some massive), tabular abraders of soft stone and rarer finds such as pebble implements, flake cores, pumice abraders, adzes and a pigment stone were recovered. Ulu and microblades are absent and boulder spalls and stone sawing are not clearly documented. A single radiocarbon date suggests an age of about 4,000 years for this material.

This Old Islander material appears to be related in complex fashion to early maritime cultures of the Kodiak Archipelago and the Pacific coast of the Alaska Peninsula. Closest relationships are seen with the early part of the Takli Birch phase dated between 2500 and 1500 B.C. on the Alaska Peninsula. There are at present no clear local antecedents for the earliest known maritime technologies of the Gulf of Alaska and relationships with complexes of comparable age along the British Columbia coast cannot be ruled out. Sparsity of published material from southeastern Alaska and northern British Columbia and other factors have created a national boundary fault which renders the needed comparative studies difficult. Using the Old Islander material as a point of departure, evidence for possible connections between Alaskan and British Columbian mid-Holocene maritime cultures will be reviewed.

Richard L. Stromberg (University of Toronto)
PRELIMINARY REPORT ON EXCAVATIONS AT CACHE POINT, MACKENZIE DELTA, N.W.T.

Cache Point is an early Mackenzie Inuit beluga hunting station eroding into the Mackenzie River. Excavation was initiated to recover threatened cultural material and to investigate the region's early Neoeskimo culture history with

special emphasis on trade and social organization. Initial results confirm the site's early date and expected cultural connections to the west. However, trade with the Coppermine vicinity is also indicated by the presence of soapstone and copper. The potential importance of this trade is discussed.

Jacques Cinq-Mars (National Museum of Man)

ON THE EMERGENCE OF PREHISTORIC PATTERNS: RECENT ARCHAEOLOGICAL INVESTIGATIONS IN THE NORTHERN YUKON TERRITORY

Important segments of the northern Yukon interior region have now been subjected to more than 15 years of fairly intensive archaeological investigations by a number of individual researchers as well as by interdisciplinary research teams. While some important aspects of this research have achieved a high degree of scientific and public exposure at both national and international levels - namely, the "ancient bones" controversy - others, however, have mostly remained in the somewhat anonymous background of less prestigious, specialized studies.

The purpose of this paper, therefore, is to present interested archaeologists with a detailed and integrative historical overview of these activities, and with a balanced, critical appraisal of important research developments and orientations in an area which, given its present scientific yield, can only be viewed as of prime importance in our understanding of many aspects of New World prehistory.

David A. Morrison (National Museum of Man)

A HORIZON-MARKER IN LATER SUBARCTIC PREHISTORY

A type of square-based projectile point variously referred to as "Middle Taltheilei", "K-stemmed" or "Whitehorse", seems to represent a horizon-marker dating to the early post-Christian centuries and spanning the southern Northwest and Yukon territories. The possible significance of this horizon-marker is discussed with reference to the eastward spread of Athapaskan languages at about this date. Language spread may not have involved significant population movement.

Sheila C. Greer (University of Toronto)

PREHISTORIC LAND-USE PATTERNS: RECENT RESEARCH IN THE SOUTHERN LAKES REGION, YUKON

Regional subsistence and settlement, or more simply land-use, patterns have been the focus of recent archaeological research in the Whitehorse-Carcross-Teslin area of southern

Yukon. Data derived from various survey and mitigation projects within the Southern Lakes region (a ca. 18,000 square kilometre government planning area) was used to initiate a study of land-use patterns for the late prehistoric period, ca. A.D. 700-1800. During the 1982 and 1983 seasons additional site survey was undertaken and excavations were completed at four sites to collect detailed subsistence data. To date, 46 late prehistoric sites or components have been recorded here; these suggest that relatively small sites are the regional norm. While the sites cluster around existing waterways and waterbodies in the valley bottoms of this mountainous region, a collection of sheep hunting blinds (JbUv-4) were located at an elevation of ca. 1800 m a.s.l. in the Coast Mountains. The antiquity of these structures is not known, although they are believed to be prehistoric in age. The faunal samples from the excavated sites, Nustsehe (JaUk-23), Luu Cho (JbUm-1), Desquanga (JcUj-12), and Annie Lake (JcUr-3), while still undergoing analysis, suggest a diverse rather than specialized economy in this area during the late prehistoric period. An overview of the Southern Lakes Archaeology Project will be given, and the major question which the research hopes to address, the relationship between the archaeological and the ethnographic perspectives of regional land-use, will be discussed.

Raymond J. Le Blanc (Archaeological Survey of Alberta)

THE BEZYA SITE: A WEDGE-SHAPED CORE ASSEMBLAGE FROM NORTHEASTERN ALBERTA

Excavation was recently completed (1982-83) at Bezya (ElhQv-73), a wedge-shaped core, microblade, and burin producing site located approximately 70 km north of Fort McMurray in northeastern Alberta. The site was discovered in 1980 during an archaeological inventory of the former Alsands tar sands lease, an area characterized by a patchwork of muskeg, interspersed with low elevation terrain features forested with various combinations of aspen, spruce, and pine. An assemblage that includes five wedge-shaped microcores, 105 microblades, a notched transverse burin, 5 burin spalls, 26 fluted and platform element preparation and rejuvenation ridge flakes, 3 core tablets, and edge modified and unmodified debitage was concentrated in a 16 metre square area at 10 to 60 cm below surface. Cross fitting suggests a high degree of assemblage coherence, despite the vertical and horizontal dispersion. A composite sample of charcoal from the main microblade producing zone yielded a date of 3,900 \pm 170 B.P.

In the context of northwestern Canada and Alaska, the Bezya assemblage exhibits the closest technological and morphological similarities with surface finds of four microcores in the Calgary area of southern Alberta. However, as a complex, the Bezya

collection has the most intriguing parallels in terms of methods of core production and core morphology with Campus/Denali microblade assemblages extending on a northwest axis through the Northwest Territories, Yukon, and Alaska.

James F.V. Millar (University of Saskatchewan)
CULTURAL ECOLOGY OF THE UPPER CHUICHIE RIVER BASIN

No abstract received.

Wayne T. Choquette (East Kootenay Community College)
EARLY PREHISTORIC LAND AND RESOURCE UTILIZATION IN THE WEST KOOTENAY AREA,
BRITISH COLUMBIA

Results of recent archaeological investigations in the Purcell Trench and adjacent mountains are summarized. An early archaeological complex, the Goatfell Complex, is defined in terms of settlement pattern, lithic raw material preference, and technology. Directions for future research are suggested, especially with regard to obtaining data on the chronology of initial inhabitation and subsistence base. The paper concludes with a discussion of significance in terms of western North American prehistory.

David Friesen (University of Calgary)
ARCHAEOLOGICAL SURVEY OF THE HISTORIC HYLAND POST TRAIL, NORTHERN BRITISH
COLUMBIA

Survey of the Stikine River drainage in northern British Columbia has revealed a long established aboriginal route which closely follows the historic Hyland Post Trail. This trail system bisects Tahltan territory providing access to summer fishing villages on the Stikine River, obsidian quarries on Mount Edziza and fall/winter hunting areas on the Spatsizi Plateau. A total of 91 sites have been recorded in the vicinity of the trail, most of which are situated in a densely forested, upland environment and appear to represent manifestations of late prehistoric and historic resource procurement systems.

Mary-Lou E. Florian (British Columbia Provincial Museum)
CORDAGE, THREAD AND WEAVING MATERIALS FROM HISTORIC PERIOD BURIAL CAVES,
HESQUIAT HARBOUR, VANCOUVER ISLAND, BRITISH COLUMBIA

The identification of the artifact material and species origin (if possible) of 180 cordage fragments and 15 threads for beading is presented. The artifact material is historic, dating

approximately 1800-1815. Due to extensive deterioration of the material, a specific approach to identification is required. Details of sampling, slide preparation and the identification techniques are presented. The morphological, cellular birefringent and staining characteristics, deterioration patterns and measurements used for identification are presented. Plant species distribution is discussed in reference to cultural selection of species. The unstable deteriorated material has specific conservation needs which are outlined.

SESSION 14
Saturday A.M. April 21

CONTRIBUTED PAPERS: EASTERN NORTH AMERICA

Chairperson/Direction: James V. Wright
(National Museum of Man)

Darlene Balkwill (National Museum of Natural Sciences)
SALT PORK AND BEEF AGAIN? THE DIET OF FRENCH AND BRITISH SOLDIERS AT THE
CASEMATE, BASTION ST-LOUIS, QUEBEC

Faunal analysis of material recovered from a casemate at the Bastion St-Louis, Quebec City, presents an opportunity to examine the diet of French and British soldiers over a 70 year period. The casemate was occupied from ca. 1750 to ca. 1800-1820, housing first French, then British troops. The soldiers' diet through time shows an extremely heavy reliance on domestic mammals, including extensive use of their bones in button manufacture, and a striking paucity of wild game and fish. The main difference between French and British troops lies in the relative proportions and age distribution of the three main species, cow, pig, and sheep. Pork was very important to the French soldier, lamb and mutton to the British. Veal became widely available around the turn of the century. These faunal remains support documentary evidence of the monotony of a soldier's diet.

Stephen A. Davis (Saint Mary's University)
McGOWAN LAKE SALVAGE PROJECT: A PETROGLYPH RELATED SITE

The Saint Mary's University Archaeological Laboratory undertook a salvage survey of McGowan Lake, Queens County, Nova Scotia. The project was necessitated with the lowering of the lake level to facilitate the repair of a hydro-development project. This activity exposed a major petroglyph site which had been drowned for approximately forty years.

The obvious importance of the site raised issues that demanded immediate attention. Paramount among these was the governmental attitude towards its own Special Places Protection Act. With the intervention of the Nova Scotia Museum and other concerned agencies the Act was tested and found to be legally binding. The result was the funding of the survey, the recording of the main petroglyph site and five others found during the survey and the locating of seven habitation sites with testing at two.

The research problem being addressed at the petroglyph sites is the relationship of the glyphs as a visual representation of historic Micmac culture. The extensive testing was conducted in an effort to relate occupational material to a petroglyph site. The paper will report on the excavations, highlighted by a unique collection of mobiliary art objects represented by incised pebbles and cut slate tablets.

Peter J. Lambert (Private Consultant)

BLOOD ON THE ROCKS: ON INTERPRETATION OF ABORIGINAL PICTOGRAPH SITES FROM NORTHWESTERN ONTARIO

This paper illustrates the results of fieldwork and analysis conducted in 1982 by the Northwestern Ontario Rock Art Project. Data representing ten pictograph sites are presented and discussed in the context of ethnographic sources for the Ojibwa. Results of this preliminary analysis suggest that pictographic records present and, to some degree, preserve aspects of a prehistoric ideology, including religion, social organization and subsistence.

Charles E. Cleland (Michigan State University)

OBSERVATIONS ON THE ORIGIN AND DEVELOPMENT OF OJIBWA ICONOGRAPHY

Archaeological work at four small Late Woodland sites (circa A.D. 1350) in northern lower Michigan have produced a large collection of slate discs engraved with symbols which are associated in historic times with northern Algonquian myth and ritual. These artifacts thus produce the first demonstrable evidence for the prehistoric roots of northern Algonquian (Ojibwa) iconography and mythology. Analysis of style and symbolism of the discs, when compared to those of both Mide scrolls and the rock art of the Canadian Shield adds to our knowledge of a durable and widespread iconographic system.

Howard Savage (University of Toronto)

WHITE-TAILED DEER IN ONTARIO ARCHAEOLOGICAL SITES, 1400 - 1650 A.D.

A survey in depth of central southern Ontario archaeological sites of significant size, in year-round use by Neutral, Huron and Petun peoples between 1400 and 1650 A.D., and in which white-tailed deer bones made up more than 35% of the total identified mammal bones, was carried out in the summer of 1983.

Significant factors resulting in the high levels of deer bones are believed to be site location in the drainage areas of large rivers and lakes with excellent and abundant deer browse, large nearby village populations and interruption of forests with agricultural clearings. No discernible change of range of the White-tailed Deer within this time period were found. Lower percentages of deer bones in sites are believed related to a reduction of deer populations in the vicinity of sites, or to the pursuit of more financially rewarding fur-bearers, or both.

The different position of the White-tailed Deer among the Neutral, Huron and Petun peoples is believed related to their differing relations with French traders and trade goods in the interplay of cultural and ecological factors in the southern Ontario of this time period.

Jean-Luc Pilon (Université de Toronto)
DECOUVERTES ARCHEOLOGIQUES AU CONFLUENT DES RIVIERES SEVERN ET SACHIGO,
ONTARIO

ARCHAEOLOGICAL DISCOVERIES IN THE VICINITY OF THE CONFLUENCE OF THE SEVERN
AND SACHIGO RIVERS, ONTARIO

Au courant d'une saison de six semaines dans la region de Rocksands sur la rivière Severn, cinq gisements d'importance furent trouvés qui témoignent d'une occupation continue à partir d'environ 2000 ans. Nous y avons identifié des vestiges qui s'apparentent au complex Pelican Lake, Laurel, Blackduck ainsi qu'amérindien Crie de la période historique. Nous croyons cependant reconnaître une spécificité à l'adaptation dans les Terres Basses de la Baie d'Hudson de telle sorte qu'on doit seulement parler d'influences externes Laurelliennes, etc. plutôt que d'occupations par ces groupes culturelles.

During a six week field season in the Rocksands area of the Severn river in northern Ontario, five important archaeological sites were discovered and tested. These suggest a continuous occupation of the area over at least 2,000 years. A number of cultural manifestations have been recognized and include the Pelican Lake Complex, Laurel, Blackduck and historic Cree. We hesitate however to speak of occupations by these different groups (historic Cree excepted) but rather discussion revolves around the influences of these cultural traditions upon the local populations.

David W. Black (McMaster University)

LIVING IN BLISS: AN INTRODUCTION TO THE PREHISTORIC ARCHAEOLOGY OF THE BLISS ISLANDS GROUP, CHARLOTTE COUNTY, NEW BRUNSWICK

During July and August of 1983 test excavations were conducted at six shell midden sites located on the Bliss Islands. The tests indicate that the sites are located in two clusters, each comprised of three middens; one cluster consists of the larger sites all of which are late prehistoric in age, the other consists of the smaller sites which are suspected of being historic shell deposits. The paper includes a brief description of each of the sites, and emphasizes the contrasts between the two clusters of sites.

David L. Keenlyside (National Museum of Man)

THE JONES SITE: 9500 YEARS OF PRINCE EDWARD ISLAND PREHISTORY

Archaeological fieldwork in 1983 focussed on the multi-component Jones site in northeastern Prince Edward Island. A co-operative venture between the National Museum of Man and the University of Prince Edward Island, a crew of seven spent approximately six weeks testing and undertaking controlled excavations at the site. Although the site is actively eroding along a shoreline embankment, seasonal flooding of the site and resulting alluvial sand deposition, especially in recent centuries, has protected the underlying prehistoric components from horticulture disturbance. The laminated deposits, in places a metre in depth, are believed to span from an historic early 18th century Acadian occupation to a basal cultural level considered to be Palaeo-Indian in age.

A significant find was a triangular point fragment, stylistically considered to be late Palaeo-Indian, found in the lowest cultural horizon. Associated charcoal is currently being processed for dating. A surprising associated discovery, also found in situ with charcoal, was an intricately decorated piece of slate with both geometric and naturalistic design elements.

Given the coastal location of this site and the types of implements found, it is believed that this site, beginning in the Palaeo-Indian occupation, functioned primarily as a seasonal sea mammal hunting/fishing station. The Jones site assemblage and cultural sequence will be described and discussed in the context of regional and broader Atlantic coast prehistory.

Patrick J. Julig (University of Toronto)
SURFICIAL GEOLOGY AND STRATIGRAPHY OF THE CUMMINS PALEO-INDIAN SITE,
THUNDER BAY, ONTARIO

The Cummins (DoJi-1) late Paleo-Indian (Plano) site is located on raised beaches of glacial Lake Minong. Questions regarding contemporaneity of occupation of Minong beach ridge Paleo-Indian sites with Minong water levels (ca. 9500 - 10,300 B.P.) has been debated since R.S. MacNeish's Brohm site excavations in 1952. Excavations at Cummins in 1983 revealed water worn artifacts in deeply buried beach gravels, indicating an early occupation was contemporaneous with middle Minong levels. The sequence of late Quaternary deposits overlying bedrock at two sections of Cummins will be examined in regard to site formation processes and their correlation to regional water levels in the Superior and Lake Agassiz basins.

C.S. Paddy Reid (Heritage Branch, Ontario)
THE FORMULATION OF RESEARCH DESIGNS AND EXCAVATION METHODOLOGIES ON BOREAL
FOREST HABITATION SITES

This paper takes a critical look at the current state of methodology in the excavation of habitation sites in the Boreal Forest, using examples from a decade of research in northwestern Ontario. Some fallacies regarding site size and stratification are examined in the light of recent evidence and the severe problem of "collapsed stratigraphy," is discussed and possible methodological solutions are proposed. The reconstruction of social patterning is emphasized, through the medium of successful examples of research design and lab methods from the Middle and Late Woodland periods in the study area.

SESSION 15
Saturday A.M. April 21

CONCEPTUAL FRAMEWORKS FOR INTERPRETATION IN HISTORICAL ARCHAEOLOGY

Chairperson/Direction: Gregory G. Monks
(University of Manitoba)

Gary Graffam (Trent University)

FOODWAYS AS A THEORETICAL FRAMEWORK FOR SOCIO-ECONOMIC STRESS

This paper examines "foodways" as a conceptual framework for studying socio-economic adaptation. The concept, as defined by Anderson (1971) and Deetz (1977), refers to the interrelated system of food conceptualization, acquisition, preparation, consumption and discard; it includes the study of food-related items as well as foodstuffs. This study shows how the various components of foodways can be studied through the archaeological record, and examples from the author's work are presented. Both qualitative and quantitative observations allow us to view adaptation within a cultural system. Conclusions are made with reference to a 19th-century urban site from Portsmouth, New Hampshire.

Michael P. Zywna (University of Manitoba)

SOCIAL HIERARCHY DERIVED FROM CERAMIC DECORATION: HOW AN ARCHAEOLOGIST CAN DO IT

In historical archaeology, researchers have at their disposal a wide variety of tools to reconstruct the past lifeway of a "well-recorded" situation. Unfortunately, even at the best of times, information from these different sources is incomplete and of varying quality. Recent work at the site of Upper Fort Garry has permitted some research to be conducted into the social hierarchy which developed at the Red River colony in the early and middle 19th century. By examining the changing stylistic patterns recovered in the excavations and described in historical documents, the author has attempted to demonstrate how and why the development of social hierarchy can be determined.

Eric C. Poplin (University of Calgary)

THE USE OF EXPEDIENT TECHNOLOGIES FOR INTRA-SITE AND INTER-SITE COMPARISONS IN HISTORICAL ARCHAEOLOGY

An attempt is made to use expedient technologies to define activity areas within historical sites. Although these technologies have been suggested for this purpose in

hunter-gatherer studies (i.e. Binford 1978 or Hayden 1975), historical archaeologists have most relied upon more formal typologies of artifacts or structures and/or historical documents (see South 1977:65-80 or South 1979 as an example). Glass fragments employed as woodworking tools are used in the present study to define these areas and address a number of hypotheses relevant to intra-site analyses. In addition, a number of hypotheses concerning inter-site comparisons are put forward which can be assessed by the examination of expedient tool types. This analysis is not intended to preempt more traditional approaches but to provide an adjunct for the interpretation of historical sites, particularly those with poor documentation and little or no structural remains.

Gregory G. Monks (University of Manitoba)
CULTURAL EVOLUTION IN THE RED RIVER SETTLEMENT, 1821-1870

Consideration is given to factors affecting diversification within Red River society and the gradual replacement of the Hudson's Bay Company's social hierarchy by that of the settlement. A model is proposed to account for the observed situation. Archaeological evidence is used as an independent test of the model.

Scott Hamilton and David Hems (University of Alberta; University of Manitoba)
TAXONOMIC CLASSIFICATION AND SITE ASSESSMENT: METHODOLOGICAL AND THEORETICAL CONSIDERATIONS

This paper attempts to view the classification of artifacts as a flexible system dependent upon context rather than solely upon the artifact itself. In such a classification system the important criteria are the multiple relationships which exist between the artifacts and their association to the various types of features identified during site assessment. This requires that when one assesses a site area, a detailed examination of particular features or areas of investigation must be initiated in conjunction with the removal of an archaeological sample. This detailed examination, which may include various techniques of mapping and/or remoted sensing, will assist with excavation results to identify the features under investigation and therefore aid in the final classification given the artifacts. The classification would attempt to explain the existence of certain associations of artifacts within the different areas investigated. This would enable the researcher to use the classification as a guide to site utilization and potentially as a means of interpreting the social organization required for that type of utilization.

Gail Fifik (University of Manitoba)

TEXTILES: AN EXAMPLE OF EXCHANGE NETWORKS FROM UPPER FORT GARRY

Textiles were recovered during three seasons of fieldwork at Upper Fort Garry and have provided a unique source of data for historical archaeologists. Analysis of textile remains and archival research will form the basis of interpreting exchange patterns for Upper Fort Garry during the middle and late Nineteenth century. Hypotheses regarding social stratification during this period will be presented based on these patterns.

Donald W. Clark (National Museum of Man)

FORT RELIANCE, YUKON TERRITORY: A STORY OF THE AMERICAN AND CANADIAN FREE WEST, THE TSAR'S CHILDREN, KING GEORGE'S MEN AND THE DENE

Fort Reliance (1874-1886) was established near Dawson City in Canada by the Alaska Commercial Company following the Alaska Purchase and the withdrawal of the Hudson's Bay Company from former Russian territory. Drawn into its story are the activities of Canadians in Alaska, French Canadians from the United States, Americans who had ranged freely over western Canada, Russian-Athapaskan metis (creoles) of the Yukon valley, the Han and Upper Tanana Déné who were the first clients of the trading post, and finally placer miners whose searches culminated in the Fortymile discovery--precursor of the Klondike. Among them are counted the Merciers, McQuesten, Harper, Ladue, Mayo, Mike Hess, Billy Moore, Minook and others who were prominent in the commercial and mining history of the Yukon region.

The site of Fort Reliance remains intact today, little disturbed by construction, vandalism and erosion. Observation and test excavations made in 1983 serve to define the extent and nature of surface structure outlines and of archaeological materials at Fort Reliance.

David J. Christianson (Nova Scotia Department of Education)

BELLEISLE 1983: AN INTERPRETATION OF PRE-EXPULSION ACADIAN HOUSE CONSTRUCTION

The Nova Scotia Museum 1983 field season at Belleisle (BeDi-2) examined settlement features associated with a late pre-expulsion Acadian occupation (c. 1720 - 1755). One research focus was the method of house construction. Previous researchers have suggested several alternative construction methods for pre-expulsion Acadian houses including piquet, horizontal log, and charpente techniques. The principle elements of these architectural styles are discussed with respect to the found

evidence from the Belleisle structures. It is argued that these houses were built using charpente building techniques. Specific structural elements from the Belleisle houses suggest adherence to a vernacular building tradition with origins in southwestern France.

SESSION 16
Saturday A.M. April 21

PUBLIC INTERPRETATION IN ARCHAEOLOGY

Chairperson/Direction: Arthur S. Charlton and Sharon Johnson
(Heritage Conservation Branch; Vancouver)

Wayne T. Choquette (East Kootenay Community College)
INTERPRETATION AT THE LOCAL LEVEL: A PROPOSAL FOR A KOOTENAY HERITAGE
CENTRE

The archaeological legacy of the Kootenay People is one of thousands of years of successful adaptation to a diverse, dynamic, and demanding environment. During this time their culture evolved its unique and distinctive features. The Kootenay People welcomed the first Euroamericans and established a tradition of sharing knowledge and resources. At the turn of the 19th Century the Catholic Church established the St. Eugene Mission, an educational centre funded in part by the sale of a mineral claim located by a Kootenay Indian. The church is no longer involved in their education and the Kootenay Nation looks towards the future. As part of their modern cultural identity, the Kootenays wish to continue their tradition of sharing by restoring the old mission school and establishing there a cultural heritage centre where "all who would actively seek knowledge of the Kootenay Indian culture will be enriched". The first step in this endeavour is the development of an archaeological reference and resource management facility.

Ingrid Fawcett and Eric Kowalski (Vancouver)
THE LYTTON HERITAGE PARK STUDY: RESULTS FROM 1983

The Lytton Heritage Society is proposing the development of an interpretive park just north of Lytton. The property involved, a 96 acre parcel of Crown land, contains several archaeological sites. Some of these are prehistoric Thompson Indian sites, while others consist of the remains of historic Chinese and Euro-canadian mining activity.

In the summer of 1983 the B.C. Heritage Trust provided the funding for two researchers, Ingrid Fawcett and Eric Kowalski, to explore possible approaches to the development of the "Lytton Heritage Park." This paper outlines the results of the summer's work.

Sharon Johnson (Vancouver)

PUBLIC PROGRAMMING AT THE ST. MUNGO ARCHAEOLOGICAL SITE

At the St. Mungo archaeological site, near Vancouver, interpretive programs were conducted to demystify archaeology for the public. Visitors were able to view an on-site exhibit, take a guided tour of the site, and screen disturbed soil. In addition, booked groups received a demonstration of tool manufacture and grade 7 students were allowed to excavate. In the seven months of operation over 18,000 people visited the site.

Susan Irvine (Vancouver)

THE KWONG SANG WING BUILDING: ARCHAEOLOGY AND THE RESTORATION OF AN HISTORIC STRUCTURE

In this paper the results of an archaeological investigation carried out on the site of the Kwong Sang Wing Building in Barkerville Historic Park will be briefly reviewed and the unique opportunities and problems presented in undertaking such a project in a popular public facility will be discussed. Barkerville, situated in central British Columbia, is a restored mining town jointly administered by the Heritage Conservation Branch and the Parks and Outdoor Recreation Division of the Provincial Government. Restoration of the town is aimed at recreating the 1870 - 1885 period -- the hey-day of gold mining activity in the Cariboo.

The archaeological project was undertaken as part of the restoration of the interior and exterior of the Kwong Sang Wing Building in the Chinese area of the town. The dismantling and removal of the building was viewed as an excellent chance to investigate the structural evolution and cultural history of the site. The project also offered thousands of Park visitors the experience of observing an excavation carried out in conjunction with reconstruction work. The successful combination of these two activities is the focus of an exhibit that has been created to present the objectives and processes involved in this historic restoration project.

Jack Brink (Archaeological Survey of Alberta)

PRESERVING OUR FUTURE THROUGH PUBLIC INTERPRETATION: A CASE STUDY FROM THE HEAD-SMASHED-IN BUFFALO JUMP

As the public pocketbook funds most archaeological studies conducted in Canada the need for professional archaeologists to provide a return service to the public is reaching a critical stage. One of the most visible and most popular return services

is developing on-site interpretation centres. A major interpretation program is underway at the Head-Smashed-In Buffalo Jump site in southwestern Alberta. This paper will present an overview of the Head-Smashed-In project, including a discussion of planning, funding, the interpretation building, site operations, and continuing archaeological research. Some of the major problems - and rewards - associated with site development will be mentioned.

SESSION 17
Saturday P.M. April 21

THE PEOPLING OF THE AMERICAS

Chairperson/Direction: Richard Shutler, Jr.
(Simon Fraser University)

Richard Shutler, Jr. (Simon Fraser University)
THE DEVELOPMENT OF PALEO-INDIAN STUDIES IN THE NEW WORLD

The times and routes of the first arrivals in North and South America have been a subject of wide interest since Europeans first came to the New World. This paper presents an overview of the development of the varied ideas on this highly controversial and emotional subject.

Richard E. Morlan (National Museum of Man)
THE PLEISTOCENE ARCHAEOLOGY OF BERINGIA

Current evidence from Siberia, Northwest North America, and the Yukon, will be presented in a cultural/chronological framework as it relates to the Peopling of the New World.

Barney Reeves (University of Calgary)
EARLY MAN IN THE AMERICAS: WHO, WHEN AND WHY

The timing, routes of entry and culture of the first peoples to penetrate the New World south of Beringia continues to be a source of sometimes divisive debate, between proponents of a Late Glacial Entry - less than 13,000 years ago, and those who propose entries back to earlier non-glacial times, ca. 30,000-50,000 or much earlier ca. 100,000 or more years ago.

The routes available for movement and their environmental characteristics particularly for supporting man, differ markedly between glacial and non-glacial times. The latter, analogous more or less - to today, provide sufficiently wide "windows" between ca. 20,000 and 50,000 and in earlier times for early peoples present in Beringia who could gradually radiate down through the Western Canadian Coast, Cordillera and Plains.

If man arrived during these times, and the evidence points to a minimum entry of ca. 30,000+ years, the presence or absence of Ice Free Corridors along the coast or eastern slopes of the

Rocky Mountains over the last 120,000 years ago for the first peopling, is largely irrelevant.

In late glacial times both corridors appear to have been relatively broad and ice free, and in the case of the Eastern Slopes, appear to have been similar to Beringia, a continuous open steppe tundra.

Both coastal and high latitude continental interior adaptive patterns were well established in East Asia by the last Interglacial. Human occupation of Hokkaido predates ca. 170,000 years and on the Aldan River north of 60 degrees, date to the last major interglacial ca. 120,000.

Simple chopper/chopping tool technologies characterize these sites and one can speculate a gradual movement of these early peoples north eastward around the Pacific Rim into the Americas where they are represented by Early Coastal and Highland Interior e.g. Woolley Mammoth and Valsequillo.

Although we can model it as gradual expansion of people into an unoccupied resource-rich area, I think peopling of the Northeast Asia New World - at least by hunters - relates to the radiation of the Rancholabrean fauna, of which they were an integral component. People, like the mammals on which they depended, evolved early in the Pleistocene the mechanisms to cope with life in seasonally extremely cold as well as hot climates, which is not reflected in any way in the simple cobble tool assemblage of the high Asian steppes, some of which predate 900,000 years.

If man is part of the Rancholabrean faunal expansion which was a very long time ago, then the Eastern Slopes would have played a major role, as it is along this gradually widening corridor that the major grazers would have passed before the wooded and non-productive western Boreal Forest intervened. Man would have accompanied this "movement" southward.

Roy L. Carlson (Simon Fraser University)
THE LATER PREHISTORY OF THE AMERICAS

This paper explores the socio-cultural events and processes underway in the Americas between the period of early migrations and 1492, the beginning date of European expansion into the New World. Relationships between the early migrants and later peoples, diffusion of new techniques, and adaptations to changed environments will all be touched upon.

Discussant: Richard S. MacNeish (Boston University)

SESSION 18
Saturday P.M. April 21

CONTRIBUTED PAPERS: THE WORLD

Chairperson/Direction: Grant Keddie
(British Columbia Provincial Museum)

Bryan C. Gordon (National Museum of Man)
OF MEN AND REINDEER IN FRENCH MAGDALENIAN PREHISTORY: CONCLUSIONS

Analysis of cementum annuli in reindeer teeth from French Magdalenian sites provides information on season and age of death of reindeer. Since this was the primary fauna utilized at most sites, season of death information implies season of hunting band residency. Interpretation of this information leads to the following conclusions:

- (1) Migrations, route directions and range boundaries can be defined for reindeer, while territorial boundaries can be inferred for Magdalenian hunting bands. In southwest France, both reindeer and hunters wintered in the protected valleys of the Dordogne, Charente, Gironde, and summered 200 km to the south in the Pyrenees; intermediate sites were occupied in spring and autumn.
- (2) Art and tools are more alike within a given reindeer range than between ranges, inferring greater band contact within ranges.
- (3) Correlation seldom exists between actual season of site occupation and season portrayed in art associated with the site. Animal absence during art conception may account for stylistic factors such as exaggerated body parts, but magico-religious beliefs also influenced the art.

Persis B. Clarkson (University of Calgary)
ARCHAEOLOGICAL RECONNAISSANCE ON THE NASCA PAMPAS OF PERU: NEW INFORMATION
AND INTERPRETATIONS

Theories concerning astronomical and calendrical use of the Nasca ground drawings have been proposed since their discovery in 1939. However, very little archaeological exploration has been conducted in the region to understand the lifeways of the builders of the ground drawings.

Field studies in Nasca carried out since 1981 have located cultural remains on the pampas in the vicinity of the ground

drawings. In addition, the area of the ground drawings extends well beyond the previously reported regions. Archaeological data are integrated with new astronomical and calendrical data on the ground drawings in an attempt to present a more complete view of the prehistoric inhabitants of the Nasca pampas.

Jonathan E. Damp (Calgary)

CULTURES ADRIFT: PATTERNS OF GROWTH AND SETTLEMENT IN THE ECUADORIAN FORMATIVE

The early Formative Valdivia culture of Ecuador is known for its early ceramics which are among the first in the Americas. Debate concerning this issue has largely dealt with the question of the diffusion of ceramic technology to the New World from the Japanese Neolithic Jomon culture. Current evidence dispels this notion using chronological and spatial criteria. Valdivia society was based upon an agricultural system and it developed a ranked hierarchy within the village structure. These events are further evident in settlement pattern analysis which vividly documents the expansion of Valdivia from the interior regions of South America to the Pacific coast and beyond.

E.B. Banning (University of Toronto)

ENVIRONMENTAL FACTORS AFFECTING LAND USE IN THE ANCIENT WADI ZIQLAB, JORDAN

During November and December of 1981, a statistically based survey of the Wadi Ziqlab produced data on the distribution of ancient settlements and other sites with respect to a number of environmental variables which probably affected agricultural and pastoral strategies in antiquity. This paper will analyze changes in the relationships between sites and such factors as soil type, irrigability, suitability for terracing, drainage, erosional regime, water availability, and probable natural vegetation. Differences in these relationships between the Middle Bronze Age, Iron Age, late Roman period and Mamluk period presumably will reflect changes in the natural environment itself, in the availability of technologies suitable for manipulating the environment, in demographic or social pressures on the intensity or type of food production, or some combination of these factors. Some specific hypotheses which require attention concern the colonization of the forested hills, the introduction of irrigation and terrace systems, and shifts of emphasis from subsistence production to export production and back again.

William Hurley (University of Toronto)

RE-EXAMINATION OF CERAMICS IN NORTH AMERICA

No abstract received.

Arthur Roberts (Simon Fraser University)
PEACE RIVER DISTRICT PALEO INDIANS: REGIONAL RELATIONSHIPS AND
IMPLICATIONS

Paleo Indian discoveries in northeastern British Columbia over the past decade suggest continued occupation since the earliest fluted point adaptations. An examination of literature concerning the archaeology of the "Ice-Free Corridor" and adjacent regions in conjunction with the results of archaeological surveys in the Peace River District shows the presence of most Paleo Indian projectile point types. In addition later, and often untyped, projectile points and lithic artifacts are abundant. Typological similarities between British Columbian fluted points and some Alaskan and Albertan specimens are noted and a general western Canadian - Alaskan manifestation is hypothesized.

James M. White (Parks Canada)
LATE WISCONSINAN CLOSURE OF THE ICE-FREE CORRIDOR, PEACE RIVER DISTRICT,
CANADA

Lake sediment cores from the Saddle Hills, Alberta, record the ablation of a Laurentide ice mass about 12,000 years B.P. Glacial lineations show that this ice advanced close to the Rocky Mountain front ranges south of Dawson Creek, British Columbia. Radiocarbon and pollen analyses indicate a 65 percent probability of an ice-free, habitable area by 11,600 years B.P.

SESSION 2a
Thursday A.M. April 19

PALEOECOLOGICAL, CHEMICAL AND PHYSICAL ANALYSIS IN ARCHAEOLOGY

Chairperson/Direction: Richard J. Hebda
(British Columbia Provincial Museum)

Marc G. Stevenson (Prince of Wales Northern Heritage Centre)
REGIONAL CHRONOLOGY BUILDING FROM THE GROUND UP

Recent archaeological investigation at the Peace Point site in northern Alberta has uncovered 18 stratigraphically distinct cultural levels. At least seven of these have produced large quantities of lithic and faunal materials in association with hearths. While one of the major objectives of research was to propose a preliminary cultural sequence for the region, the virtual absence of diagnostic artifacts in these levels precluded a traditional type-based approach to this most common of archaeological goals. Alternatively, regional cultural development, change and continuity was examined in terms of varying intensification of land use patterns at a specific location over time. Specifically, strategies of regional mobility and specific site use, as reflected in lithic raw material and species diversity, were used to measure the relative intensity of local land use patterns in levels at Peace Point. From this perspective, a model is presented which proposes that there was a shift through time from a basic foraging to collecting economy at Peace Point. The implications of this research for (1) modelling land use patterns in the lower Peace Point lowlands; and (2) building regional chronologies in this manner, are discussed.

Peter T. Bobrowsky and Bruce F. Ball (University of Alberta; Archaeological Survey of Alberta)

THE CONCEPT OF DIVERSITY: A REDUCTIONIST APPROACH

Diversity is an ecological concept which has acquired attention from archaeologists interested in the quantification and comparison of artifactual remains. Unfortunately a lack of clarity exists in the understanding of the meaning of the concept of diversity and the associated equations which measure the concept. In this study we: (1) provide a three part definition of the concept of diversity; (2) explore the ecological basis of such a division; (3) outline the mechanics behind several measures of diversity; (4) recommend a suitable suite of

SESSION 19

8:30 A.M. Friday, April 20 - 5:00 p.m. Saturday, April 21

POSTER SESSION

Terry Gibson, O. Klimko and J. Finnigan (University of Alberta;
Saskatchewan Research Council; Saskatchewan Research Council)
PRACTICAL DEMONSTRATION OF NIPAWIN PROJECT MICROCOMPUTER DATA
MANAGEMENT/ANALYSIS SYSTEM

See paper abstract, Session 3.

Matthew Hill, Ian McKenzie and Ron Lal (University of Waterloo)
GEOPHYSICAL DEFINITION OF LINEAR FEATURES: TWO METHODS IN TWO CONTEXTS

This paper compares the information provided by two non-destructive sub-surface exploration techniques, electrical resistivity and refraction seismography, about two relatively well understood linear features in contrasting soils. The first, a nineteenth century millrace cuts through sandy silt till, on the edge of the Waterloo Moraine. The second feature consists of two parallel backhoe trenches which were excavated into heavy clay and immediately refilled with layers of local and introduced (sand) material in the early 1970's.

Sandra K. Zacharias and James R. Hunter (Vancouver; Sainte-Marie Museum)
TECHNICAL INVESTIGATIONS OF IRON WORKING REMAINS FROM THE FRENCH JESUIT
MISSION OF SAINTE-MARIE AMONG THE HURONS (1639-1649)

Metal working remains from the site of Sainte-Marie among the Hurons in south central Ontario have been analysed in order to determine the techniques used by the blacksmith who worked at the mission from 1642 to 1649. Results suggest that the smith used a typical Medieval-Renaissance European blacksmithing technique, adapted to New World conditions. This study has proven helpful in increasing the accuracy of reconstruction and interpretation at the Sainte-Marie Museum.

Jack Brink (Archaeological Survey of Alberta)
HEAD-SMASHED-IN BUFFALO JUMP SITE

See paper abstract, Session 16.

Margaret Bertulli (Northern Heritage Society)
NORTHERN CULTURAL HERITAGE PROJECT

This poster presentation will be a photographic description of the Northern Cultural Heritage Project, an archaeological research and field training program for young native northerners. It has operated for the past five summers on Somerset Island, N.W.T. and engaged in the excavation of two Palaeo-Eskimo sites on northwest Stanwell-Fletcher Lake. Photographs will depict the students participating and learning both on-site and in the laboratory. The daily activities and field schedule will be illustrated.

Peter J. Lambert (Private Consultant)
BLOOD ON THE ROCKS

See paper abstract, Session 14.

James C. Haggarty and Richard I. Inglis (British Columbia Provincial Museum)
FISH TRAPS OF THE NUU-CHAH-NULTH

This poster paper summarizes current knowledge regarding the distribution, density and environmental setting of the 91 reported fish trap sites located within the traditional territory of the Nuu-chah-nulth on the west coast of Vancouver Island, British Columbia. A morphologically-based working typology for this site type is presented and discussed with respect to established macroenvironmental zones and specific microenvironmental settings. Research concerns regarding their distribution, possible relationships with other site types, intended species of capture and potential time depth are also addressed.

Kathleen C. Learn and John Duke (University of Alberta)
INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS IN THE STUDY OF PREHISTORIC POTTERY AND POSSIBLE CLAY SOURCES

Instrumental neutron activation analysis (INAA) was conducted to determine correspondence, if any, between the chemical composition of samples of prehistoric pottery excavated on Black Fox Island, Lac La Biche, Alberta and the chemical composition of samples of three raw clay sources located on the island. The main objective of the study is to determine whether the single pottery vessel found on site GfPa-32 on Black Fox Island may have been manufactured from materials found in situ or

whether a higher likelihood exists of manufacture from non-local material. INAA was chosen as the technique to identify and quantify trace elements in the prehistoric pottery and the (fired) raw clay sources because (a) very little archaeological material is destroyed using this technique; (b) identification of an optimal number of elements is expected; and (c) the technique was accessible to the archaeologist via the SLOWPOKE Facility on the University of Alberta campus.

INAA - Steps:

- (1) Preparation of raw clay samples (manufacture into fired tiles, grinding to fine powder, encapsulation); selection of prehistoric pottery to use, grinding, encapsulation.
- (2) Irradiation of samples; gamma spectroscopy counting and data printout (computerized).
- (3) Tabulation of results, statistical manipulation, conclusions.

In this project, INAA is integrated with archaeologically oriented problem solving. INAA is seen as an objective technique to consider some characteristics of pottery manufacture.

Thomas Loy (British Columbia Provincial Museum)
BLOOD ON STONE: RESEARCH HIGHLIGHTS

At the 1981 CAA meeting in Edmonton, I announced the twofold discovery that blood and other related proteins remained on archaeological tools for many thousands of years and that using a technique to crystalize hemoglobin it is possible to determine the species of origin for the use-residues. During the past three years, the basic discoveries have stood the test of replication. And, by examining a number of tools from all over North America, I have found that the preservation of blood is not dependent upon geographic location; rather it depends upon there being at least 15 to 20 percent clay/silt particles in the soil which chemically bind to the proteins and remove them from the normal sequence of degradation. In addition, tools that are 9000 to 10,000 years old still preserve the organic use-residues.

Although still awaiting the implementation of specific experiments, basic research designed to explore other lines of inquiry using these proteins suggest that it will be possible to use radiocarbon accelerator dating to actually date the blood residues. Stable carbon isotopes can be analyzed to indicate the diet of the animal-of-origin and it may indeed be possible to reconstruct the ambient mean annual temperature in which the animal lived. Immunochemical and other recently developed techniques of protein analysis will permit investigations of long

term genetic change and disease resistences in both animal and human populations. Manufacturing waste from sites is a veritable blood-bank for human blood. A quick screening test to detect human blood is now being developed. Because the potential lines of investigation are vast, I propose the establishment of a new branch of analytical archaeology, archaeobiochemistry.

Thomas Loy (British Columbia Provincial Museum)
ARCHAEOLOGICAL COLLECTIONS, DATA MANAGEMENT AND THE CANADIAN HERITAGE
INFORMATION NETWORK

During the past two years the Archaeology Division of the British Columbia Provincial Museum has been transferring its registration data into the new Canadian Heritage Information Network (CHIN). The problems associated with the older National Inventory Programme and its operating system ISIS have been surmounted and the new system, PARIS is a superb vehicle for complete and flexible museum registration of existing and newly accessioned collections. The emphasis of the CHIN programme recently has been upon collections management; the structure of the PARIS system encourages good management techniques in part because of the enlarged number of data fields (on the order of 400 for the Humanities database) and partly because of the flexibility of the system itself that speeds data entry and systematic changes to records.

We have now virtually completed our recataloguing of excavated sites collections and many of the more recent, or important surface collections. It is now possible to arrange a loan, or produce full catalogue records within a very short time. This will, we hope, result in a greater use of the collection--that is, after all, what this and other museums are all about.

James F.V. Millar (University of Saskatchewan)
MICROBLADE IMPLEMENTS IN THE FISHERMAN LAKE LOCALITY

No abstract received.

Jacques Cinq-Mars (National Museum of Man)
THE BLUEFISH CAVES, NORTHERN YUKON TERRITORY: AN UPDATE AS OF THE SUMMER
OF 1983

In this Poster Session, an attempt will be made at providing the C.A.A. membership with a thorough and informative visual presentation of the various lines of archaeological and

paleoenvironmental evidence that have been obtained in the course of more than three summers of investigations at the Bluefish Caves, in the northern Yukon Territory. The illustration of selected stratigraphic, sedimentological and pedological, palynological, palaeontological (megafaunal as well as microfaunal) and archaeological information will be used to demonstrate the importance of the caves for our eventual understanding of human adaptations to the rapidly changing habitat of eastern Beringia during the last, critical millenia of the late Pleistocene.

Charles D. Arnold (Prince of Wales Northern Heritage Centre)
ARCHAEOLOGY IN THE NORTHWEST TERRITORIES

In order to meet the needs of the widely-scattered population of the Northwest Territories and the concerns that often arise when archaeological work is undertaken near N.W.T. communities, the Prince of Wales Northern Heritage Centre has prepared a travelling exhibit on archaeology. This display also describes the goals and responsibilities of the Northern Heritage Centre's Archaeology Program.

Scott Hamilton (University of Alberta)
COMPUTER ASSISTED REMOTE SENSING IN HISTORIC SITES ARCHAEOLOGY

See paper abstract, Session 3.

William T. Ferris (Saskatchewan Research Council)
DEMONSTRATION OF MICROCOMPUTER APPLICATION FROM TIPI RING ANALYSIS PROGRAM

See paper abstract, Session 3.

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GUIDE TO CONTRIBUTORS

SECTION III:
GUIDE AUX CONTRIBUTEURS

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