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ABSTRACTS

Aliphath, Mario M. (Colegio de Postgraduados, Campus Puebla, Mexico)

The Zacoalco-Sayula Pilot Project (S-1)

The Zacoalco-Sayula basin is situated near Guadalajara, Jalisco, Mexico. It represents the westernmost enclosed-drainage basin located in the Mexican Volcanic Belt. The region is famous for its paleontological deposits with a remarkable Pleistocene component. The Regional Museum of Guadalajara has among its collections, bone and lithic artifacts belonging to the paleoindian period, the majority reported to have been collected in the "fossil gravels" of the beaches of Zacoalco-Sayula. The Zacoalco-Sayula Pilot Project 1983 (ZSPP) directed by R. Forbis and M. Aliphath, carried out seminal research on the geology, geomorphology, botany and archaeology of the possible context of previous finds (faunal and artifacts), through an interdisciplinary approach that helped to define potential localities for further research and excavation.

Anderson, David G. (Sociology and Anthropology, University of Aberdeen, Scotland) Eric Higgs (Anthropology, University of Alberta, Edmonton, AB)

Mobility, Land Use, and Subsistence in the Yenisei Watershed (S-16)

Unavailable

Anselmi, Lisa (University of Toronto, Toronto, ON)

Copper-alloy Artifacts Recovered from Huron Sites: A Chronological Look at Native Manufacturing Techniques (S-2)

This paper presents an analysis of the manufacturing techniques used to create copper-alloy artifacts recovered from a series of attributed Huron archaeological sites in Southern Ontario. An examination of these pieces yields evidence for the chronological development of a series of metalworking techniques which built upon skills employed in the manufacture of other types of objects.

Arsenault, Daniel (CELAT research center and dept. of history, Faculté des Lettres, Université Laval, Laval, QC)

On the threshold of archaeological theory? Theorizing rock-art research in Canada (S-18)

Rock-art research has never been part of the intellectual mainstream in Canadian archaeology, although some discoveries and experiments have had important impacts on the international scientific scene during the last four decades. During the 1970's and 1980's, considered by some as a "golden-age" for rock-art research, hundreds of rock-art sites were reported throughout the country, and many were analysed according to scientific procedure proper to archaeological methods. However, the theoretical framework for interpreting the meaning content of those sites was not always explicit, and even sometimes lacking, due in part to the fact that no absolute dating methods could be applied for helping archaeologist to put this type of data in a more secure cultural timeframe. The last decade (the 1990's) has been a period of important changes in rock-art research in different parts of the world, thanks to the application of absolute-dating methods (especially through AMS) to rock-art sites, the interest for cognitive sciences and conservation issues, and, for some countries, efforts made for collaborating more closely with Native communities. Paradoxically, there has been a decrease of interest, as well as of means and resources, for studying rock-art sites in various part of Canada, in particular in the Provinces within the Canadian Shield. My paper will show how a more important consideration of current theories produced by specialists in that field around the world could help to revive this interest in rock art among Canadian archaeologists, and how current and future research projects held in Canada will allow to better contribute to theoretical debates here and abroad.

Arsenault, Daniel (CELAT research center and dept. of history, Faculté des Lettres, Université Laval, Laval, QC)

These faces are still looking at us, but are they laughing at us?...Stylistic and Proxemic Analysis of the Dorset Petroglyphs of Qajartalik, Nunavik(S-4)

The Kangirsujuaq region, Nunavik, is a unique area where prehistoric rock-art sites can be found in the Canadian Arctic. In fact only four petroglyph sites have been identified so far, all located along the north-east coast of Ungava peninsula. One of those sites, Qajartalik (JhEv-1), was first studied during the 1960's by the anthropologist B. Saladin-d'Anglure, who counted 94 different petroglyphs and interpreted them as being a Dorset production. Comparing their formal elements, Saladin-d'Anglure identified two distinct types, and a few sub-types. Neither this typology nor the methodology applied were ever critically re-examined thereafter (e.g. Taçon 1993), leaving some discrepancies in the archaeological interpretation of the site. Recent research has led to a reassessment these petroglyphs, and also to the discovery of more than 80 new motifs. At first sight, all depict human-like heads facing on. However, a close examination allows to distinguish at least seven different types of faces. Moreover facial details are sometimes explicit enough that one can interpret some distinct expressions - suggesting astonishment, sorrowness and so on - from one engraved figure to another. Without doing any psychological interpretation, this paper will present a proxemic analysis, along with a typological one, which could help to get better insights into the mimicry that Dorset people could have used for non-verbal communications in some specific contexts.

Baker, J. (Anthropology, Okanagan University College, Kelowna, BC), L.M. Mallory-Greenough (Near and Middle East Studies, University of Toronto, ON), & J.D. Greenough (Earth and Environmental Science, Okanagan University College, Kelowna, BC)

The Geochemical Fingerprint Of Major Lithic (Glass-Rich Dacite) Quarries (S-11)

A major lithic mining site in the Cache Creek area, British Columbia, yielded rocks with a dull black appearance and distinctive working characteristics. This material has been referred to as "glassy basalt" in the literature but petrographic and geochemical analysis (46 major and trace elements) show it is dacite with a high glass content. Attempts to correlate this material with artefacts from a site in the southern Okanagan revealed a second dacite with a different geochemical fingerprint. At least one other dacite quarry site may exist. These preliminary results indicate that dacite was a common stone tool material in the BC interior perhaps acting as a substitute for rhyolitic obsidian which is less common in the area.

Bandow, James B. (Fossil Hill Consultants, Hamilton, ON) and Jacqueline Fisher (Fisher Archaeological Consulting, Hamilton, ON)

Reflections On Water: Streamlining Predictive Modeling in Ontario (S-18)

With the introduction of heritage legislation in Ontario over the last three decades, the growth of Cultural Resource Management, and the resulting trend towards implementation of regional archaeological master plans, several predictive models have been produced for use in archaeological planning. Yet, there is a reluctance on the part of Ontario archaeologists to incorporate these methodologies into a standard cohesive long term strategy. Rather, archaeologists continue to rely on simple 'distance to water' criterion when determining high, medium, and low archaeological site potential. Why? The reason may lie both in the orthodox nature of government bureaucracy and in the inadequacy of deploying difficult to use models that continue to be untested, without validation, or any other form of nullification. As such, some regional master plans become obsolete: the implementation schedule does not meet the needs of the client. Is this a question of theory or scale? This paper will review and address the utility of predictive modelling in Ontario. An alternative approach is suggested combining several attributes of deductive spatial models employed elsewhere with technological solutions to the problem of

low resolution of inductive approaches. These new methodologies would incorporate known aspects of culture history alongside environmental variables and contemporary social realities.

Bazaliiski, Vladamir (Archaeology and Ethnography, Irkutsk State University, Irkutsk, Russia)

Lokomotiv, Usta Ida and Shamanka Cemeteries: Mortuary Ritual and Culture Historical Context (S-12)

Lokomotiv and Ust'-Ida, two Middle Holocene cemeteries from the Angara valley, dated to the Kitoi and Servo-Glazkovo cultures, respectively, have already seen much research. Human osteological and stable isotope data from these sites have helped to formulate the initial models of Cis-Baikal hunter-gatherer adaptations. These two collections will also play a pivotal role in this multidisciplinary project with regard to the examination of the mortuary ritual and social organization in addition to subsistence, diet and health. Shamanka, on Lake Baikal, is a recently discovered cemetery with both Kitoi and Glazkovo graves. Since it shows excellent potential, both with regard to preservation and number of graves, it is being considered as subject of the projects next excavation campaign. The paper will review the major archaeological characteristics of all three cemeteries.

Beames, Katherine (Alberta Western Heritage, St. Albert, AB)

GIS at Khuzir Nuge XIV: The Use of GIS in Mortuary Archeology (S-14)

In October of 1998 the Baikal Archeological Project decided that the Khuzir-Nuge XIV site located on the west side of Lake Baikal in Siberia would benefit by being organized into a Geographic Information System (GIS). The purpose of this project was to bring together large amounts of tabular, spatial, pictorial and text data collected by a number of field workers in a format that was easily accessible for analysis and presentation. For Khuzir-Nuge XIV, ArcView was used because of its capabilities to link different data sets from the project. The application also represented the data visually, quickly and easily. Using the GIS will allow project researchers to undertake faster and more accurate analysis of features within the site. It will also provide an immediate visual aide, which would not be possible without the data organization provided by this approach.

Beaudoin, Alwynne B. (Provincial Museum of Alberta, Edmonton, AB)

Mapping the Past: A Database of Pollen Records for the Northern Plains (S-10)

One component of SCAPE highlights Holocene landscapes and vegetation from the northern plains. Pollen records yield information about past vegetation and, by inference, climate and resources. As of January 8 2001, 149 palaeoenvironmental records have been identified from the SCAPE study area. Of these records, 102 deal with pollen; others focus on diatoms, ostracodes, geochemistry, pigments, or plant macroremains. Comparison of the pollen records has to take into account species-dependent response to environmental changes, variable plant migration rates, and local factors (e.g., substrate type) affecting plant distributions. Variable chronologic control is also an important consideration in extracting time-stratified patterns from these data. However, this database will be useful for generating regional pictures of landscape change, and reconstructing vegetation at the five Holocene time-slices that are the principal focus of SCAPE.

Beaudoin, Alwynne (Provincial Museum of Alberta, Edmonton, AB)

Of Mud and Men: History of the Fletcher Site (DjOw-1), Southern Alberta (S-1)

Situated in the most arid region of the Canadian prairies, water has always played an important role at the Fletcher Site (DjOw-1). Water, the digging of a dugout, was involved in the site's recognition, and water, in the form of a lake and its associated resources, probably attracted Paleoindians to the locale around 9000 years ago. Indeed, waterlogged conditions at depth have preserved a fine record of plant and other macroremains from the early Holocene. The record supports a view of early Holocene water availability on the plains that forms a strong contrast with today. Since Forbis and his team worked there almost forty years ago, Fletcher has remained one

of the most important Paleoindian sites in western Canada and it continues to contribute to our understanding of human occupation on the prairies.

Belsham, Leanne (SCAPE Project, Brandon University, Brandon, MB)

Macroscopic and attribute analysis of the lithic assemblage for the Jackson Site (DiMe-17) (S-10)

A number of techniques used to study stone, have been applied to the lithic assemblage the Jackson Site, a Vickers occupation dated circa 330+/-60 B.P. An analysis using macroscopic properties and attributes for each tool and debitage class has been completed to determine tool and flake types and manufacturing techniques. Individual flake analysis, the examination of rock types, both local and exotic material use, and the use of heat treatment were employed in the research. Previous researchers have used the application of ultraviolet light to differentiate between Knife River flint and chalcedony and this technique has been evaluated. The results from the flake and tool analysis have been applied to a spatial study of the kill, midden, and habitation zones, of this kill/processing site in the Lauder Sandhills. By using lithic analysis, secondary utilization of the site is evident. Preliminary results are discussed in this presentation.

Bennett, Brad (RPF, Chief Forester, B.C. Timberlands, Ainsworth Lumber Co. Ltd.)

The Evolution of Archaeology in British Columbia: an Industrial User's Perspective (S-9)

Archaeology and the forest industry in BC were rapidly forced together by legislation in the mid 90's. The Forest Practices Code requires forest companies to search out and secure the services of archaeologists to ensure operations (harvesting and silviculture) are carried out in a manner that will avoid damage or uncontrolled alteration of cultural sites. Methodologies, standard practices, relations with local First Nations, and corresponding costs have varied substantially from project to project and from Archaeologist to Archaeologist. To meet legislative requirements, forest companies have been forced to accept these variations in order to continue to service the timber requirements of the various facilities. Legislative accreditation ensures membership standards (academic and practical experience) code of conduct, client responsibility, and appropriate discipline procedures. The end result would be a more cost-effective and professional service that would meet the needs of the client and local First Nations groups, and would protect important cultural resources.

Bereziuk, Darryl A. (Anthropology, University of Alberta, and Altamira Consulting Ltd., Edmonton, AB) and Gordon M. Moore (Archaeology, Simon Fraser University, Burnaby, BC)

The Smuland Creek Site (GdQn-1) and Implications for Palaeoindian Site Prospection in the Peace Region of Northwestern Alberta (S-15)

CRM survey of a pipeline corridor stretching across uplands to the southeast of Grande Prairie resulted in the discovery of the Smuland Creek site. Preliminary testing yielded an artifact assemblage diagnostic of earliest prehistoric times in the Peace Region. The elevation of the site lies within the range of strandline features associated with the uppermost and earliest levels of Glacial Lake Peace (Bessborough Stage). Further survey in the immediate area resulted in the identification of an upland beach ridge that yielded additional prehistoric artifacts but no diagnostics. Previous archaeological research in the area has recognized potential associations between palaeoindian sites and younger phases of Glacial Lake Peace development (Clayhurst Stage). The new discoveries present evidence for earlier human presence in the region that may be associated with older, upland glacial lake features. The merits of this hypothesis are examined, and the implications for palaeoindian site prospection and predictive modeling in the region are discussed.

Bettinger, Robert L. (Anthropology, University of California, Davis, CA)
Lake Baikal Hunter-Gatherers and Contemporary Evolutionary Theory (S-12)

Behavioral or evolutionary ecology differs from the usual anthropological perspective in its focus on individuals rather than cultures. The motives, goals, and strategies of individuals are amenable to direct observation and analysis. It is unclear, by contrast, whether any culture as a whole has definable motives, goals, and strategies at all. In the Lake Baikal region of Siberia, we have access to a unique data set of discrete individuals from numerous mortuary sites. The ability to acquire detailed information about the life history of these individuals, in combination with the environmental and ecological history of the region, provides us with an archaeological opportunity to apply this perspective in unparalleled detail.

Black, David W. (Anthropology, University of New Brunswick, Fredericton, NB)
Kineo-Traveler Mountain Porphyry and Sea Mink Bones (S-14)

For several decades, naturalists and historians have questioned whether the Sea Mink, *Mustela macrodon*, an extinct species whose distribution is centered on the coast of Maine, also lived in the Quoddy Region, New Brunswick. A recent find of Sea Mink bones, associated with the Late Maritime Woodland component at the Weir site, Bliss Islands, helps to answer this question. The association of the bones with artifacts made from Kineo-Traveler Mountain porphyry, an exotic lithic material from central Maine, suggests these remains do not represent Sea Mink living in the Quoddy Region. Rather, they probably represent artifacts brought by Native people from Maine to New Brunswick about 1000-1200 years ago.

Boland, Dale Elizabeth (Alberta Heritage Research Project, Calgary, AB)
The Glenn Family Homestead: Nineteenth Century Settlers and Public Archaeology (S-20)

Archaeological investigations at the Glens' first cabin have been open to university students and the general public for three seasons. Excavations around the building's perimeter and, more recently, through the living floor have helped to reveal the character of the buildings' occupants and their use of the site since the 1870s. Public excavations and interpretations are considered for their validity and scientific relevance with regard to finds at the site. Other outreach efforts stemming from this site see the inclusion of historic archaeology in lessons to schoolchildren and the importance of context to historical interpretations in proposed reconstruction efforts.

Bowyer Vandy E. and Charles E. Schweger (Anthropology, University of Alberta, Edmonton, AB)
Ice Patch as Context: Reconstructing Holocene Alpine Environments in the southern Yukon (S-19)

Recent attention to ice patches in the southern Yukon indicates that these features were significant resource locations for past inhabitants of the area, but are a poorly understood part of the cultural landscape. Fluctuations in the formation of ice patches may have been critical in the timing and availability of specific resources. Radiocarbon dates on caribou and bison remains indicate that ice patches were used intermittently throughout the Holocene and were important features within their habitat. To understand ice patches as resource locations, it is necessary to document their depositional and ecological history. Accumulation rates are used to establish a depositional history of ice patches. Plant microfossils (i.e. pollen) collected from stratified layers within the ice, are used to shed light on the ecological history of these locales. Understanding the character of small-scale ecosystem variation among alpine ice patches provides a context for evaluating human land-use of the area.

Boyd, Matthew (Geological Sciences, University of Manitoba, Winnipeg, MB)

A Late Holocene Prairie Fire Record from Southwestern Manitoba: Archaeological Implications (S-10)

Despite recent interest in the North American Holocene fire record, evidence for the deliberate burning of prairie by Plains hunter-gatherers has not previously been demonstrated. Through the analysis of phytoliths preserved in a sequence of dated paleosols in the Lauder Sandhills, Southwestern Manitoba, a local grassland fire record is reconstructed for the past ~ 4000 years. Rather than suggesting climatic 'forcing', an apparent peak in fire frequency shortly after ~ 2500 BP may correspond to the deliberate burning of prairie by Sonota-Besant hunter-gatherers. This practice, which is clearly documented in the historic record, may have functioned as a means of making bison herd movements more predictable.

Brewer, Gary (Archaeological Resource Management, Saskatchewan Municipal Affairs, Culture and Housing - Heritage Unit, Regina, SK)

Walking the Wire: CRM in Saskatchewan Goes Online (S-7)

This paper provides an overview of the creation of Saskatchewan's online development screening system. Over the past ten years the Heritage Unit of Saskatchewan has completed heritage sensitivity reviews of all of the provincial Crown lands as well as the quarterly mineral rights sales. The land held by the Crown and managed by Saskatchewan Agriculture and Food totals some 80,000 quarter sections. The mineral rights sales include deeded as well as Crown lands and currently stands at just over 17,000 quarter sections. All of these reviews have been maintained in electronic databases. While these databases have served for internal purposes, the Internet and digital mapping technologies have created a cost-effective vehicle to provide this data in a graphic and easily accessible format for developers and heritage consultants.

Brink, Jack (Provincial Museum of Alberta, Edmonton, AB)

The Stories of Buffalo Bird Woman: Lessons in Bison Carcass Use and Abandonment (S-1)

Gilbert Wilson's book *The Horse and the Dog in Hidatsa Culture* (1924) provides compelling accounts of Contact Period bison hunting, especially the stories of his prime informant, Buffalo Bird Woman. In particular, she recounts a long and complex pedestrian buffalo hunt, using dogs and travois, which took place in about 1870. Buffalo Bird Woman provides a unique view on bison hunting, butchering, processing, caching, consumption and transport. She also gives a voice to complex decision making processes that her group grappled with concerning the differing strategies of searching for new kills as opposed to continued reliance on cached food. Analysis of the use and discard of bison carcass parts by Hidatsa hunters indicates a preference for portions associated with greatest weight of fat and marrow, not weight of muscle tissue or muscle plus fat tissue. On the other hand, certain habits of carcass discard or retention appear to be idiosyncratic and defy modeling with indices of nutritional utility. The tales of Buffalo Bird Woman provide a realistic charting of the fate of skeletal elements and help us understand the formation of archaeological assemblages.

Jack Brink and Rhonda DeLorme (Provincial Museum of Alberta, Edmonton, AB)

The Children of Dunbow: Closure on a Sad Burial Incident (S-7)

The St. Joseph (Dunbow) Mission school, southeast of Calgary, was operated by the Oblate Fathers from the 1880s to about 1920. Intended to teach Native children useful western skills and to discourage traditional culture, children were recruited from many tribal groups including all three Blackfoot Nations, Cree, Tsuu T'ina as well as Metis. Inevitably, increased contact with Euro-Canadians also led to an increase in disease and many Native children died while at the school. Locating family members in a timely manner was not always possible and several dozen children were buried at a cemetery established on the banks of the Highwood river near the

Dunbow school. In recent years the river has cut into the banks beneath this cemetery sending caskets and bones downstream. This situation created a dilemma for all involved – the Church, Aboriginal people, government departments, the local landowner. Who is responsible for unmarked, unregistered burials and human remains? Can or should anything be done, or should nature take its course? This paper chronicles several years of events surrounding the story of the Dunbow cemetery, and how Aboriginal groups and resource managers worked together to bring a dramatic conclusion to this unfortunate situation.

Brumley, John (Ethos Consultants, MT)

For Everything There is a Season: Prehistoric Settlement and Subsistence in the Plains of Southern Alberta and Northern Montana (S-1)

In 1995 the writer completed a study of seasonally sensitive bison dentition and/or fetal/newborn remains from 29 sites located throughout southern Alberta and northern Montana. Those remains represent a minimum of 357 individual bison for which the time of year or season in which they died can be inferred. This presentation focuses on the seasonality evidence from the five largest site samples examined. Those five samples collectively represent a minimum of 174 bison for which season of death can be inferred. Three of these five sites are located in Southern Alberta, and two in Northern Montana. Cultural phases represented include Pelican Lake, Old Women's, Saddle Butte and Highwood. Evidence from these sites strongly indicates the presence of two well defined and re-occurring patterns in the seasonal use of bison kills within the plains of southern Alberta and Northern Montana. Ethnographic analogues and other types of archaeological evidence both corroborate the patterning observed in this seasonality data, as well as providing a basis for further interpreting its significance in understanding the dynamics of prehistoric culture history, settlement, and subsistence within the region.

Burley, David (Archaeology, Simon Fraser University, Burnaby, BC) and Margaret Purser (Anthropology, Sonoma State University, Sonoma, CA)

CRM in the Ivory Tower (S-9)

Both in Canada and in the United States, the vast majority of university graduates in archaeology find employment in the CRM field. Notwithstanding this fact, very few universities offer more than a token CRM related course, and academic faculty shun the notion of applied training for students. Brian Fagan, quite appropriately, labels the situation "An Academic Time Warp". Our paper provides a survey of CRM in the Ivory Tower highlighting on-going program developments in CRM at Sonoma State (California) and Simon Fraser universities.

Bush, Andrew B.G. (Earth and Atmospheric Sciences, University of Alberta, Edmonton, AB) and Dustin White (Anthropology, University of Alberta, Edmonton, AB)

Holocene Climate Change and the Lake Baikal Region (S-12)

Through the use of various proxy data techniques, it has been demonstrated that climate during the early- to mid-Holocene was significantly different than today's climate. For example, the Earth's orbital parameters (which regulate the seasonal and latitudinal distribution of incoming solar radiation) were different than they are today and induced much stronger seasonal variations in temperature, particularly in continental interiors. Seasonal climate phenomena such as the South Asian monsoon were therefore much stronger than they are now. Experiments with global general circulation models (GCMs) have been quite successful in reproducing these Holocene climate changes. We will first present a summary of results from both proxy data analyses and numerical modelling of Holocene climate on a global scale. We will then discuss the current state of knowledge regarding regional Holocene climate in the Lake Baikal region, and present some techniques currently in use to downscale global GCM results to the finer spatial scale that is required for model-data intercomparisons in the region.

Byrne, William J. (Alberta Community Development, Edmonton, AB)
Unexpected Contributions From An Unusual Man (S-1)

For close to 30 years, the Province of Alberta has enjoyed the benefits of some of the most comprehensive heritage legislation in North America. As a result of its existence, a cultural resource management regime has been developed which sees the routine conduct of archaeological investigations in conjunction with development projects throughout the Province. These projects range in scale from multi-million dollar investigations spanning five years or more, involving a host of professionals and large territories such as those encompassed by the oil sands mining programmes in northern Alberta, down to brief inspections of individual residential properties. The cumulative effect of these investigations has been to open vast chapters of Alberta's prehistory. The existence of this system and the results it generates can be traced to the pioneering leadership of Richard G. Forbis.

Byrne, W. J. (Asst. Deputy Minister, Alberta Community Development, Edmonton, AB)
Historical Issues and Evolution in CRM: A View from Alberta (S-9)

In any given jurisdiction, the beginnings of Cultural Resource Management are generally equated with the passage of appropriately named legislation or the introduction of specifically focussed programs. Alberta is no exception, and the initiation has generally been equated with the passage of the Alberta Historical Resources Act in 1972. In reality, CRM has been an important factor in the heritage movement for far longer than that, and the issues and principles of significance to the discipline have been evolving for well over 100 years.

Cailliau, Juliette; Eric Damkjar; and Dean Wetzel (Heritage Resource Management Branch, Alberta Community Development, Edmonton, AB)
Towards A Stewardship Program for Alberta's Heritage Resources (S-7)

There are now in excess of 26,000 archaeological sites and 77,000 historic features recorded in Alberta. It is the responsibility of the Heritage Resource Management Branch of Alberta Community Development to manage and protect heritage sites that may be threatened by a variety of land developments. Management decisions are usually made at the time developments are proposed and the preferred method of mitigating potential impacts is through avoidance, thus preserving the resource for the future. However, sufficient mechanisms are not in place to ensure that avoidance is followed through by developers and that avoided sites are not impacted by later, unregulated, activities. The long term protection of heritage resources is in the interest of all Albertans. This paper examines ways of achieving effective stewardship of heritage resources through partnerships and agreements with a variety of stakeholders.

Callaghan, Richard (Archaeology, University of Calgary, Calgary, AB)
Comments on Mainland Origins of Preceramic Cultures of the Greater Antilles (S-21)

For several decades it has been hypothesized that the early Preceramic cultures of the Greater Antilles might owe their origin to cultures of the Yucatan mainland. Currently this hypothesis has at least a tentative acceptance. However, no detailed comparative analysis of the relevant materials has been conducted. Here, significant differences between the assemblages of the two regions are pointed out. Other mainland origins have been suggested but some have not been investigated well archaeologically. Finally, a simulation investigating the possibility of discovering the Greater Antilles from various mainland regions and subsequent travel between the islands and the mainland is presented. The results show that chance discovery of the Greater Antilles from the Yucatan Peninsula is not as likely as from Northern South America. Despite the greater distance, navigation between Northern South America and the Greater Antilles requires less navigation skill than from the Yucatan Peninsula.

Carlson, Catherine (Social & Environmental Studies, University College of the Cariboo, Kamloops, BC)

Glacial Lakes and Salmonids in the Southern Interior of British Columbia (S-15)

Bony skeletons of salmon encased in clay nodules eroding from glacial lake sediments along Kamloops Lake, in the southern interior of British Columbia, have been AMS radiocarbon dated to 18,110±90 and 15,480±60 BP. These are the only known salmonid remains of Late Wisconsin age in the Pacific Northwest, and are significant in demonstrating the presence of salmon in the river drainages during the late glacial maximum. On the basis of morphological size of the specimens, and on measurement of the low delta C13 value in the bone (-22.2 ‰ and -23.8 ‰), it is argued that these were probably landlocked *Oncorhynchus nerka* (the Kokanee form of sockeye salmon). An experimental study of the ancient salmon DNA on these specimens is presently underway and has promise for resolving the species determination issue. This paper will discuss the salmon specimens and their geological source with the purpose of reconstructing the paleozoogeography of salmon in the Pacific Northwest including the implications for early human subsistence and migration patterns. Also addressed are the questions of the extent and timing of glacial lakes and ice retreat, and drainage patterns, in the southern interior of British Columbia in the Late Wisconsin.

Cannon, Aubrey (McMaster University, Hamilton, ON)

Shell Middens, Field Methods, and Theory in Northwest Coast Archaeology (S-18)

The recent history of Pacific Northwest Coast archaeology shows how strategies of shell midden investigation have influenced interpretive frameworks. Vertical excavations of limited areal extent, well suited to early cultural historical research, have also contributed to linear evolutionary interpretations. These have been reinforced to some extent by more recent horizontal excavations of surface features, which are designed to investigate settlement patterns and social organization. Vertical and horizontal excavations, which are constrained by the depth and complexity of shell midden sites to limited areas of single-sites, tend to promote these more general, but often decontextualized interpretations based on ethnographic reconstruction and linear evolution. Alternative strategies of multi-site investigation, in contrast, highlight the role of contingency and agency in particular historical contexts.

Carr-Locke, Sarah E. (Anthropology, University of Northern British Columbia, Prince George, BC)

The 'Image of the Indian' and archaeological theory in Canada: how has the use of theory discouraged First Nations involvement? (S-18)

This paper will be examine archaeological discourse in Canada in order to consider how it has affected the discipline's relationship with First Nations. As many have shown, interactions between colonial state powers with original inhabitants of the land were and to a certain extent still are also shaped by images formed through popular discourse. Following Trigger (1980), I argue that the stereotyping of "Indians" has been the most important single factor shaping the development of archaeology in North America. In order to move towards a way of doing archaeology that is anti-colonial and cooperative, archaeologists must critically examine and take a certain amount of responsibility for archaeology's hand in constructing images of Aboriginal Peoples. By examining the development of archaeology in Canada, with careful consideration to the use of theory, these images may be recognized and explored. Through this historical examination, it will be demonstrated that Canadian archaeology has viewed "Indians" as subjects or objects but only recently as actors in the formulation and dissemination of their own histories.

Churchill, Elizabeth and Anne English (Archaeology, University of Calgary, Calgary, AB)
The Ceramic Figurines of The Karaja Indians: A Case Study in Stylistic Interpretation (S-21)

The Karaja Indians of Brazil have manufactured figurines for the tourist market since the late 1950s. Drawing on earlier traditional contexts of artistic production, the figurines are now produced almost exclusively for the tourist market. This paper traces the shifting meanings associated with Karaja figurines, the impact of cultural brokerage in production and on traditional knowledge systems and the general processes associated with the commodification of this unique form of cultural expression. The implications for stylistic interpretation form the basis for the conclusions to this paper.

Clarke, Grant and Brian Ronaghan (Golder Associates Ltd., Calgary, AB)
Early Prehistoric Use of a Flood Scoured Landscape in Northeastern Alberta (S-17)

Golder Associates Ltd. is currently undertaking a multi-stage mitigation program associated with development of the Muskeg River Mine, north of Fort McMurray. The program represents efforts to recover information from a relatively unique distribution of Early and Middle Prehistoric Period sites. This distribution is directly related to a landscape formed in the wake of a glacial lake outwash event that occurred approximately 9,700 years ago. Linear elevated ridges appear to have been used as staging or hunt preparation areas during or after the retreat of glacial lake waters from the flood zone. This area of several square kilometres is thought to have been scoured of vegetation during initial flooding and would have represented a distinctly different, perhaps more productive, ecozone from the surrounding forests over a period that have persisted for approximately 2,000 years. GIS-based models of the terrain have been produced to illustrate alternate use patterns scenarios throughout the region.

Cluney, Christine (Archaeology, University of Calgary, Calgary, AB)
Lithic Manufacturing in the Lesser Antilles: A Study of North Crabb's Bay, Antigua (S-21)

The island of Antigua, located in the Lesser Antilles, is important in Caribbean archaeology in regards to its flint resources. For this reason, many preceramic sites are located on the island. One such site, Jolly Beach, has been extensively studied in terms of lithic manufacturing. Recently, a similar sites, North Crabb's Bay, has been part of the Antigua archaeological field school, based out of the University of Calgary. At the Jolly Beach site Davis (2000) found that by studying the angular debris produced differences in the manufacturing of flakes and blades can be obtained. This method is compared at the site of North Crabb's Bay.

Crockford, Susan (Pacific Identifications Inc., Victoria, BC)
Genetic and osteometric characterization of the Tahltan Bear Dog (S-3)

The Tahltan Bear dog was an indigenous breed kept by the Tahltan First Nation of northwestern British Columbia. This small black and white dog was used to track and hold at bay the black and grizzly bears hunted by their Tahltan masters. The Tahltan Bear dog was designated a distinct breed by the Canadian Kennel Club in 1942 and forty years later, officially declared extinct. As part of a larger study to examine the genetic relationships of Northwest coast aboriginal dogs to modern dogs and wolves, several specimens of Tahltan Bear Dog skins archived at the Royal B.C. Museum in Victoria were sampled. All specimens were collected around the 1940's and include skins as well as some skeletal remains. mtDNA analysis indicate these animals were indeed aboriginal dogs, although (as for all other breeds), no exclusively "Tahltan" genetic signature was detected. Osteometric analysis indicates the Tahltan was smaller than other aboriginal North American dogs, perhaps smaller than any other "unimproved" dog types anywhere.

The data presented here adds significantly to the total body of knowledge regarding this breed, which until now encompassed only ethnographic descriptions and a few photographs from the

1900's. Since no archaeological remains of this animal have yet been found, there has been no way to document its history before the mid 1800's. Should any remains be found in the future, however, these data will be indispensable.

Cunningham, Jerimy (McGill University, Montreal, QC)

Going Vertical: Linking Broad and Low Level Theory in Canadian Archaeology (S-18)

The critical turn in the social sciences has forced archaeologists to reflect on the theoretical structures they use to interpret the archaeological record. In this paper, I argue that archaeologists need to focus more attention on "vertical linkages" -- on the relationships between the "high" and "low" level theoretical concepts they use. Through two examples, I demonstrate how untangling these connections can aid on-the-ground research in Canada and allow Canadian archaeologists to contribute more fully to global theoretical debates. First, I will show how Woodland sites from Ontario can be used to address the "style debate". Second, I will suggest that last year's CAA session, "Who's Asking the Questions? New Directions and Uses for Canadian Archaeology -- Part I", demonstrates both the importance and the limits of the postprocessual critique.

Davis, Leslie B. (Museum of the Rockies, Montana State University, Bozeman, MT)

Folsom Complex Antecedents in Montana: The MacHaffie and Indian Creek Paleoindian Occupational Sequences (S-1)

Excavation of in situ Scottsbluff ($9,340 \pm 120$ ^{14}C years B.P.) occupational deposits at the MacHaffie site (24JF4) in 1951 by Richard G. Forbis, on the western flank of the Elkhorn Mountains in west-central Montana, resulted also in the discovery and recovery of an underlying Folsom component (estimated average $10,425$ ^{14}C years B.P.). Recent extensions of those investigations nearly 50 years later by the Museum of the Rockies have yielded nondiagnostic chert artifacts and highly fragmentary utilized faunal remains from considerable depth below the Folsom stratum. Excavations at the stratified Indian Creek Paleoindian site (21BW626) 30 km southeast of MacHaffie, also in the Elkhorn Mountain Range on the eastern flank, in 1982-1986 also documented a Folsom ($10,410 \pm 60$ ^{14}C years B.P.) component, this time with an underlying Clovis ($10,980 \pm 150$ ^{14}C years B.P.) occupation. These Paleoindian cultural sequences are contained within floodplain alluvium in moderate gradient depositional settings, both of which had been subject to Late Pleistocene/Early Holocene fluvial processes. Contextual integrity of Paleoindian occupational debris thusly incorporated, and the likelihood that remains of this antiquity will be preserved and discovered, are among the technical issues discussed.

Davis, Stephen A. (Anthropology, Saint Mary's University, Halifax, NS)

Contract Archaeology in Nova Scotia: "The Good, The Bad and The Ugly" (S-9)

The paper will provide an overview of the changing nature of archaeology in Nova Scotia. As a long time player in provincial archaeology the author has witnessed "the good, the bad and the ugly". The paper will deal with issues such as the conflicts which arise when an academic dabbling in a "Free Market Enterprise". The question of whether or not there are any benefits of an academic doing contract work beyond the obvious monetary rewards will be investigated. Although not a central theme there will be some discussion contrasting the contract business in Canada with that of the U.K. again looking at conflicts and benefits. One final issue will be a discussion on the growing and potentially dangerous use of contract archaeology as a political tool. These topics will be presented with case studies to illustrate various points.

Dawson, Peter C. and A. Kate Peach (Anthropology, University of Winnipeg, Winnipeg, MB)

Re-defining the Northern Limits of the Devils Lake-Sourisford Burial Complex: New Evidence from The Pas, Manitoba (S-5)

The Devils Lake-Sourisford Burial Complex is associated with nomadic Siouxian peoples of the Northeastern Plains who, between AD 900 and 1400, moved seasonally between the Plains and Aspen Parkland in pursuit of bison. Devils Lake-Sourisford peoples were heavily influenced by cultural developments of the Mississippian Climax. Small ceramic mortuary vessels decorated with spiral incisions and socio-religious motifs are considered by Syms (1979) to be a characteristic of this complex. The geographical distribution of the Devils Lake-Sourisford Burial Complex is concentrated near Devils Lake, North Dakota and the Sourisford locality of Southwestern Manitoba. However, recent archaeological survey work on the Saskatchewan river near The Pas, Manitoba, revealed the presence of Devils Lake-Sourisford spiral-incised pottery. This paper outlines the results of the 1999 survey, and discusses the significance of this occurrence for re-defining the northern limits of the Devils Lake-Sourisford Burial Complex in Manitoba.

deLeeuw, Gary (Education, University of Calgary, Calgary, AB), Sue Crocker, Louise Dougherty, and Edie Hemstock (Calgary Catholic School Board, AB)

Archaeology for Five to Eight Year Olds: Citizenship and Problem Solving in the Primary Schools (S-20)

Two Elementary School Teachers, a School Administrator and an Emeritus Professor describe a University of Calgary sponsored Archaeology Program for the Schools. Outstanding Archaeology Undergraduate Students work with Teachers to provide authentic experiences in Archaeology. Teachers and Archaeology Students cooperate in the planning and presenting of learning experiences.

In particular, two projects with five to eight year olds are described to show how even young children can begin to understand what the science of Archaeology is about; why it's so important to preserve Archaeological sites; and how the study of Western Canadian Aboriginal sites can contribute to children's historical and cultural understandings.

Denning, Kathryn (Anthropology, York University, Toronto, ON)

I . . . am Can . . . didly in favour of pragmatic eclecticism (S-18)

Theory in archaeology is a mixed blessing to begin with; pragmatically mixing it a bit more does little harm in itself, and can certainly beat dogmatic adherence to theoretical programs of dubious relevance. (This holds especially when those theoretical programs are originally someone else's eclecticism anyway, custom-tailored to their specific historical circumstances.) But what are our best ingredients? For an Ontarian to discuss "Canadian archaeology" or "a Canadian perspective" as a monolithic entity at a national conference in Alberta is to invite a referendum. Instead, I will suggest that the general condition of "being Canadian" or, perhaps, "Being in Canada" can contribute in special ways to archaeological endeavours both at home and abroad. Our status as a country simultaneously colonial and post-colonial, our high immigration rate and multiculturalism, and distinctive policies in education and resource protection, make "Being in Canada" different from being in some countries which have produced more prominent archaeological theory.

Dormaar, J.F (Archaeological Society of Alberta - Lethbridge Centre, Lethbridge, AB)
Effect of a Professional Archaeologist on an Avocational One or the Manyberries Cairn, DgOo-1
(S-1)

The variables responsible for soil formation can be grouped into five categories, i.e., parent material, biotic and abiotic forces, topography, and time. Although people fall under the biotic forces category, landscape often affects where people are and what they do in it. In 1970 Dr. Dick Forbis brought together, via a field seminar with flip-charts and all, an interesting group of people to discuss how a wide variety of disciplines could give depth to the Head Smashed In Buffalo Jump research. There were Dr. Dick Forbis, convener and archaeologist, Barney Reeves, nascent archaeologist, Archie Stalker, geologist, Ted Cook, soil microbiologist, Larry Lutwick, soil geneticist, John Dormaar, soil organic chemist, and Bill Byrne, nascent archaeologist plus an assortment of summer students. Ever since, I have asked myself as to how I could, as a soil scientist, contribute to the discipline of archaeology. The landscape is really the soil scientist's living laboratory. On a macro-scale, people affected that landscape via the use of fire, confined grazing after free-roaming bison were eliminated, and "upside down" farming. On a micro-scale, by arranging cobbles into circles, alignments, and cairns, people could affect soil transformations beneath these arranged cobbles. However, I, as an avocational archaeologist, was also able to contribute via the question as to why petroforms, such as structures used for vision questing, were here, but not there in the landscape, since I was in that landscape anyway to practice my soil science profession. The Manyberries Cairn (DgOo-1) will be discussed as example where a soil scientist and an avocational archaeologist can contribute to the discipline of archaeology.

Doroszenko, Dena (Ontario Heritage Foundation, 10 Adelaide St.E., Toronto, ON)
Public Archaeology In Ontario (S-20)

Since the mid-1970s, the archaeology program at the Ontario Heritage Foundation has gone through a series of stages culminating in new directions, fiscal realities and public accountability. This paper will critique the program in relationship to the general growth and development of public archaeology within the Province of Ontario.

Dyck, Ian (Canadian Museum of Civilization, Hull, QC)
Ancient Cold Weather Adaptations in the Northern Great Plains (S-1)

People have lived in the northern part of the Great Plains of North America since the end of the Pleistocene era. Throughout this long period of occupation, the region has been subject to seasonal extremes in climate. This paper surveys ethnohistorical and archaeological records for information about cultural adaptations to cold weather, specifically, adaptations in use before the arrival of Euro-American agriculturists. Important adaptations included: (1) tailored skin clothing; (2) portable tipi housing; (3) communal and individual hunting methods; (4) food storage by freezing, caching, drying, and the use of domestic animals as food; (5) transportation by snowshoes, toboggans and sleds; (6) seasonal distribution of occupation sites; (7) special kinds of winter recreation; and (8) reckoning of time by the passage of winters and the keeping of long-term histories known as winter counts. The survey shows that ethnohistoric records provide a vivid depiction of these adaptations during early historic times. Archaeological evidence reveals the great time depth for several of the practices, changes that occurred in some, and a means for resolution of ethnohistoric problems such as the distribution of cold weather sites.

Ehrhardt, Kathleen L. (New York University, New York, NY)
Investigating Variation in Indigenous Metalworking in Interior North America: Old Copper through Early Contact (S-2)

Throughout prehistory, many groups of native people in the Western Great Lakes and Mississippi Valley have been familiar with and used native copper. However, the ways in which they

procured it, manipulated it, and used it have varied considerably through time. This synthetic study examines continuity, innovation, and variation in the technical processes through which copper workers of the major metalworking traditions of this region, Old Copper, Havana/Hopewell, and Mississippian, converted this raw material into finished products, and the varied roles these products played in their cultural systems. It then extends the comparison into the early Contact period, when copper-based trade metals became available to Central Algonkian-speaking peoples in new forms and under dramatically changing sets of social and economic circumstances. Findings from recent technological analyses of native Illinois metalworking practices and contexts of use are integrated into the synthesis, bringing the long-term trends in indigenous metals use in the midcontinent into even brighter focus.

Eerkens, Jelmer (University of California, Santa Barbara, CA)

The organization of ceramic technology among highly mobile Great Basin groups. (S-13)

The ethnographic literature shows that pottery use is uncommon among mobile hunter-gatherers. A number of factors inhibit use of ceramic pots in such societies, including the heaviness and breakability of pots, seasonal conflicts between gathering and pottery production, and low population numbers and low demand for pots. However, highly mobile groups of the late prehistoric Great Basin were able to resolve these issues and made pots. This paper examines how the production and use of earthenware pots was organized among the Paiute and Shoshone despite high residential mobility.

Esdale, Julie (Brown University, Providence, RI)

Recent excavations from the Nimiuktuk valley, Brooks Range, Alaska: using GIS spatial analysis to discriminate between assemblages in near-surface sites. (S-4)

Recent excavations at the Nim-5 and Nim-11 archaeological sites in the Nimiuktuk River valley of the Brooks Range, northwest Alaska, have produced a variety of artifact styles dating to roughly 4,000-7,000 B.P. Formal artifacts include side-notched projectile points, lanceolate-shaped bifacial points, wedge-shaped microblade cores, and wide, oval-platformed microblade cores. These technologically diverse artifacts, although functionally similar, appear to occur in spatially associated contexts and potentially result from the same occupation. Discrete assemblages are difficult to discern at these sites, however, because artifacts clusters on or near the ground surface might also result from different activities or episodes of site occupation. Spatial analysis using GIS technology has been useful for distinguishing assemblages at the sites where components are not stratigraphically separated.

Ezzo, Joseph A. (University of Arizona, Tucson, AZ)

Fish, Flesh, or Fowl: In Pursuit of a Diet-Mobility-Climate Continuum Model for the Cis-Baikal (S-16)

The dynamics of changing environmental and climatic regimes, cultural and technological diversity, and changes in mobility strategies are critical variables in modeling forager use of various resource habitats through time. Model matrices for considering variations in resource distribution and climatic regimes in the Cis-Baikal region are established to provide some expectations of how and why dietary and mobility patterns might vary through time and across space. The model predicts increased emphasis on lacustrine resources in cool periods, and an increased use of riverine resources in dry periods. It also predicts high mobility between lakeshore and riverine environments in warm, wet periods, and low mobility during cool, dry periods. Trace element analysis of human and faunal remains suggests that the subarctic forest was a more important resource habitat during the Early Neolithic (5800-5200 B.C.), whereas boreal forest habitats were far more prominent in later periods. Trace element analysis from the Late Neolithic/Early Bronze Age sites of Khuzhir Nuge (Ol'khon region) and Obkhoi (Upper Lena region) suggests that at least part of the Late Neolithic/Early Bronze Age was warm and wet, with a strong subsistence emphasis on terrestrial resources. Considerable mobility between lakeshore

and riverine environments appears to have occurred at this time as well.

Farrow, Debi (University of Saskatchewan, Saskatoon, SK)

Digital Photography for Archaeologists (S-14)

Digital photography for archaeologists will cover types of digital cameras, uses of digital images as well as modifications of images. Examples will include the field, the lab and the classroom.

Fedje, Daryl (Parks Canada, Victoria, BC), Quentin Mackie (Anthropology, University of Victoria, Victoria, BC) and Cynthia Lake (Anthropology, University of Victoria, Victoria, BC)
The Sea Also Rises: Early Holocene Occupation on a Dynamic Landscape (S-15)

This paper will present preliminary results from two intertidal sites in southern-most Haida Gwaii and place them in the context of a period of rapid marine transgression. Waterlogged deposits in a test at one of these sites produced a small assemblage of fauna including bear, caribou, bird, sea mammal, fish, and shellfish in association with abundant stone tools. A date of ca. 9,500 BP was obtained on spirally fractured caribou bone from these deposits.

Fernández, Deepika; Larry Steinbrenner; and Geoffrey McCafferty (Archaeology, University of Calgary, Calgary, AB)

Archaeology in the Banana Republics? Recent Excavations in Rivas, Nicaragua (S-21)

This paper details the first season of archaeological excavation by a University of Calgary team in the region of Rivas, located in southwestern Nicaragua. The aims of the project are to investigate ethnohistoric accounts of the Nicarao, an indigenous group of Nahuat-speakers thought to have migrated to this area a few hundred years prior to European arrival in the New World. The strength of the link between the Nahuat-speakers of Nicaragua and those of Central Mexico is an important issue, relevant to the role of lower Central America in the Mesoamerican interaction sphere. The first season's test excavations centered on Santa Isabel A, located close to the shores of Lago de Nicaragua and one of the most important sites in the area. It is hoped that this research will provide insights into the idea of ethnicity and ethnic boundaries, as well as combat the dearth of archaeological knowledge in Nicaragua.

Ferris, Neal (Ontario Ministry of Tourism, Culture and Recreation/McMaster University, Hamilton, ON)

The Trouble With Normative.... (S-18)

If there is a common theme to the history of archaeology across Canada it has been the struggle to develop and define cultural historical sequences in each part of this vast country. And this has led to archaeologists developing very specialized expertise for particular geographic areas, and so resulting archaeological sequences tend to reflect this specialization, entrenching an insular regionalism in Canadian archaeology that can often seem to make archaeological efforts of little consequence beyond a telling of local history. And this is only further exacerbated by the tendency to draw links between these archaeological sequences and historically specific Native cultural groups. Moreover, it has been suggested that Canada's geography and diverse archaeological record has kept Canadian archaeologists too busy to worry about the theoretical "ism" debates that have come and gone elsewhere in the discipline. In a sense, this is implying that theoretical issues are something someone else can specialize in - we've got our hands full working to uncover the past. But if this is the case for Canada, such an a-theoretical or unreflective archaeology has left many critical concepts such as culture and ethnicity, as well as their archaeological manifestations, unexplored and simply assumed within constructed regional culture histories. The implications and limitations of archaeology as local history and under-theorised in Canada will be explored, and strategies for moving on offered.

Fisher, Tal (Lakehead University, Thunder Bay, ON)

A 19th Century Burial from Lake Esnagami, Northwest Ontario (S-6)

In August of 1994, human skeletal remains and a quantity of 19th Century artifacts were handed over from the Michigan State Police to the Ontario Provincial Police. The remains were determined to be from Lake Esnagami in northwestern Ontario and of cultural origin. Standard forensic techniques are applied to investigate the nature of the remains including racial affiliation, age, sex, stature, and general health. Results of both the osteological and artifact analyses are discussed as well as how the remains came to the office of the Archaeology Branch.

Foley, C.M., Urva Linnamae, and Dawn Cropper (University of Saskatchewan, Saskatoon, SK)

An analysis and interpretation of the lithic collection from Tall Jawa, an Iron Age site on the Madaba Plateau, Jordan (S-13)

This paper examines the lithic material from Tall Jawa, a predominantly Iron Age site in Jordan. There were over 800 lithic specimens recovered from several seasons of excavation. Types range from a Levallois core to blades and burins. While preliminary analysis suggests that most were not in situ, there is evidence to suggest that lithic tool use and technology lasted well into the Islamic period in this region of the Near East. This observation is significant in light of the assumed drastic decline of lithic technology with the advent of metallurgy.

Fowler, Kent (Anthropology, University of Alberta, Edmonton, AB)

The Ritual Use of Pottery in an Early Southern African Farming Community: Data Versus Speculation (S-13)

The spatial distribution and association of artifacts and features provides a basic form of evidence for identifying patterns of artifact use. Archaeologists working on southern African Early Iron Age (250-1100 AD) societies commonly assign unusual objects ritual functions and attribute the discard patterns of certain objects to ritual activity. Rarely are these objects integrated into discussions of broader patterns of production, use and disposal at sites. Thus, alternative explanations of their function and disposal have been overlooked. A spatial analysis of ceramic data from the site of Ndongondwane in South Africa is presented to examine these hypotheses. Results indicate that the use and discard of "ritual" objects may be attributed to factors other than ritual ones, and that ceramic sculpture may be better interpreted within the sociocultural context of iron smelting. Based on these new data, models of continuity and change in the later prehistory of southern Africa are reexamined.

Fox, William (Parks Canada, Ucluelet, BC)

Horned Panthers and Erie Associates (S-6)

Ethnohistoric, ethnographic and linguistic evidence is applied to the interpretation of particular artifact classes from Late Woodland sites in the Lake Erie drainage basin, in an attempt to better understand the spiritual beliefs of resident Algonquian and Iroquoian speaking groups.

Frederick, Gay (Pacific Identifications, Victoria and Malaspina University College, Nanaimo, BC), Susan Crockford (Pacific Identifications, Victoria, BC) and Becky Wigen (Pacific Identifications and University of Victoria, Victoria, BC)

Fur Seal Remains from Ts'ishaa Village, Barkley Sound, B.C. (DfSi 16) (S-3)

The 1999 and 2000 Tseshaht Archaeological Project excavations at Ts'ishaa Village on Benson Island, Barkley Sound, B.C., provided evidence of the hunting of fur seals in Barkley Sound over

the past 2,000 years. The fur seal remains from this site include a number of individuals classed as young juveniles. This paper explores the implications of the presence of young juveniles in the archaeological sample in terms of precontact Barkley Sound fur seal population structure, pupping habits, migratory behaviour, species affiliation and interaction with human populations. Biological studies of fur seal ecology and behaviour as well as historical and ethnographic information relating to fur seal presence and exploitation in the Barkley Sound region provide a context for the analysis.

Freeman, Andrea K.L. (Dept. of Archaeology, University of Calgary, Calgary, AB), Garry L. Running IV (Geography, Univ. of Wisconsin-Eau Claire, WI), Alwynne Beaudoin (Provincial Museum of Alberta, Edmonton, AB), Dion Wiseman (Geography, Brandon University, Brandon, MB)

Site- and local-scale processes at the Stampede Site, Cypress Hills, Alberta and the Below Forks site, Saskatchewan (S-10)

Geoarchaeological studies have been initiated at the Stampede site, a 7,000+ year old multiple component archaeological site located on the northern slope of the Cypress Hills upland, and the Below Forks site, a second multiple component site located at the confluence of the north and south Saskatchewan rivers. Site- and local-scale alluvial and colluvial processes have had a significant impact on the preservation of archaeological resources at these sites. The relative influence of each of these processes is examined. The scale at which Holocene sedimentary inputs might have influenced site settlement and use is currently under investigation.

Freeman, Gordon (Chemistry Dept, University of Alberta, Edmonton, AB)

Multiple Observation Lines for the Summer Solstice Sun Rise in the Majorville Medicine Wheel Complex (S-5)

The central part of the Majorville Medicine Wheel Complex is constructed on three hills of equal height, 919 m above MSL, along a NE - SW line, 1.9 km between NE and SW summits. The Majorville Medicine Wheel is on the NE summit. A smaller Medicine Wheel is on the middle summit. A cairn is on the SW summit. The hills are functionally connected by multiple observation lines for the Summer Solstice Sun Rise (SSR) and for the Winter Solstice Sun Set (WSS). The present paper displays several SSR lines. I will submit a paper about several WSS lines to Chacmool 2001.

One SSR line is from the cairn on the SW summit to a cairn 1.6 km away on a West shoulder of the NE hill. Observed from the top of the back cairn, the foresight cairn nearly touches the distant horizon, about 30 km away.

A 1.7 km SSR line contains three visible pairs of rocks along its length, and ends at the Majorville Cairn.

Three other lines will be demonstrated.

Gaunt, Sarah (Champagne and Aishihik First Nation, Haines Junction and Whitehorse, YK) and Sheila Greer (Consultant, Edmonton, AB)

The Kwaday Dan Sinchi Discovery: Cultural Dimensions and Research (S-19)

As the government ultimately responsible for the Kwaday Dan Sinchi find, Champagne and Aishihik First Nations' (CAFN) work efforts related to the discovery have been driven by various goals. One has been finding out who this long ago person was. We introduce the variety of research approaches that are being pursued in an effort to link him culturally, and the initial results from these efforts. This includes studies on his belongings and other artifacts from the glacier area, and ethnohistory and oral history research. Community education and consultations are an equally important consideration for CAFN, in attempting to find modern meanings for the "long ago person found".

Gerlach, S. Craig and Maribeth S. Murray (Anthropology, University of Alaska Fairbanks, Alaska)

Counting Coup or Counting Calories - The Role of Whaling in Thule Origins and the Eastern Expansion (S-4)

In this paper we re-evaluate the archaeological evidence for whaling in Western Thule culture. We consider the extent to which whaling shaped Thule culture and what role, if any, whaling played in the Thule expansion into Canada. Implications for the nature of Dorset/Thule contact are also drawn out.

Gibson Terrance H. (Alberta Western Heritage, St. Albert, AB)

Only in Alberta: Ancient and Modern Intensive Resource Procurement at the Bodo Bison Skulls Site (S-17)

When people think of Alberta's past, they think of bison kills. When they think of Alberta now, they think of oil wells. A huge bison kill site and an intensive petroleum recovery operation coexist in a stabilized sand dune locality on the northeast edge of the Neutral Hills, south of Provost, Alberta. When the Bodo Bison Skulls Site was discovered in 1995, in the middle of the oilfield operation, assessment indicated that the site remains were perhaps 1000 years old, representing short term but extensive bison impoundment activities. Renewed drilling and pipeline trenching in the spring of 2000 required additional assessment and considerable excavation. Intensified reconnaissance of the locality has expanded the size of the site to at least 140 hectares, with extensive deposits of butchered bison bone appearing throughout the site area. In one abandoned wellpad locality, a 2 x 2 m excavation revealed a 50 cm thick midden of discarded bison bone, complete with preserved hair and at least 50 projectile points. Fifty metres away a 5 x 5 m excavation revealed an intact living floor with hearths, pottery clusters and ochre stains, suggesting one or more residences. This pattern of intensive carcass processing and adjacent camping activity appears to occur repeatedly across more than a kilometre of rolling stabilized sand dune terrain.

The presence of intensive industrial oilfield activity on the site presents both perils and opportunities for archaeology. Past drilling and trenching has disturbed significant portions of the site, yet careful management of future development and a pledge of preservation as an operating principle by the developer should minimize any future site impact. Furthermore, academic interest in this site is growing, and with developer assistance the time may not be far off when Alberta can boast of another major interpreted archaeological site within its borders.

Gibson, Terrance H. (Alberta Western Heritage, St. Albert, AB)

Working in the Real World: Ethical Standards and Professional Protocols in Canadian Archaeology (S-9)

The number of professional archaeologists in Canada has continued to grow at a rapid rate. As new professional archaeologists enter the work force, they are confronted with a work environment that is much more complex than their past experiences, and especially their past training, has ever prepared them for. Perhaps one of the most difficult aspects of being a new archaeologist is learning how to deal with professionals from other disciplines, especially in the consulting world. Other new professionals, such as doctors, lawyers, engineers and foresters, have the benefit of entering into their work environment with an established professional code of ethics and procedures, and can become members of an organization that maintains, promotes and defends these ethics. They can always draw upon their professional corp for ethical guidance, educational upgrading and even dispute settlement. There has been some effort to create professional archaeological organizations in this country, but many have as their foundation exclusionist principles, or are focused on a regional basis. Those that espouse the broader professional view have not caught on, even though the benefits they can provide are obvious. In summary, archaeologists in Canada have no established archaeological creed, nor are they even taught in university that having professional ethical standards just might be a good

thing. This paper examines the professional standards and protocols developed by other disciplines, reviews past efforts in promoting Canadian professionalism and proposes some new ideas about how Canadian archaeologists can cooperate to build their own professional society.

Gibson, Terrance H. (Alberta Western Heritage, St. Albert, AB)

Development of a Heritage Management System for the Millar Western Forest Products FMA (S-14)

In 1997 and 1998 Western Heritage Services Inc, working in conjunction with staffs of Millar Western Forest Products, the Alberta Provincial Government and several other forest products firms, produced a prototype heritage management process to protect heritage resources within the province for the foreseeable future. Millar Western Forest Products subsequently pursued development of the prototype, and implemented a final version of the heritage management process in May 2000, the first forestry company in Alberta to begin the process of achieving compliance to the Alberta Historical Resources Act.

The heritage management process, developed specifically for use in Alberta, consists of a number of interrelated study components, each of which provides specific data for managing concerns in the Millar Western FMA. The key approaches in protecting resources while maintaining a viable forest harvest involve predicting where heritage resources are located, determining what forestry practices will harm them and devising a solution to prevent or minimize the chances of damaging those resources.

The process follows a step-wise set of procedures that are integrated into the existing Millar Western forest management process. Once the heritage potential of a given area is known (using information from a heritage potential model) and various levels of forestry practice impacts have been determined, a heritage management prescription is produced for every forestry operation. Since heritage values are considered automatically at every stage of the planning process, there is a greatly reduced chance that heritage resources will be encountered unexpectedly, causing forestry operation delays or disruptions. Since heritage values are integrated into the forestry planning process, costs for heritage compliance are reduced and heritage values are fully protected.

The double poster set illustrates how heritage potential is determined, how impacts are classified and how heritage prescriptions are assigned and used by forestry planners to avoid disturbing cultural resources in a variety of forestry and other industrial development situations.

Glaum, Doug (Archaeology Branch, Provincial Government, Victoria, BC)

British Columbia Provincial Heritage Database (S-7)

In British Columbia, recorded archaeological sites records are held in a provincial heritage inventory database. This database consists of approximately 28,000 site records and is increasing by about 1800 records a year. A recent provincial government initiative to update and maintain the database has allowed the review of site records and rebuilding of the supporting spatial and textual computer applications. The three goals of the record review are: to ensure that sites were correctly located at the 1:20,000 mapping scale; to plot larger sites as polygons instead of points; to add cultural resource management information to the map display. The resulting site and resource management data are presented in one application that combines relational database and geographic information functions. To date, the support system has been completed and 10% of the records have been reviewed. The project will take an additional five years to complete.

Goriunova, Olga Ivanovna (Archaeology and Ethnography, Irkutsk State University, Irkutsk, Russia)

Khuzhir-Nuge XIV Cemetery: Mortuary Ritual and Culture Historical Context (S-12)

The main objective of the long-term research project on Middle Holocene hunter-gatherers in the Lake Baikal area has been a comprehensive examination of the Kitoi, Serovo and Glazkovo cultures. Much of the comparison of the developmental trajectories of both cultures' adaptive strategies has been based on the examination of collections that refer to both groups. Since quality materials associated with the later times are lacking, we have initiated excavations of a late Serovo-Glazkovo cemetery at Khuzhir-Nuge XIV on Lake Baikal. Due to its size (c. 90 individuals anticipated), the site is expected to provide enough data to facilitate effective examination of culture dynamics. Although one more season will be needed to complete fieldwork at this locality, the c. 70 graves excavated to date already provided a wealth of information on grave architecture, body treatment, grave goods, human taphonomic processes, paleodemography and health, and unique data on site structure and use. The substantial amount of variability that characterizes each of these aspects of the mortuary protocol is the focus of this paper.

Greer, Sheila (consultant to Champagne and Aishihik First Nations, Edmonton, AB); Diane Strand (Champagne and Aishihik First Nations, YK); Gregory Hare and Ruth Gotthardt (Yukon Heritage Branch, Whitehorse, YK)

Southern Yukon Ice Patch Research 2000: Understanding the Phenomena (S-19)

With their excellent preservational environment, southern Yukon alpine ice patches featuring ancient caribou dung are incredible sources of rare ancient hunting artifacts and paleo-ecological information for the Holocene period. Year 2000 ice patch field-work focused on establishing which of the over 70 identified patches are archaeological sites, the collection of archaeological specimens and biological samples, and the stratigraphic sampling of in-situ organic materials at reference patches. Survey for new patches and understanding the spatial distribution of the phenomenon were concerns as well.

Gron, Ole (Norwegian Institute for Cultural Heritage Research, Oslo, Norway)

Ritualisation of Space in Hunter-Gatherer Settlements and Its Consequences For Archaeological Interpretations (S-16)

An important factor in the analysis of Mesolithic settlement organisation is the appearance of repeated and characteristic distribution patterns in the small objects. Such patterns are often easier to distinguish than to interpret in terms of cultural behaviour. Meanwhile the interpretation is essential if the analysis shall lead to more meaningful results than a categorisation of sites based on morphological elements. The paper presents the results of the Ethnoarchaeological investigations Oleg Kuznetsov and I have carried out among the Evenkian reindeer-hunters of the Northern Transbaikal, Siberia, who still live in accordance with their old religion. The Evenks are forest hunters. The focus is on site-formation with an important point being the understanding of the processes that lead to the formation of repeated patterns on the settlements.

The investigations are carried out as a combination of interviews and excavations of recent settlements, so that the information obtained in the interviews can be checked by field observations and vice versa. We have obtained information on dwelling and settlement organisation, cleaning and maintenance of the sites, handling of different categories of waste, difference between sites from different seasons etc. One preliminary conclusion is that cleaning, ritual behaviour and cosmos concepts have a strong impact on the deposition of items on the sites. Another is that small objects found inside the Evenkian dwellings seem to have been exposed to minimal intentional redepositioning and therefore may be used to distinguish regular activity areas.

Ham, Leonard C. (Archaeologist & Heritage Consultant, Delta, BC)

Protection of Shell Midden Deposits With Reinforced Foundation Rafts (S-7)

Although the conservation of archaeological deposits may be a goal of cultural resource management, little progress has been made in developing actual techniques for long-term preservation of deposits. This issue has been addressed over the last ten years during several projects in the Vancouver area. The basic objective has been to provide long term protection to archaeological deposits while providing viable and sound construction grades and foundations. Development of these management plans requires the archaeologist to work closely with a land surveyor, geotechnical engineer, soils scientist, structural engineer, architect or designer, and possibly other professionals. Information must be obtained on archaeological deposit elevations, integrity, drainage, pH, and density. With this data, development plans need to be minutely scrutinized for direct and potential impacts. It may be necessary to propose and facilitate implementation of project redesigns, and develop an impact management plan for submission to regulatory authorities. With a strict program of archaeological monitoring and inspection to ensure implementation of the impact management plan, it is possible to reduce impacts to intact deposits to less than 5%. Implementation of this approach at five different sites are reviewed.

Hamilton, Scott (Anthropology, Lakehead University, Thunder Bay, ON) and B.A. Nicholson (Native Studies, Brandon University, Brandon, MB)

Contrasting Land Use Strategies Among Woodland Societies Along the Northeastern Plains of Southern Manitoba (S-10)

After about 800 AD several ceramic-producing societies appeared along the northeastern Plains. This includes hunter-gatherers such as Blackduck (Late Woodland Tradition) who are better known as Boreal Forest dwellers. Also present were "Plains Woodland" societies (Vickers Focus, Sandy Lake) who derived from the mixed wood forests of the Mississippi River headwaters. While also hunter-gatherers, some groups relied upon horticulture to varying degrees. While not precisely contemporaneous, both traditions ultimately derive from the eastern woodlands, but independently expanded into the northeastern Plains to become bison hunters. However, the placement of some sites suggest different land use strategies. At issue is whether this reflects meaningful economic and organizational distinctions as these groups adapted to the mixed grass prairie zone.

Hamilton, Scott (Anthropology, Lakehead University, Thunder Bay, ON) and B.A. Nicholson (Native Studies, Brandon University, Brandon, MB)

Direct and indirect evidence of Proto-contact Mortlach use of European metals: the Twin Fawns Site (S-2)

The Twin Fawns Site represents a Mortlach occupation within the Lauder Sandhills of southwestern Manitoba. This proto-contact site contains a range of lithic, ceramic and faunal materials that reflect the traditional technology of this Late Plains Woodland archaeological entity. The only direct indication of the site's temporal character is apparent with the sole radiocarbon date, and a knife composed of a bison rib handle inset with a piece of brass sheet metal. No other direct evidence of European technology has been encountered. The complete lack of small, easily lost, and generally ubiquitous European trade goods is particularly noteworthy. Indirect evidence of metal tools is being sought among the butchering marks on food bone, and among bone gaming pieces ("ice gliders"). The narrow range and careful curation of European technology offers insight into the nature of the early fur trade era, and the processes by which northern Plains Aboriginal people chose to integrate foreign technology.

Hammond, Joanne (University College of the Cariboo, Kamloops, BC), Simon P. Kaltenrieder (Golder Associates Ltd.), Gary Hunt (Natural Resources Science, University College of the Cariboo, Kamloops, BC)

Equifinality and Bark-scarred Lodgepole Pine in the British Columbia Interior (S-7)

The emergence of culturally modified tree (CMT) studies in British Columbia in the 1980s and 1990s represents a significant expansion of the domain of archaeology, and has altered the goals and methods of the archaeological resource management industry. In the B.C. interior, the most commonly recorded kind of CMT is the bark-stripped lodgepole pine (*Pinus contorta* var. *latifolia* Douglas ex Loud.). These CMTs are usually interpreted as representing traditional aboriginal lodgepole pine cambium harvesting. While it has long been acknowledged that a variety of non-cultural factors scar lodgepole pine, archaeological treatments of potentially equifinal natural scarring agents have generally been superficial, or worse, dismissive. This situation has the potential to seriously limit our ability to accurately interpret scarred lodgepole pine, which in turn may limit our ability to make valid anthropological inferences based on the data collected. An awareness of natural scarring processes can help to ensure the accurate distinction between cultural and natural scarring. We suggest, however, that such an awareness may not always allow the fieldworker to adequately distinguish cultural from natural scars. The physiology of lodgepole pine dictates the manner in which the species recovers from damage. These processes of wound healing can produce potentially confounding similarities in the morphology of scars of diverse origin. In this respect, cambium-stripped lodgepole pine—indeed all CMTs—are distinct from other kinds of archaeological features. We provide a critique of some of the assumptions commonly made to distinguish cultural from natural scarring. Additionally, we will discuss the need for an improved middle range theory of cambium-stripped lodgepole pine and provide suggestions for future research.

Hanna, Don (Bison Historical Services Ltd, Calgary, AB)

Mapping Surface Stone Features: Recent Activities and Directions (S-17)

Recent case studies in the mapping and analysis of cobble features from several sites in Alberta are discussed. Field methods, cooperative investigations and the use of increasingly sophisticated analyses are highlighted as important areas for refinement.

Hare, Gregory (Yukon Heritage Branch, Whitehorse, YK); Sheila Greer (Champagne and Aishihik First Nations, YK); Ruth Gotthardt (Yukon Heritage Branch, Whitehorse, YK); Diane Strand (Champagne and Aishihik First Nations, YK)

What's the Point? New Insights into Projectile Technology from Ice Patches in Southern Yukon (S-19)

Since the original 1997 discovery of ancient hunting implements in melting alpine ice patches of southern Yukon, more than 100 well preserved organic artifacts have been recovered. Most of the artifacts represent throwing spear (atlatl) and bow and arrow technology, variously constructed of antler, bone, wood and stone. Radiocarbon dates obtained thus far range from ca. 6860 BP to 90 BP (uncalibrated). This unique collection will contribute significantly to improved understanding of technological changes through time, including correlations between projectile point size and projectile delivery systems, first appearance of bow and arrow in the Yukon, and increased use of bone and antler materials. An overview of the collection will be presented.

Hartery, Latonia (Archaeology, University of Calgary, Calgary, AB)

The Cow Head Complex: Unveiling a Cultural Identity (S-6)

The Cow Head Complex forms the earliest portion of the Early Recent Indian period on the Island of Newfoundland. It is a poorly understood part of Newfoundland prehistory due to the lack of archaeological sites and published literature. With the new information that has become available this paper will discuss the complex in terms of lithics, geographical distribution and the time period in which it existed. Also considered is the relationship of this complex to other cultures in the North Atlantic such as the Maritime Archaic, Shield Archaic and Recent Indians.

Hartery, Latonia (Bird Cove Archaeology Project and Archaeology, University of Calgary, Calgary, AB) and Tim Rast (The Bird Cove Archaeology Project, Bird Cove, NF)

Arctic Cultures in the sub-Arctic: Insight from Northern Newfoundland (S-6)

In this paper we present the results of the archaeological fieldwork conducted in and around the tiny community of Bird Cove on Newfoundland's Great Northern Peninsula. The area has been more or less continuously occupied over the past 4500 years by several aboriginal cultures and by multiple European visitors and settlers. In this paper we focus on two sites, Peat Garden and Peat Garden North, which were home to Groswater Palaeo-eskimos and Dorset Palaeo-eskimos between 2200 BP and at least 1570 BP. Together these sites are integral for understanding the variability in settlement and subsistence during the Palaeo-eskimo period.

Hayden, Brian and Sara Mossop Cousins (Archaeology, Simon Fraser University, Burnaby, BC)

Social Dimensions of Roasting Pits on the B.C. Plateau (S-11)

Being composed almost entirely of FCR and charcoal, roasting pits have traditionally attracted little attention from archaeologists. However, we show that roasting pits are complex phenomena that make sense primarily in terms of the large scale storage of "collector" communities. Roasting pits also vary over time and according to the quantity and type of plant materials being roasted. We argue that change in size over time probably reflects change in the size of cooperating socioeconomic groups using the pits. Roasting pits may also be useful for monitoring feasting activities.

Head, Tom (Bison Historical Resources, Calgary, AB)

EgPn-111: A Besant Pound Southwest of Calgary, Alberta (S-1)

This site was identified by students from the University of Calgary in the late 1970s. Subsequent work has revealed a late Besant Kill with associated processing areas. Work in 1998 and 2000 focussed on sampling strategies necessary to fully understand the diversity contained within the bone bed. Comparisons are made to other Besant aged kills including Happy Valley Bison Kill, Muhlbach, Fitzgerald and Melhagen.

Hebda, Richard J. (Royal British Columbia Museum, & Biology and School of Earth and Ocean Sciences, University of Victoria, Victoria, BC) and Markus L. Heinrichs (Climate Impacts and Research Centre, Abisko, Sweden, & Dept. of Earth and Environmental Sciences, Okanagan University College, Kelowna, BC)

Dynamic Landscapes of the Late Pleistocene to Mid-Holocene of the Southern Interior of British Columbia (S-15)

Since the last glacial maximum about 15,000 radiocarbon years ago, the environmental history of southern interior British Columbia reveals two very different general conditions: relatively rapid changes of great magnitude occurring between 15,000-6000 years ago, and relatively minor changes between 6000-0 year ago. The dynamic first interval had at least four stages. Poorly

understood, the time from 15000-13000 yBP was likely dominated by glacial ice cover, glacial lakes and landscape instability. Ice-free sites at high elevations supported tundra-steppe in which species of sage (*Artemisia*) and grasses figured prominently. Cat-tails (*Typha*) grew adjacent to newly formed ponds and lakes on valley bottoms. In the interval from 13000-10,000 years ago, trees, especially pine, expanded at high elevations onto glacial debris, whereas valley bottoms appear to have been relatively open or supported aspen (*Populus*) stands at some sites. Glacial lakes were widespread. Spruce (*Picea*) and true fir (*Abies*) may have grown in scattered patches during this cold and dry climate. At 10,000 yBP regional climate warmed rapidly and sage and grass steppe occupied arid valleys. Open communities extended into alpine sites. Forests, with pine (*Pinus*) as a major component, were restricted to moist mid- to high-elevation sites from 10,000 -7000 yBP. There were fewer lakes, and large lakes were shallower than today, covering less area. Cooling and increased moisture led to the expansion of forest down slopes after 7000 years ago and filling of lake basins with more water. High elevation forest with Engelmann spruce (*Picea engelmannii*) and true fir began to develop in moist settings. Fires burned widely and often. The deposition of Mazama ash on the landscape, just after 7000 yBP, resulted in landscape instability and erosion.

Heffner, Ty (Anthropology, University of Alberta, and Norcan Consulting Ltd. Edmonton, AB)

Fringe Benefits: Early Post-glacial Environments and Habitation in Southwestern Yukon (S-15)

Although sites in Beringia date as far back as 11,800 radiocarbon years before present, sites in the neighbouring glaciated portions of northwestern North America are younger by over 1,000 years and represent occupations by people inhabiting a newly emerging landscape. In the southwestern Yukon the oldest known site is KaVn-2, which is located approximately to within one kilometer of the maximum extent of ice during the last glaciation, and may date to as early as 10,670 BP, just 300 years after the ice had melted. As glacial ice retreated southward, a herb and shrub tundra grew in its stead, presumably providing good habitat for caribou, and attractive hunting grounds for people. Instead of an archaeological record that shows steady settlement of these newly available areas, in the southwestern Yukon there is an absence of sites that are known to date between 10,000 BP and 7,200 BP. Large glacial lakes in the area, some that flooded valleys to 850 meters above sea level, are thought to have drained by around 10,000 years ago. It may be time to consider the possibility that these lakes continued to exist far longer, possibly as late as 7,200 BP, and impeded human occupation in the southwestern Yukon, at least in the valley bottoms. Although this hypothesis is based largely on negative evidence, numerous sources of information support it. This paper will discuss problems with our current understanding of early occupations in the southwestern Yukon when viewed in an early postglacial context, and suggest alternate explanations and future research directions.

Heitzmann Roderick J.-(Parks Canada, Calgary, AB)

Far from the Pacific: Late Prehistoric Salmon Fishing at the Salmon Beds, Invermere, B.C. (S-11)

The Salmon Beds Archaeological Site (EdQa 121) is situated along the Columbia River just north of the outlet of Windermere Lake. The site was an important campsite and food processing area occupied repeatedly over the last 1000 years. This paper examines the significance of the site in light of the historical and ethnographic record. It also examines the evidence for salmon fishing and other subsistence based activities at the site. The significance to prehistory of the Upper Columbia region is discussed.

Hetherington, Renée (University of Victoria, Victoria, BC & Geological Survey of Canada), Vaughn J. Barrie (Geological Survey of Canada & University of Victoria, Victoria, BC), Robert Reid (University of Victoria, Victoria, BC), Roger MacLeod (Geological Survey of Canada, Victoria, BC), and Robert Kung (Geological Survey of Canada, Victoria, BC)
The Search for an Hospitable Home for Early Peoples in Queen Charlotte Islands between 9750 and 14,500 C¹⁴ YBP (Presentation S-15; Poster S-14)

Did the first humans in North America arrive by sea rather than by land, via the Queen Charlotte Islands? What kind of marine and terrestrial environment would the first North Americans have seen as they paddled their canoes past what is now a rugged archipelago? This interdisciplinary research seeks to determine, through the use of malacology, marine geology, archaeology and complex 3-dimensional geographic information system (GIS) mapping, if early peoples could have lived and migrated along the coast of British Columbia during the period 9,750 C¹⁴ to 14,500 C¹⁴ years before present (C¹⁴ YBP); a time when the Queen Charlotte Islands' (QCI) environment was significantly different than today.

Productivity and habitat characteristics of QCI were determined through paleontological, sedimentological and stratigraphic analysis of high-stand deposits (raised beaches), sub-marine sediment cores, and underwater grab samples. A significant finding, modeled using 3-dimensional GIS mapping, is that no two sampled localities experienced the same change in sea level during a given time interval. For example, intertidal shellfish fossils of the same age, found over 50m above current sea level on the B.C. mainland, and over 150m below current sea-level in Queen Charlotte Sound and western QCI, are evidence that crustal flexure associated with glacio-isostatic and eustatic forces had a profound influence on sea level across the region, causing it to rise in one area and fall in another, relative to today. Paleogeographic reconstructions illustrate marked changes in coastline morphology, closure of the northern end of Hecate Strait, and the formation of QC Sound and Hecate Strait coastal basin.

Analysis of these and supporting data will provide an opportunity to determine the location of potential early (9,750 C¹⁴ to 14,250 C¹⁴ YBP) archaeological sites. Data and interpretations will provide information critical to geological, biological, and oceanographic research, and may be useful for land-claim discussions and regional resource development initiatives. This innovative approach to the reconstruction of paleoenvironments will have far-reaching applications to sea-level and climate-change research.

Hjermstad, Benjamin (Golder Associates, Saskatoon, SK) and Kit Krozser (SaskPower Corporation, Regina, SK)

Living on the Edge: Site Distribution Patterns Across the Boreal Transition and Boreal Uplands Ecoregions (S-5)

In the summer of 2000, Golder Associates completed on behalf of SaskPower a Heritage Resources Impact Assessment (HRIA) on the PA8 Rebuild 72 (138) kV line Phase II Study Area between Prince Albert and Christopher Lake, Saskatchewan. Over 100 previously unrecorded heritage resources were identified within the 42,000 ha Study Area. Diagnostic artifacts indicate that this region has been continuously occupied from at least 7000 B.P. to the present. Analysis of the distribution of precontact sites across the Study Area suggests that the Boreal Transition Zone was much more densely occupied than the more northerly Boreal Uplands Ecoregion. This talk will explore the cultural and environmental processes that may explain variations in the distribution of precontact sites across these different Ecoregions.

Hodgetts, Lisa (Archaeology Unit, Memorial University of Newfoundland, St. John's, NF)
Measuring Up: A New Approach to Seasonality at the Dorset site of Phillip's Garden, Northwestern Newfoundland (S-6)

Phillip's Garden is a Dorset site located within the Port au Choix National Historic Site on Newfoundland's Northern Peninsula. Harp seal hunting was the main subsistence activity at the site throughout its occupation (ca. 2100 to 1200 B.P.). Harp seals are available in the waters off Port au Choix twice yearly; in December during their southward migration from Greenland to their breeding grounds in the Gulf of St. Lawrence, and on their return journey in February/March. Neonatal harp seal bones in the middens at Phillip's Garden attest to its occupation during the February/March migration, but there has previously been no way to detect the presence/absence of seals killed during the December migration. A new technique of long bone shaft measurement, currently being applied to the bone assemblages, suggests occasional December hunting of harp seal at the site, in addition to the main spring hunt. This information has implications for our understanding of Dorset settlement patterns on the island of Newfoundland.

Ives, John W. (Historical Resource Management Branch, Alberta Community Development, Edmonton, AB)
The Opening of Qi Guo Wang Tomb, Heilongjiang, China
(Video S-14)

Artifacts from Qi Guo Wang Tomb provided signature pieces for the Provincial Museum of Alberta's Rise of the Black Dragon exhibition exploring Manchurian history in Alberta's sister province in China. A successful facet of the exhibition lay in a video production of the tomb opening. The tomb's primary occupant was Wanyan Yan, who held the feudal title of Qi Guo Wang. Closely connected with the Court intrigues of his day, Wanyan Yan was at the time of his death (A.D. 1162) the second most powerful man in the Jin Dynasty (A.D. 1115-1234), founded by the Jurchen indigenous people. The Jin ruled the north half of China, displacing the Song Dynasty to the south. Extraordinary conditions resulted in the preservation of layer after layer of resplendent silk clothing. These enshrouded Wanyan Yan and the woman accompanying him in the tomb, likely a favoured concubine. A joint production of the Provincial Museum of Alberta, the Heilongjiang Institute of Archaeology and ITV, the video runs 17 minutes--much of it authentic footage filmed on scene, at the time the tomb was opened.

Ives, John W. (Historical Resource Management Branch, Alberta Community Development, AB); Yang Zhijun (Cultural Relics Bureau of China, Beijing, China); Alwynne B. Beaudoin (Provincial Museum of Alberta, Edmonton, AB); Jack Brink (Provincial Museum of Alberta, Edmonton, AB); and James A. Burns (Provincial Museum of Alberta, Edmonton, AB)
An Early Instance of Formal Bone Technology from Heilongjiang, Northeastern China (S-13)

Formal bone technology, in which bone, antler, or ivory is shaped through grinding and polishing, has been one of the indices used in charting the transition from Middle to Upper Palaeolithic lifeways. Such technology evidently appears in sub-Saharan Africa 80-90,000 years ago, and is a common constituent of African Late Stone Age and European Aurignacian technologies. Excavations at the Xue Tian site in northeastern China resulted in the discovery of a formal bone tool--the tip of a point--from geological contexts known to lie between >42,000 and ca. 65,000 years of age. The bone point has been AMS dated at 46,310 +/- 1100 years B.P. (CAMS-54735). We conclude that formal bone technology appears at the northeastern periphery of the hominid range at virtually as early a date as in Europe. Northeastern China is in close proximity to Beringia, suggesting that formal bone technology was present in source areas for New World populations at an early date.

Katzenberg, M. Anne (Archaeology, University of Calgary, Calgary, AB)
Stable Isotope Ecology of Freshwater Fauna from Lake Baikal, Siberia (S-12)

Recent paleodiet studies on prehistoric peoples from Cis-Baikal have been interpreted in the context of the stable isotope ecology of the region. Humans exploited a variety of fish species as well as seals from Lake Baikal. The lake has a unique ecology and displays a large variety of carbon sources. As a result, fish vary in their stable carbon isotope values, providing a food source that is enriched in ^{13}C . Seals are enriched in ^{15}N thus it is possible to identify human groups relying on seals and on certain species of fish in contrast to groups relying more on large terrestrial herbivores and riverine fish.

Kelley, Jane H. (Archaeology, University of Calgary, Calgary, AB) and Joe D. Stewart (Anthropology, Lakehead University, Thunder Bay, ON)
The Chihuahua Archaeological Project 1990-2000 (S-21)

The Chihuahua Archaeological Project has dedicated 8 field seasons to investigating an area in west central Chihuahua roughly the size of Belgium. As the first archaeologists in the area since prior to World War II, we moved from a broad reconnaissance program to testing and excavation. Our work has confirmed the southern border of the Chihuahua or Casas Grandes Culture, shown that the areal extent of the Viejo Period of that culture occupied essentially the same space (at least in this southern zone) as the better known Medio Period, offered suggestions about the role of this southern zone in the larger Chihuahua Culture system, and identified a separate agriculturally based culture that we call La Cruz which is immediately south of and contemporary with the Viejo Period of the Chihuahua Culture.

Kennedy, Margaret (University of Saskatchewan, Saskatoon, SK)
The Saskatchewan/Upper Missouri Interface: Competition in the Buffalo Robe Trade (S-17)

This paper will provide an archaeological and historical synthesis of the bison robe trade in the late 19th century by examining the strategies employed by the three major groups involved in it: native people, Métis and the non-native traders such as the Hudson's Bay Company, the American Fur Company and independent traders. Such a broad-scale synthesis is long overdue, as most fur trade studies tend to focus solely on only one of the above groups and often with a strict geographical bias (north or south of the International Border). Using available archaeological, documentary and ethnohistorical information on site locational patterning, material culture, motives in trade and intergroup relations (and others), a comprehensive picture of the dynamics of the late fur trade will be presented.

Dean Knight (Wilfrid Laurier University, Waterloo, ON)
Consulting Archaeology: The View From Ontario (S-9)

In 1975 the Ontario government passed the Ontario Heritage Act in which in part Deals generally with a number of heritage issues including archaeology. That act has not been revised through three different governments and yet this is the legislation which governs the cultural resource management of the province today. Based on that legislation, the Archaeology portion of the Heritage Operations Unit (part of the Ministry of Citizenship, Culture and Recreation) has developed a four-stage approach to the practical concerns of CRM archaeology. This paper will briefly describe this approach, point out positive and negative aspects and try to make some predictions for future directions.

Kowal, Walt (Altamira Consulting Ltd., Edmonton, AB)
Lead and the Franklin Expedition – Setting the Record Straight (S-4)

In 1988 it was reported that high lead levels were detected in human tissues from British sailors on the ill-fated Franklin Expedition of 1845. It was argued that the high lead levels were evidence of lead poisoning, and that lead poisoning may have played a large role in the demise of the

expedition members. Lead isotope analysis showed that the isotopic signatures of the lead in the human tissues and in solder from tin cans used by the expedition were similar or identical, and it was argued that the lead in the human tissues most probably came from the cans. This hypothesis was challenged in 1993, and since I chose not to respond at that time, I have discovered in literature reviews that most people now believe that the lead hypothesis was wrong and that lead poisoning was not a factor in the demise of the expedition members.

This paper will examine the 1993 challenge and show that the challenge was logically flawed, was based on incomplete-truths and suppositions, is poor science, and is basically a joke.

Lacourse, Terri and Rolf W. Mathewes (Department of Biological Sciences and Institute for Quaternary Research, Simon Fraser University, Burnaby, BC)

Late Pleistocene Terrestrial Paleoeecology of the Outer Islands and Continental Shelf of British Columbia (S-15)

Extensive portions of the continental shelf along the coast of British Columbia were emergent during the Fraser Glaciation when relative sea-level was significantly lower. After about 13,500 yr BP, these lowlands were ice-free and may have served as a migration corridor for plants, animals, and humans, before they were inundated by rapid sea-level rise around 10,400 yr BP. Paleoeecological studies now under way are providing evidence of the region's past vegetation and paleoclimates, as well as potential resources for humans that may have been migrating south to the Americas. These studies include pollen and plant macrofossil analyses of both late-glacial lacustrine deposits from the continental shelf, and lake sediments from the islands. Following deglaciation, treeless shrub-tundra characterized by dwarf willows and crowberry, along with sedges, grasses and other herbaceous plants, dominated the lowland environments. The regional pollen spectra indicate that lodgepole pine forests expanded rapidly about 12,200 yr BP, but were replaced by spruce forests around 11,000 yr BP. Ferns dominated the understorey vegetation, and the abundance of their spores in late-glacial sediments suggests significant stream input and an environment dominated by fluvial processes with extensive fan and delta development.

Landals, Alison J. (Archaeology, University of Calgary, Calgary, AB)

Early Period Archaeology in Banff National Park: Ongoing Research at the Lake Minnewanka Site (S-15)

Banff National Park contains the densest distribution in Alberta of known archaeological sites dating to the early Holocene. These sites, most of which were excavated during the 1980s in conjunction with TransCanada Highway twinning, are briefly reviewed. Parks Canada has been funding a five year research program at the Lake Minnewanka site since 1997. The site is notable for the presence of Clovis points in disturbed contexts on the lakeshore. This paper presents preliminary results from the ongoing field program. A minimum of four well-defined occupations predating 10,000 RCYBP have been discovered to date. Each occupation is characterized by a well-defined hearth and associated assemblage of lithic artifacts and faunal remains in undisturbed context.

Landals, Alison J. (Archaeology, University of Calgary, Calgary, AB)

Horse Heaven: Modeling Change in Late Precontact to Contact Period Landscape Use in Southern Alberta (S-1)

Archaeological models of landscape use patterns in southern Alberta have been heavily influenced by the ethnographic record, despite the changes to landscape use that must have resulted from the adoption of the horse. In particular, patterns of seasonal use may have changed considerably due to the different strengths and weaknesses of a horse vs. dog based transportation system. Some past large scale reservoir projects (such as the Oldman River Dam) and one ongoing project (the Little Bow Reservoir) have provided rich data sets for examining the

transition between the two transport systems, and what this transition means for modeling landscape use patterns.

Larocque, Robert (CELAT, Université Laval, QC)

Archaeological Excavations in the Rochefort Point Cemetery, Fortress of Louisbourg (1713-1758)
Fouilles Archéologiques dans le cimetière de la Pointe Rochefort de la forteresse de Louisbourg (1713-1758) (S-6)

The Fortress of Louisbourg is one of the best documented National Historic Sites from both archaeological and historical standpoints. However, the people themselves are almost absent from these researches. In order to fill this gap archaeological excavations were carried out in the Rochefort Point cemetery during the summer of 2000. This paper will focus on some results drawn from this fieldwork, especially concerning the cemetery's integrity, the density and distribution of burials, the burial customs and the differential preservation of bones and coffins. Despite the reduced number of well preserved burials, their study and that of some thirty other burials excavated in the 1970's in block 3 will increase our knowledge about the burial customs at Louisbourg and about its population's biology.

Latta, Martha A. (University of Toronto at Scarborough, Scarborough, ON)

Reception Theory: The Impact of Metal in Amerindian/European Interactions in the Lower Great Lakes. (S-2)

Human social interactions are bipolar; that is, in any cultural exchange, information always passes both ways. This is true of daily social interactions, and it is particularly important for the understanding of initial culture contacts and for the recognition of such contacts in the archaeological record.

Reception Theory operates through defined *contact nodes*: the rules which govern the initial phases of interaction between representatives of two or more distinct culture groups, including (but not limited to) the process of acculturation. Aspects of this theory include definitions of personal interaction modes, economic exchange rules, ritualization of responses and social acceptance of change.

This paper applies Reception Theory to the mutual impact of metal trade in 17th century Aboriginal and French cultures in southern Ontario and Quebec.

Lea, Joanne (Huntsville, Ont.)

The CAA's Archaeology Canada Curriculum (S-20)

The CAA's Archaeology Canada curriculum has been developed through consultation with the educational and archaeological communities to share archaeological content with Canada's educators and students. The development process, field testing and evaluation are examined in light of recent Public Archaeology publications about the teaching of Archaeology. Related future avenues for public outreach and education, in fulfilment of the CAA's Principles of Ethical Conduct are outlined.

LeBlanc, Raymond (Anthropology, University of Alberta, Edmonton, AB)

Reflections from Both Sides of the Fence (S-9)

This paper presents a personal view of archaeological heritage management from academic and applied perspectives. With a funding base that vastly exceeds what is available to academic archaeology, I argue that CRM archaeology makes major contributions to the knowledge-base of Canadian archaeology, as well as to method and theory, and to the training of new generations of students. This has been in spite of a less than welcoming atmosphere from academic archaeologists, and at times, an overly rigid regulatory framework. However, improvements can

be made on all fronts and the availability of new technologies (internet, electronic documents), which are readily adopted by the archaeologists, will provide significant improvements in dissemination of information and communication within the archaeological community.

Lieverse, Angela R. (Ecology and Evolutionary Biology, Cornell University, Ithaca, NY)
David W. Link, (Archaeology Section, Provincial Museum of Alberta, Edmonton, AB)
Skeletal Biology of the Cis-Baikal: Current and Future Issues (S-16)

Cultural continuity in the Lake Baikal region of Siberia was substantially interrupted during the fifth millennium BC, with the population succeeding this hiatus being both culturally and biologically distinct from that preceding it. Initial analyses of skeletal remains representing the pre- and post-hiatus populations have suggested significant demographic differences between the two: the pre-hiatus people appear to have been suffering from population decline, whereas the post-hiatus people appear to have been experiencing population growth. The objective of this project is to evaluate the significance of these initial findings, by comparing spatially and temporally distinct populations with those of the initial study, in order to help define and explain the nature of the fifth millennium discontinuity. Skeletal remains from two cemetery sites – early post-hiatus Verkholsk, on the Upper Lena River, and late post-hiatus Khuzhir-Nuge XIV, on the shore of Lake Baikal – will be examined in terms of skeletal biology, paleodemography, paleopathology, and taphonomy.

Mackie, Alexander P. (BC Archaeology Branch, Victoria, BC), Owen Beattie (Anthropology, University of Alberta, Edmonton, AB), Brian Apland (Royal BC Museum, Victoria, BC)(with others)
Science Aspects of the Kwaday Dan Sinchi Project, A Glacier Site in British Columbia (S-19)

August, 1999 saw the discovery of well preserved remains of a young man, who perished on an icefield in Northwestern British Columbia. We discuss the field recovery techniques, conservations of the human remains, and this man's emerging "biography".

Mackie, Kjerstin (Royal BC Museum, Victoria, BC)
The Kwaday Dan Sinchi Fur Garment: Its Documentation and Conservation. (S-19)

The fur garment found in association with the human remains is undergoing a conservation treatment. We discuss our methods and preliminary observations of the construction of the fur garment.

Mackie, Quentin, Trevor J. Orchard and Martina Steffen (Dept. of Anthropology, University of Victoria, Victoria, BC)
Environmental Archaeology Of The Late Precontact And Early Contact Periods In Gwaii Haanas (S-11)

Historic events such as the extirpation of the sea otter, industrial harvesting of fish and timber, decrease in Haida population and changing Haida settlement and subsistence strategies are thought to have produced major effects on the environment of Gwaii Haanas National Park Reserve and Haida Heritage Site. However, the extent and scale of these changes is unknown, largely because there is poor baseline data on the immediate pre-contact environment. For example, extirpation of the sea otter occurred in the early 19th century, which is thought to have had unknown but important, negative consequences for the crucial near-coastal kelp ecology. In this paper we outline the research design and preliminary results of a summer 2000 pilot archaeological project which was intended to establish a methodology and commence gathering data suitable for providing an environmental baseline of the immediate pre-contact period. Interested groups such as the joint Parks-Haida Archipelago Management Board may benefit from understanding the current ecology as an historic aberration and the baseline environment as

the product of long-term human ecology. They would thus be in a better position to manage the environment of Gwaii Haanas and its continuing human use.

Malainey, Mary E. (Native Studies, Brandon University, Brandon, MB); Krisztina L. Maliszka (Archaeological Residue Analysis Consultant, Winnipeg, MB); Roman Przybylski (Foods and Nutrition, University of Manitoba, Winnipeg, MB); Gregory Monks (Anthropology, University of Manitoba, Winnipeg, MB)

The Key to Identifying Archaeological Fatty Acid Residues (S-3)

Revised and expanded criteria for the identification of fatty acid residues extracted from archaeological materials will be presented. The criteria were developed by first preparing a variety of cooking residues using foods known to have been exploited during the Precontact Period. The residues were then stored under conditions that accelerated the decomposition process to a maximum rate, simulating an extended passage of time.

The observed degradation patterns often take the form of logarithmic decay curves. These are extrapolated and used to assess the reliability of the identifications over hundreds or thousands of years. The effects of burial under different soil conditions are also considered.

Mallory-Greenough, L.M. (Near and Middle Eastern Civilizations, University of Toronto, Toronto, ON); M.P. Gorton (Geology, University of Toronto, Toronto, ON) & J.D. Greenough (Earth and Environmental Sciences, Okanagan University College, Kelowna, BC)

A New Mineral-based Micro-sampling Technique: The Electron Microprobe and the Source of Basalt Artefacts (S-13)

Basalt vessels are ubiquitous artefacts in elite Predynastic and First Dynasty Egyptian burials, and were important cultural and trade items. These artefacts tend to be rare (~600 documented examples), small (<30 cm), and well-preserved. As most are in museum collections, removing large quantities of material for source analysis is impossible. Thus, a micro-analytical method using grain-sized (<0.01 g) samples was developed. Selected based on provenance, form, age, and accessibility, 116 vessels were micro-sampled. All six major basalt flows in Egypt, each one geographically and chemically distinct, were sampled to create a comparison database and flow fingerprints. Major and minor elements in augite, plagioclase and pigeonite (subalkaline basalts only) were measured in bedrock and artefact samples with the electron microprobe. Statistical comparison of bedrock and artefact data indicates that the Haddadin basalt flow in northern Egypt was the source for all studied vessels.

Martelle, Holly (University Of Toronto, Scarborough Campus, Scarborough, ON)

Pots, Potters, And Pottery Making In Eastern Huronia (S-6)

This presentation provides a quick survey of potting traditions and techniques at the now completely excavated, late 16th to early 17th century, Huron village near Warminster, Ontario. Here, excavations spanning 25 years have helped produce one of the richest Huron contact period ceramic assemblages yet known. A survey of reconstructed vessels and vessel types is provided, as is a comparison between potting traditions at the Ball Site and two others (Thomson-Walker & Auger) located nearby, and excavated by the University of Toronto. Some suggestions about the organization of 17th century Huron ceramic production are offered.

Martindale, Andrew (Department of Anthropology, McMaster University, Hamilton, ON)

Tsimshian-European Interaction in the Proto-contact Period: Archaeological Evidence of Resistance to Acculturation. (S-11)

Recent excavations at the post-contact Tsimshian village of Ginakangeek (GbTh-2) reveal similarities in material culture, spatial organization and architecture between components dating

to the early 20th Century and those from prior to contact at nearby village sites. Dramatic change in architectural forms from traditional Tsimshian buildings to European-influenced architecture dates only to after 1913. The stability of architecture and material culture through the 19th Century contrasts the dramatic social, economic, and political changes which have been recorded for the Tsimshian from documentary sources, indigenous oral traditions, and shifts in the regional settlement pattern of archaeological sites. Such stability, especially in architecture and by implication social organization, may reflect efforts by Ginakangiik people to resist European influence and preserve more traditional aspects of Tsimshian society.

Maxwell, David (Statistical Research, Inc. 5331 Meadedale Drive, Burnaby, BC)

Faunal Analysis on a Regional Scale: An Example from the Ballona Wetlands, Southern California (S-3)

Although a "Regional Comparisons" section is included the discussion section of most faunal analyses, zooarchaeologists are seldom granted the opportunity to analyze a large number of sites in a single region as part of a single project. The Playa Vista Archaeological Project, located near Marina del Rey, in Los Angeles, California, has thus provided this rare opportunity, full of both promise and problems. Herein, I deal with three topics: (1) issues of research method, including lack of comparability with other researchers who have worked in the area, (2) research results, particularly the surprising dichotomy between bluff top and wetlands sites that has been found to date, and (3) suggestions for future work and applying this approach in other regions.

Mazzucchi David (Department of Geography, Brandon University, Brandon, MB)

A 10,000 year record of vegetation and fire from Pyramid Lake, Northwestern British Columbia (S-15)

Three sediment cores from Pyramid Lake (58°53'N, 129°50'W) were studied to reconstruct the late-Quaternary vegetation and fire history of the Cassiar region of northwestern British Columbia. Reconstructions were based on sedimentology, macrofossil evidence and concentrations of fossil pollen and charcoal.

A radiocarbon date of 9500 +/- 65 BP provides a minimum age for deglaciation; however, the extrapolated age of the transition from basal diamicton to lacustrine sediments suggests that alpine ice persisted in the basin until about 10 300 BP. Macrofossil and pollen evidence indicate that subalpine fir (*Abies lasiocarpa*) was established near the elevation of the lake by ca. 9450 BP, suggesting that treeline during the early Holocene was at least as high as today. Migration of arboreal species from areas beyond the range of Cordilleran ice must have occurred in less than 1000 years, much more rapidly than indicated from previous paleovegetation reconstructions in northern British Columbia.

McCafferty, Geoffrey (Archaeology, University of Calgary, Calgary, AB)

Beaches, Boats and Bars: The Greatest Hits of University of Calgary Archaeology in the Tropics (S-21)

The University of Calgary's Department of Archaeology has a long and storied tradition of archaeological research in Mesoamerica, the Caribbean, and South America. This introductory paper summarizes this legacy, including work by such prominent archaeologists as Richard McNeish, David Kelley, Peter Mathews, Jane Kelley, and Scott Raymond. As a result of these successes, and in conjunction with the strong Latin American Studies program at the U. of C., our program has established and maintained a high profile in Latin America, attracting international graduate students and post-doctoral fellows to create a dynamic academic environment. Our program is currently expanding with new faculty and new research interests, and an excellent cohort of graduate students. This paper constructs an historical context for the papers that follow.

McGhee, Robert (Canadian Museum of Civilization, Hull, QC)

Between Racism and Romanticism, Scientism and Spiritualism: The Dilemmas of New World Archaeology (S-1)

To a greater degree than most academic studies, Americanist archaeology is carried out at a focal point of political debate, attracting the attention of native politicians, the arbitrators of academic correctness, and an interested but sceptical taxpaying public. This paper argues that New World archaeologists have often responded to these forces through a reticence to explore questions of potential contention or to defend their findings on such questions, and by the retreat into scientism which has characterized much of Americanist archaeology over the past decades. It is proposed that a regard for social and academic principles can best be expressed by treating the subjects of our research as neither adaptive robots, ancient primitives nor spiritual exemplars, but as ordinary people who have much to tell us of the universal human experience. This, in turns, requires a vigorous and public defence of the methods, practices, and values of archaeological research, as well as of the findings which result from that research.

McKenzie, Hugh (Anthropology, University of Alberta, Edmonton, AB)

Mortuary Ritual and the Social Context of Hunter-Gatherer Mobility: Preliminary Investigations at Khuzhir-Nuge XIV (S-12)

The current model of Mid-Holocene life in the Lake Baikal region, Siberia, describes the presence of two fundamentally different foraging adaptations. At the heart of the comparison between these two adaptations are their substantially different mobility patterns. Following a long tradition of hunter-gatherer studies, these mobility patterns have been explained primarily as the result of different strategies of resource use. By equating foraging mobility with mobility in general, however, these explanations tend to ignore the potential social, political, and symbolic dimensions of group mobility. Such qualitatively different foraging adaptations must have had both consequences on, and be consequences of, qualitatively different social, political and symbolic structures. Consideration of the social context of mobility will provide an enriched explanation of culture dynamics. Through an analysis of mortuary ritual at the Early Bronze Age cemetery Khuzhir-Nuge XIV, this paper describes the preliminary attempts at uncovering this social context.

McLaren, Duncan (Anthropology, University of Victoria, Victoria, BC)

A Chronicle of Ancient Times in the Stave Watershed Based on Archaeological Objects and Environmental Reconstructions (S-15)

Periods of drawn-down water conditions at Stave and Hayward Reservoirs, near Mission, B.C., have exposed large numbers of deflated archaeological sites. Projectile points and bifacial knives collected from the surface of these sites are diverse in style and have formed the basis of a chronologically oriented typology. The goal of this analysis is to provide a base line of temporality for the sites and artifacts located in Stave Watershed. The analysis employs the use of seriation. This paper presents the results of this chronological analysis of artifact types from the Stave Reservoir area, and relates this sequence to sites located elsewhere in the Fraser Valley. The creation of this sequence will address the antiquity of some of the materials from the Stave Watershed that are suspected as predating the earliest dated sites in the Fraser Valley and Gulf Georgia (~9,000B.P). Late Pleistocene/Early Holocene environmental conditions and falling sea levels are key factors in understanding the antiquity and possible locations of early sites in the Lower Fraser Watershed area. The creation of this sequence is not limited to the early period, and will be designed to enable comparisons in order to provide archaeologists working in the Fraser Valley and Gulf of Georgia region with a valuable and testable means of cross-referencing projectile point and bifacial knife styles. Furthermore, the creation of such a sequence allows for analyses of change and continuity in land use and settlement patterns in the Stave region, and can be used to explore the influence of memory, identity, and knowledge on the reproduction and representation of style through time.

McLean, Laurie (Burnside Heritage Foundation Inc., St. John's, NF)

Archaeology in the Cowpath: Cultural Resource Management in Bonavista Bay, Newfoundland (S-6)

Archaeological cultural resource management is a growing concern on the island of Newfoundland. Four projects based in different communities have been surveying and excavating sites for a number of years while permitting thousands of tourists to observe ongoing archaeological research. Numerous other communities are hoping to launch similar operations. The Burnside Heritage Foundation Inc. is one of the island's oldest CRM endeavours, having conducted its first archaeological field season in 1989 and its eleventh in 2000. The BHF has endured bureaucratic indifference and the annual challenge of obtaining funding in implementing archaeological research that has significantly contributed to the study of Newfoundland's prehistory and early history.

McNeil, Paul (Geology and Geophysics, University of Calgary, Calgary, AB), L.V. Hills (Geology and Geophysics, University of Calgary, Calgary, AB), Brian Kooyman (Archaeology, University of Calgary, Calgary, AB) and Shayne Tolman (Resources and the Environment, Faculty of Environmental Design, University of Calgary, Calgary, AB)

The Late Pleistocene Fauna of the Wally's Beach Site (S-1)

The fauna, comprised of trace and skeletal remains occurs in eolian sands and silts and loess. These sediments occupied a glacial lake marginal position and overlie glacio-lacustrine deltic sediments. Radiocarbon dates on bone indicate that the deposits range in age from 11,000 to 11,350 years B.P. The trace fossils include tracks of *Mammuthus*, *Equus*, *Camelops*, and *Rangifer tarandus*. Skeletal fossils include Bison, helmeted muskoxen, caribou, horse, badger, canids (2), and a diversity of ground squirrels. Juxtaposition of the various tracks indicates that the track makers were contemporaneous. Skeletal remains indicate that the horse was *Equus conversidens*. Comparison of the mammoth tracks with those of modern elephants indicates that all age groups from juveniles to adults were present, however, the paucity of juveniles indicates that the population was stressed. The data, however, do not indicate whether or not this stress was related to environmental changes that were taking place as both the Laurentide and Cordilleran ice sheets retreated, human predation, or possibly environmental change and human exploitation combined. Flakes and flake tools were recovered in association with the horse and muskoxen remains. The temporal distributions of some of the faunal species in North America do indicate a movement of these species northwards.

Meyer, David (University of Saskatchewan, Saskatoon, SK)

Mummy Cave Occupation in Central Saskatchewan: Notes from the Below Forks Site (S-10)

During the Hypsithermal period, ca. 9,000-6,000 B.P., the northern plains climate was relatively mild and dry, and the southern limit of the boreal forest was at least 70 km north of its contemporary position in Saskatchewan. As a result, plains bison habitat would have extended into what is now the southern section of the boreal forest. Archaeologically, the northern plains cultures of this period have been grouped in the Mummy Cave series and these bison hunters would have expanded their ranges to include this northern extension of the prairies. Indeed, Mummy Cave materials are very common throughout the southern boreal forest of central Saskatchewan but, to the present, most of the known Mummy Cave sites are surficial occurrences, which lack stratification, and most have been disturbed by cultivation. In this regard, the Below Forks site on the Saskatchewan River is important because it preserves a terrace section which contains stratified cultural components which extend back to the Mummy Cave period (5,845 B.P.). This site, therefore, has the potential of providing the first firm information on the characteristics of Mummy Cave assemblages and the relationships of these peoples to the environment of central Saskatchewan during the Hypsithermal.

Million, Tara (Anthropology, University of Alberta, Edmonton, AB)

Ghost Dance Archaeology: Obligations and Repercussions of Circular Paradigms
(Poster S-14)

In this series of posters, I present the results of a two year archaeological project at Alexis First Nation, AB. The fieldwork, and the resulting visual display, has been primarily based on traditional Cree and Stony understandings of circular paradigms. Within these posters I display how the symbolic and spatial representation of those understandings has been applied throughout every aspect of the fieldwork, including excavation and data analysis.

Mokelki, Lorie (Anthropology and Archaeology, University of Saskatchewan, Saskatoon, SK)

Settlement Pattern Inference Based Upon Middle Plains Woodland Site Distribution in the Parkland of Manitoba and Saskatchewan (S-10)

Throughout the North Eastern Plains a wealth of Middle Plains Woodland sites have been identified. In Southwestern Manitoba and the Southeast corner of Saskatchewan alone, there are over one hundred known sites which have been attributed to Besant, Avonlea and/ or Laurel occupations. Although only a small percentage of these sites have been excavated, the geographic distribution of all sites in the study area can offer much information. Settlement patterns and common site selection variables are just two of the research objectives that can be explored from an examination of site distribution. In addition to this, a comprehensive overview of these Middle Plains Woodland sites should be helpful in aiding in the selection of representative sites for further exploration and excavation.

Monks, Gregory G. (Anthropology, University of Manitoba, Winnipeg, MB)

Economic and social evolution of the Red River Settlement as seen from Fort Garry (1821-1852)
(S-5)

Archaeological deposits from Fort Garry are examined in light of the information they provide about the changing economic and social life of the Red River Settlement. The Fort Garry assemblage shows the changes that occurred within the site itself, and these changes reflect the shifting roles played by the Fort within the Red River Settlement. The Fort was established by the amalgamation of the Hudson's Bay and North West Companies in 1821, at which point employees of both companies were permitted to settle permanently around the junction of the Red and Assiniboine Rivers. The Fort thus played a critical founding role in the emerging economic and social complexity of the Settlement.

Mooder, Karen (Laboratory Medicine, University of Alberta, Edmonton, AB) Fiona Bamforth, (Laboratory Medicine and Pathology, University of Alberta, Edmonton, AB)

Mitochondrial DNA and Archaeology: The Genetic Characterisation of Prehistoric Siberian Hunter-Gatherers (S-16)

The 16569 base pair mitochondrial DNA (mtDNA) genome is a valuable tool in anthropological studies examining the origins and migrations of modern humans. MtDNA is transmitted maternally, undergoes little if any recombination, and has a rapid substitution rate. Furthermore, geographic-specific mtDNA patterns known as haplogroups have evolved in female lineages as they have diverged and migrated throughout the world. MtDNA haplogroup analysis may be used to estimate biological affinities within and between populations. This research aims to identify biological affinities in two prehistoric Siberian hunter-gatherer populations known as the Kitoi and Serovo-Glazkovo by examining mtDNA isolated from skeletal tissue. To date, equal proportions of the mtDNA haplogroups A, C and D have been identified in 30 of 67 Kitoi and Serovo-Glazkovo samples, with these representing haplogroups common to contemporary Siberian populations. Following haplogroup analysis, direct comparison of mtDNA sequences in individuals from each group will be attempted to identify familial lineages. This study will be

combined with archaeological and osteological data to help reconstruct the demographic and social structures of the Kitoi and Serovo-Glazkovo.

Morlan, Richard E. (Canadian Museum of Civilization, Hull, QC); Russell W. Graham (Denver Museum of Nature and Science, Denver, CO); Ernest L. Lundelius, Jr. (University of Texas, Austin, TX); and Bart Weis (Denver Museum of Nature and Science, Denver, CO)
Faunmap comes to Canada (S-1)

Faunmap is a digital database of mammalian occurrences in more than 3000 paleontological and archaeological sites in the contiguous 48 states of the U.S.A. This database was assembled in the early 1990s under the leadership of its principal investigators, Russell W. Graham and Ernest L. Lundelius, working with some three dozen collaborators and assistants. Its purpose was to explore the biogeographic histories of North American mammals during the past 40,000 years, focusing on how mammalian communities have changed in response to climate changes. Did mammal species respond individually to climate changes, or did whole communities exhibit a response? Were there changes in the patchiness of environments from late Pleistocene to Holocene times? Were there clearly defined faunal provinces during the Pleistocene, and if so, what were their geographic and temporal limits? These questions were addressed with the database completed as of 1994 (Faunmap Working Group, 1994, 1996), but they deserve additional analysis while many questions remain.

For example, we wish to understand the longer record of mammalian communities throughout the Pleistocene in order to assess the extinction events that occurred during the late glacial period. We want to explore the mammalian colonization of deglaciated terrain across Canada and Alaska during the late glacial and Holocene, and to understand the significance of southern versus Beringian refugia. In order to address these problems, Faunmap is being extended back in time to include the early Rancholabrean, Irvingtonian and Blancan land mammal ages, and extended geographically across Canada and Alaska. Funding for this expanded database has been acquired by Graham from the National Science Foundation. The purpose of this paper is to describe the requirements for Canadian content in this international database and to appeal for your help as we amass the Canadian data.

Faunmap Working Group. 1994. FAUNMAP: a database documenting Late Quaternary distributions of mammal species in the United States. Illinois State Museum, Scientific Papers 25(1-2): 690 p.

Faunmap Working Group. 1996. Spatial response of mammals to Late Quaternary environmental fluctuations. Science 272: 1601-1606.

Morrison, David (Archaeological Survey of Canada, Canadian Museum of Civilization, Hull, QC)

New Radiocarbon Dates from Amundsen Gulf: Dating the Thule Migration (S-4)

The migration which brought ancestral Thule Inuit out of Alaska to populate Arctic Canada and Greenland remains poorly understood from almost any perspective, including that of dating. A series of internally consistent AMS radiocarbon dates were recently obtained from the early Thule Tiktalik site on Amundsen Gulf, in the western Canadian Arctic. A comparison of these dates with those from other "migrational" Thule sites in Arctic Canada suggests that the Thule migration occurred over a considerable period of time, and was a more complex event than may be generally recognized.

Neuman, Robert W. (Curator of Anthropology (Retired). Louisiana State University, Baton Rouge, LO)

Two Plains Archaeologists Searches in Some of the World's Grasslands (S-1)

This paper addresses some of the observations made by Richard G. Forbis and me during our travels over the last fifty years of the twentieth century.

Nicholson, Bev (Native Studies, Brandon University, Brandon, MB) and Scott Hamilton (Anthropology, Lakehead University, Thunder Bay, ON)
Theoretical Directions for the SCAPE Project (S-10)

Beginning with an interest in "antiquities", Archaeologists have attempted to understand the past through examination of material culture. Numerous theoretical paradigms have emerged, enjoyed their time in the academic spotlight, endured vigorous debate, been amended and modified and usually been quietly dropped as a new vision of the proper way to understand the past is promulgated by a new band of researchers. All of these paradigms have contributed to our understanding and, under examination, have prompted the discipline to move forward towards new and more comprehensive theoretical constructs and towards development of more sophisticated and rigorous methodologies. The inter-disciplinary SCAPE team has been drawn from a variety of academic backgrounds ranging from the Humanities and Social Sciences to the biological and earth sciences. We believe that by constructing cultural contexts, as well environmental contexts, we will be able to more effectively interpret the archaeological record. Our challenge is to integrate these diverse disciplinary perspectives into a cohesive theoretical paradigm, which offers an interpretive paradigm for these diverse data sets.

Nicholson, Bev (Native Studies, Brandon University, Brandon, MB), Harry M. Jol (Geography, University of Wisconsin, - Eau Claire, WI), Scott Hamilton (Anthropology, Lakehead University, Thunder Bay, ON), Garry Leonard Running IV (Geography, University of Wisconsin - Eau Claire, WI)
Ground Truthing Ground Penetrating Radar at the Lowton Site (S-10)

The Lowton Site, located in Southwestern Manitoba, has provided many artifacts including ceramics that suggest a connection to horticultural groups in the Eastern Woodlands of the U.S. Test excavations in 1992 recovered an intact basin hearth dated to 510+/-110 B.P. (on associated bone). A test GPR survey to locate additional buried features was conducted in 2000. Numerous GPR reflection patterns, indicative of subsurface disturbances were interpreted. Preliminary excavation of the GPR anomalies has revealed four pits - one being a boiling pit, coarse clasts within till, and auger test holes from 1992 testing at the site.

Nicholson, Sylvia and Nikki Daniels (SCAPE Project, Brandon University, Brandon, MB)
Archwizard: A Relational Database for the Recording and Quantification of Archaeological Materials (Poster S-14)

An electronic database has been developed for the archaeological investigations of the SCAPE project. The database is a crucial component for the management of archaeological data from sites in three provinces and covering five time periods. The database had to meet several criteria: manage large amounts of recovered data; accommodate the time/space needs of the data; be capable of modification; useable by undergraduates; have graphics and mapping capabilities; accept additional modules for data analysis; reflect the differing regions under study and the preferences of the primary researchers. The database was developed with Access, a popular database program that is available to all the researchers.

Novecosky, Brad and Peter Popkin (University of Saskatchewan, Saskatoon, Sask.)
Volume Bone Density and its Application to Canid Remains found in Archaeological Assemblages. (S-3)

Archaeologists studying site formation processes often use volume bone mineral densities. This paper presents volume bone mineral densities obtained from five canid species (*Canis lupus*, *Canis latrans*, *Canis familiaris*, *Vulpes vulpes* and *Vulpes velox*) found in western Canada. These measures were obtained using both densitometry and computed tomography. Examples of how

canid volume bone mineral density measures may be used by archaeologists will be presented using data from several archaeological sites in Saskatchewan and Manitoba.

Odess, Daniel (Arctic Studies Center, Smithsonian Institution, Washington, DC)
An Early Arctic Small Tool Tradition Structure from Interior Northwestern Alaska (S-4)

Almost forty years ago, William Irving proposed the Arctic Small Tool tradition (ASTt) to indicate taxonomic unity and historical relatedness among several recently identified mid-Holocene cultures in Alaska (Denbigh Flint complex), Canada (Pre Dorset), and Greenland (Independence I and Sarqaq). Since then research in Canada and Greenland has helped refine our understanding of cultural relationships between the eastern members of this tradition, their economies, technologies, and demographic histories. By comparison, research on the Denbigh Flint complex, the Alaskan member of the tradition, has lagged behind. Little fieldwork has been conducted since the mid 70s, and little attention paid to those issues or to the historical relationship between Denbigh and its neighbors to the east. This paper reports on an early ASTt site in the western Brooks Range, Northwestern Alaska, and discusses its significance within the context of the early ASTt across the North American Arctic. The structure from the site bears strong similarity to Pre Dorset, Independence I, and Sarqaq houses from the Canadian Arctic and Greenland, and adds an additional dimension to our understanding of the relationships between the various techno-complexes which comprise the early Arctic Small Tool tradition.

Oetelaar, Gerald (Archaeology, University of Calgary, Calgary, AB)
People, Places and Paths: The Cypress Hills and the Nitsitapi Landscape of Southern Alberta (S-10)

Landscapes are created by people, through their experience and engagement, with the world around them and through their activities and movements on the ground. Important landmarks are determined, to some extent, through the patterned movement of people over the landscape. Myths and oral traditions, in turn, provide explanations for the origins of these important landmarks, many of which are named and identified through the addition of cultural markers. From his perspective then, landscapes are not only the natural and cultural features of a region but also the names, oral traditions, and ceremonies, which establish the continuity between ancestral beings, social groups and land. These landscapes thus include an element of reality, one of perception, and one of habitual behaviour. This paper attempts to position the Cypress Hills within the broader Nitsitapi landscape using the place names, paths and traditions of the people.

Oetelaar, Gerald (Archaeology, University of Calgary, Calgary, AB)
Stone Circles, Social Organization, and Special Places: Forbis' Skepticism Revisited (S-1)

Stone circles, also known as tipi rings or stone rings, have been the subject of intermittent interest and disdain. The latter attitude was perhaps most cogently and succinctly summarized by Forbis' comments in a 1981 symposium on tipi ring research. "Like George," he wryly noted, "I have been looking at tipi rings for about 30 years but I have only been looking at them." Despite the optimism of the presenters at this symposium, Forbis remained skeptical of our ability to reconstruct social life, religious life, and so forth from stone circles. Some fifteen years later, he expressed the same reservations when commenting on my paper dealing with the organization and use of space inside tipis. In this paper, I wish to share some of Dick's comments and discuss these in light of current research on the northwestern Plains.

Orchard, Trevor J. (Anthropology, University of Victoria, Victoria, B.C.)
The Role of Selected Fish Species in Aleut Paleodiet (S-11)

Statistical regression was applied to the comparison of skeletal element size and the live length and weight of six fish taxa: Pacific cod (*Gadus macrocephalus*), Walleye pollock (*Theragra chalcogramma*), Atka mackerel (*Pleurogrammus monopterygius*), Greenling (*Hexagrammos* sp.),

Rockfish (*Sebastes* sp.), and Irish Lords (*Hemilepidotus* sp.). A selection of skeletal elements were measured from comparative specimens of each taxa and these data sets were used to generate regression formulae which compared the known live length and weight to specific skeletal element measurements. These formulae were then applied to the analysis of fish remains from several sites on Adak, Buldir, and Shemya Islands in the Aleutian archipelago. The results of this analysis provide insight into the subsistence of prehistoric Aleut populations and changes in the local ecology over time.

Park, Robert W. (Anthropology, University of Waterloo, Waterloo, ON) and Douglas R. Stenton (Government of Nunavut, Iqaluit, NT)

Archaeological Approaches to Culture Contacts in the Eastern Arctic (S-4)

Given the Arctic's remoteness, it's fascinating that archaeologists are increasingly perceiving it as a locus of complex interactions between people belonging to very different cultures: the Paleoeskimo Dorset, the Neoeskimo Thule, and the Norse Vikings. Evidence for such interactions has been derived from instances of apparent exchange of diagnostic objects between cultures, instances of apparent acculturation between cultures, and even from the absence of instances of acculturation or exchange. In this paper we will discuss the difficulty of unambiguously identifying evidence for contact or for lack of contact, and then evaluate some of the recently published evidence, especially radiocarbon dates.

Pinard, Claude (Avataq Cultural Institute, Montréal, QC)

But the site is not there anymore: A Dorset site in the vicinity of Quaqtqaq, Nunavik. (S-4)

During the summer of 2000 a salvage excavation of the Qimmiq site (JgEj-29) a multi-occupation site near the northern community of Quaqtqaq, brought to light a Middle Dorset presence. The analysis of the data recovered will be presented.

À l'été 2000 une intervention archéologique sur le site Qimmiq (JgEj-29), un site à occupations multiples près du village nordique de Quaqtqaq a révélé une présence du Dorsétien moyen. L'analyse des données trouvées sera présentée.

Playford, Tomasin (Anthropology and Archaeology, University of Saskatchewan, Saskatoon, SK)

Subsistence Strategies of a Late Prehistoric Group Inhabiting the Lauder Sandhills: A Biologically Diverse Ecological Niche in Southwestern Manitoba (S-10)

Investigations in the Lauder Sandhills has revealed a profusion of archaeological sites, with over a dozen being identified. One of these, the Jackson site (DiMe-17) is a Vickers Focus occupation dating to about 350 BP. The artifact assemblage indicates that the site consists of a small bison kill, a midden, and a processing area. A comprehensive analysis of the Jackson site faunal assemblage supports this interpretation and demonstrates whether or not the site activity areas are related. An examination of species diversity attests to a bison hunting procurement strategy while an analysis of the skeletal element distribution demonstrates just how intensely the site's inhabitants were processing bison.

Plourde, Michel (Centre Archéo Topo and Université de Montréal, Montréal, QC)

A Late Woodland Winter Seal Hunting Ground At The Mouth Of The Saguenay River (Quebec) (S-6)

This paper presents the hypothesis that the mouth of the Saguenay River (St. Lawrence Estuary) served as a wintertime (December to April) seal hunting territory. This is based on archaeological data recovered from excavations at the Cap-de-Bon-Désir site in 1998. Faunal remains are dominated by bones from every anatomical part of the Harp seal which is present in the Estuary

in greatest numbers during the winter and spring. In addition, due to topography and soils, the site would have been more inhabitable during those months when the ground was frozen, and the structure of features on the site seem to reflect this. Seal hunting in the area of the mouth of the Saguenay River during the Late Woodland period has typically been attributed to Iroquoian groups that traveled seasonally to the area from the Quebec City region. New archaeological evidence along with early written documents, however, indicates that seal hunting in the region, in particular during the winter months, was not exclusive to Iroquoian groups and was practiced by the different ethnic groups present in the region.

Le secteur de l'embouchure du Saguenay : territoire de chasse au phoque en période de glaces au sylvicole supérieur (S-6)

Nous présentons l'hypothèse d'une utilisation, au Sylvicole supérieur, du secteur de l'embouchure du Saguenay comme territoire de chasse au phoque en période de glaces, soit de décembre à avril. Une campagne de fouilles réalisée en 1998 sur le site du Cap-de-Bon-Désir a révélé un ensemble de données archéologiques qui permettent de proposer ce scénario. D'une part, l'assemblage faunique est dominé par des ossements représentant toutes les sections anatomiques de phoques du Groenland, une espèce qui se trouve en plus grandes concentrations dans l'estuaire pendant l'hiver et le printemps. D'autre part, le milieu physique s'avère peu accueillant en dehors de la période de gel car la topographie est accidentée, les dépôts meubles sont presque inexistants et le sol est par conséquent mal drainé. Pour la période du Sylvicole supérieur, la chasse au phoque dans le secteur de l'embouchure du Saguenay a généralement été attribuée à des groupes iroquoiens en transhumance, à partir de la région de Québec. Toutefois, certains faits historiques et archéologiques nous permettent maintenant de proposer que la chasse au phoque, et plus spécialement celle pratiquée en période hivernale, ne pouvait pas être exclusive aux groupes iroquoiens et devait être pratiquée par différents groupes ethniques.

Pokotylo, David (Anthropology & Sociology, University of British Columbia, Vancouver, BC)

The State of the Nation: Canadian Public Opinion on Archaeological Heritage (S-9)

A survey of public opinion on archaeological heritage issues in Canada focused on four main areas: knowledge of archaeology, interest and participation in archaeology, awareness and support of heritage conservation initiatives, and Aboriginal stewardship of the archaeological record. Public opinion data collected from a random sample of 1,501 residents across Canada indicate a high level of interest and support for archaeology and heritage conservation, but also a high level of misunderstanding about the archaeological record and current legislative measures to protect it. In contrast to recent changes in legislation and initiatives within the discipline, public attitude towards Aboriginal stewardship of archaeological resources is reserved. Region, education, age, and gender are significant factors affecting differences in opinion.

Ponomarenko, E.V. and S.V. Ponomarenko (Canadian Museum of Civilization, Hull, QC)
Application of the Ecosystems Archaeology Method for Vegetation Restoration and Management in National Parks (S-5)

Vegetation management in national parks requires the determination of what is "a goal forest" as an object of restoration and maintenance. Usually "the goal forest" is understood as the ecosystem that existed at the time of European colonization. For most areas it is assumed that parameters of the modern natural forest are more or less similar to those at the time of colonization. However, in the areas colonized comparatively early, such as the Maritimes, the vegetation cover apparently was modified by logging, ploughing and imported plant diseases. In this case information on the historical species composition can be obtained by soil analysis. A combination of trace fossil and macrofossil analysis was applied to reconstruct the species composition, tree stand density, and age parameters of the historical Acadian forest in Kouchibouguac National Park (New Brunswick).

Results of this case study allowed us to draw some preliminary conclusions on the role of anthropogenic disturbances on the vegetation cover of the East Coast prior to European colonization.

Rahemtulla, Farid (University of Northern British Columbia, Prince George, BC) and Aubrey Cannon (McMaster University, Hamilton, ON)
Early Baseline Adaptations on the Central Coast of British Columbia (S-15)

The relationship between post-glacial environmental conditions and patterns of cultural adaptation on the coast of British Columbia is a contentious topic. One school argues for a history of *gradual* cultural development over several millennia, which eventually culminated in the classic Northwest Coast pattern. In contrast, we argue that many aspects of classic Northwest Coast culture were established with the earliest settlers, in relation to basic features of the landscape and resource availability during the early Holocene. Several lines of archaeological evidence from the central coast region indicate that early inhabitants there were fully maritime adapted, with a settlement pattern not unlike that of later periods. The lack of cedar during the early Holocene may have been the only dramatically different environmental circumstance affecting culture patterns at that time. Using analogies from similar cedar-free environmental contexts, we present models for early lifeways on the central coast.

Ramsay, Charles and Allyson Ramsay (Stantec Consulting Ltd., Calgary, AB)
The Mosquito Creek Site (EbPi-4): A Besant/Samantha Pottery Rich Occupation from the Little Bow Reservoir Archaeological Project (S-17)

The Little Bow Reservoir Archaeological Project in 1999 and 2000 has resulted in several substantive archaeological discoveries. The reservoir is located approximately 100 km south of Calgary, near the towns of Nanton and Champion. One of the sites, EbPi-4, is known as the Mosquito Creek site and is associated with the Clear Lake Diversion Canal development portion of the Little Bow Dam. In 1999 and 2000, excavations were completed recovering a number of pottery sherds from this late Besant Samantha site. Since this was deemed to be a single component site associated with Besant based on 1989 block excavations we were obviously excited as Besant pottery is very rare. The few rim sherds recovered were a somewhat ambiguous style. Subsequently, further excavations focussed on the pottery discovery areas and AMS samples were submitted from charcoal residue on the pottery sherds. This paper presents the results of the AMS radiocarbon ages obtained directly from the pottery, the site stratigraphy and features, the overall artifact assemblage, and the Besant-Samantha stone tool diagnostics.

Rasic, Jeffrey (Washington State University, Pullman, WA /Western Arctic National Parklands) and Robert Gal (U.S. National Park Service, Western Arctic National Parklands)
Radiocarbon Dating of Paleoindian Sites in Northern Alaska (S-4)

Recent work on a group of three sites in northwestern Alaska has produced artifact assemblages characterized by large, edge ground, lanceolate shaped projectile points that many people would classify as Paleoindian yet are different than those from other Paleoindian complexes known for the region such as the Mesa Complex. Although the artifact assemblages from these sites have strong similarities, the ten radiocarbon dates so far obtained range from 9,500 to 11,200 yrs BP. This span of over 1800 radiocarbon years may reflect a relatively long-lived tradition, although other factors such as the complex site formation processes typical of Arctic sites, and the effects of late Pleistocene fluctuations in atmospheric carbon must be addressed. In this paper we report on the dating of these sites, discuss problems inherent in interpreting radiocarbon ages from shallow, cryoturbated contexts, and give examples of methods used to surmount these problems.

Reese-Taylor, Kathryn (Archaeology, University of Calgary, Calgary, AB)
Defining Classic Period Maya Kingdoms: A Question of Boundaries (S-21)

Over the past thirty years, several scenarios defining Classic period Maya political kingdoms have been presented. Most recently, these polities have been defined as weakly unified kingdoms controlled by rulers based upon their personal authority. A byproduct of these definitions is that the actual boundaries of Maya kingdoms are very poorly understood. However, recent research within the Three Rivers region has lead us to question the concept of weakly centralized polities and, instead, to suggest that rulers exercised actual control over valuable resources. Consequently, we propose that polities were well unified with definable political borders.

Reeves, Brian (Professor Emeritus, Archaeology, University of Calgary, Calgary, AB)
Foundations: Richard G. Forbis and the Study of Archaeology in Alberta (S-1)

The Study of Archaeology in Alberta began with the decision by the Glenbow Foundation in the early 1950's to establish an Archaeology Department specifically to carry out research into the archaeology of the Province study of which had been sadly neglected to that time by federal or provincial institutions. Dick Forbis was hired and began an active program of pioneering archaeological studies in the province-focussing on the Southern Alberta Plains and sites and themes of particular significance; the Ross Site and the Direct Historic Approach, the Old Women's Buffalo Jump the first major bison jump to be excavated in the Northern Plains, the Grassy Lake and British Block Cairns, pictographic rock art and so on. This program involved avocational archaeologists and Dick was among those key individuals responsible for the now Calgary Chapter of the Archaeological Society of Alberta. Dick's work soon progressed to cooperation between the Glenbow and the then young University of Alberta at Calgary where Dick taught the first course on Plains Archaeology in the early 1960's. Shortly after he played along with the Glenbow a key role in establishing the Department of Archaeology at the University in 1964 and recruiting Scotty MacNeish who along with Dick where the first academic staff. Graduate students outnumbered undergraduates majors in the early years. Over the following 30 or so years, Dick continued his active senior teaching, supervisory and research roles, directing and funding many graduate students' research in Alberta. Throughout his life he remained committed to Northwestern Plains Archaeology as an integrated transborder regional study.

Reeves, Brian (Lifeways of Canada Limited, Calgary, AB)
30 Years Later: Besant In The Northwestern Plains -Foothills (S-17)

Archaeological studies, primarily those from the consultant community, over the last 30 years has added substantially to our knowledge of the temporal and spatial dimensions and content of the Besant Phase and its relationship to other archaeological phases of the Northwestern Plains-

Rocky Mountain Foothills. This paper surveys some of the more important data sets; which further define Besant winter-spring occupancy patterns and bison pounding in the Rocky Mountain foothills of the Saskatchewan and Upper Missouri; evidence for winter co-residency with contemporaneous Pelican Lake Phase groups; traditional geographic boundaries between Besant and Foothill (winter)-Mountain (summer) Pelican Lake groups; Besant summer short grass plains residency and interaction patterns with eastern groups; and the evidence from the Lower Yellowstone - Powder River region for a continued Besant presence as late as ca 1000 years ago in that region. I conclude with a brief discussion of which historic Northwestern Plains tribal groups the Besant Phase people were most likely, given the present evidence, ancestral to.

Robertson, Elizabeth (Archaeology, University of Calgary, Calgary, AB)

Depositional Processes and the Formation of Deeply Stratified Archaeological Sites in the Cypress Hills, Southeastern Alberta (S-10)

Archaeological sites containing extended sequences of clearly separated cultural strata represent valuable opportunities for investigation of long-term human responses to changing environmental and social conditions. The Stampede Site, located in the Cypress Hills of southeastern Alberta, is a rare example of this type of locale, containing a series of discrete archaeological deposits ranging from the historic period to at least 7245 B.P. In fact, the importance of alluvial, colluvial and lacustrine processes as key geomorphic factors in the Cypress Hills during the Holocene suggests that much of this area has experienced the kind of ongoing deposition necessary to preserve repeated episodes of human occupation as deeply stratified archaeological sites. With this in mind, this paper will review the evidence for high-resolution archaeological preservation in the Cypress Hills region and present a model identifying specific locations that may contain cultural deposits comparable to those found at the Stampede Site.

Robertson, Elizabeth (Archaeology, University of Calgary, Calgary, AB)

Communal Hunting as a Social Model for the Paleoindian to Early Archaic Transition on the Plains (S-5)

The archaeological data associated with the transition from the Paleoindian to Early Archaic periods have commonly been interpreted as reflecting marked shifts in the economic strategies and settlement patterns of groups occupying the Plains at this time. These changes have, in turn, been related to the contemporaneous onset of the Hypsithermal climatic episode. However, the advent of these new patterns has a number of important social implications that are rarely considered in many discussions of this transition. With this in mind, this paper will attempt to explore some of the social aspects of the Paleoindian to Early Archaic transition on the Plains. In particular, it will review the evidence for decreased use of communal hunting strategies at this time, and explore how reduced reliance on communally organized economic activity could have caused shifts in social organization that may generated some of the archaeological changes associated with this transition.

Running IV, Garry Leonard (Geography, University of Wisconsin-Eau Claire, Eau Claire WI), Andrea Freeman (Archaeology, University of Calgary, Calgary, AB), Dion Wiseman (Geography, Brandon University, Brandon MB), Alwynne Beaudoin (Alberta Provincial Museum, Edmonton, AB), Matt Boyd, (Geological Sciences, University of Manitoba, Winnipeg, MB)

Local- Local-Scale Geoarchaeological Investigations at the SCAPE Project Localities in Manitoba: The Influence of Pleistocene Landforms and Deposits on Holocene Geomorphic Processes (S-10)

The SCAPE project localities in the prairie ecozone of Manitoba are the Glacial Lake Hind Basin locality, (southwestern MB) and the Tiger Hills locality (south central MB). These localities were selected for study because they exhibit exceptional ecological diversity. The tight mosaic of meso-scale habitats and ecotones characteristic of these localities strongly reflects their unique,

complex geomorphic histories. Geomorphological objectives at each locality are: 1) identify local-scale geomorphic processes, landforms, and deposits, 2) reconstruct post-glacial paleoenvironment at spatial (local) and temporal (decadal) scales relevant to human activities, and 3) assess the environmental impact of human activity through time. In both localities, Holocene geomorphic processes are acting on, and in part are controlled by Pleistocene glacial landforms and deposits. Preliminary results indicate relationships between pre-existing Pleistocene landforms and deposits and Holocene geomorphic processes is profound. Moreover, objectives two and three cannot be adequately addressed until these relationships are determined in detail.

Russell, Jonathan (Millar Western Forest Products)

Developing a Relationship between Industry and First Nations (S-9)

Industry and the general public have too long relied on Government to establish relationships and solve all problems with First Nations. The focus and priorities of Government do not necessarily lend themselves to pro-active measures in this area and a new paradigm, designed outside of bureaucratic control and direction needs to be developed. Areas such as economic opportunity, cultural heritage protection, education and incorporating traditional values into resource extraction must be addressed by the public and by extension through agencies or representatives of various public interests. The forest industry can and should play a key role promoting the concerns of First Nations and entering into cooperative arrangements where sensitivities to both parties concerns can be addressed.

Saxberg, Nancy and Brian Reeves (Lifeways of Canada Limited, Calgary, AB)

The Forgotten Forts: Excavations At Edmonton House (S-17)

Recent archaeological investigations on the Rosedale Site (FjPi-63) in the City of Edmonton, Alberta have revealed a long history of occupation along the North Saskatchewan River. Cultural material has been recovered from a number of buried soils on this floodplain site, the earliest under Mazama Ash. The Rosedale site is the popular location of two phases of Edmonton House/Fort Augustus, the Hudson Bay Company and North West Company fur-trading forts dating to the early 1800s, although minimal evidence of these had ever been found and records of their precise locations are scanty. During excavations in 1999 and 2000, a section of palisade and a well-preserved fort occupation level were uncovered. The site, now home to a power generating station and water treatment facility, has been central to the urban development of the City of Edmonton for almost one hundred years, resulting in considerable impacts to the site in the past. Our study has identified processes by which early contact-period and precontact archaeological materials have been preserved and we have recovered evidence from the multiple occupations on this significant site.

Saxberg, Nancy, Brian Reeves, Mack Shortt and Claire Bourges (Lifeways of Canada Limited, Calgary, AB)

After The Flood: Ancient Hunters Of The Athabasca Lowlands (S-15)

Detail archaeological studies carried out in support of Syncrude Canada Ltd. oil sands mine on the Lower Athabasca River have identified a rich and complex record post-dating and related to the impacts of the Glacial Lake Agassiz catastrophic flood of ca. 9900 years ago. The flood removed preexisting forests and glacial sediments, contoured soft bedrock into hills and bars, and exposed large quantities of siliceous material. This created the high post-flood flows that receded over the next ca. 1000 years, and a series of recessional beaches, spits and islands in a 1000 km² embayment at the river's mouth. A unique mosaic of wetlands, grasslands, parklands, and forests developed during the warm/dry Early Holocene. Early hunters immediately reoccupied the lands in summer using water craft, leaving behind them a well-defined sequence of parallel-flaked lanceolate (Agate Basin and other Pre-Cody forms), stemmed (Cody related), and late

obliquely-flaked lanceolate (Northern Plano) point complexes dating between ca. 9900 - 7500 years.

Schatz, Michelle (Archaeology, University of Calgary, Calgary, AB)

Fish Creek Provincial Park: Archaeology, Culture Heritage and Public Involvement (S-20)

This paper evaluates and integrates previous archaeological investigations conducted within Fish Creek Provincial Park. This research has resulted in a comprehensive interpretation and assessment of the cultural use of the area, and was conducted in order to determine whether archaeological investigations are creating a positive or negative impact on the park and surrounding community. This paper also examines the development of a social conscience within the park by giving the public control over their culture heritage, by involving them in exploring the past through excavation.

Schurr, Theodore G. (Southwest Foundation for Biomedical Research, Department of Genetics, San Antonio, TX)

Molecular Genetic Diversity of Siberian Populations: Implications for Ancient DNA Studies of Archeological Populations From the Cis-Baikal Region (S-16)

Over the past several years, there has been considerable interest in populations from central and southeastern Siberia because of their purported role in the peopling of the New World. Molecular evidence suggests that ancestral Native American populations may have emerged from this broad region of northern Asia, as several maternally and paternally inherited genetic lineages present in both Siberia and the Americas appear to have evolved there before being disseminated into these regions. Recent work has also revealed the presence of both Eurasian and Asian genetic lineages in modern populations from the same broad region of Siberia, a pattern that reflects a complex history of population movements and interactions since the Paleolithic. This paper provides an overview of molecular genetic data from Siberian populations, and explores their implications for the ancient DNA analysis of archeological populations from the Cis-Baikal region.

Scribe, Brian (Saskatchewan Heritage Branch, Regina, SK)

Oral Tradition: A Useful Tool in the Field Kit of First Nations Archaeologists and Anthropologists (S-10)

The pursuit of Archaeology and Anthropology combined with oral traditional teachings of a mother and a father, a grandmother and grandfather and by the people (relations), has expanded one First Nations Archaeologist's world view. The discipline of Archaeology, combined with the oral tradition, has certainly added to cultural reeducation and preservation. This combination, through studies such as traditional land use, delineates the deeply rooted connection of many First Nations to Mother Earth, in what is termed to be "since time immemorial". This can be demonstrated through studies conducted among First Nations peoples in Southern Manitoba.

Seibert, Jeffrey (Archaeology, University of Calgary, Calgary, AB)

Ancient Maya Administration: Examining the Models of Minanhá, Belize (S-21)

Current theories concerning the nature of the Archaic State recognise the important role that public architecture plays in helping archaeologists to study their political make-up. This paper focuses on recent excavations in one of the publicly focussed range structures at the site of Minanhá, Belize. It is postulated that these were most likely ancient Maya administrative buildings, and recent excavations in one of these buildings reinforces this position. This paper will situate these excavations in relation to recent scholarship concerning the nature of the Archaic State and, in particular, the nature of ancient Maya administration and political organisation.

Shortt, Mack (Lifeways of Canada Limited, Calgary, AB)

The Canyons Of The Yellowstone: 1996 -2000 Museum Of The Rockies Research (S-5)

A long term contract archaeological research program for the National Park Service through the Museum of the Rockies began on the Yellowstone River in Yellowstone National Park in 1996. This program has essentially completed the archaeological inventory of the river from Gardener, MT through the Black Canyon to above Tower Falls in the Grand Canyon and downstream from Yellowstone Lake through Hayden Valley to the Grand Canyon. Sites are particularly numerous in the Black Canyon and Hayden Valley. Test excavations have been carried out at a number of sites threatened with erosion in the Black Canyon. Four sites tested in the lower terrace date back to McKean Complex (ca 4500 - 3000 yrs), with more recent and intensive occupations related to the Pelican Lake (ca. 3000 - 1600 yrs) and Uinta (ca. 1600 -800 yrs) phases followed by a minor late Shoshonian occupation ca 800 -500 years ago prior to the Little Ice Age, a time when there appears to have been limited cool/warm occupation in the Park.

Siegfried, Evelyn V. (Archaeology, University of Calgary, Calgary, AB)

Paleoenvironmental Reconstruction through Flotation Analysis at the Tuscany Archaeological Site (S-5)

The Tuscany site was excavated by University of Calgary Field School students and volunteers during the summers of 1995 through 1997. One aspect of the research strategy included the collection of a series of bulk soil samples from each unit by level and provided one percent random samples for flotation analysis. Approximately 1100 soil samples from buried soils below a Mazama ash boundary have been processed. Charred plant fragments, charred seeds, terrestrial molluscs, insect remains and animal bone were recovered along with cultural material in the form of small flakes. Analysis of the paleobotanical and mollusc remains has yielded important insights on natural and cultural site formation processes and the effects of environmental change through time at this archaeological site.

Smith, Laura (Anthropology, Idaho State University, Pocatello, Idaho)

Some Good Buildings and Ten Acres Cleared: Animal Remains and the Story of the Roche House (S-3)

Basin Depot (BkGk-3), a turn-of-the-century logging depot located in north-eastern Algonquin Park, has been the focus of the Bonnechere Cultural Heritage Project's excavations since 1995. For the past three years, excavations have focused on the Roche House, a large stone foundation house that served as the community's boarding house. A variety of artefacts recording approximately 40 years of occupation were recovered from the house and adjacent midden areas, including a number of well-preserved animal remains. Analysis of the animal remains have provided a few surprises, especially the ratio of domestic versus wild meat utilised by the house's occupants. The relatively high number of white-tailed deer remains in the deposits is also puzzling from an ecological perspective, since the Roche House is located near a wetland area that is prime moose habitat. Historical documents, photographs and interviews of local residents have helped to fill in the gaps! in the archaeological record.

Snider, Don (Manager, Transportation Projects, Environmental Section, Alberta Infrastructure, Edmonton, AB) and Ron Middleton (Manager, Cultural Resources, Environmental Section, Alberta Infrastructure, Edmonton, AB)

Cultural Resource Management And Government Development Projects (S-9)

There is a tendency to equate government's role in cultural resource management with regulation of development. However, government is itself one of the most active developers of all, routinely undertaking projects as small as the replacement of a single culvert in a secondary road, to as major as a comprehensive water resources system involving huge dams, canals, and associated infrastructure. In Alberta, cultural resource management has been a routine part of the

development system for the last twenty five years, and as such has come to influence the planning and implementation of government development projects throughout the province.

Somogyi-Csizmazia, John (A/Co-ordinator Traditional Use Projects Officer Ministry of Forests, Victoria, BC)

Traditional Use Studies Program – The Provincial Government of British Columbia Perspective (S-7)

The Provincial Traditional Use Studies (TUS) Program in British Columbia is one of the few TUS programs funded by a provincial government in Canada. Administered through the Ministry of Forests, the TUS Program has involved close to 60% of the First Nations communities in B.C. The TUS Program has provided First Nation the means to establish a cultural inventory of their communities in British Columbia. These study that not only identifies archaeological sites but other cultural/heritage significant areas such as resource gathering and spiritual sites. This inventory also allows other Provincial ministries and agencies in the identification of cultural/heritage sites prior to a land/resources management planning. This process also establishes the protocol of consultations with First Nations as required under the *Delegamuukw* court decision..

Steinbrenner, Larry (Archaeology, University of Calgary, Calgary, AB)

Changing Attitudes About Changing Latitudes: Remodelling Mexican Migration into Greater Nicoya (S-21)

The two most prominent ethnic groups inhabiting Greater Nicoya at the time of the Spanish Conquest were the Chorotega and the Nicarao, both of which claimed descent from migrating Central Mexican populations. Chorotega migration is usually associated with the Sapoa Period (AD 800 - 1350), while the arrival of the Nicarao is usually correlated with the changes in archaeological record that mark the Ometepe Period (AD 1350 - 1550). The ethnohistoric accounts of these migrations are many, but confused, and archaeology has had only limited success in helping to make sense of them. This paper argues that a more coherent theoretical approach toward the problem of migration might be more useful. Based on the work of theorists like David Anthony, I will present a new model for identifying immigration from Mexico applicable to new excavations beginning in the Rivas area of Nicaragua.

Stenton, Doug (Government of Nunavut, Iqaluit, NT)

Nunavut Archaeological and Palaeontological Sites Regulations (S-4)

For nearly 30 years, the Government of the Northwest Territories administered archaeological research in what is now Nunavut. Coincident with the establishment of Nunavut in 1999, the governments of Canada, Yukon, Northwest Territories and Nunavut began work on amendments to regulations governing archaeology in each territorial jurisdiction. This paper presents an overview of the development of an independent regulatory regime for Nunavut (*Nunavut Archaeological and Palaeontological Sites Regulations*), and discusses the key components of the regulations.

Strand, Diane (Champagne and Aishihik First Nations, YK); Sheila Greer (Consultant to CAFN, Edmonton, YK); Gregory Hare and Ruth Gotthardt (Yukon Heritage Branch, Whitehorse, YK)

Southern Yukon Ice Patch Research 2000: Linking Science, History, and Archaeology with Community (S-19)

Known ice patches with dung are located within the traditional territories of three First Nations, Champagne and Aishihik, Carcross-Tagish and Kwanlin Dün. This year the First Nations played a greater role in the management of the multi-disciplinary project, and citizens of the First Nations participated in the field-work and interviewed Elders about their people's history with caribou. A week-long "Science Camp" for teenagers was operated as an outreach component of the project.

Ice patch studies provide many opportunities for the First Nations, including a chance for their citizens to be involved in the study of their history, and to link science and archaeology with community.

Thibaudeau, Paul A. (Anthropology, University of Toronto, Toronto, ON)

Grinding out Technology: Methods of Use-Wear Analysis on Cuprous Materials (S-2)

This paper will discuss the effectiveness of use-wear analysis as it applies to the study of cuprous materials. The application of use-wear methodology to a sample of cuprous material from the Thomson-Walker site provides a powerful tool for understanding how these metals were used by Huron peoples. In the course of this paper I will provide a brief overview of the method I developed and then how it can apply to understanding the potential technological dynamics behind the use of cuprous materials in the processing activities of Huron peoples.

Thomas, Chris (Anthropology, University of Alberta, Edmonton, AB)

Tat'l'a Man: Preliminary Finds From a Northern Archaic Site in the Central Yukon (S-4)

This paper relates preliminary observations from two archaeological field seasons at KdVa-8 on Tatmain Lake. Historically, the site was the location of a Northern Tutchone fishing village in the Selkirk First Nation traditional territory. The site has a Late Prehistoric as well as a pre-White River Ash component that has been dated to 3630 +/-140 B.P. (C¹⁴) placing it within the Northern Archaic. In the analysis of this collection I hope bring to light new evidence for Northern Archaic technological adaptations as seen from the Central Yukon.

Tolman, Shayne (Resources and the Environment, Faculty of Environmental Design, University of Calgary, AB), Brian Kooyman (Archaeology, University of Calgary, AB), L.V. Hills (Geology and Geophysics, University of Calgary, AB), and Paul McNeil (Geology and Geophysics, University of Calgary, AB)

The Knife River Flint Eccentrics from the Wally's Beach Site (S-1)

Erosion in the St. Mary reservoir basin has exposed thousands of lithic and faunal remains. Among the surface collected lithic material at Wally's Beach (DhPg-8) are 5 eccentric artifacts. The two largest specimens are over 16 cm in length, distally bipointed and notched. The pieces are similar in form and both are made of Knife River Flint. Several pieces of these two unusual artifacts were collected over a 6 month period in a 20 meter radius. Comparative eccentric forms are absent from regional collections. A preliminary review of extra-regional literature, coupled with sporadic occurrences of Eastern Woodlands ideological artifacts on the Northern Plains, suggest a periodic Eastern Woodland influence and at least a partial acceptance on the Great Plains of eastern ritual practices. The DhPg-8 eccentric artifacts are compared to eccentrics of Hopewellian, Mississippian, and Mayan origin. Possible inter-regional cultural associations and exchange practices are considered as reciprocal and down the line exchange systems do not adequately account for the occurrence of these items.

Vickers, J. Rod (Provincial Museum of Alberta, Edmonton, AB) and Trevor Peck (Archaeology, University of Calgary, Calgary, AB)

Aspects of Winter Settlement on the Northwestern Plains (S-1)

Plains archaeologists agree that movements of bison had a determining effect on the seasonal round of the Plains Indians. However, the regularity of bison movement constituted a predictive model which might not be realized due to various random events related to weather, fire, hunting, and so forth. Understanding the actual settlement pattern – the seasonal location of sites – is better approached through a consideration of the limited distribution of non-mobile critical resources such as water and wood. For winter occupations, the availability of firewood is argued to provide a refined avenue for understanding settlement decisions. Winter campsites are shown to be located in the parkland and river valleys where ample supplies of firewood are available. The location of bison herds in winter was a secondary consideration.

Vivian, Brian and Brian Reeves (Lifeways of Canada Limited, Calgary, AB)

The Lust Site (EgPn-428): An Late Early Holocene Camp In The Foothills Of The Bow Valley (S-17)

Mitigative excavations in support of a planned subdivision development in West Calgary recovered the remains of a small (ca. 140m²) single component warm season prairie level campsite associated with a buried soil which regionally dates to ca. 8000 yrs. Mazama Ash lay above. Discrete activity areas were defined believed representative of two or more lodges located at that time on the edge of a small slough. Pine parklands rather than grasslands characterized the local vegetation. Bison, bear and wolf remains were recovered from the former slough floor to the south of the camp suggesting a discard area. Bison, sheep, deer, bear and rabbit were identified in blood trace analysis, indicative of the diverse and productive nature of the Bow Valley ecosystem at that time when the regional climate was briefly wetter and cooler. A Lusk Lanceolate point was recovered indicating an association with the Plains/Mountain Complex.

Walde, Dale (Archaeology, University of Calgary, Calgary, AB)

Mortlach and One-Gun: Phase to Phase (S-1)

The Mortlach Phase and the Cluny Complex have been the subject of on-going debate for some three decades or so. Much of debate involves the question of the relationship between the two entities. Several researchers have suggested that the two are, in fact, members of the same archaeological culture and that the material culture indicates a movement of Middle Missouri peoples during the latter part of the Late Precontact period. Others, including me, have argued equally vehemently that there is little evidence of a close relationship between the two and that two different cultural traditions are represented in the material culture. In this paper I will discuss recent finds of One-Gun ceramics in southwestern Saskatchewan and central Montana along with new discoveries of Mortlach ceramics south of the Missouri River in North Dakota. These finds, I will argue, further support the contention that Mortlach and One-Gun are the archaeological expression of two very different cultural entities.

Walker, Caroline (Anthropology, York University, Toronto, ON)

Copper and Brass Artifacts in Eastern North America: An Analysis of their Origins and Dispersal in the Fur Trade, 1500-1650 (S-2)

Nicolas Denys wrote that the copper or brass kettle was "the most valuable article they can obtain from us." Traditionally it has been held that in the early Contact period, most European trade goods entered along the St. Lawrence drainage. However, Bradley (1987) and Pendergast (1994) have demonstrated a significant trade from the south, from Dutch posts and from Chesapeake Bay. Recent excavations at Jamestown, 1608-1610, have revealed a shop for the production of copper and brass trade items. A large sample of artifacts, from Iroquoian and Algonquian peoples is here analyzed using traditional typological as well as chemical analysis.

Weber, Andrzej (Anthropology, University of Alberta, Edmonton, AB)

History and Current Trends of Mid-Holocene Archaeology of the Lake Baikal Region (S-12)

Radiocarbon dating of hundreds of Middle Holocene graves in the Lake Baikal region, Russia has led to major revisions of the culture history models originally developed by A.P. Okladnikov and has provided impetus for more research into the nature of hunting and gathering cultures of the area. This new research has demonstrated that the differences between the Kitoi and the Serovo and Glazkovo peoples are not limited to the mortuary ritual and chronology, but involve a number of other differences reaching much deeper into the core of the foraging adaptation. The research completed to date indicates that subsistence, diet, mobility, demographic parameters, and social organization were all quite different between the Kitoi and Serovo-Glazkovo groups.

Weber, Andrzej (Anthropology, University of Alberta, Edmonton, AB) and Vitalii Ostroumov (Winnipeg, Manitoba)
Bio-Geographic Profile of the Lake Baikal Region (S-12)

The Mid-Holocene Cis-Baikal was a region rich in food resources potentially available to hunter-gatherer populations, but one where distribution of these resources was spatially and seasonally quite variable. Plant resources were likely consistent throughout the region although variable on a seasonal basis. Likewise, herbivore meat was probably consistently available although the relative abundance of particular species likely varied from place to place. The aquatic resources seem to be spatially variable in both species composition and relative abundance. Although all three basins (Baikal, Angara and Lena) have at least some fish to offer, the aquatic food base of the Upper Lena is clearly inferior to other two basins. Both the Angara and Ol'khon area on Lake Baikal seem to be rather rich and diverse fisheries, but the Angara fishes might be easier to catch in larger numbers. In addition the Angara fishes also show an interesting gradient of change along the course of the river, while the Ol'khon area allows access to the Baikal seal, which form large spring colonies off the island's East Coast.

Weber, Andrzej (Anthropology, University of Alberta, Edmonton, AB) Robert Creaser (Earth and Atmospheric Sciences, University of Alberta, Edmonton, AB) Olga Ivanovna Goriunova (Archaeology and Ethnography, Irkutsk State University, Irkutsk, Russia) Caroline Haverkort (Anthropology, University of Alberta, Edmonton, AB)
Lake Baikal Hunter Gatherer Mobility Patterns: Stable Isotope Perspective (S-12)

Assessment of mobility in hunter-gatherers is frequently in the centre of many archaeological projects because it is considered a practical gauge of other important cultural and environmental variables. Strontium stable isotope abundance ($^{87}\text{Sr}/^{86}\text{Sr}$) in human bone and tooth enamel reflects, through diet and drinking water, the geology of the inhabited area. On this basis we can study prehistoric residential mobility at the individual level by comparing strontium isotope ratios between human bone and teeth. This technique shows the potential to study foraging mobility using data complementary to those employed by other methods. To test the applicability of this technique tooth enamel and femur samples representing six adult individuals from the Khuzhir-Nuge XIV cemetery on Lake Baikal were analyzed. In contrast to studies involving early sedentary farming groups, our goal was to assess changes in mobility patterns over the life span of an individual, rather than to identify places of residence during early childhood and adulthood. In our data set, strontium isotope ratios were most variable in first molars, gradually less in second and third molars, and the femoral fragments displayed the least variation. Factors possibly responsible for this pattern are evaluated in the paper.

Weitzel, Misty (Anthropology, University of Alberta, Edmonton, AB)
The Impact of Cultural Behaviour on Human Taphonomy at Khuzhir-Nuge XIV, Siberia (S-16)

The study of human taphonomy, or the processes involved in the differential preservation of human bone assemblages, has often focused on the influence of environmental factors (e.g. climate) or factors associated with the individual (e.g. sex of skeleton). Yet cultural behavior among all taphonomic factors plays a significant role in governing postmortem phenomena. At the Glazkovo (late Neolithic/early Bronze Age) cemetery site of Khuzhir-Nuge XIV in Siberia, extrinsic cultural factors account for most of the variability in human skeletal condition. Though, exactly how these cultural variables affect human taphonomy is not well understood. A careful examination of each of the extrinsic cultural taphonomic variables, namely those associated with grave architecture, the use of fire, and looting of graves, is necessary for a thorough understanding of the impact they have. Future research using a combination of laboratory observations, statistical analyses, and experimental replicative tests, will elicit information regarding the ways in which cultural behavior directs human taphonomy.

White, Dustin (Anthropology, University of Alberta, Edmonton, AB)

Preliminary Report on Geoarchaeological Survey of the Upper Lena River, Russia (S-16)

Geoarchaeological fieldwork on the Upper Lena River was initiated during the summer of 1999 to identify research localities for documenting local sequences of Holocene climatic and environmental change. Fieldwork conducted during the following summer specifically focused on previously identified stratigraphic sequences that revealed the greatest potential for high-resolution paleoenvironmental reconstructions. In particular, systematic study of the Basovo Locality yielded important information for documenting paleohydrologic regimes, pedogenic cycles, and biostratigraphic complexes along the Upper Lena River. Utilizing available proxy records from the Basovo Locality, future research will be directed toward interpreting the paleoecology of the study site. Proxy data-sets used for climatic and environmental reconstructions will include analyses of site sedimentology, soil micromorphology, molluscan and phytolith assemblages, and stable isotope data. Results from this site-specific reconstruction will be compared to the regional paleoenvironmental database and be used to test the results from downscaled global General Circulation Models of the Lake Baikal region.

Wilson, Michael C. (Geology, Douglas College, New Westminster, BC)

Editing the Cultural Landscape: The Destruction of Aboriginal Sites in the Settlement Period on the Northern Plains (S-1)

The cultural landscape is both a powerful document of human behavior and an elicitor of it: a text that is written and read. It is an archive of cultural values, a residence of and a stimulus for memories, and an intercultural advertisement of domain. A landscape of archaeological and historic sites is a palimpsest of sequent occupations, texts written upon texts, an interference pattern from the overlap of distinct inputs. Newcomers to a landscape bring their own forms of dwellings, communities, and monuments, but they may also take deliberate steps to eradicate the signs of previous occupants: to edit the cultural landscape. In doing so, they impose biases upon the remaining record, biases that must be understood as a prelude to analysis in a sort of "landscape taphonomy". Incoming Europeans took many deliberate steps to eradicate features of the landscapes of Northern Plains native peoples, tied to promotion of a myth that nomadic peoples had no ties to the land and therefore no legitimate claim to it. Case histories involving burial sites, ribstones, a meteorite, medicine wheels, antler piles, stone circle sites and other landscape features are discussed and interpreted from a taphonomic perspective. They are evaluated in light of images of the "wandering Indians" that continue to pervade local history books full of pioneer pride. The enduring image of aboriginal people who "left no marks upon the land" has been too easily reflected in a low level of interest among archaeologists in the small-scale and scattered monuments of the Plains ritual landscape, monuments that derived meaning as extensions of their special locations rather than imposing meaning upon them.

Wilson, Michael C. (Geology, Douglas College, New Westminster, BC)

Late Quaternary Vertebrates and the Cordilleran Ice Front: North Meets South (S-15)

For part of the Late Wisconsinan, northern and southern North American vertebrate faunas were separated by ice masses that impeded contact. Much has been written about the opening of an "ice-free corridor" but the key issue for biogeography was not its physical opening but its biotic opening for each species. Conditions that were passable for one species could have posed a barrier to another. Thus any "corridor" had a multiplicity of "openings." Some species may still be adjusting their ranges in the wake of the changes of the late Pleistocene. Evidence from fossil bison (*Bison* spp.) suggests admixture of northern and southern forms ca. 10,000 yr bp. Wapiti (*Cervus elaphus*) may have moved south from Alaska at about the same time, though fragmentary cervid remains could indicate an earlier southward migration. The Late Pleistocene "southern fauna" on the Great Plains and Plateau included such forms as *Camelops hesternus* (camel), *Arctodus simus* (giant short-faced bear), and *Miracinonyx jubata* (American cheetah), which did not survive the Late Pleistocene extinctions; and *Ovis canadensis* (bighorn sheep),

which did survive. An unresolved question is that of the temporal relationship between faunal admixture and extinction; the radiocarbon plateau at the close of the Pleistocene leaves open varied possibilities.

Wiseman, Dion J. (Geography, Brandon University, Brandon, MB), Brent N. Joss (Geography, University of Regina, Regina, SK), Garry L. Running IV (Geography, University of Wisconsin-Eau Claire, WI), Scott Hamilton (Anthropology, Lakehead University, Thunder Bay, ON)

A GIS-based Methodology for Landcover Reconstruction Utilizing Dominion Land Survey Township Diagrams (S-10)

Dominion Land Survey (DLS) township diagrams and surveyor notebooks represent the most comprehensive documentation of pre-European settlement landcover available for much of western Canada. The intent of this research was to develop a GIS-based methodology for utilizing these data in conjunction with contemporary physiographic and edaphic variables to objectively reconstruct pre-European settlement landcover. The relationships between known pre-settlement landcover from DLS township diagrams and contemporary landform and soil characteristics were established and logistic regression analysis utilized to predict landcover elsewhere. Two alternative approaches for applying the resulting regression model were evaluated resulting in overall classification accuracies of 60 and 73 percent.

Milt Wright (Ministry of Aboriginal Affairs, BC Provincial Government, Victoria, BC)

Forum: So what's in it for me?: Collaborative planning on archaeological projects (S-8)

An archaeological project succeeds because of collaborative effort, including collaboration with local communities for logistic reasons, specific research objectives, good business practise, regulatory compliance, or just good common sense. First Nations and local non-aboriginal communities may wish to be involved, be it through direct participation, the inclusion of specific interests in project design or policy development, or interest in a final product that remains in the community upon completion of the project. Productive collaborations are not always that easy to achieve. Why is it that some projects succeed in integrating outside interests while others fall short of expectations? What contributed to the success or failure of a joint venture? In this forum several contributors will discuss their experiences, identifying positive and negative factors in their particular collaborative efforts. After these short informal presentations the audience will be invited to join in further discussion. Hopefully this discussion will help to identify the essential elements that are a prerequisite for successful collaborative projects.

Chair:

Milt Wright

Ministry of Aboriginal Affairs, BC Prov Govt

Participants:

Tom Andrews

Prince of Wales Heritage Centre, NWT Govt, Yellowknife, NWT

Gerry Conaty

Glenbow Museum, Calgary, AB

Marg Hanna

Royal Saskatchewan Museum, Regina, SK

Gary Holisko

Environmental Co-ordinator, BC Hydro, Vancouver, BC.

Olga Klimko

Ministry of Small Business, Tourism and Culture, BC Prov Govt, Victoria, BC

BC

Gerry Oetelaar

Archaeology, University of Calgary, Calgary, AB

Milt Wright

Ministry of Aboriginal Affairs, BC Prov Govt, Victoria, BC

Philip Woodley (New Directions Archaeology Ltd., Ancaster, ON)

Fowler Site, A Late Paleo-Indian Holcombe Camp Near Lake Simcoe, Ontario (S-6)

Excavated entirely with 3 mm mesh screen, Fowler represents the only single component Late Paleo-Indian Holcombe camp excavated in southern Ontario. It is located in a cultivated field on a relict beach ridge overlooking the earlier Algonquin/Ardrea glacial shoreline. The Fowler

assemblage is similar in many ways to those from Early Paleo-Indian sites, including the recovery of piece esquillee, a fluted scraper, graters, narrow end scrapers, channel flakes and projectile points fluted on only one face. Fowler is interpreted as a single occupation Holcombe site situated at a narrows in a glacial lake ideally situated to intercept caribou migration. Alternatively, Fowler was situated in such a locale because lowering lake levels left a swampland and associated resources for extraction.

Woywitka, Robin (Anthropology, University of Alberta, Edmonton, AB)

Geographic Co-Ordinate Conversion of Archaeological Site Data in Alberta – an Example From the Cypress Hills Region (S-5)

At the request of the Archaeological Survey of Alberta, a sample of the province's archaeological site database was extracted for the purpose of converting site locational data from Military Grid Reference System co-ordinates (North American Datum 1927) to Universal Transverse Mercator co-ordinates (North American Datum 1983), and subsequently to decimal degrees. The sample consisted of all archaeological sites (n=1 448) contained within the 72E 1:250 000 National Topographic System (NTS) mapsheet. The performance of these transformations was achieved using a combination of database management, geographic transformation and geographic information system (GIS) applications. This exercise is the first in a series of steps that can be implemented to help "modernize" a site database that germinated in the 1960s and has grown to over 30 000 records over the past forty years.

The co-ordinate conversion process ultimately revealed data complexities typically encountered in the modernization of legacy databases. Data entry ambiguities that may have occurred many years ago were identified and rectified. Missing records were recovered. Most of these data complexities were identified and examined by testing the accuracy of the newly converted co-ordinate data. One consistent data entry problem was identified which effects a portion of the sample. The significance of this problem is believed to be relatively minor at this point. In all, 90 site locations were corrected. Recommendations concerning the co-ordinate conversion, accuracy tests and utility of co-ordinate conversion conclude the paper.

Zazula, Grant (Anthropology, University of Alberta, Edmonton, AB)

Mid Holocene Environments and The Problem of Early Paleoeskimo Expansion (S-4)

The eastward expansion of early Paleoeskimo peoples from western Alaska to northeast Greenland between 4500 BP and 4000 BP has been suggested by Dekin (1972) and Barry et al. (1977) to have occurred during a period of mid-Holocene climatic warming. A review of paleoenvironmental data from the ASTt homeland of western Alaska, in addition to northwest Canada, central NWT, the eastern and high Arctic islands, and Greenland indicates highly variable and asynchronous paleoclimatic signals, thereby dismissing the suggestion that climatic amelioration was correlative to and facilitated the expansion of early Paleoeskimo peoples. To move beyond such simplistic environmental determinist models, a more holistic archaeology, equally employing processual methodologies to identify environmental context, and post-processual theories to identify social constraints that influence cultural change, must be assumed to develop a thoroughly plausible explanation of early Paleoeskimo expansion.

Zendor, Marc (Archaeology, University of Calgary, Calgary, AB)

Akan: The Maya God of Alcoholic Consumption and Ecstatic Dance (S-21)

The god Akan shows up in many Classic Mayan (ca. A.D. 250-900) hieroglyphic inscriptions in contexts referring to the consumption of chih (pulque, an alcoholic beverage made from agave) and balche' (mead), and he is often depicted smoking, drinking and engaging in ecstatic dance. In some scenes he is shown with an enema syringe brimming with alcohol, while in others he appears to be vomiting due to his excesses. All of these contexts leave little doubt that Akan was an important Maya festival deity, parallel to the Roman Bacchus, and an interesting entrada to a discussion of the function and significance of alcoholic consumption among the Maya.

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