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E D I T O R I A L

An old iron bridge in central England seems a far cry from British Columbian archaeology, but Neil Cossons subtly implied a strong connection during a lecture in the Centennial Museum, Sept.25.

Cossons, director of the Ironbridge Gorge Museum, described industrial archaeology as the orphan of the heritage world. Awareness of archaeologically important sites often occurs only after final demolition.

What is I.A.? Cossons defined it as archaeology of the industrial revolution (mid-18th Century to mid-19th: "A period we have been trying rather hard to forget"). He suggested industrial archaeologists are right at the cutting edge of public opinion: "They tend to be beyond the edge of public acceptance."

Cossons reported that in Britain a full survey has been undertaken to establish what structures can be saved and used. He pictured saving England's oldest iron smelting furnace as just as valuable as saving the tomb of "some second-rate syphilitic pharoah."

Cossons urged the use of volunteers for such work, and showed how military workshops, juvenile delinquents and criminals released for community service work can be utilized. He also advocated creating "working" displays that could be productive and self-sustaining --an ancient kiln producing pots and an old iron foundry once again producing iron.

Lesson for B.C.? How about the Vancouver Iron and Engineering Works, or the Haney Brick and Tile kilns, both recently demolished?

Cossons: "We mustn't let the processes of natural selection take their course."

WILSON DUFF
WOULD HAVE
LOVED THIS!

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Letter to the Editor

May 15, 1979.

Mr. Nick Russell,
Editor,
The Midden,
504 - 2005 Pendrell Street,
Vancouver, B.C. V6G 1T8

Dear Nick:

Re: Midden Editorial - April 1979

Your concern is well expressed. I would like to mention that these articles have been brought to our attention by Regional Advisors (Wardens). We have in turn sent letters to the papers and to the author. The author is obviously a prolific writer as I seem to get copies of his articles at least once a week.

Just thought you would like to know that we are concerned and what we are doing.

Yours sincerely,

Pauline Rafferty

J. Pauline Rafferty,
Assistant Regional Archaeologist,
South Coast.

JPR/ds

The Midden is produced by the Publications Committee of the Archaeological Society of B.C. five times a year. Gladys Groves, Chairman, #504 - 2005 Pendrell, Vancouver, V6G 1T8.

The next issue of The Midden will appear December 1979.

THE MARPOLE SITE REASSESSED

A Brief Review of Materials Recovered in 1973 by Vancouver City College

By David Burley, Parks Canada,
Winnipeg, Man.

Of all Northwest Coast sites, probably no other midden has received the attention nor caught the imagination of both laymen and anthropologist as has the site of Marpole (DhRs 1). Also known as the Eburne Mound or Great Fraser Midden, it was discovered some time prior to 1884 when sectioned by a newly cut road. Since that time, excavation by professional archaeologists, informed and concerned amateurs, relic collectors, antiquity dealers and land developers has reduced the estimated four and a half acres of deposits to but a few scattered and disturbed concentrations of shell (for size estimates see Hill-Tout 1948, Ham 1978).

In terms of what may be categorized as professional archaeological research, more than 10 field programs have been devoted to excavations at Marpole. Beginning as early as 1892 with work by Charles Hill-Tout, subsequent investigations were undertaken by H.I. Smith (American Museum of Natural History 1898), Hermann Leisk (Vancouver City Museum 1930), Charles Borden (University of British Columbia 1949, 1950, 1951, 1955, 1957), Allan McMillan (Vancouver Centennial Museum 1970), Wayne Davis (Vancouver City College 1972) and James Baker (Vancouver City College 1973). The net result has been the acquisition of a massive collection of cultural materials dispersed through a half dozen museums. Beyond what might be considered "table top" derived observations on these collections (with the possible exception of Smith 1903), virtually nothing has been learned of either the Marpole site or its inhabitants (for a full listing of published references see Ham 1978).

To expand the data base for an integrative study of the Marpole culture type (Burley 1979), I thought it important to have at least one quantified collection from the so-called "type" site of Marpole. To fulfill such a requisite, the materials excavated by James Baker in 1973 were borrowed from Vancouver City College and subsequently analyzed. The full report on these materials is now complete and, hopefully, will be published in the near future. The following statement is a brief précis of the most basic findings from that report.

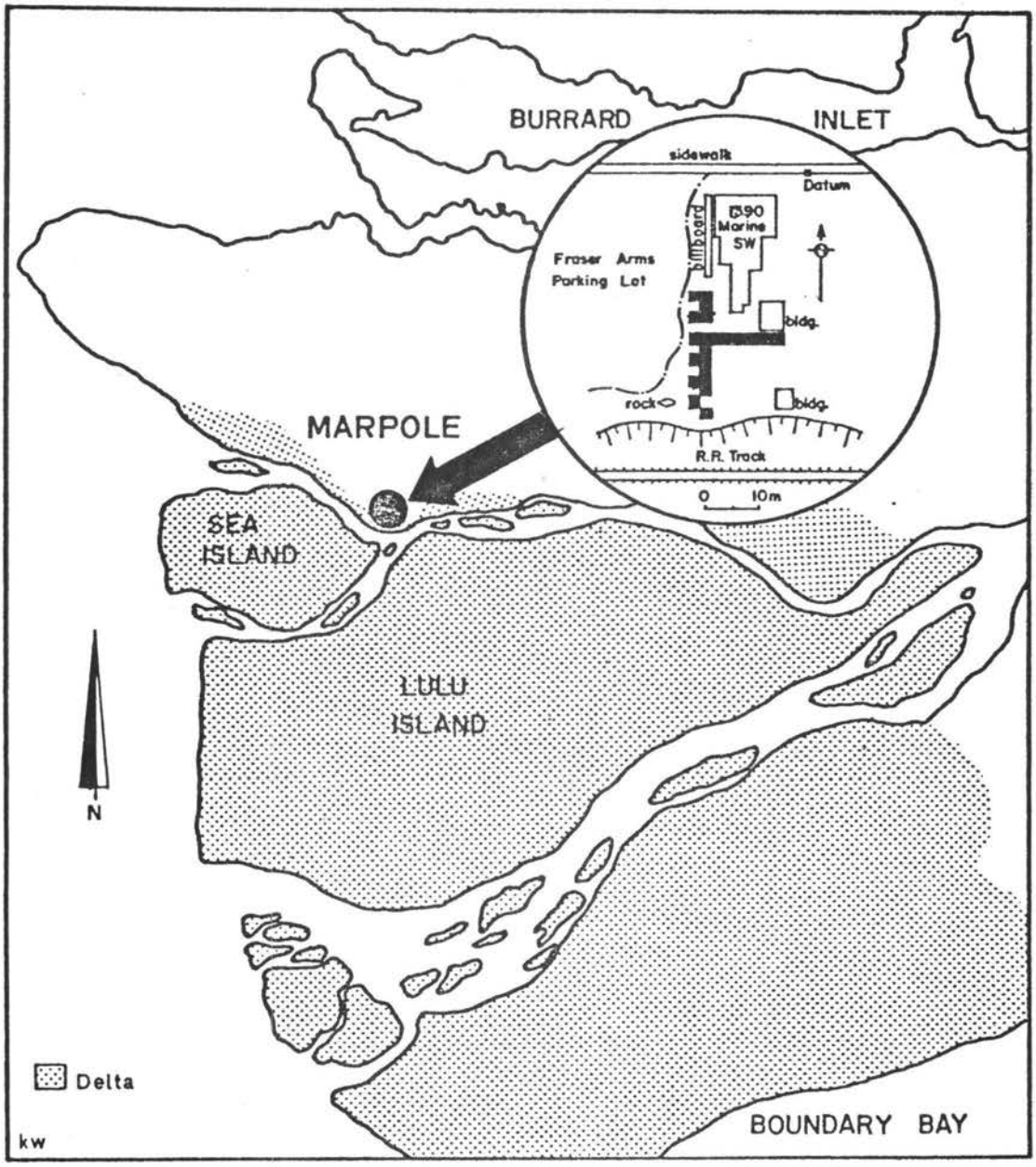


Figure 1: Marpole Site Location and Distribution of Excavation Units From the 1973 Field Program of Vancouver City College.

The 1973 excavations at Marpole were initiated through an archaeological field school of the Langara Campus of Vancouver City College. This program was carried out over a six-week period and was supplemented with volunteer labour from the Archaeological Society of British Columbia. The field school excavation concentrated on the extreme eastern periphery of the site, an area about to be levelled for use as a parking lot by the Fraser Arms Hotel. The sampling strategy, for the most part, was that of intersecting trenches with additional units along the main north/south transect (Figure 1). From 92 square metres of excavated matrix, approximately 1,300 implements as well as a large collection of more recent historic materials were retrieved.

Although disturbance levels were high and there would appear to have been a distinct lack of stratigraphy (Baker 1974), by combining various arbitrary levels on the basis of diagnostic traits it was possible to segregate materials into two cultural components. These components, Marpole I and Marpole II, are respectively associated with the Charles phase (Borden 1975) and Marpole culture types (Burley 1979).

Marpole I, the earliest of the components, provides us with a different culture historical perspective on the Marpole site. Previously, the site as a whole was considered to be representative of a single component spanning a majority of the Marpole time period (circa 300 B.C. to A.D. 400) (for example see Borden 1968). The Marpole I occupation, on the basis of assemblage content, I would argue dates to a 2,500 to 1,500 B.C. period. Given that the total sample size consists of but 186 artifacts, characteristic traits include incipient stemmed leaf shaped points, small leaf shaped points, chipped slate knives or discs, cobble tools, microblades and a bilaterally barbed harpoon. On a general level, chipped stone dominates the collection accounting for more than 60 percent of assemblage content with other industries markedly reduced.

If one breaks the Charles phase up into its two later coastal constituents, the St. Mungo (Matson 1976) and Mayne (Carlson 1970) phases, Marpole I appears most closely related to the Mayne phase by virtue of the bilaterally barbed harpoon, projectile point forms, microblades and a use of obsidian and quartz crystal. In this regard, the closest site affiliations are to be found at Helen Point on Mayne Island (Carlson 1970) and at Crescent Beach (Percy 1975). Nevertheless, the component also exhibits elements of the St. Mungo phase and possibly those of the early Locarno Beach culture type. Thus, to varying degrees, it is comparable to sites correspondent with such occupations. I should also emphasize that, as yet, we have an inadequate understanding of this period in Gulf of Georgia prehistory and the St. Mungo/Mayne distinction may well prove to be a product of sample bias or seasonality.

The Marpole II component, accounting for 855 artifacts, is generally reflective of what has been considered typical of the Marpole "type" site. Dominant traits include a strikingly large variety of stemmed, notched and triangular chipped stone point forms, medium sized excurvate ground points, a multitude of ground slate knife fragments, a fixed unilaterally barbed antler harpoon and an assortment of decorated artifacts and artifacts of personal ornamentation. Anomalous with respect to other excavated assemblages from the site, however, is the presence of a microblade industry. Again, sampling bias or possibly early excavation techniques may be responsible for such a discrepancy.

A single date of A.D. 440 $\pm$ 90 (HAR 2183) has been obtained from charcoal associated with undisturbed Marpole II deposits. This date is slightly more recent than might be anticipated given the assemblage content although it is acceptable. If one takes it to represent the latter end of Marpole II and considers Borden's (1970) earlier dates to be also representative, then the component may be assigned to a time period between 350 B.C. and A.D. 450.

As a whole, Marpole II shares a high similarity of traits with a majority of other Marpole culture type components. However, when compared quantitatively (Burley 1979), those sites found to most closely approximate Marpole II include Beach Grove (Smith 1963), Helen Point Marpole (McMurdo 1974, Hall 1968) and the earliest component from the False Narrows site (Burley 1979). Despite but a brief inspection of the collection, I also suspect that the Cadboro Bay Marpole component will fit into this grouping.

In brief summary, the preceding statement outlines the basic culture historical findings from an analysis of Marpole site materials excavated in 1973. Two components are proposed and general cultural affiliations are outlined. The earliest component is assigned to the Charles phase while the later is consistent with what we have come to label the typical Marpole phase or culture type. Assigning a time framework to each component, it would appear that 1200 years or so intervened between successive occupations in this portion of the site. The data base from which the above conclusions were drawn, as well as interpretive reconstructions for each component, are included in the larger report.

References Cited

Baker, J.
1974 "A Preliminary Report of the 1973 Excavations at DhRs 1, The Marpole Site", ms., Report to the Archaeological Sites Advisory Board of British Columbia, Victoria.

Borden, C.
1968 "Prehistory of the lower Mainland", in Siemens, A.H. (ed.), The Lower Fraser Valley: Evolution of a Cultural Landscape, B.C. Geographical Series, No. 9, pp. 9-26.

1970 "Culture History of the Fraser Delta Region: An Outline", in Carlson, R.L. (ed.), Archaeology in British Columbia, New Discoveries, B.C. Studies, Vol. 6-7, pp. 95-112.

1975 "Origins and Development of Early Northwest Coast Culture to About 3,000 B.C.". Mercury Series, Paper 45, National Museums of Canada, Ottawa.

Burley, D.
1979 "Marpole: Anthropological Reconstructions of a Prehistoric Northwest Coast Culture Type". PhD. Dissertation, Simon Fraser University, Burnaby.

Carlson, R.L.
1970 "Excavations at Helen Point on Mayne Island", in Carlson, R.L. (ed.), Archaeology in British Columbia, New Discoveries, B.C. Studies, Vol. 6-7, pp. 113-125.

Hall, J.C.
1968 "A Statistical Determination of Components Represented at the Helen Point Site". B.A. Honours Thesis, University of Victoria, Victoria.

Ham, L.
1978 Updated Site Form for DhRs 1, on file with the Archaeological Sites Advisory Board of British Columbia, Victoria.

Hill-Tout, C.
1948 "The Great Fraser Midden", in The Great Fraser Midden, Vancouver Art, Historical and Scientific Association, pp. 8-15.

Matson, R.G. (ed.)
1976 "The Glenrose Cannery Site". Mercury Series, Paper No. 52, National Museums of Canada, Ottawa.

McMurdo, J.
1974 "The Archaeology of Helen Point, Mayne Island". M.A. Thesis, Simon Fraser University, Burnaby.

Percy, R.
1975 "The Prehistoric Cultural Sequence at Crescent Beach". M.A. Thesis, Simon Fraser University, Burnaby.

Smith, D.
1963 "Preliminary Report on Archaeological Investigations at Site DgRs 1, Near Beach Grove, British Columbia". B.A. Honours Thesis, University of B.C., Vancouver.

Smith, H.I.
1903 "Shell Heaps of the Lower Fraser River, British Columbia". Memoir of the American Museum of Natural History, Vol. II, Part IV.

Describing Artifacts, No. 18

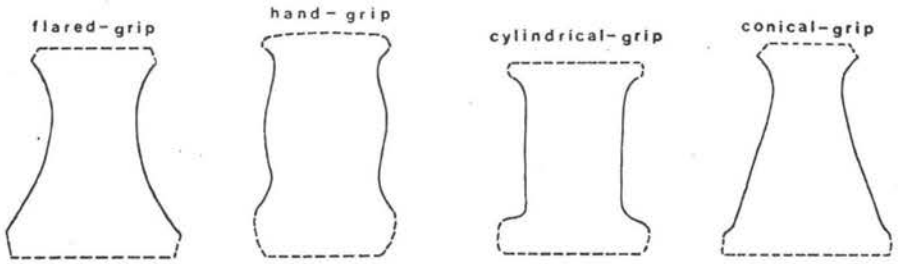
(Part of a continuing series on artifact description, reproduced from the handbook for archaeological staff working on the National Inventory Project in B.C. The Midden extends thanks to Tom Loy of the Provincial Museum for permission to reprint.)

DESCRIBING SPECIFIC ARTIFACT TYPES: HAND-MAUL

The two parts of a hand-maul requiring special description are the top and the hand grip.

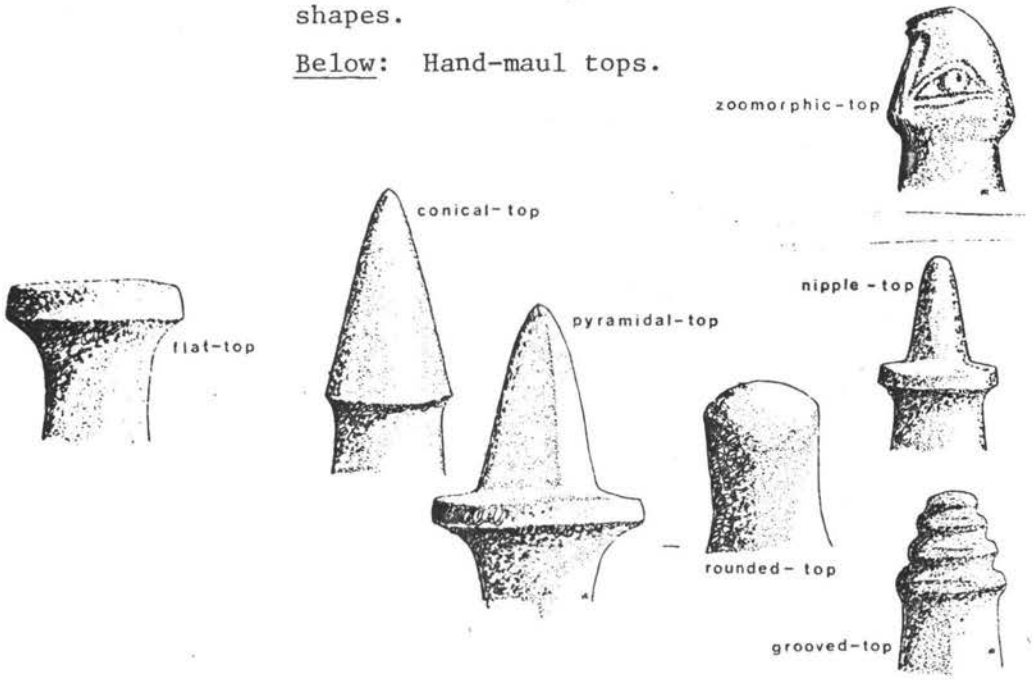
Seven forms are differentiated for the top: flat, nipple, round, grooves, conical, zoomorphic or pyramidal.

The hand grip area (from the top down to the base flare) can be described as: flared, hand, cylindrical or conical shaped.



Above: Idealized forms for hand-maul body shapes.

Below: Hand-maul tops.



CONSERVATION ARCHAEOLOGY: TOWARD RESOURCE MANAGEMENT AND PUBLIC EDUCATION

By Kim Wilkes,
Archaeology Student, U.B.C.

The situation in archaeology today is not unlike the current energy crisis. Years ago, when there were still abundant supplies of fossil fuels and the rate of energy consumption was low, few people cared much about conserving energy, or thought that the world might one day run out. Today, it is very evident that traditional fuel supplies are not going to last forever, or, for that matter, for much longer at all. Likewise, the concept of archaeological sites being non-renewable resources is also fairly new. While it has always been evident to most archaeologists that once a site is dug it is destroyed, it appears that few, up until fairly recently, ever realized that sites themselves might actually run out.

No one really knows how many archaeological sites still remain untouched, worldwide. In the United States, however, it has been estimated that within 50 years or less, virtually all archaeological sites will have been destroyed (McGimsey, 1972). Land leveling, increasingly deeper plowing, strip mining, amateur "pot hunters," and the building of highways, dams, shopping centres and the like are the major agents of destruction in North America. As the population of the world continues to explode, and the spread of urbanization and technology makes land more and more scarce, increasing numbers of sites will be destroyed. The rapidity with which destruction is occurring has prompted a growing number of people to echo the question succinctly posed by archaeologist Hester Davis, "Is there a future for the past?" (1971:3).

Before we look at the goals and problems of conservation archaeology, it would be useful to review the importance of archaeology to society. Archaeologists, by definition, study remains in an attempt to reconstruct man's past. It is easily argued that archaeology has already uncovered a great deal of information about the past. But is this information of any value to society? And even if it is, does that justify spending more money on archaeology now and in the future? Why should we channel money into archaeology? Why should we be concerned about losing sites?

Surprisingly enough, not that much seems to have been written on the value of archaeology to society. It is as if until recently archaeologists rarely saw any need to justify their work to anyone other than their ivory tower colleagues. But if archaeologists today cannot provide answers to questions such as those above, the chance of widespread public support and understanding for conservation archaeology is likely to be slim.

The Value of Archaeology to Society

On one level archaeology can be said to be of value because its findings are of innate interest to people of diverse backgrounds and educations all over the world. Yet archaeology does more than provoke curiosity, provide entertainment, and encourage artistic appreciation. In a vital way it fulfills man's fundamental need to have a sense of his own history. According to archaeologist Grahame Clark, a society must have a feeling of belonging to a common past in order to develop a culture (1957:255). In addition, the history of man's adaptations to particular environments is of immense worth, because despite all of man's advanced technology the environment still remains an influence on his life that cannot be discounted.

On a more abstract level, archaeology can be compared to any other field of scientific research. Merely discovering what was not known before is of intrinsic value and delight. On many levels archaeology has a great appeal to the imagination. It forces an individual to think outside the confines of his own experience and lifetime. And at the same time, with the insights it gives into the development of agriculture, the beginnings of settled life, the rise and fall of civilizations, and the very origins of man, pre-historic archaeology serves to unite all mankind. Perhaps even more importantly, knowing where and why we have been will help us to survive in the future (Martin, 1959, and McGimsey, 1972).

Obviously archaeology is of great value to society, not only now but for the future. Yet only the people alive today can save the past for the coming generations, because if action is not taken now, there will be no past left to save. Archaeologists of the future may have only the artifacts already collected from which to learn. What then is being done to save the past? What does conservation archaeology mean and what does it involve?

Conservation Archaeology Defined

As has already been mentioned, conservation archaeology is part of the larger realm of cultural resource management (CRM). The basic concept underlying all CRM is that all cultural resources, whether paintings or archaeological sites, belong to everyone, regardless of who actually has legal title to them. The goal of conservation archaeology is to protect sites, cultural remains, and their associated information so that they may be studied and enjoyed by archaeologists, scientists, and the general public. Like all cultural resource management, conservation archaeology relies mainly on "enlightened legislation" to try to achieve its aims (Schiffer & Gumerman, 1977:6). The following section will therefore discuss what legislation there is in support of CRM in general and conservation archaeology in particular.

Legislation Supporting Conservation Archaeology and CRM

In his book The Plundered Past, Karl Meyer offers a comprehensive list of national laws designed to protect cultural resources (1973:240-253). Most of

these laws focus on attempting to prevent the plundering of sites and the illegal trade of antiquities.

One of the finest pieces of legislation was enacted in 1970 by the Council of Europe in an agreement called the European Convention on the Protection of the Archaeological Heritage. This document encourages the signatory nations to cooperate in protecting existing archaeological sites and remains (on land or under the sea), and promotes the idea of saving a percentage of sites for study in the future. In addition, it advocates high quality excavation work and the widespread availability of organized information from excavations to other archaeologists and the general public. The member nations also agree to work toward more public education. Making the public aware that archaeological sites are non-renewable resources that are being destroyed at an ever increasing rate is to be the major goal of this education. The convention also hopes to decrease the amount of illicit trade in antiquities by the increased exchange of information between countries.

In the United States three pieces of legislation provide the basis for cultural resource management. These are the Antiquities Act (1906), the Historic Sites Act (1935), and the Historic Preservation Act (1966).

The 1906 act was the first law to state that the protection of cultural resources (objects and both historical and archaeological sites) was to be supported on a federal level, and that such resources were to be available to the public. The 1935 act basically just gave the National Park Service the authority to take the lead in preserving cultural resources.

The Historic Preservation Act of 1966 is considered to be the most important piece of American legislation, providing for a significant amount of program planning and funding at the federal level in support of historical and archaeological sites (McGimsey, 1972). This act set up a National Registry in which all archaeological sites in the country are to be recorded.

Several minor acts, such as the Reservoir Salvage Act, make it necessary for contracting agencies building dams, highways or other developments to hire an archaeologist to conduct a survey of the area before they begin to build. If archaeological sites are found it must then be determined whether or not they are to be salvaged.

This federal concern for dwindling archaeological resources has been further emphasized by the National Environmental Policy Act of 1969. In the U.S. all federal agencies now must make a study of the impact that their proposed projects may have on the total environment--which includes cultural resources and archaeological sites.

Most individual states also have laws governing the funding and planning of archaeological activity, but on neither the federal nor the state level does there seem to be any legislation that actively promotes the idea of public education.

In contrast, Canada does not appear to have a comprehensive federal law stating long-term national policy with respect to preserving archaeological sites. Under the Indian Act, the Historic Sites and Monuments Act, and the National Parks Act, however, the federal government can (theoretically) prevent excavation on federal lands if it so wishes.

In addition, all provinces and territories have fairly recent legislation that regulates archaeological activity and excavation. Most provinces' legislation gives them the power to designate a site as a historically valuable (protected) area or to demand that adequate archaeological investigation is carried out before construction is undertaken.

Under most circumstances it is necessary to obtain a permit in order to excavate, and various fairly strict requirements must be met before one is issued. In virtually all cases some kind of report on the results of the excavation must be submitted to the appropriate provincial ministry. In some provinces permits are also required if an antiquity is to leave the province.

Effectiveness of Legislation

Although legislation for the protection of cultural resources is seen to be both necessary and desirable (for reasons already mentioned), it is generally realized that such legislation cannot have much effect unless it is enforceable.

Obviously if legislation is unconstitutional it cannot be legally enforced. The major reason many antiquities laws cannot be enforced, however, is that they do not have general public support. For example, it is very difficult to protect sites from damage or to prevent objects from being taken out of a province. Who is to know if someone does these things? In North America penalties for such offences are rarely, if ever, imposed. And legislation in Europe does not appear to have done much to slow down the illegal trade of antiquities. In addition, legislation usually cannot prevent destruction of sites if they are on private land. These reasons and others have led a number of archaeologists to emphasize the fact that "education, not legislation, is ultimately the most effective means of preserving our archaeological heritage" (McGimsey, 1972:49) (Schiffer & Gumerman, 1977).

Public Education

Why is public education important? Simply, it is because only public opinion can generate the amount of support required to enforce legislation or to get governments to provide more funds and programs directed toward the management of archaeological resources. Only an educated public realizes that such actions are desirable.

At present it is clear that although most people know something about archaeology (almost everyone has heard of King Tut), the majority of the population has probably never thought of archaeological sites as being non-renewable resources. Many people do not realize that there is currently

a crisis in archaeology (Pastron & Hallman, 1973). They don't realize that there is anything wrong with picking up a few Indian arrowheads here and there. Archaeologists are more often seen as people who dig up treasure somewhere in Egypt, not professionals who are interested in reconstructing local history. What is the cause of these misconceptions and how can they be remedied?

Clearly, the root of the problem is that the public lacks the right kind of information. Few materials are available that emphasize the limited nature of archaeological resources and the reasons why everyone should be interested in trying to preserve them. Such materials, presented in an interesting manner, should be widely available to children in schools and to the general public through mass media and museum programs. Why not a television special on the problems being encountered in conservation archaeology today rather than merely another program on some particular area of study?

Being realistic of course, one cannot expect most of even a fairly educated public to have much more than passing interest in the subtleties of such subjects as lithic technology or Mayan architecture. Many citizens may not even be concerned enough to work towards preserving sites of local significance. For while most people will not deny that archaeology is of value, just how valuable it is may be a source of debate when it comes time to fork out money for research, or to slow down the building of a particular development.

So, whereas educating the general public is of value, probably the greatest value behind such education is that it will encourage those who are genuinely interested in archaeology to get involved with others of the same interest. Although in professional archaeological circles amateurs have often been equated with pothunters, non-professionals can contribute a great deal to the protection of the archaeological heritage if they are given the proper guidance.

Problems in Methodology

Even if conservation archaeology is well supported by legislation and public opinion, however, other problems still arise in the field when programs are being planned. For example, it is obvious that all sites cannot be saved. Who is to decide and how is it to be decided which sites are to be excavated now, which are to be left to the future, and which will have to be sacrificed?

Determining how to get the maximum amount of scientific information from a site for the minimum cost in often limited time is another major difficulty that archaeologists must face. Also, opinions differ on what high quality research entails. Improving standards in the profession and keeping up with new methods of research must be constant goals.

In some areas archaeologists must spend a lot of time trying to convince the people of the value of archaeology. Native Indians in particular are often understandably hostile when archaeologists come to unearth sites that the population consider to be sacred (Pastron, 1973).

Finally, one of the major problems in the archaeological profession involves the publishing of information from excavations. Archaeologists are rather notorious for digging sites and then not organizing reports on their findings. In some ways this is understandable, because lab work often takes many months to complete. Nevertheless, every effort should be made to publish information and make it available. Objects without their associated data are virtually meaningless: nothing can be learned from them.

Conclusions

Little information seems to be available on the effectiveness of work being done in conservation archaeology. In their book Conservation Archaeology - A Guide for Cultural Resource Management Studies, Schiffer and Gumerman offer the following conclusions:

> The movement in the United States to bring cultural resources into a management framework probably presages an international trend. It is difficult to learn exactly the directions being pursued in other countries because of publication lags and lack of suitable international forums, but some early signs are discernible (1977:2-3).

Hopefully, cultural resource management and conservation archaeology will one day be a reality on an organized international scale.

Works Cited

Clark, Grahame. Archaeology and Society. London: Methuen & Co., 1957, pp.251-264

Davis, Hester. "Is there a future for the past?" Archaeology, Vol. 24, No. 4, 1971, Archaeological Institute of America, pp.300-306, in Brian Fagan, Corridors in Time, Boston: Little, Brown & Co., 1974, pp.335-342.

Martin, Paul. Digging into History. Chicago: Natural History Museum Press, 1959, pp.145-150.

McGimsey, Charles III. Public Archaeology. New York: Seminar Press, 1972.

Meyer, Karl The Plundered Past. New York: H. Wolff, 1973, pp.123-301.

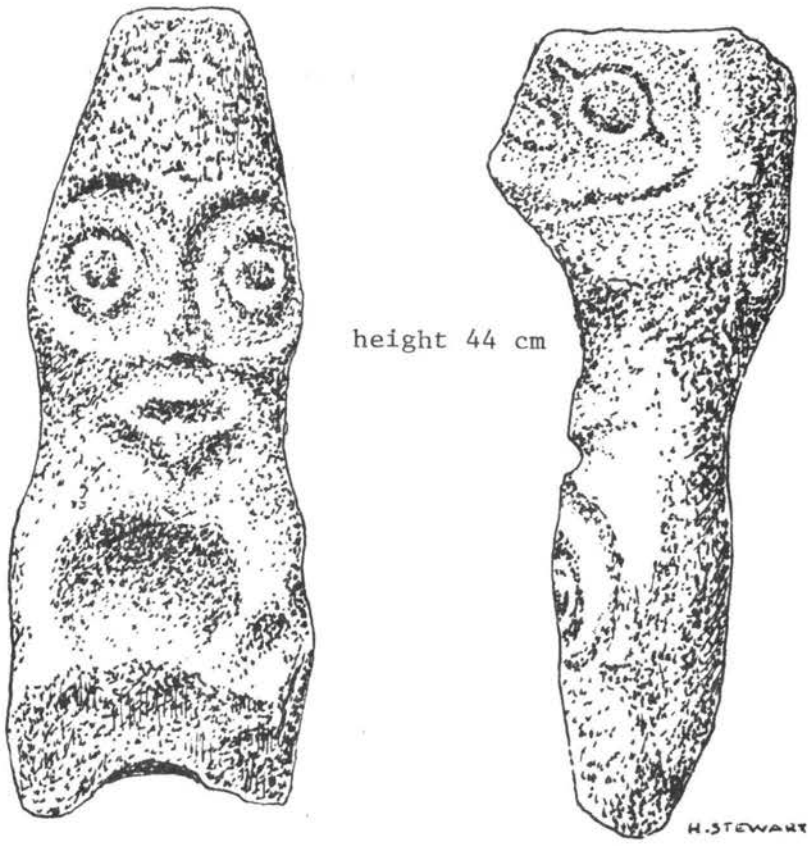
Pastron, A. and Hallman, P., et al., editors. The Crisis in North American Archaeology. Berkeley: Kroeber Anthropological Society, 1973.

Schiffer, Michael and George Gumerman. Conservation Archaeology: A Guide for Cultural Resource Management Studies. London: Academic Press, 1977, pp.1-75.

A SEATED HUMAN FIGURE BOWL

By Hilary Stewart

Seated human figure bowl found by Ken Stephens in a gravel pit on Saltspring Island, 15 years ago. The artifact probably fell from the midden deposit just above.



front view

profile: upside-down

Had this writer known of the existence of this seated human figure bowl while researching "Images:Stone:BC," she would certainly have included it in that exhibition. Twenty-six of these bowls formed a major part of the show comprising 136 stone sculptures of the Northwest Coast Indians dating back 3,000 years.

In the catalogue, the late Prof. Wilson Duff wrote about these and other stone pieces from a thought-provoking point of view, and he would have found this phalliform bowl supportive of his thinking on the "meaning" of the seated figure bowls.

The Stephens' bowl is rare in that it has a second bowl underneath its base. The carving around the base, which is difficult to define when the figure is upright, is clearly seen as another head when the sculpture is inverted - a position that would allow use of the second bowl.

One of the known uses of the seated human figure bowls was in connection with a girl's puberty rites. We may not know the function of this double bowl, but certainly the size and depth of the dual cavities suggest a spiritual or ceremonial purpose, with the carving and its symbolism being of greater significance than the receptacles themselves.

Further reading: Prehistoric Stone Sculpture of the Fraser River and Gulf of Georgia. Wilson Duff. Anthropology in British Columbia, No. 5. Provincial Museum, Victoria, B. C. 1956

Images:Stone:BC. Wilson Duff. Hancock House, Saanichton, B.C. 1975

The Late Ice Age of Southern Vancouver Island

by Grant Keddie
Archaeology Division
British Columbia Provincial Museum

A radio carbon date of 17,000 B.P. on a mammoth bone, the first date from the Saanichton Gravels north of Victoria, provides new evidence that alters the previously suggested timing of glacial events on southern Vancouver Island. The precise timing of these glacial events is of importance for archaeologists because the events define the times during which animal and human populations could have inhabited the Island.

The purpose of this paper is to give a brief overview of what is known about the last stages of the Wisconsin glacial period on southern Vancouver Island; to show how the new radiocarbon date fits into the sequence of events; and to provide a summation of the existing controversy regarding the question of when the predecessors of modern animals came to Vancouver Island.

The Olympia Interglacial and Early Fraser Glaciation

Until lately there has been some uncertainty as to the dating of the last interglacial period (the Olympia Interglacial) and the beginning of the cold period of glacial advances (the Fraser Glaciation). With recent studies a clearer picture is now emerging.

Neville Alley, formerly of the Resource Analysis Branch, Ministry of the Environment, and Keith Valentine of Agriculture Canada conducted studies in the mid-1970s on the sea cliff deposits near Dashwood on the southwestern end of the Island (Alley, Valentine 1977). The samples of ancient pollen which they extracted from these deposits indicated the existence of ice-free conditions between at least 43,000 and 19,000 B.P. The study concluded that the climate in the first part of this period (the Olympia Interglacial Period) was warmer and/or drier than present, perhaps similar to semi-arid areas to the south (see summary diagram). The climate gradually became like that of the present until 25,000 B.P. The period from 25,000 to 19,000 B.P. involved a major climatic cooling. The environment was one of cold grassland conditions, possibly subalpine to tundra. There were scattered clumps of spruce and pine and there was a virtual disappearance of deciduous trees.

Rolf Mathewes of the Department of Biological Sciences, Simon Fraser University, who undertook pollen studies of the Point Grey sea cliffs, also concluded that there was a generally cooler climate than exists at present during the time period around 24,500 B.P., although Mathewes' interpretation suggests that the climatic conditions were not of alpine severity.

This early cold period after 25,000 B.P. now is considered to represent the first stage of the geologic-climatic period called the Fraser Glaciation. The main event of this period was the Vashon Stade, or glacial advance,

represented by a large continental ice-sheet forming in the Coast mountains to the east of Vancouver Island. The Vashon glacier is believed to have eventually overridden the southern end of Vancouver Island. It is the precise timing of this and other events during the Fraser Glaciation period which has yet to be fully explained.

The first evidence of the Fraser Glaciation is represented by deposits found in and along the Gulf of Georgia, called the Quadra Sands. J.J. Clague

Summary of Climatic and Glacial Conditions on Vancouver Island

	Climate	Glacial Events	
43,000 B.P.	Warmer and/or drier than present		Olympia Interglacial
25,000 B.P.	similar to present.		
	Major Climatic Cooling	Glaciers advancing from Northern Strait of Georgia. Depositing of Quadra Sand.	Fraser Glaciation
		Braided river system on surface of sand deposits covers much of Gulf of Georgia.	
19,000 B.P.		Glaciers approach area of Nanoose on Vancouver Island	
17,000 B.P.		? Cowichan Valley Ice Tongue in early stage of advancing. Depositing of Saanichton Gravels.	
15,000 B.P.		? Vashon Glacier covers southern end of Island	
13,500 B.P.	Climatic warming	Glacial Retreat Begins. Ice-free areas on Southern Vancouver Island.	

of the Geological Survey of Canada concluded from his studies on this sand unit that it formed on outwash plains in front of, and in response to, glaciers

advancing into the Georgia Strait. Radiocarbon dates suggest that the Quadra Sands are older than 29,000 B.P. at the north end of the Strait of Georgia and younger than 15,000 B.P. at the south end of Puget Sound (Clague 1977).

The glaciers advancing down from the northern Strait of Georgia had reached the area around Nanoose Bay on Vancouver Island (roughly on the same parallel as Vancouver) approximately 19,000 B.P. At this time another important glacial event was occurring to the south in the form of the Evans Creek Stade or glacial advance. It is represented in Washington State by an advance of valley glaciers from the Olympic and Cascade Mountains into the lowland areas of Puget Sound. The Evans Creek glaciers reached their maximum extent by about 18,000 B.P. and had begun to retreat before the main Vashon glaciation advanced to cover the Puget lowland (Mathewes, Fyles, Nasmith 1970).

The timing of glacial events on southern Vancouver Island has usually been cross-referenced with events in the Puget Sound area because of the lack of radiocarbon dates from glacial deposits on the Island. One of the important glacial events in this regard is the Cowichan Ice Tongue, which has been assumed to have peaked, like the Evans Creek Stade, at about 18,000 B.P.

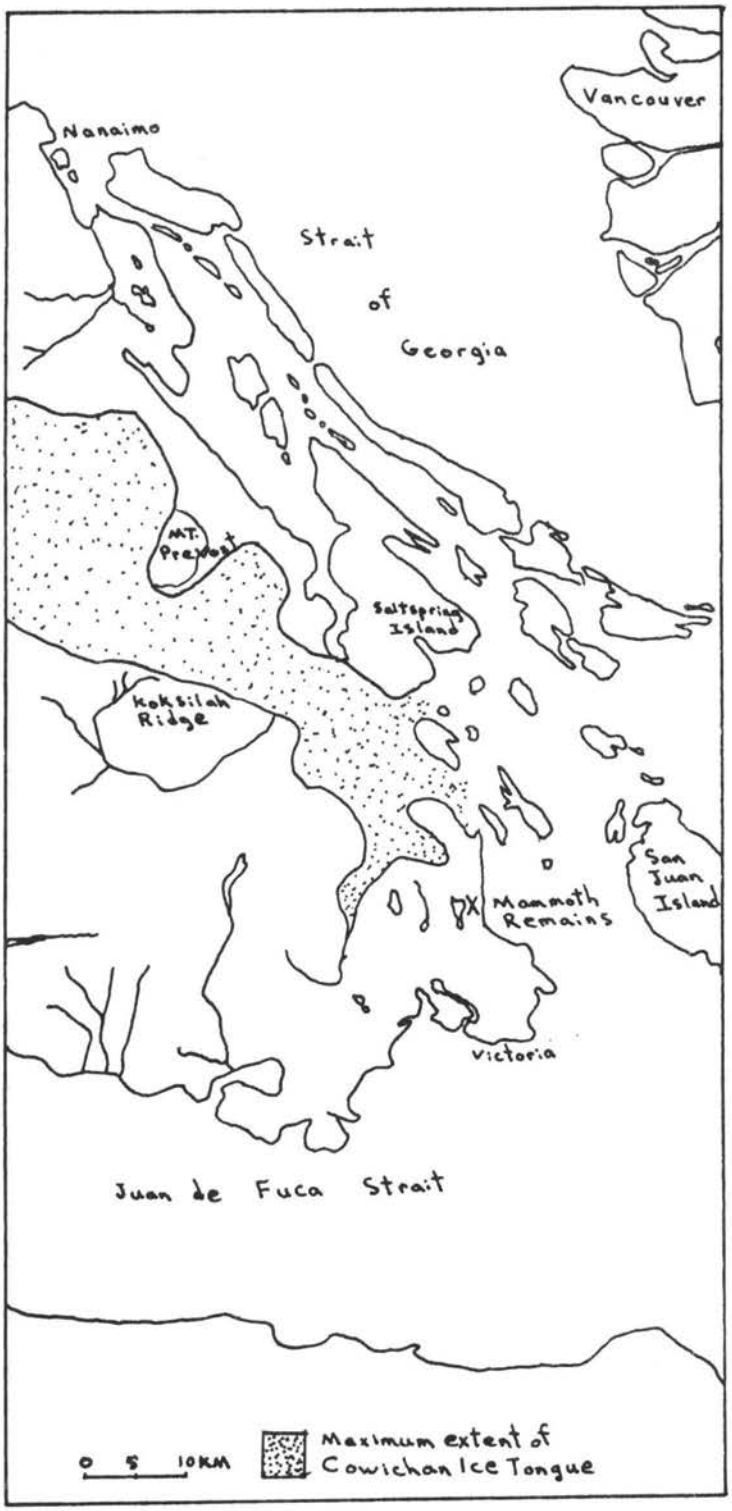
The Cowichan Ice Tongue and Saanichton Gravels

The Cowichan ice tongue developed from one of the large alpine glaciers forming in the interior mountains of Vancouver Island. It flowed out of the Cowichan Valley to the southeast, eventually overriding parts of the Saanich Peninsula to at least the area of Bear Hill north of Elk Lake and to the west up Finlayson Arm (Halstead 1968).

Extensive deposits of sand and gravel up to 32 meters thick were built up by meltwater streams emanating from the terminus and sides of the ice tongue. These outwash sand and gravels, called the Cordova Sand and Gravels, or more recently the Saanichton Gravels, are significant in that they have been shown to contain skeletal remains of several large mammals now extinct in the region.

These ice age mammals have been studied and documented by C.R. Harington, Curator of Quaternary Zoology at the National Museum of Natural Sciences (Harington, 1975, 1976, 1977). The most common animal remains have been those of the Imperial Mammoth. One Muskox has been found in the Saanichton Gravels and horse, bison and American Mastodon may possibly be related to these deposits. The precise dating of the Saanichton Gravels and the environment in which they were laid down is important in determining when and under what conditions the last ice age mammals lived on Vancouver Island.

In the past, little detailed stratigraphic information was obtained with the fossil animal finds and no bones or wood material from these deposits had been submitted for radiocarbon dating. In 1975, the author and Neville Alley investigated the finding of a segment of a large mammoth tusk in the Saanichton Gravels at the Trio Ready-Mix Ltd. gravel pit on Cordova Bay Road in Saanich. In 1976 I returned to the same location to examine the finding of a mammoth humerus that was located in the same layer as the tusk. I was able to record the precise stratigraphic location of the humerus and submitted a sample of bone drilled from the inner core of the humerus to Richard Harington, who, with the co-operation of



The Cowichan Ice Tongue and location of mammoth remains (partly after Halstead 1968)

the Geological Survey of Canada, had the sample dated. The bone sample revealed that the humerus was approximately 17,000 years old (G.S.C. 2829 17,000 ± 240 B.P.).

The deposits at this location on the east side of Elk Lake form an elongate drumlin-like ridge which is composed of three lithostratigraphic units related to the Fraser Glaciation period. Overlying the fine-to-medium grade Quadra Sands are the gravelly sands and gravels of the Saanichton Gravels. These Saanichton Gravels grade upward into tills that were deposited by the major Vashon glacier which overrode the Cowichan glacier.

The date obtained is significant because it was recovered from the bottom of the previously undated Saanichton Gravels, which in the area of the mammoth remains is found approximately 20 meters (65 ft.) below the surface of the ground. The remains were located within the first meter above the very distinct erosional surface that separate the Saanichton Gravels from the older Quadra Sands below.

E. Carl Halstead of the Department of Energy, Mines and Resources, who studied the evidence left by the Cowichan Ice, notes that radiocarbon dates below glacial material indicate that the Ice tongue moved into the Cowichan Valley at some unknown time after 19,000 B.P. (Halstead 1968). The new mammoth bone date would suggest that the Cowichan Valley Glacier may not have begun advancing or was still advancing south some time after the Evans Creek glaciers in Washington had reached their peak and had begun to retreat.

The Cowichan glacier was advancing after 17,000 B.P. and probably continued to advance until it was overridden by the large Vashon glaciation. The 17,000 year age dates the mammoth and not necessarily the deposits it is in. The mammoth could have died and remained buried further north in non-glacial deposits for a considerable time period and may have later washed out and moved with glacial outwash to the Saanich area. If this was the case, the glaciers may not have reached the area until well after 17 thousand years ago.

Animal Migration to the Island

Now that we are certain large mammals existed on the Island around 17,000 B.P. the question arises as to how these animals, as well as the predecessors of some modern animals, came to Vancouver Island. Harington has suggested that the large animals such as the Imperial Mammoth and American Mastodon could have crossed large floodplains that filled the Georgia Strait previous to the main glacial advance. The Quadra Sands appear to have filled the Gulf of Georgia during the early part of the Fraser Glaciation period. The entire surface of the Gulf was like a braided river channel environment which would have allowed large animals to move across what is now ocean (Harrington 1975).

Harington also suggests that mammals could have crossed land bridges during the height of the last glaciation. He bases the latter suggestion on our knowledge that sea levels were considerably lower during the period of glacial maximum and the fact that the present depth of waters between Vancouver

Island, the Gulf Islands and the mainland is relatively shallow in many places, allowing for the existence of land bridges that connected parts of the Island with what is now part of the mainland. He believes that the very existence of a number of endemic mammal species or subspecies, that is, ones that are restricted to Vancouver Island, implies that a suitable migratory route and habitable refugia must have existed on the Island during the peaks of the last two glaciations (Harington 1975, 1976).

Although there is still a lot that we do not know about land-sea relationships during the last glacial maximum, the present geological evidence indicates the land mass of southern Vancouver Island may have sunk low enough under the weight of the ice to equal or exceed the large drop in sea level. Also, glacial erosion on mountains has been interpreted to indicate that the Vashon glacier covered the Victoria area to a depth of 1,000 meters (3,500 ft.) and areas further north near the 49th parallel to a depth of 1,200 - 1,500 meters (4,000 - 5,000 ft.) (Mathewes, Nasmith, Fyles 1970). Land bridges would therefore seem unlikely to have been present during the last glacial maximum.

We cannot, however, completely rule out the possibility that suitable survival areas for animals may have existed along seaward ridges and headlands on the southern west coast of the Island. Ice free areas existed on Vancouver Island prior to 13,000 B.P. (Mathewes, Nasmith, Fyles 1970). If the Vashon glaciation did not cover the Island until about 15 thousand years ago or later we are dealing with a short period of only about 2,000 years or less during which the Island may have been uninhabitable. The short time period of ice coverage may indicate that the thickness of the ice sheet was considerably less than previously thought.

The existence of glacial refugia on southern Vancouver Island and of land bridges or low elevation ice bridges to habitable areas at the beginning of the period of deglaciation seems to be an increasing possibility. Much further research by geologists, paleontologists and archaeologists is necessary to solve the question of how and when some of Vancouver Island's mammals came here.

References

Alley, Neville F. and Keith Valentine
1977 Paleoenvironments of the Olympia Interglacial (mid-Wisconsin) in Southeastern British Columbia, Canada. Paper presented at the Tenth International Union for Quaternary Research, Birmingham, England, August 16-24.

Clague, J.J.
1977 Holocene Sediments in Northern Strait of Georgia, British Columbia. Geological Survey of Canada, Paper 77-1A, pp. 51-58.

_____
1975 Quaternary Geology, Northern Strait of Georgia, British Columbia. Geological Survey of Canada, Paper 75-1, Part A, pp. 397-400.

Clague, J.J.
1975 Late Quaternary Sea Level Fluctuations, Pacific Coast of Canada and Adjacent Areas. Geological Survey of Canada, Paper 75-1C, p. 171.

Halstead, E. Carl
1968 The Cowichan Ice Tongue, Vancouver Island. Canadian Journal of Earth Sciences, Vol. 5, pp. 1409-15.

Harington, C. R.
c.1977 Wildlife in B.C. During the Ice Age. B.C. Outdoors, Vol. 33, No. 6.

_____
1976 Mammoths on Vancouver Island. The Victoria Daily Colonist, May 16.

_____
c.1975 Pleistocene Muskoxen (Symbos) from Alberta and British Columbia. Canadian Journal of Earth Sciences, Vol. 12, pp. 903-919.

Mathewes, Rolf W.
1979 A Paleoecological Analysis of Quadra Sand at Point Grey, British Columbia, based on indicator pollen. Canadian Journal of Earth Sciences, Vol. 16, pp. 847-858.

Mathewes, W. H., J. G. Fyles, and H. W. Nasmith
1970 Post-glacial crustal movements in southwestern British Columbia and adjacent Washington State. Canadian Journal of Earth Sciences, Vol. 7, p. 690-702.

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New Books in our Members' Library (see Jim Garrison in Members' Lounge after meetings).

Archaeology in Alberta, 1978, J. M. Hillerud. This 92-page paperback published by the Historical Resources Division of Alberta's Culture Dept. comprises 22 papers on Albertan sites and research.

The oil-rich province issued 92 archaeological permits last year, the vast majority to cope with proposed developments, a stunning leap forward in research work compared to just five years ago. (Of those projects, 61 were entirely funded by the developers, in most cases power transmission or pipeline companies.) Also significant is the growth of archaeological research "contractors"--companies of archaeologists who contract with the government to undertake specific projects: more than half of Alberta's 1978 projects were attributed to two such companies.

Reports include several on work close to the B.C. border--in the Upper Peace River area, on the eastern flank of the Rocky Mountains, and in the Crowsnest Pass.

Most of the papers are site-oriented, but one, "Approaches to Fur Trade Archaeology," offers an overview, suggesting statistical techniques for identifying artifact occurrence patterns.

NR

More books on page 23.