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Discovering Maine's archaeological heritage 1979

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DISCOVERING MAINE'S ARCHAEOLOGICAL HERITAGE

David Sanger

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edited by David Sanger



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Maine Historic Preservation Commission
Augusta, Maine
1979

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Earle G. Shettleworth, Jr.
State Historic Preservation Officer

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Finally, I want to thank the Maine Historic Preservation Commission and its Director, Earle G. Shettleworth Jr., for making it possible to publish this collection of articles on Maine archaeology.

CHAPTER 1

Introduction

By
David Sanger

The purpose of this book is to make available to the public, in an up-to-date fashion, some information on the archaeology of Maine. While two of the chapters (4 and 5) were written for professionals, all of the others were prepared for the interested layman or the amateur archaeologist. In 1973, in cooperation with Robert G. MacKay, I put together a series of papers entitled, *Maine Prehistory: A Series of Short Papers*. Distributed by the Department of Anthropology at the University of Maine, Orono, the collection aroused great interest and a number of people urged a more formal publication of the papers; but as time went on it seemed more appropriate to collect new papers, written mostly since the 1973 collection. Two of the papers in the 1973 publication are included here because no new papers have been written to replace them.

Each chapter is a self-contained paper with the result that there is no continuity in content or style from chapter to chapter. They have, however, been arranged to cover Maine archaeology from the earliest times. Preceding each chapter there is a brief statement, and following the paper on the *Hirundo* site (Chapter 4) there is a statement updating the research to include the 1977 field work. References are cited at the end of each chapter and again in a comprehensive bibliography following the final chapter. While this listing is not a full bibliography on Maine archaeology, it will provide a basic reading list for those interested in the archaeology of the region.

Archaeology is the study of man through the evidence of his works and activities that has survived through time. It is customary to divide archaeology into two major periods — the historic and the prehistoric. Historic archaeology covers the period when effective written records are those that give us useful data on the way of life. When there are no such documents a society is said to be “prehistoric.” Thus “prehistoric” refers only to the presence or absence of written records. In Maine, the prehistoric record for man begins about 11,000 years ago and ends with the French documents of the 17th century. Therefore the period of historic archaeology is from roughly A.D. 1600 to yesterday. Chapter 9, written by Dr. Robert Bradley, outlines the historic archaeology of Maine.

Pre-Columbian Voyages

Some readers may be puzzled and even disappointed by the absence of a chapter detailing the finds relating to pre-Columbian European voyages. Were any of my professional colleagues or I convinced that there is any validity to the claims, there would be such a chapter. There have been champions for voyages of most of the known seafaring peoples of western Europe who did have vessels capable of crossing the Atlantic, but proving that they did so is quite another matter. Norsemen from Iceland and Greenland apparently did have a short-lived settlement at L'Anse aux Meadows in northern Newfoundland, but no convincing evidence has ever been produced to establish a good claim for any more-southerly trip. The rune stones from Spirit Pond, near Phippsburg, Maine, have been carefully examined by a noted authority on ancient Norse runes, Professor Einar Haugen (1972). Professor Haugen pronounced them as spurious and showing the same mistakes as the Kensington Stone in Minnesota, long ago established as a hoax. Proponents of the rune stones claim they make no sense because they are written in code, but none of the several thousands of runes from Scandinavia are in code form. After close scrutiny, claims for Phoenicians, Greeks, Romans, Celts, Irish, etc. also fail to stand up.

Those who believe in the pre-Columbian voyages are prone to discount any professional comments on their beliefs, claiming that the professionals jealously guard the right to do archaeology and therefore refuse to accept the amateurs' hypotheses. A professional is not necessarily right, and it may well be that some good evidence might be discovered that shows unequivocally earlier contacts with Europeans. Because I believe that that evidence has not yet been presented I take the following position: Several European, African, and Asian peoples possessed the technology necessary to make rather substantial voyages, so it is possible that some of these people did make landfalls on the Maine coast and perhaps even interacted with the Native Peoples. To date, however, there is no acceptable evidence that would document such voyages. If such evidence is found, and if it stands close scrutiny, it will be a pleasure to change my "wait and see" stance.

Chronology

Throughout the chapters there is constant reference to dates. These are derived directly or indirectly from "radio-carbon", which is the radioactive isotope of carbon known as Carbon-14

and written as ^{14}C . It is produced in the upper atmosphere by cosmic radiation bombarding the earth; ^{14}C then enters the earth's atmosphere where it can be absorbed by plants. A living plant has a complete dose of ^{14}C , but at its death the plant ceases to absorb carbon and the radioactive isotope begins to decay at a known regular rate which is measured in terms of a "half-life" — in this case about 5720 ± 40 years. If a piece of wood has only half of the carbon radioactivity of a modern sample then the wood probably died about 5700 years ago. Because of certain laboratory and physical problems a precise date cannot be reached through the ^{14}C process, so laboratories express dates in terms of probabilities. For example, a date of 5000 ± 200 years means that about two-thirds of a large series of determinations should fall between 200 years either side of 5000 years. It is incorrect to say that the sample is 5000 years old; the sample is probably between 5200 and 4800 years old, but there is a one-third chance that it may fall outside that range. Radiocarbon dates should always be presented with the \pm figure, or tolerance. Unless otherwise indicated, the so-called two-thirds, or "one sigma", rule is followed in this book.

Another convention is the initials "B.P." which stand for "before present". All radiocarbon dates are corrected to the year 1950. This allows archaeologists to compare a date determined in 1950 with one measured in 1978. Radiocarbon dates can be converted to the A.D./B.C. scale, but the conversion is not recommended because physicists have discovered that there is a discrepancy between the absolute time scale (A.D./B.C.) and radiocarbon years, caused by fluctuations in the rate of Carbon-14 entering the atmosphere in the past. Conversion factors have been proposed by several laboratories, but at the present time there is some disagreement as to which one to use. Until such time as the radiocarbon-dating specialists can convert accurately it is better to stay with dates expressed in the ^{14}C scale.

The final convention relating to radiocarbon dates is the initials of the laboratory and its catalog number following the date. Thus a complete date should read 5000 ± 200 (SI-500).

The radiocarbon method cannot directly date stone or pottery. It can only date organic matter in association with artifacts, thus making it critical for archaeologists to be absolutely sure of the context. As each date costs upwards of \$175, archaeologists use radiocarbon dating sparingly and no archaeologist can afford to date at random samples presented to him unless he is very sure of the associations.

When a site cannot be dated because of an absence of suitable

dating material, the archaeologist may have to refer to a site where similar artifacts have a date in direct association with charcoal. Rarely as desirable as an independent date on a site, the cross-dating technique is sometimes the only solution. The degree of similarity becomes a value judgement, and not all archaeologists agree, thus setting up the possibility of a dispute over interpretations.

Typology and Taxonomy

Like all disciplines, archaeology has a need to categorize its data for the purpose of analysis. The typologies used to organize archaeological data vary with the individual investigator and with the traditions in the research area. In southern New England and New York State, archaeologists have adopted the practice of assigning names to artifacts. The procedure is to take a class of artifact, such as pottery, and then arbitrarily decide that a particular decorative design is the dominant characteristic of that artifact. All pot sherds with that design are placed in the same category, which is then assigned a name. This method of categorizing artifacts is known as the "type-approach". The named types become the basis for all further research and interpretation. One of the problems with the type-approach is that it is a very subjective method, so that all archaeologists will not see things the same way. A situation can easily develop where very similar-looking artifacts are given different type-names by various investigators. Communication is somewhat difficult when this happens, especially if the originator of the type-name is unwilling to give up his creation.

At the next higher level is the designation of a culture type, such as the "Laurentian Tradition". There are, once again, problems of definition. It is not, for example, reasonable to use a spear point type as the sole criterion for classification in a culture type. Although it is convenient to use named culture types, there is a real problem when the cultures become treated as actual events of the past instead of the subjective groups they actually are.

A few years ago archaeologists working in the Maine-Maritimes region agreed not to use named types and to declare a moratorium on naming new cultures. This book is not the place to develop all of the arguments for and against this non-naming position which some may regard as too conservative. It is, however, in keeping with a view that artifacts and sites are only the means to the end of understanding the prehistoric record; in themselves, they have no value. Unless the arranging of artifacts

and culture types helps towards the goal of understanding and explaining cultural events there is nothing to be gained by performing these naming operations.

Archaeologists in Maine do use some terms for reference convenience. Paleo-Indian is a continent-wide term used to describe a stage of development dated at 11,000 to 10,000 B.P. The Archaic runs from 10,000 to about 2,000 B.P. and is divided into 3 periods: the early Archaic (10,000 to 7,000 B.P.); the middle Archaic (7,000 to 5,000 B.P.); and the late Archaic (5,000 to 2,000 B.P.). The Ceramic Period begins at about 2,000 B.P. and continues to the European contacts of the early 17th century. In southern New England this last period is called the "Woodland", but because the major defining features of the Woodland are not characteristic Maine traits there seems to be little point in using that term.

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Man in the Northeast, Number 4: 62-79.

CHAPTER 2

An Introduction to the Prehistory and Paleo-Environments of the Maine-Maritimes Provinces Area¹.

By David Sanger

Introduction

This paper was originally read at the meeting of the Eastern States Archaeological Federation held in Bangor, Maine, October, 1974. It was the leadoff paper in a session which reviewed the prehistoric events in the Maine-Maritimes area. The area includes the State of Maine and the Canadian provinces of New Brunswick, Prince Edward Island, and Nova Scotia. As a region it has in common many critical resources for man and appears to have a somewhat similar culture history. This is not to say that the prehistoric cultures were identical; however, they are generally more similar to one another than they are like surrounding areas.

The Native Peoples

Just when the first Europeans arrived in the Maine-Maritimes area is not certain, but effective contact probably began in the 16th century. It was not until the beginning of the 17th century, however, after 100 years of trade, that the first known useful written records were made. During that 100 years a great many changes in the native way of life occurred. Consequently, it is only with considerable caution that we can extend into the prehistoric period the culture observed in the early 1600's. According to Bernard Hoffman (1955), the Maine-Maritimes area was occupied by two major Algonkian-speaking peoples. In Nova Scotia, PEI, and eastern New Brunswick there were the Micmacs. Western New Brunswick and eastern Maine was claimed by the Etchemins, while in extreme western Maine lived the Pennecooks. The Pennecooks were dispersed early, while the Etchemins became the Malecite, the Penobscot, and the Passamaquoddy.

These people were basically hunters and gatherers, although some corn was apparently grown in extreme western Maine. With

¹Originally published in the *Bulletin of the Maine Archaeological Society*, Vol. 16, No. 1, pp 6-13 (1976).

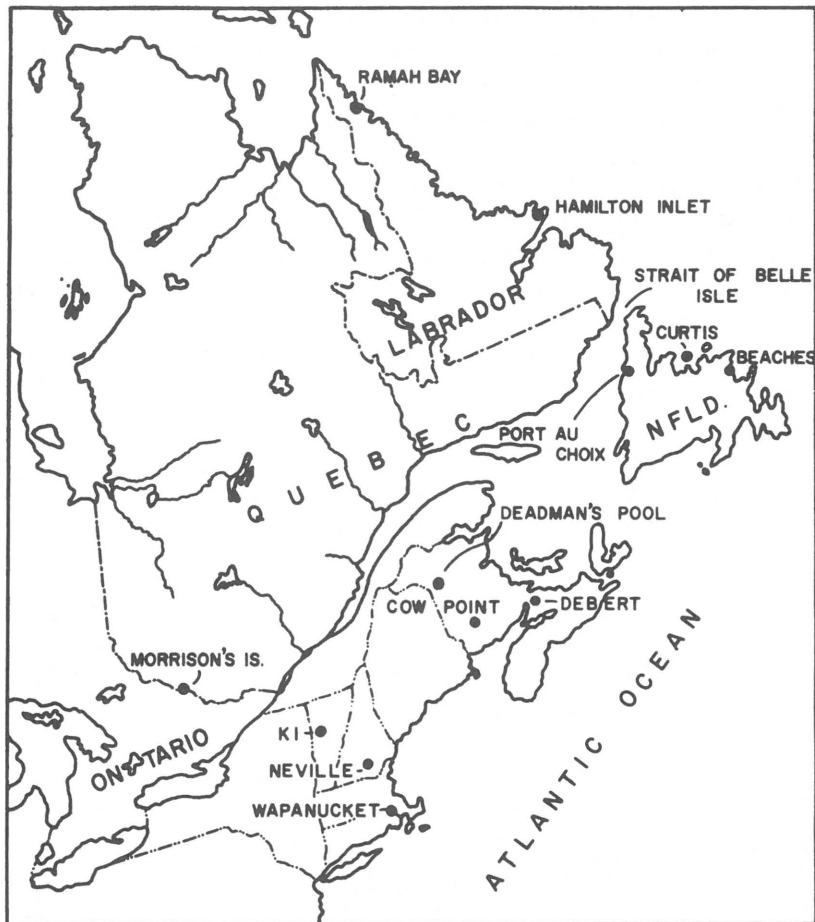
birch bark canoes these Indians moved around the area using a well-developed system of river routes and carries from one river drainage into another. For food they depended heavily on various anadromous fish which annually ascended the many rivers in great numbers to spawn. Supplementing these fish were large game animals, such as deer, moose, caribou and bear. Beaver was also an important source of food as well as fur. Where tidal and coastal conditions permitted, shellfish could be gathered in great quantities. Throughout the area where shellfish are found the soft shell clam, *Mya arenaria*, was the most heavily utilized. The basic shelter was a bark-covered conical hut. Our archaeological work indicates a diameter of less than 12 feet. According to the historical records, many of the Indians moved from coast to interior on a seasonal basis, spending the summers on the coast. The archaeological evidence indicates the reverse, a pattern which makes more sense given the environment of the area.

History of Research

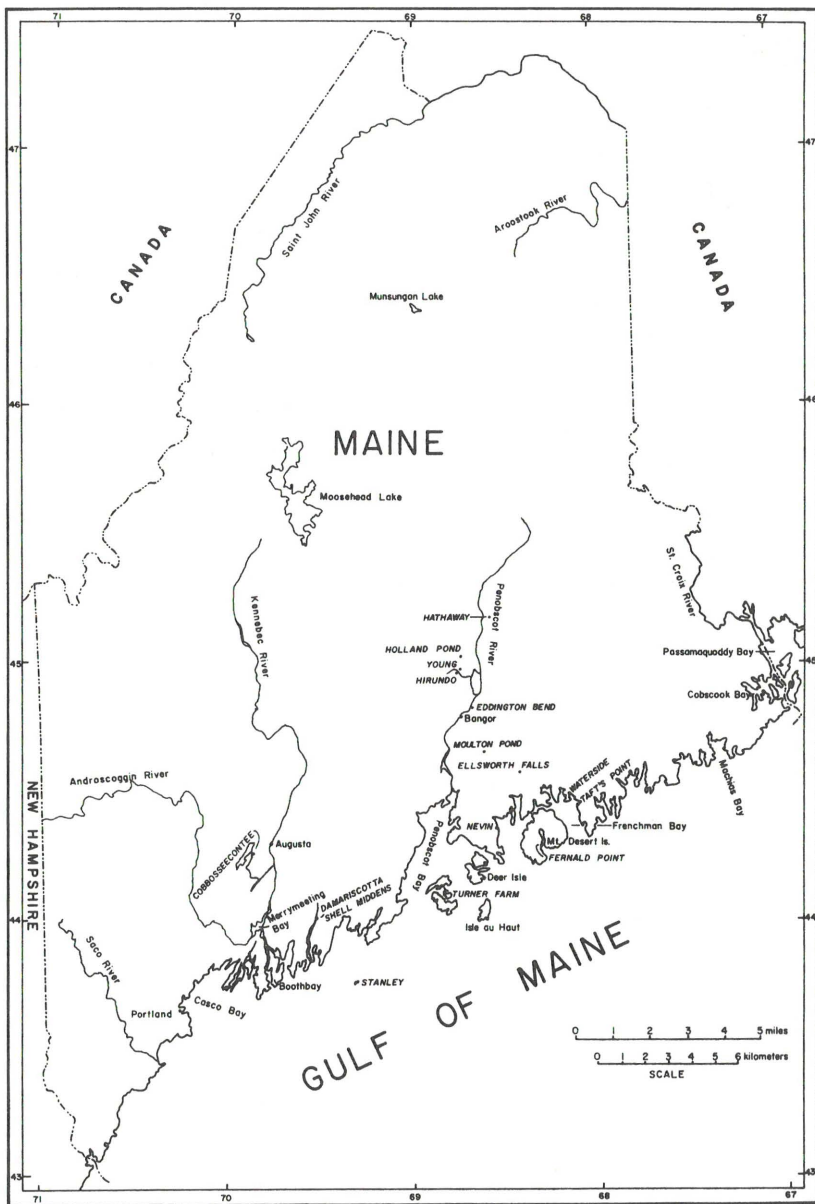
Compared with many parts of North America, the prehistory of the Maine-Maritimes area is little known. There are a number of reasons for this: economically poor regions lacking adequate funding for "luxuries" such as archaeology; difficult terrain in which to work; and poor preservation due to acid soils and hard climatic conditions. These reasons and perhaps others, have combined to produce a history of research which explains to a large degree our limited state of knowledge.

In the nineteenth century several people made a good beginning. In the Maritime Provinces there were a number of naturalists whose general curiosity about their environment extended to the Indians and prehistory. The center for this activity was Saint John, New Brunswick, and the best effort of the time was that by G. F. Mathew, whose 1884 description of a shell midden excavation was superb. There were those interested in Maine. Notable among these was C. Willoughby, whose 1898 account of red-ochre graves was outstanding for its time.

The first 2 decades of the 20th century were memorable for the activities of W.K. Moorehead (1922) of the Peabody Foundation in Andover, Mass. Moorehead's "Force", as he called his crew, destroyed site after site in Maine in search of fancy items in the red-ochre burials. More anthropological in emphasis was the work of Smith and Wintemberg in Nova Scotia shell middens, published in 1929. The Peabody Museum continued its work in the 1930's with excavations directed by D. Byers and F. Johnson, in the Blue



Map of Northeast Region with some of the major sites located.



Map of Maine with many of the sites and localities mentioned in the chapters.

Hill region of Maine, while members of the Robert Abbe Museum excavated sites in the Frenchman Bay area described by W. Hadlock (1939). Following World War II, the Peabody Foundation extended its range into the Maritime provinces with survey and excavation directed by Byers. In the 1950's the New Brunswick Museum got into the field archaeology business briefly when J. R. Harper was on their staff.

In the 1960's a major effort was made at the Paleo-Indian site at Debert, Nova Scotia. Supported by the NSF, Canadian and Nova Scotian governments, Byers directed a multi-disciplinary effort. A report on the archaeology was published in 1968 by G. F. MacDonald. Also in the 1960's the National Museum of Canada sent R. Pearson (1970) to work in the Maritimes during the summers.

Up until this point hardly any institutionally sponsored archaeology was carried out by local agencies. There were no archaeologists attached to local universities or to state or provincial agencies. Local museums occasionally sent out parties, but their limited resources and personnel problems prevented any long-range commitments. Only in Maine did an active amateur society develop, and that is relatively young.

In the middle to late 1960's, the picture began to change. The Nova Scotia Museum hired an archaeologist in 1968, and now 2 universities in that province have an archaeologist on staff. New Brunswick has a provincial archaeologist but still no full time university appointments. Prince Edward Island has yet to appoint an archaeologist. The University of Maine began a local commitment in 1966 and the State Museum followed in 1972. Finally, the National Museums of Canada have had an archaeologist working in the Maritimes, mostly New Brunswick, since 1966. For more detailed histories of research see Snow (1968) and Noble (1972).

This brief summary of the history of archaeology in the Maine-Maritimes area is not intended as an apology; nor is it intended to cast unfavorable light on those who did toil at working out the local prehistory. But it is important, I think, to recognize the lack of long-term commitment by local institutions, and the fact that for many years most of the effort was made by museums and foundations located outside the study area. There are many gaps in our cultural record and very few analyzed and published collections from which to construct a detailed sequence. Hopefully, this will change as more archaeologists elect to work here and gain a feeling for the area.

Geology and Paleo-ecology

Laurentide Ice covered the Maine-Maritimes area, but by 13,500 B.P. parts were free of ice. One thousand years later the whole area was ice free, and by 11,000 B.P. there were no ice barriers or large glacial lakes which would have impeded man's immigration into the area. Sea levels were approximately 180 feet lower at 11,000 years ago (Borns 1971). With the exception of rising sea levels, most of the geological events of interest in this area were essentially over by the time of man's entrance.

The paleo-ecologic picture for our area is derived largely from palynological sources, although other techniques are currently being used. There are a great many published pollen diagrams for this area, but only a few have radiocarbon dates which allow us to correlate the pollen at a particular time with cultural events. Some diagrams have one or two dates, often bottom dates, and from these we have to extrapolate dates based on the assumption that the sediment accumulated at a constant rate. In 1969 Margaret Davis published an important paper based on her work in Connecticut. Backed by a large number of radiocarbon determinations, Davis presented a technique for working out the pollen accumulation rates, for a more accurate picture of the vegetation at specific times.

Recently, the same techniques have been utilized by Ronald B. Davis and Theodore Bradstreet of the University of Maine to establish the vegetation sequences in Maine. One diagram is completed and this is presented in a simplified form in Figure 1. Two other diagrams, also from Maine, are in process. In time we hope to have a detailed picture of past vegetation in Maine. A sediment core recently taken near the Debert site in Nova Scotia is being analyzed by Daniel Livingston (Duke University), and Robert Mott of the Canadian Geological Survey has recently described diagrams from New Brunswick. Until more details are available we will have to utilize the Moulton Pond diagram, bearing in mind that one core cannot "speak" for the entire area nearly as well as a number of local diagrams. However, the overall similarities between Moulton Pond and other diagrams suggest that we are not dealing with a unique record.

Moulton Pond is on the Bar Harbor road about 15 miles from Bangor. A 35 ft. sediment core was taken and dated by 16 radiocarbon dates, the oldest of which was 13,500 B.P. Pollen from 35 levels was counted and a manuscript detailing the procedures and the results is available (Bradstreet and Davis 1975).

It has been customary in this area to divide the pollen record into lettered zones following the example of Deevey in southern New England a number of years ago. In the Moulton Pond diagram the zones are established on different criteria and hence numbered.

Zone I, following the retreat of the Glacial Ice by 13,500 B.P. represents a tundra until about 10,000 B.P. Trees are few and the sedges and grasses quite common. At about 10,000 B.P., Zone I ends and a dramatic shift occurs, with pine (mostly white) being the dominant pollen. Oak and birch increase in this period and reach a post glacial maximum about 7800 B.P. Later in Zone II, from about 7000 B.P. to 5000 B.P., hemlock increases markedly and hardwoods other than oak assume more importance. The closest modern analogs are with the Appalachian Oak and Northern Hardwood forests of the Berkshire highlands in southwestern Massachusetts, and the Pine-Northern Hardwoods and Conifer-Hardwood forests in the northeast corner of the lower peninsula in Michigan. Zone III — a hardwood conifer period — extends from about 5000 B.P. to the coming of the Europeans. Between 5000 and 4000 B.P. the diversity of species is great. The conifers, especially pine and hemlock, decline rapidly, and their place is taken by hardwoods. Modern analogs are with forests in the Ontario-Quebec border region in the Ottawa area. Between 4000 and 3500 B.P. the highest correlation is seen with modern forest in Appalachian Oak and Northern Hardwood forests in central New England westward into the Catskills. There are also strong similarities in the Great Lakes area.

After 3500 B.P. the hardwoods start to decline, although beech is still high, but there are indications of an environmental deterioration reflecting, perhaps, a cooling trend with increasing spruce, alder, and hazel to the historic period.

The interpretation of these vegetation shifts is complex and climate may be only part of the story. For man, the critical thing is the vegetation and the game and vegetable resources. The tundra zone could have supported caribou and migratory birds which currently nest in the northern latitudes. No mammoths or mastodons have been securely dated to this period in Maine. The tundra zone coincides with our Paleo-Indian period.

The pine-oak forests may have had a relatively low carrying capacity for man as they would not have been particularly attractive to deer, moose, or caribou. This is not a Boreal Forest, as some have assumed; nevertheless, its productivity for man could

not have been very high and the scarcity of "Early" and "Middle Archaic" remains is possibly related.

The beginning of the hardwood-conifer forest and Zone III about 5000 B.P. represents a much more productive forest with a southerly look. Animals such as the whitetail deer would have found this forest to their liking. A more northerly species, alder, becomes increasingly common.

The major shifts in the record, as seen at Moulton Pond, are at 10,000 B.P. with the dramatic demise of the tundra, a break at 5000 B.P. with a shift from conifer to hardwood domination, and another shift at 3500 B.P. when a record of environmental deterioration sets in. These dates also correspond with important cultural shifts in the area and the question of cause and effect becomes significant.

Many of the Indians of the Maine-Maritimes area depended heavily on the products of the sea, such as fish, sea mammals, and shellfish, and a detailed history of the water surrounding the area would be useful. Following a low-water period during the last glaciation sea level rose steadily in the area as the water rose around the world. But the rise was not even throughout our area. In the Gulf of Maine, stretching from Martha's Vineyard to the Bay of Fundy, a unique situation resulted in a dramatic sea level rise and changes in the marine conditions. A geologist, Douglas Grant (1970), has documented a sea level rise of about 1 ft. per 100 years in the Bay of Fundy at the eastern end of the Gulf of Maine. This rate is twice that recorded for the Atlantic coast of Nova Scotia. Grant attributes this rapid rise to increasing world-wide sea levels plus a marked increase in tidal amplitude in the Gulf of Maine. The tides in the eastern end of the Gulf of Maine are some of the highest in the world, and a range of greater than 50 ft. has been recorded.

The Gulf of Maine is a cold body of water which rarely reaches comfortable swimming temperatures. One of the reasons for this fact is the tidal activity which keeps the water mixed so that a warm surface layer has no chance to develop. It is a very productive water body, however, supporting large numbers of fish, sea mammals, and birds. The history of the Gulf undoubtedly played an important role in the development of local cultures, because this productivity may not be very old. The tidal range in the Gulf of Maine is partially controlled by the volume of water entering over the threshold known as George's Bank and Brown's Bank. According to Grant (1970) it was only after world-wide sea levels had risen high enough to cover the threshold that the tides

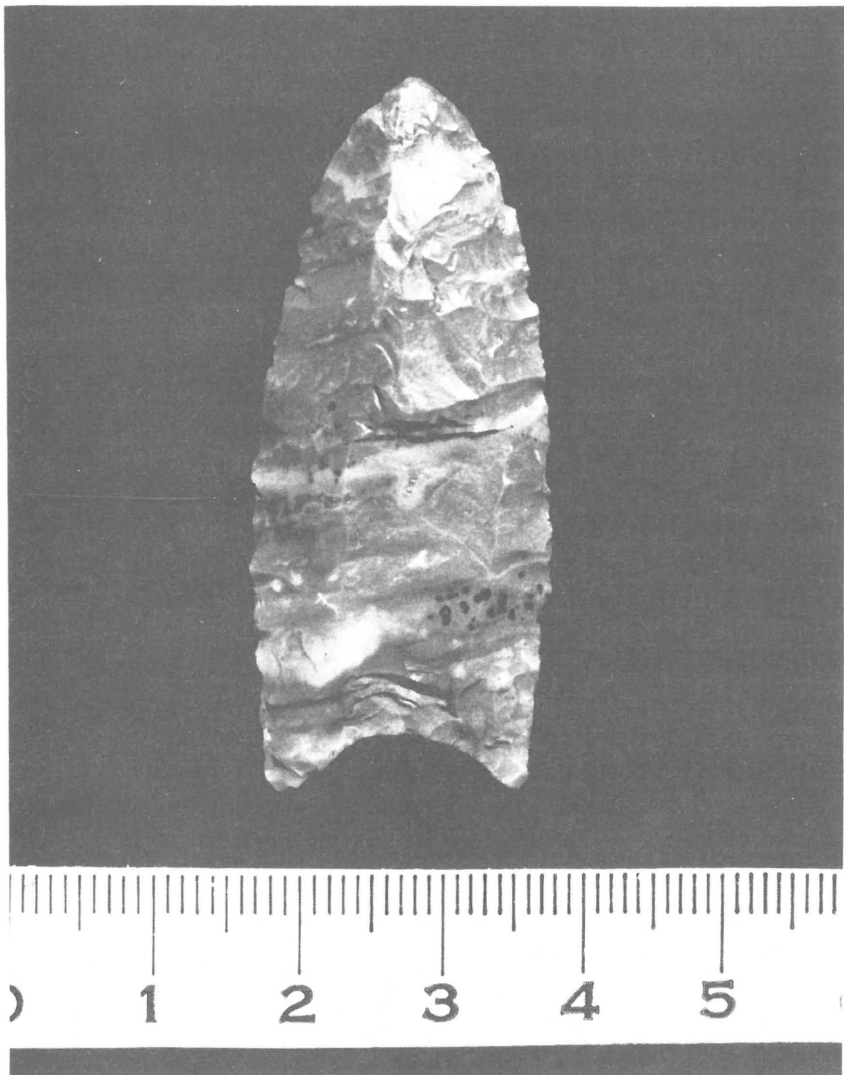
began. In his estimation, the tidal variation we see today is almost entirely a product of the past 4000 years. Until then the Gulf of Maine was a near tideless body of water known as the DeGeer Sea, and its attractiveness for man was probably much lower. It is yet another aspect of the environment which we must explore in detail if we are to understand the adaptation of the Indians to the area.

In addition to the changing sea levels and the effects on the Gulf of Maine, we should consider that throughout the area drainage patterns have been altered to accommodate to sea levels. In an area heavily dependent upon anadromous fish, this could be a critical factor, because with substantially lowered sea levels the pitch of the lower courses of the river could have been such that some species of fish could not ascend to spawn. The changing river regimes may also have affected the development of bogs, that today are a significant aspect of our local environments.

Archaeologists working the Maine-Maritimes area have to consider carefully the form of past environments, because they are part of an equation which will eventually lead, I hope, to a better understanding of prehistoric man in the area. Archaeologists cannot assume that things were always as they are today, or that the differences were insignificant and therefore of little interest. The cost of reconstructing past environments is high, both in terms of money and of manpower, but the implications for archaeology are so great that we dare not ignore paleo-environmental research.

Figure 1
SUMMARY OF PAST VEGETATION ASSOCIATIONS IN
CENTRAL MAINE BASED ON MOULTON POND
POLLEN DIAGRAM

THOUSANDS OF RADIOCARBON YEARS AGO	VEGETATION ASSOCIATIONS	
	0-	Zone III
	1-	
	2-	
	3-	
	4-	Zone II
	5-	
	6-	
	7-	
	8-	Zone I
	9-	
	10-	
	11-	
	12-	Glacial Period
	13-	
	14-	



A fluted projectile point of chert from Washington County. Estimated age 10,000 to 11,000 years ago.

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Some Thoughts on the Scarcity of Archaeological Sites in Maine Between 10,000 and 5,000 Years Ago

by
David Sanger

Preface to Chapter 3

This paper was originally published in the *Bulletin of the Maine Archaeological Society*, vol. 17, No. 1: 18-25 (1977). A refined version co-authored by Dr. Bruce Bourque, was read at the 1977 meeting of the Northeast Anthropological Association in Providence, Rhode Island. The proceedings of that session, to be published in the journal *Man in the Northeast* in the near future, will include this paper retitled, "Early and Middle Archaic in Maine." The major difference between the paper "Early and Middle Archaic in Maine" and the original reproduced below is the addition of new sites and artifacts in the lower Kennebec and Androscoggin rivers, and a discussion regarding the advisability of using cultural sequences from southern New England and the middle Atlantic seaboard states as a model for Maine. Some of the artifacts described in this paper are included as Figure 1.

Introduction

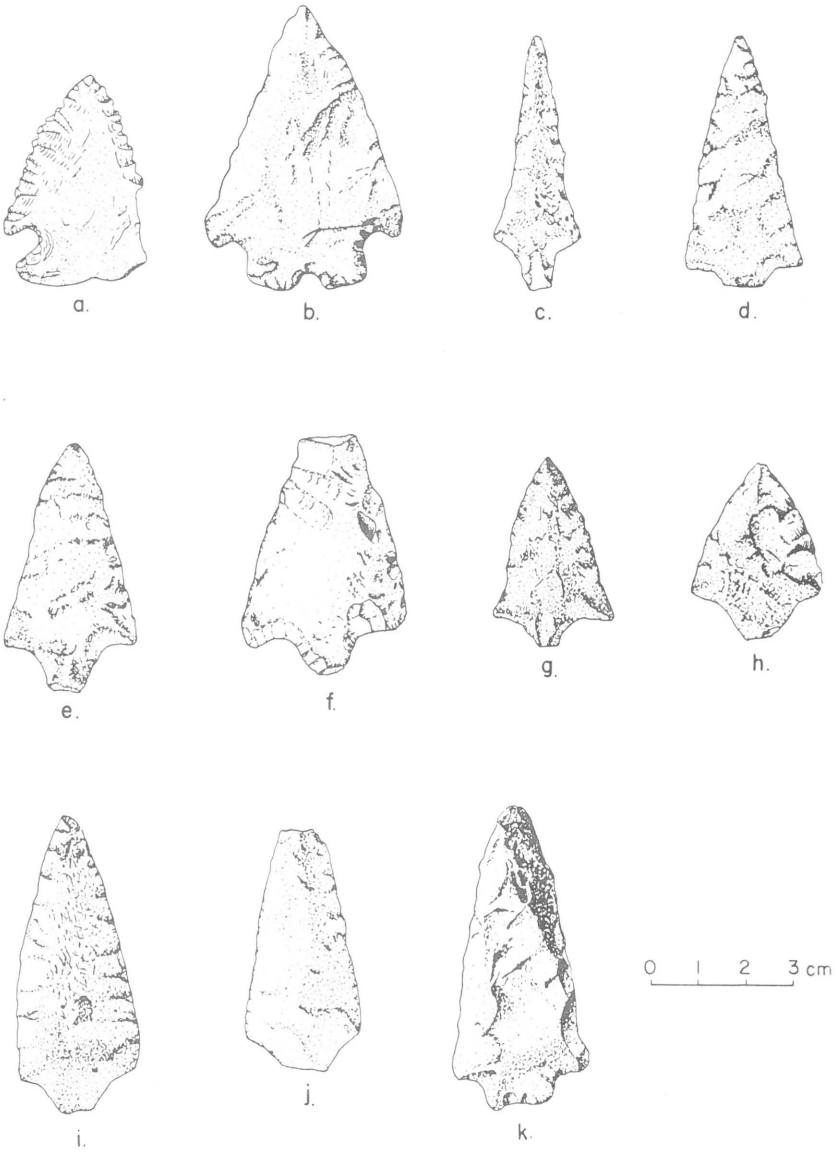
As archaeologists working in northern New England, adjacent New York, and the maritime Provinces of Canada began to relate the various cultural complexes to the radiocarbon time scale, it became apparent that a substantial portion of the prehistoric period was under-represented. This period runs from about 10,000 radiocarbon years ago to 5,000 years ago. In the traditional stage terminology it covers the early and middle Archaic. The purpose of this paper is to examine and evaluate the major hypotheses that have been advanced to explain the scarcity of sites and artifacts referable to the early and middle Archaic stages in the state of Maine.

Systematic archaeological research in Maine is a relatively recent phenomenon. It was not until 1966 that a local institution (University of Maine at Orono) hired a staff archaeologist. In the ensuing decade the number has grown considerably and each year sees greater activity. Despite the systematic surveys, the excavation programs, and the large number of private collections viewed, artifacts that can be attributed to the period 10,000 to 5,000 years ago are surprisingly scarce. The oldest artifact recognized from

this period is a deeply-serrated, corner-notched, brown chert specimen from a mud flat on Newberry Neck in the central Maine coastal area (Figure 1:a). There are enough similarities between this specimen and some found in West Virginia (Broyles 1966, 1971) to suggest a relationship, although the distance involved is great. However, the presence of bifacial projectiles in the Neville site, Manchester, N.H. (Dincauze 1976), which also show strong similarities with Atlantic coastal sites, suggests these wide-ranging comparisons may be justified.

Bruce Bourque (1971) has called attention to Neville-like points from the Basin site on North Haven Island, and recently, similar artifacts have been recovered from the Cobbosseecontee site near Augusta (Figure 1: c-f) (Bourque, personal communication). Another Neville-like point was found at the Hirundo site, near Alton (Sanger and MacKay 1973: Sanger 1975: Figure 2:e). On purely comparative grounds, these points should date to at least 7000 years ago (Dincauze 1976:29). Also at the Hirundo site, in what is called Assemblage 1 (Sanger and others, n.d.) there is a serrated biface and a small stemmed biface, together with small quartz scrapers and large felsite flakes, stratified beneath materials reminiscent of the Vergennes phase of the Laurentian Tradition (Ritchie 1965). Assemblage 1 is not dated by radiocarbon but it should be older than 5000 years ago. At the stratified Turner Farm site on North Haven Island, Bourque (1975) has illustrated small, stemmed bifaces in Occupation 1 dated to about 5300 radiocarbon years ago. Finally, Byers (1959) has reported a massive flake and core assemblage at the base of sites in the Ellsworth Falls area. If this is a discreet assemblage (see Ritchie 1965:32 for criticism), it should also be older than 5000 years, as it underlies Vergennes-like materials similar to those found at the Hirundo site. In summary, the evidence for well-established human populations in Maine between 10,000 and 5,000 years ago is scanty, to say the least.

The exact reasons for the scarcity of artifacts will probably never be satisfactorily resolved, because of the inevitable value judgements that will be involved. In the following pages I will discuss the dominant explanations and the reasoning behind them. To some extent we can identify and build upon reasonably "firm" data that have a bearing on the problem, but because none of the explanations can be proven as factual, I have called them "hypotheses." Behind these hypotheses there is a particular theoretical viewpoint or philosophy that I have attempted to identify.



Selected Early and Middle Archaic Projectile Points from Various Sites in Maine.

a. Newberry Neck site

c.-f. Cobbosseecontee Dam site

b. Ormsby site

g.-j. Hodgdon's Island site

k. Jefferson site

Hypothesis 1 Data Too Incomplete

This hypothesis is basically unwilling to admit that there is a gap in the cultural record in actual fact. It suggests that the evidence is washed away or otherwise destroyed, or that the artifacts from the pre-5000 year period are basically unlike those found further to the south and therefore not likely to be recognized. The concept points up the scarcity of systematic work in the Maine area, especially in the more inland areas where sea level rise and erosion would not have been a problem (Bourque 1975). The fact that Neville-like points have been found in Maine, however, suggests that other more southerly Archaic specimens might be expected. It gets more difficult to enthusiastically embrace this hypothesis when one sees the very extensive collections attributable to the period beginning around 5000 years ago, and the absence of anything earlier in so many of the collections. If there was a sizeable population in Maine prior to 5000 years ago, and if that population made artifacts in stone of a different sort than those found to the south and to the north, then there should be a substantial number of unidentifiable specimens in collections. Such does not appear to be the case, however, and the suggestion that there were people but we don't know what to look for, is not, in my opinion, very likely.

Hypothesis 2 The Drowned Sites

This hypothesis is based on the observation that sea levels in the Gulf of Maine have been rising from an early post-glacial level of perhaps as much as 60 meters lower than present. Although the precise low level is unknown, there can be little doubt that sea levels were once substantially lower (Grant 1970). If man was concentrated along the coast prior to 5000 years ago, then the sites would be covered by rising sea levels and eroded away. In its extreme form this hypothesis explains the lack of interior remains by having the entire population in the coastal strip. The chief proponent of this explanation is James Tuck (1975). McGhee and Tuck (1975) have excavated artifacts from raised beaches on the Labrador coast that have a number of suggestive similarities with Neville points from New Hampshire. Although the dating is not as certain as desirable, there is some evidence in Labrador to suggest a coastal adaptive pattern between 10,000 and 5,000 years ago. Tuck (1975) interprets the presence of stemmed bifaces in Labrador as evidence of a once continuously-distributed coastal adaptation pattern stretching from the southern Atlantic states to Labrador.

The scarcity of similar artifacts throughout Maine and the Maritimes raises a serious question about the validity of the continuous distribution model, unless the sites can be *shown* to be eroded away, a virtually impossible thing to demonstrate. There is not much doubt that any site located at sea level 7000 years ago would be eroded, but that settlement pattern does not fit the archaeological evidence from the Neville site which is located 35 miles from the present sea coast. The presence of artifacts similar to Neville points at Cobbosseecontee and Hirundo sites in Maine likewise suggests that occupation was not exclusively along the coast. It must also be remembered that Labrador is very different from Maine today, and one cannot assume anything like similar resources for man over 5000 years ago that would have lead to rather similar appearing adaptive techniques, as expressed in projectile point form. This criticism implies that there is a causal relationship between projectile point form and the way man adapts to his environment, which in itself is a particular theoretical viewpoint, to which not all archaeologists would subscribe.

Hypothesis 3 The Forest Hypothesis

In the Northeast region, William Ritchie (1965) recognized the relationship between the Lamoka and Laurentian Archaic traditions and the deciduous forest of mid-Holocene times. James Fitting (1968) elaborated the hypothesis that the lack of early to middle Archaic remains in the Northeastern sites was attributable to a forest type felt to be unsuited to high populations of animals and humans. Fitting called this forest form "Boreal Forest" on the basis of similarities in vegetation with the current forests of Canada just south of the tundra zone (Fitting 1968:442). This hypothesis explains the relative scarcity of human remains between 10,000 and 5,000 years ago by reference to a forest form made up largely of spruce, pine, birch, and alder, that is considered to be of low carrying capacity for animals important to man's survival. The hypothesis suggests that after about 6,000 years ago the forests of the Northeast became dominated by deciduous species of trees with a substantial increase in the carrying capacity for human needs.

This hypothesis is derived from the theoretical position that regards the culture-environmental relationship as very important. This model has a wide following among prehistorians working with the cultures of hunters and gatherers, but it does depend upon an accurate reconstruction of the carrying capacity

based on floral and faunal resources. It is important to assess our abilities to accurately reconstruct past environments, because the credibility of the hypothesis rests on the technical accuracy of our paleo-environmental reconstructions.

There are a great many techniques available to the scientist wishing to reconstruct paleo-ecological systems. Some are much more direct than others, by which I mean that they have the ability to give us a picture without a long chain of inferences. For example, an archaeologist might want to know whether a prehistoric people regularly hunted deer or caribou, or both. Obviously, the best way to ascertain this would be to find remains of animals in the sites and from the bones and teeth reconstruct how many of each species were represented. In Maine, however, because pH values in interior sites average from 4.7 to 5.3, (acidic) bones are rarely preserved. Lacking faunal remains the next step might be to infer the mammal population from a reconstruction of past forests. Even if we can accurately reconstruct forests, inferences still have to be made regarding the most likely animals. Each time inferences are built upon previous inferences the final interpretation must be weakened. Every opportunity must be taken to verify all steps in the chain of inferences by repetitive experiments, or by different test procedures yielding comparable results.

For many years botanists have used the technique of palynology to reconstruct past vegetation. Working with those trees and plants that reproduce by wind-borne pollen, palynologists have learned to interpret the pollen stratigraphic record left in bog and lake sediments. Experiments have shown that certain species over-produce in comparison with others, and thus equal numbers of pollen may not indicate equal numbers of tree types in the local forest. A classic case of over-production in this sense is spruce, which is also subject to long-distance transport by wind. Another pressing problem is that of species identification. Although it is usually possible to determine the genus level, it may be very difficult or even impossible given current techniques to identify pollen species in all instances. For those genera which can adapt to a wide range of environmental conditions, such as birch and oak, this becomes a serious problem when attempting to reconstruct forest forms. Differential preservation of pollen is another difficulty. These and other problems are discussed in detail in various publications detailing the methods of palynology.

Even when the pollen is identified correctly, and the various

over and under representation problems are solved, there still remains the subjective assessment of forest type. Forests do not occur as types naturally; we decide on the types arbitrarily for convenience. Species will overlap in their ranges, so that the forests are in reality made up of a series of species combined in a variety of ways. It is important to remember, therefore, that the various forest categorizations are subjective abstractions. Furthermore, it is entirely possible that modern forest types have no prehistoric analogues. M.B. Davis (1969) has suggested this in the case of the "boreal forest." In Davis' opinion, the modern forest configuration we call "boreal forest" may be a relatively recent phenomenon. Some of the reasons why certain current forest types may have no prehistoric analogues include: man-induced disturbances, such as the cutting of native species and the introduction of new; differential colonization rates of species migrating into new areas following deglaciation; plant pathologies; and unique paleo-climates.

For man, the critical thing is the prevalence of individual species that provide important foods for man or for animals that man eats, rather than the forest type. This point is frequently overlooked by archaeologists attempting to make precise correlations between forest types and prehistoric cultures. The need for caution is obvious when we use a term like "boreal forest" and then apply it to a period prior to 5000 years ago.

The difficulty inherent in the boreal forest explanation does not imply that the basic hypothesis is in error. That is, it is quite possible that the Maine forests up to 5000 years ago were relatively unsuited to hunters and gatherers, especially if they had a technical pre-adaption to a rather different forest resource base. This point was made by T. Bradstreet (1973), in a slightly different way. Bradstreet hypothesized that any artifacts in Maine between 10,000 and 8,000 years ago would look like those found farther south at the same time. He based this hypothesis on the fact of rapidly changing environments at this time, arguing that the basic instability in environment would not allow for a unique culture to develop. As a hypothesis it has merit because it is testable, *provided* we find evidence of man between 10,000 and 8,000 years ago.

It is clear from the paleo-vegetational record in Maine that the period between 10,000 and 5,000 years ago witnessed a forest composite rather different from the modern conditions (R. Davis and others 1975; Sanger and others n.d.; Sanger 1976). The early forests were characterized by high white pine pollen counts with

modern birch (species unknown). No really good modern forest analogues are recognized. A major difference between the forests of 10,000 to 5,000 years ago and late prehistoric Maine forests is the presence of greater diversity of hardwoods and a decrease in pine in the latter. The early forests may have lacked suitable tree and shrub species to support large populations of game animals such as deer and moose; and this factor, it could be argued, restricted the presence of man in the area.

An impressive point in support of the vegetation hypothesis is the presence of substantial cultural activity coincident with a major shift in forest forms. Pollen diagrams in central Maine indicate a shift from a conifer-hardwood forest to one with many more hardwood trees (Sanger and others n.d.) about 5000 years ago. In several diagrams there is a marked increase in maples and other browse species suited to deer. This change coincides with the presence of a culture whose closest similarities are with the Vergennes phase of the Laurentian Tradition of the St. Lawrence River region. Ritchie (1965) attributes the presence of the Laurentian Tradition in New York in part to the development of the hardwood forest.

In summary, the correspondences between the softwood-hardwood forest and the scarcity of artifacts between 10,000 and 5,000 years ago is suggestive. The "lack of suitable game animals and other resources" hypothesis is strengthened by the coincidence of a hardwood forest and relatively abundant cultural remains. Implicit in the forest hypothesis is the assumption that the forest resources played the key role in determining the level of human adaptation. This may be the case, but one should not overlook the tremendous resource available to man in the rivers and lakes of Maine. It is all too easy to project into the past the ethnographic image of the Abnaki as predominantly hunters and therefore dominated by the productivity of the forest. This assumption is examined in hypothesis 4.

Hypothesis 4 The River Gradient Hypothesis

This is a new hypothesis approached in a recent paper in a slightly different form (Sanger and others n.d.). When the Europeans began first to record the activities of Maine's Indians in any appreciable detail it was already early in the 17th century, nearly 100 years after the initial contacts. During this century of contact there apparently occurred a change in aboriginal settlement and subsistence, so that the summer-interior/winter-coastal pattern of seasonal movement became reversed, probably

in response to the summer voyages of Europeans and the developing trade in furs (Bourque 1973; Sanger 1971; Sanger and Sanger 1974). This reversal tended to emphasize the hunt and de-emphasize the importance of fishing. It seems apparent, however, that when one plots the distribution of sites in Maine there emerges a high correlation between large sites and good fishing spots. Sites such as Hirundo are prime examples of this very common pattern (Sanger and others n.d.).

The recognition of the potential importance of fish in the diet of Maine's prehistoric inhabitants indicates that we should be making inquiries into the history of the fish populations and the river systems they inhabited.

Unfortunately, the fossil fish record is non-existent in Maine, except in the coastal shell middens. One possible approach would be to assemble a detailed picture of the ecology of the primary fish species used for food, and then reconstruct the available habitat during the prehistoric period. For example, modern experience has shown us that some fish have a greater capacity than others for swimming and jumping up over rapids. Theoretically, if one could reconstruct for any given time the gradient of the river system it should be possible to assess the potential of a comparatively weak fish species, such as alewife, to ascend that river to spawn. Similarly, water temperature, bottom conditions, predators, and nutrients all contribute to the ability of any river system to sustain a viable fish population. The techniques for determining these variables are complex and may never produce satisfactory resolution. Nevertheless, archaeologists must take these factors into account in any explanation of Maine's prehistory. One approach to river gradient is an understanding of the sea levels in the Gulf of Maine through time. Maine's rivers drain into the Gulf of Maine achieving an equilibrium with sea level. As the sea levels rose the lower valleys of the rivers became "drowned" and estuaries were created. Any waterfalls or other barriers to fish migration in the lower stretches of rivers would then become inundated and thus removed. *Assuming* that land movements have not been significant in the last 10,000 years, the rising sea levels would seem to be a major factor influencing fish colonization of rivers. In addition to the river gradients, archaeologists should also consider the depositional regime, as bottom sediment is partially a factor of river energy as well as materials being deposited in the rivers from land erosion. The problem is a huge one and it cannot be solved overnight. It is important, though, to recognize as many of the parameters as

possible so as to avoid simplistic man-environmental statements, especially those that assume without any thought or evidence, that modern conditions prevailed in the past.

In summary, the "river-gradient-fish" hypothesis emphasizes the importance of fish to the prehistoric inhabitants of Maine. It suggests that archaeologists should at least explore the possibility that changes in sea level may have made available to anadromous fish river systems previously denied by virtue of a too steep gradient. The addition of fish into the survival formula for prehistoric man represents the main departure from the vegetation hypothesis.

Discussion

Assuming that there was in fact very low human population density in Maine between 10,000 and 5,000 years ago, several explanations, or combinations of explanations, are possible. For purposes of discussion these have been arranged into separate hypotheses, but the proving of one does not invalidate the others; they may all be right to a degree. All of the hypotheses are dependent upon a set of assumptions, some of which are unproven at best. An important realization, brought out by the excellent palynological work in Maine, is that the past vegetation communities were quite different from that typifying central Maine only a few centuries ago. One approach is to suggest that these forests 5000 to 10,000 years ago were incapable of sustaining animal and plant life necessary for humans. A related approach is to suggest that people at that time lacked the technological means to live in Maine's forested interior. Still another is to suggest that the majority of sites were located in the maritime zone and therefore destroyed by rising sea levels. A recent development is the question of the carrying capacity of the rivers draining into the Gulf of Maine, especially their ability to sustain the anadromous fish.

In order to solve the problem it will be necessary to develop a well-integrated research program. This program should systematically survey archaeologically unknown parts of Maine in search of sites or artifacts from this time period. Large portions of the state have never been systematically surveyed and, because of past destruction, may never be properly sampled. On the basis of the hypotheses advanced, it seems possible that we will eventually find that early and middle Archaic remains become less plentiful as one travels from west to east, that is, from southern New England to the Maritime Provinces. The reason for this

hypothesis is that there seems to be a west to east time transgression of the higher productivity hardwood type forest. In addition, it is also possible that sea level rise relative to land surfaces has been less pronounced in the western end of the Gulf of Maine, effecting fewer river gradient changes. These remain highly speculative thoughts at this time, but they do suggest stimulating and worthwhile directions for future research in the study of Maine's prehistory.

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The Hirundo Archaeological Project — Preliminary Report¹

David Sanger and Robert G. MacKay

Introduction

The Hirundo Archaeological Project is cultural in focus but interdisciplinary in method. It is aimed at the documentation and the explanation of prehistoric man's adaptation to an inland environment in Maine. The research design involves the acquisition of cultural data from archaeological sites and physiographic data from the immediate environs. Consequently, the project is dependent on the cooperation of scientists in several disciplines whose particular techniques and expertise are required if an accurate picture of the paleo-environments is to be obtained. In this report some of the preliminary results of these various investigations are presented and briefly assessed. The intention is to publish detailed accounts of all aspects of the project authored or co-authored by the specialists involved. This paper is a progress report of the investigations to April 1973.

Knowledge of Maine's prehistoric residents is minimal despite a considerable amount of early work. The unsystematic nature of much of the early effort and the absence of detailed analysis of later excavations has resulted in the current state of knowledge. In the last decade there have been some systematic attempts to focus on certain problems or areas. Snow's (1969) re-excavation of the Hathaway site at Passadumkeag, and the subsequent analysis of the Moorehead burial tradition, and Bourque's (1971) continuing investigations in Penobscot Bay are examples of problem oriented research. Snow's examination of the Moorehead burial tradition site at Passadumkeag lead to statements about related sites and eventually to a time-oriented sequence (Snow 1970) for the components. Other seriations by Bourque (1971) and by Sanger (1973) have disputed the ordering, now modified by Snow (personal communication). These analyses did little to elucidate the culture of the people who made the interments. That kind of information can only come when habitation and cemetery site data are combined. In 1959 Byers

²Originally published in *Man in the Northeast*, No. 6: 21-29. (1973).

published a general account of the artifacts and stratigraphy from the habitation sites near Ellsworth Falls, Maine. Some of the materials from these sites show relationships with the cemetery sites, but in the absence of a detailed report it is difficult to separate out components. No specific paleo-environmental data accompanied the preliminary report.

For the later periods (post 3500 B.P.) there are a number of coastal sites, generally multi-component. Few C-14 dates are available until the last 2000 years of prehistory.

With the exception of the cemeteries, there existed no inland prehistoric site in Maine which was systematically dug and reported. It became important, therefore, to locate and excavate inland sites to fill this gap. Further, the kinds of questions currently being asked regarding prehistoric cultures require an understanding of the regional environmental events. The *Hirundo* Archaeological Project is designed to provide documentation of man's adaptation to an inland environment. In order to provide the critical environmental background, the assistance of a number of specialists and their students has been solicited. The geology of the region is being studied by Harold W. Borns, Jr. and George H. Denton; Ronald B. Davis is supervising the palynological studies; and Eric W. Lotse is assisting with soils analysis. These scientists are attached to the University of Maine. The chronology is being provided by Robert Stuckenrath of the Smithsonian Institution. Their contributions to the project have already resulted in considerable environmental data, some of which are discussed below.

The *Hirundo* Archaeological Project is sponsored by the University of Maine and the Institute for Quaternary Studies. Financial support from the National Geographic Society for excavation and environmental studies is much appreciated. We would like to thank the sponsoring agencies and the participating scientists for their support. An unusual aspect is the location of the *Hirundo* archaeological site on the *Hirundo* Wildlife Refuge, a privately-owned sanctuary run by Mr. J. Oliver Larouche. We are grateful for the cooperation of Mr. Larouche and his brothers.

Archaeology

The *Hirundo* site (73-9) is located in the town of Alton in central Maine on the right bank of Pushaw Stream just below the confluence of the Dead Stream. Pushaw Stream drains Pushaw Lake and flows into the Penobscot River (Fig. p. 14). The site is located beside the only set of rapids on the stream, a 200 meter

section of bedrock. The ease with which anadromous fish can be obtained in rapids is probably the major reason for the site location. According to local fisheries biologists (A. Meister, personal communication), shad, alewife, and salmon "ran" up Pushaw Stream in the past.

The Hirundo site, so named for the Hirundo Game Refuge, was brought to our attention by Mr. W. Winter, of Old Town, Maine, who noted flakes and firecracked rocks in the eroded bank. In 1971 R. G. MacKay tested the site. The impressive artifact recovery and the potential for an interdisciplinary approach resulted in the 1972 season University of Maine Field School excavation under the direction of MacKay. In the fall of 1972 MacKay again directed a student training operation.

The site stretches for about 200 meters along the stream and averages 30 meters in width. A heavy cover of hardwoods and softwoods combines with a high concentration of firecracked rocks and compact flood silts to make excavation difficult. In the absence of clearly visible stratigraphy excavation has proceeded by 5 cm levels. All material has been screened. Some units reach 70 cm in depth but most end at about 40 cm. Artifact yield, considering the actual amount of excavation, is rewarding. Unfortunately, excavation to date has revealed only one feature, a fire pit in Area A (see site map) from which a date of 4295 ± 95 (SI 1249) has been obtained. A hearth, dug in 1973, dated 4325 ± 100 (SI 1655).

Over 400 artifacts, exclusive of flakes and small pottery sherds have been recovered. Organic artifacts have not been preserved due to the acidity of the soil (pH values range from 5.0-5.7). The chipped stone implements are manufactured from felsite, although quartz and chert artifacts are common, especially in the more recent components. Ground stone tools are made of a variety of rocks including slate. Most of the excavation is in two parts of the site, labelled A and B. Nearly all of the ground stone artifacts, and all of the slate points, rods (cigar-shaped abrasives), and gouges, come from Area A. The majority (over 80%) of the small, steep ended unifaces (scrapers), on the other hand, come from Area B and, like the chert objects and the ceramics, are found in the uppermost levels. Whenever chert and ceramics are recorded in the upper area (A) they are near the surface and adjacent to the river. In the deeper levels in Area A and in those excavational units further back from the river are found the large notched points and an absence of scrapers, ceramics and chert. A preliminary analysis of the distribution of chipping detritus

confirms the general observations made above; that is, the chert and quartz debitage tends to be clustered in the upper levels and in Area B, while felsite predominates in Area A.

In 1972 a detailed floral map was made of the site in an attempt to correlate higher nutrient demanding tree species (such as sugar maple, bur oak, American basswood, and white ash) with soil nutrients as indicated by soils analysis. Five excavation units were selected for testing and samples taken in 5 cm levels. Other than indicating considerable variation in phosphorus and other element concentrations, little can be said at this time. Hopefully, it will be possible to correlate in a positive way plant cover, soils analysis, and cultural activity; the latter will be assessed by artifact, flake, and fire-cracked rock counts.

In the absence of clear-cut stratigraphy, component separation must depend on other criteria. Analysis of vertical and horizontal distribution of artifacts indicates meaningful clusters and similar distributional studies will be made using lithic technology attributes as revealed by on-going studies of flaking debitage. Rather than isolate a series of discrete components at this time we suggest that the *Hirundo* site was occupied over a long period. The earliest occupation is that characterized by the ground stone complex, including slate points, gouges, and rods in Area A. Accompanying these are large side-notched and corner-notched bifaces of felsite. Small unifaces (end scrapers) are not present. Cultural affiliations would seem to be with the generalized Laurentian concept of Ritchie (1971). The hearth dated at 4295 ± 95 B.P. is thought to date the ground stone component. Area B has very different cultural materials. Not only is the ground stone complex absent, but the presence of drills, an atlatl weight, and different notching on bifaces suggests a distinct Tradition. Above this stratigraphically are the many small scrapers, chert biface specimens, and thick, cord-wrapped-stick decorated ceramics. Such a component is analogous with those dated at between 400 and 1000 B.P. elsewhere in Maine and the Maritime Provinces (Bourque 1971, Sanger 1971). If the above assessment is accurate, occupation at the *Hirundo* site covers a 4500 year period.

According to Dena Dincauze (personal communication) the possibility of an earlier component should be considered. During an examination of the *Hirundo* collection Dincauze identified one of the Bifaces as a "Neville point," so named for the Neville site in Manchester, New Hampshire, where C-14 dates suggest an age of 7,000-8,000 years ago (Dincauze 1971). A single biface

cannot, of course, be used as evidence for the presence of a component of this antiquity.

Direct faunal evidence for the subsistence pattern at Hirundo is lacking because of the acid soil conditions. However, the presence of the site beside the fast water suggests that fishing may have been the primary motive for selecting the area. If so, anadromous fish such as shad, alewife, and salmon are indicated. Such an activity would suggest a spring to fall occupation. The large quantities of felsite flakes indicate primary reduction of the large cobbles for preforms. By contrast, the number of chert flakes is minimal despite the relatively high incidence of chert artifacts in Area B in the upper levels. Possibly, the chert nodules were reduced to preforms and finished into tools elsewhere, and only sharpening activities were conducted on the chert pieces while the users were in residence at Hirundo. Further analysis is required to test this hypothesis.

Environment

The Hirundo site is surrounded on three sides by a system of extensive bogs and lakes. In an attempt to determine the history of bog formation in the area, samples of subsurface sediment were taken from a bog at the edge of Mud Pond, about two miles south of the Hirundo site. The deepest sediment was a grey silt. The first appearance of dy, indicating the onset of dystrophic conditions and probable formation of bogs in the vicinity, occurred at a depth of 6.29 to 6.54 meters, dated at 8225 ± 130 (SI 1356). At 3.44 to 3.69 meters, the first appearance of significant proportions of peat in the sediment indicates the formation of a bog at the test locality. This was dated at 4012 ± 120 (SI 1357). By this technique it is hoped that a history of bog formation in the area can be deduced allowing some prediction of the location of archeological sites. The results to date indicate growth of bogs by at least 8200 B.P. and continuing into recent times. It seems likely, however, that during the time period of earliest human occupation at the Hirundo site the bogs had not claimed as much of the lakes as they have today. With this in mind, it may be worthwhile to check those areas that today appear ill-suited to Indian occupation. A site survey in the summer of 1973 will be guided in part by this consideration.

In order to gain information on the paleo-environments, a lake sediment core was taken from Holland Pond, located a little over four miles NNE of the Hirundo site. Some preliminary results of the analysis by R. B. Davis and his students are available,

but many more levels remain to be counted before a complete diagram is on hand. Several areas in the 50 acre pond were probed before locating the maximum sediment depth of 6.7 meters. The observations below are taken from a research paper prepared by P. Thompson Davis based on analysis carried out by himself and Norman Famous under the direction of R. B. Davis. Analyses of deep levels of the core indicate an initial period of tundra. Subsequently, the vegetation changed into what is tentatively interpreted to have been a spruce woodland or parkland, with a large proportion of the landscape retaining tundra characteristics. This was invaded by pine which reached its peak at 8800 ± 190 B.P. (SI 1352), the deepest level for which a radiocarbon date has yet been obtained. From this period to the present, closed forests occupied the area, although we might expect that forest fires opened up the forest periodically. The absence of a period of closed boreal forest preceeding the pine zone agrees with pollen analyses from Moulton Pond 25 miles SSE of Holland Pond (Bradstreet *et al.* n.d.). The pine forests were invaded by several species of deciduous trees plus hemlock, and by 5020 ± 105 B.P. (SI 1353) hemlock reached a peak. The forests by then had obtained the full complement of deciduous tree species characteristic of today's forests in the area. The pollen assemblage from 4110 ± 90 B.P. (SI 1354) at Holland Pond indicates a vegetation similar to that found today except that the influx of hardwood species pollen is higher.

As more levels are counted and the absolute pollen influx diagram is completed we can anticipate receiving a more accurate picture of the regional floral conditions. From this data may be derived statements of climatological phenomena which, taken in conjunction with the floral cover, affect the distribution and density of game animals. At this time the correspondence between the presence of Laurentian-related cultures (between 5000 and 3500 B.P.) and the period of increased hardwoods is most interesting. These people apparently represent the first high-density cultures in the area, and their appearance coincident with a high productivity forest is most suggestive. Similarly, the disappearance of the culture by 3500 B.P. in Maine sites corresponds with a return to pollen influx rates more similar to modern periods.

Under the direction of H. Borns, graduate students in the Quaternary Geology program of the University of Maine examined the surficial geology of the area surrounding Pushaw Lake. Their work to date on lake levels and surficial features

clearly indicates the archeological potential of a now-abandoned outlet of Pushaw Lake which flowed south to the Kenduskeag River and then to the Penobscot River. This old channel truncates an esker which should provide excellent camping locations. Field work in 1973 will attempt to determine when this flowage was abandoned by Pushaw Lake and if man made use of this shorter route to the Penobscot River.

Discussion

The rationale for the Hirundo Archaeological Project is elucidation of the inland Maine prehistoric cultures. This is not an easy task given the history of destruction of sites due to lumbering and agriculture. Added to these factors is the poor preservation in the mixed forest soils. From a cultural point of view we have little useful ethnographic data on which to build. Consequently, we feel that the best way to systematically approach the problem is to discover as much as possible about the paleo-environments and then view man's activities against this background. We are delighted to have already so much environmental data because it will enable us to continue the purely excavational aspects of the project with more imagination and insight. As mentioned earlier, survey for new sites will take into account the research of the geologists and the palynologists.

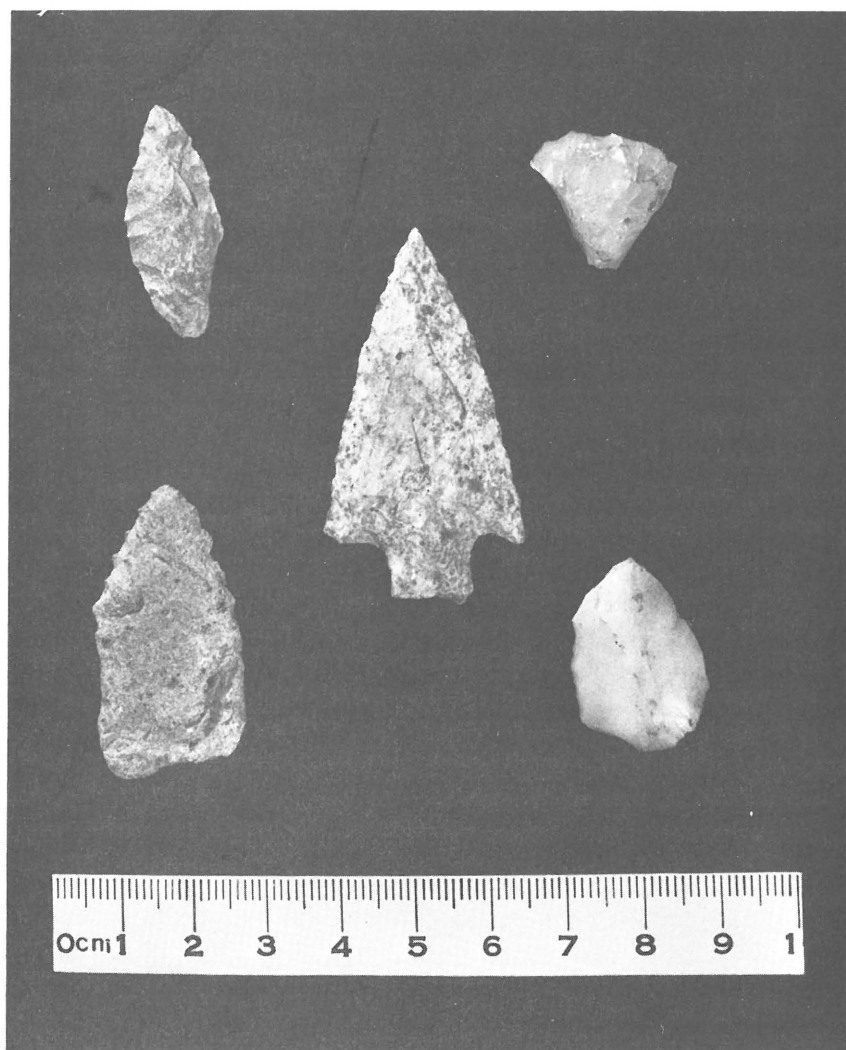
The problem of locating habitation sites which can be considered contemporaneous with the red-ochre cemeteries remains unresolved. At Hirundo, the ground stone complex of Area A would appear to be related, but there are some difficulties in making any precise correlations. For example, no cemeteries contain stone rods, an important class at Hirundo. None of the Hirundo celts or gouges are made of the banded greenstone tuff seen in many of the Penobscot River cemeteries, and the Hirundo gouges are all of the deep-channel variety as opposed to the hemi-conical ground bits of the cemetery gouges. Finally, the Hirundo stemmed bifaces are not particularly reminiscent of the cemetery specimens. Despite these dissimilarities, we suspect that at Hirundo there is a component or components which are culturally related to the Moorehead burial tradition (Sanger 1973) sites. We suspect that the cemeteries are younger than the Hirundo ground stone complex which we suggest is represented by the 4300 B.P. date from Area A. With the exception of the problematical Hathaway site dates (Snow 1969) the Moorehead burial tradition sites generally date younger than 4000 B.P. (Sanger 1973:109).

If the generalized Laurentian Tradition spread into Maine by 5000 B.P. and lasted until 3500 B.P., as now seems likely, there is a remarkable coincidence between the appearance of this culture and a vegetation community phase. In regional pollen diagrams this time period corresponds with the phase of increased hardwoods which would increase the productivity of the forests for animals and man. The collation of changing vegetation communities and cultures in the Maine area promises to be a most rewarding area of research.

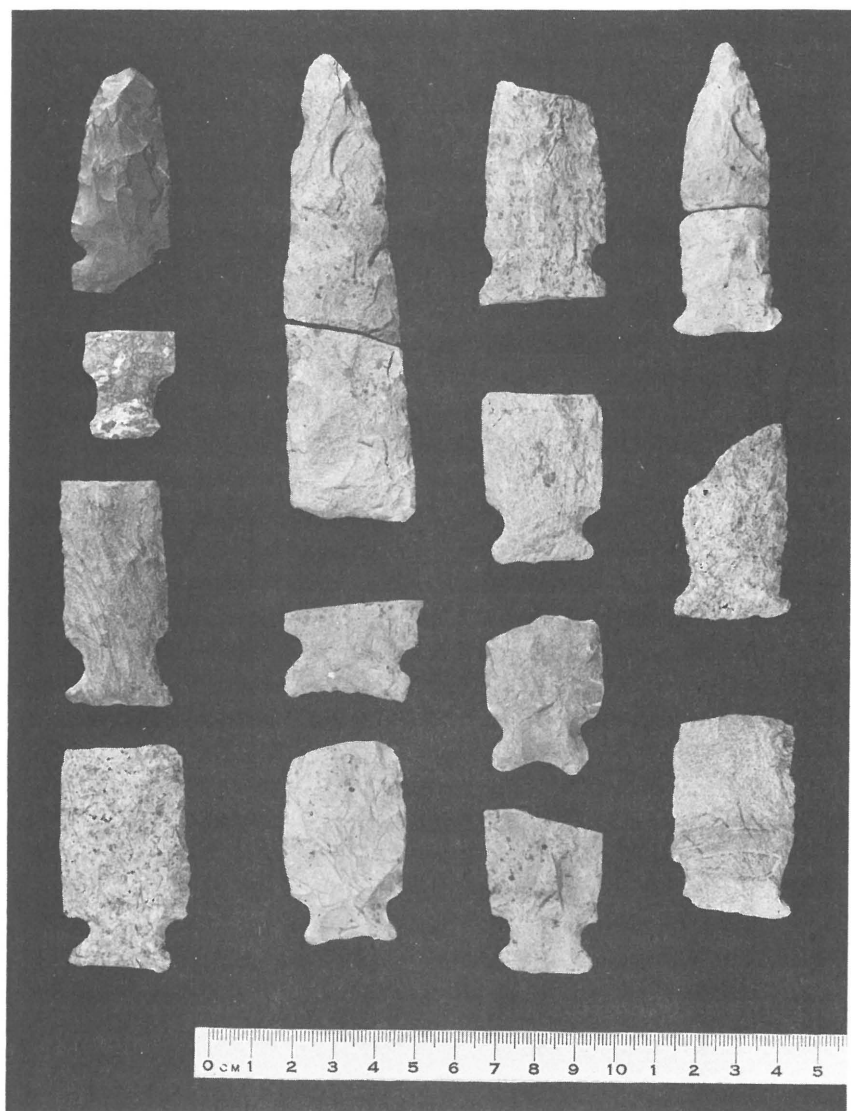
Further research on the *Hirundo* Archaeological Project includes survey in the area for new archaeological sites which can be used to document man's adaptation to the area. Excavation will continue at the *Hirundo* site in an attempt to resolve problems of chronology and to increase sample size. Research into the paleo-environments will continue with completion of the Holland Pond core, further analysis of the Pushaw Lake drainage system, and an intensive program of soils testing for traces of cultural activity revealed in element analysis.



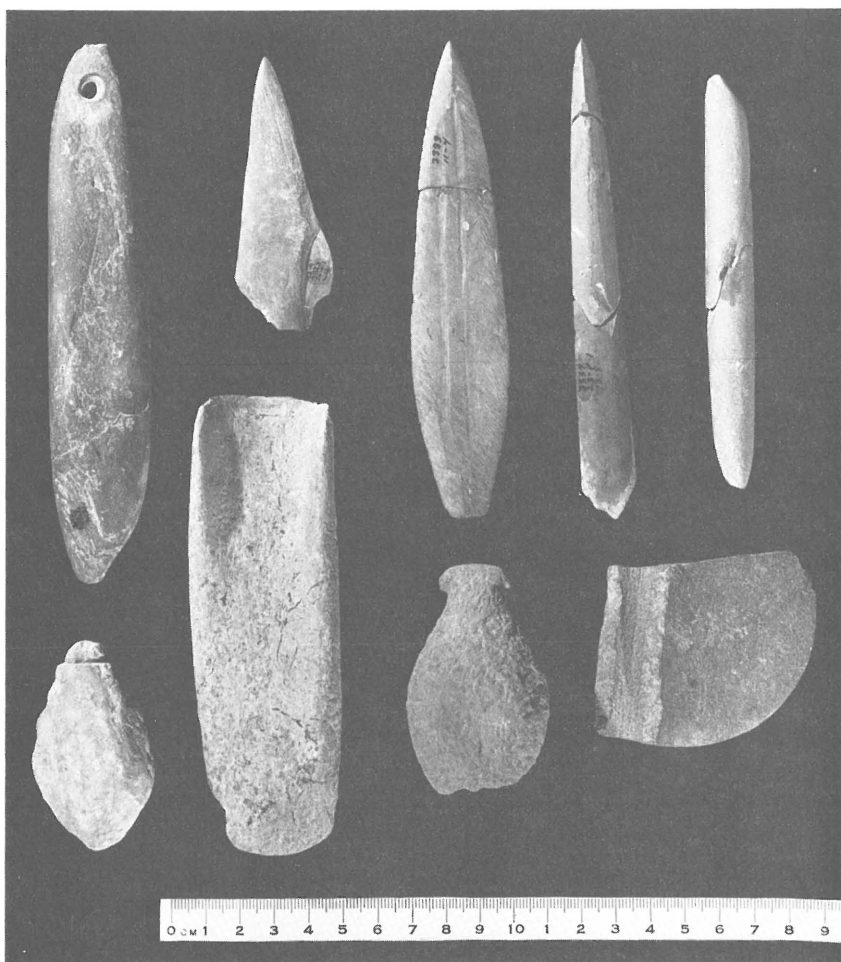
Excavation at the Hirundo site. Each worker removes the soil by trowel in 1 meter square excavation units. A screen, slung from the tripod, sifts the excavated soil for small artifacts. Because of its importance the site is listed on the National Register of Historic Places.



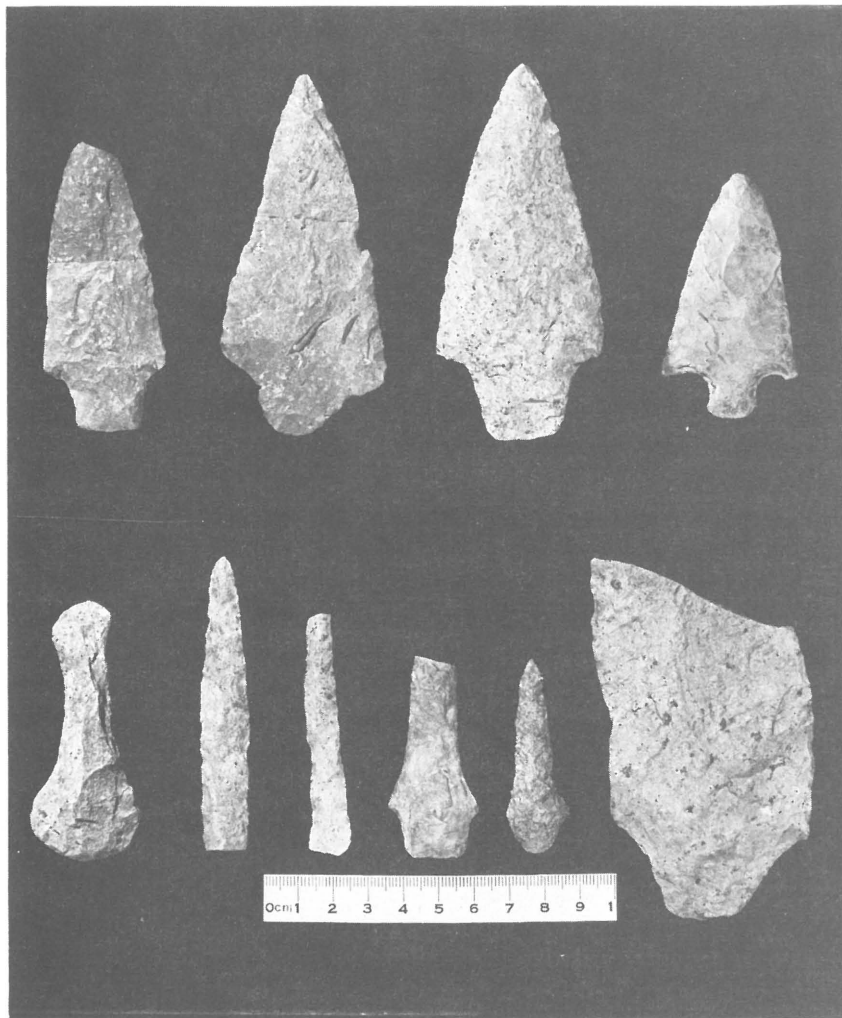
Assemblage 1, which may date to 7000 years ago. Three felsite bifaces and two quartz scrapers (right) are illustrated to represent this small assemblage.



Large, side-notched projectile points from Assemblage 2. Many of these points are similar to the Otter Creek type found in Vermont and New York.



Ground stone implements from Assemblage 2. From left to right in the upper row: perforated abrasive stone, slate points, slate point tip, cigar-shaped abrasive stone. Bottom row: plummet, gouge, plummet, spear thrower weight (atlatl) fragment.



Chipped stone tools from Assemblage 3. The artifacts on the lower left are drills and drill fragments.

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Postscript to Chapter 4

The above report covers only the first two seasons at Hirundo. Field work has continued to some extent every year since and the record greatly expanded. In 1977 an interim report, co-authored by Sanger, Davis, MacKay, and Borns, was published by the New York Academy of Sciences (Sanger and others 1977). This report identified a number of components and discussed those of the middle to late Archaic, or from about 7000 B.P. to 3500 B.P. It also presented the essence of the Holland Pond pollen diagram, now completed by Ronald B. Davis and his students, and commented on the geological picture through the contribution of Harold W. Borns, Jr. David Sanger and Robert MacKay co-authored the archaeological section.

The 1975 excavations, which were funded by the National Geographic Society, the University of Maine, and the Hazel Smith fund, recovered several artifacts thought to belong with the Neville-like point described in the preliminary report. These artifacts include a small stemmed point and a serrated point stratified below ground stone tools of the Laurentian Tradition. Also associated are small quartz scrapers and large, very flat, felsite flakes and appropriately large cores. No charcoal was recovered in association, but on the basis of comparative dating to the south, an age estimate of at least 7000 B.P. is suggested. The artifacts are called Assemblage 1.

Assemblage 2 is the name applied to the ground stone component related to the Laurentian Tradition and the Vergennes Phase. Excavations since 1972 have recovered additional side-notched points and more ground stone implements of all classes including plummets and atlatl weights. No new dates have been received for this assemblage which was previously dated at about 4500 B.P. or older. Area A, the upstream area, continues to produce the bulk of Assemblage 2 specimens, although they are found in all parts of the site below more recent artifacts.

Assemblage 3 is related to the Susquehanna Tradition of southern New England and coastal New York. It occurs at Hirundo, but a more impressive component featuring Assemblage 3 is found across the stream at the Young site (73-10). Because of the richness of Assemblage 3 at the Young site a 7 week excavation in 1977 was sponsored by the Maine Historic Preservation Commission, the University of Maine, Orono, and the Hazel Smith fund. An unexpected bonus at the Young site was the discovery of preserved bone, mostly discarded food remains.

Another important find was a feature containing numerous broken Susquehanna bifaces in association with large charcoal samples.

In 1977 another 4 weeks was spent at Hirundo in an area of bone preservation. Broken tools and food bones were discovered. This part of the site, which is close to area C, was apparently the scene of an early historic campsite.

Thus the Hirundo site and its neighbor, the Young site, continue to provide invaluable data on the early history of Maine. The 7000 year record preserved there is the longest in Maine and the only carefully controlled major excavation in the interior. In 1977 the Hirundo Game Preserve was donated to the University of Maine by its owner Mr. J. Oliver Larouche, thus insuring that the site and its environs will always be available to archaeologists for research and teaching purposes.

CHAPTER 5

The Turner Farm Site: A Preliminary Report

Bruce J. Bourque, Maine State Museum

The Turner Farm site is one of the most important sites in Maine because of the combination of many different cultures and the long term research commitment by Dr. Bruce Bourque and the Maine State Museum with assistance from the National Geographic Society and private donations. It is included in this book because of its importance, and to balance its interior counterpart — Hirundo site. This paper was originally published in *Man in the Northeast*, No. 11: 21-30 (1976). The original paper developed some additional hypotheses about the nature of the cultural complexes. At Dr. Bourque's request they have been deleted.

Abstract

Excavations at the Turner Farm site reveal a history of intermittent occupation dating ca. 5300 B.P. to the early historic period. Of particular interest are two components: Occupation 2 (ca. 4500 B.P.) and Occupation 3 (3600 B.P.). Occupation 2 constitutes the earliest dated component of the Moorehead phase, while Occupation 3 represents the Susquehanna tradition.

Bone preservation has permitted the recovery of rare bone tools and food refuse from all components. Faunal analyses indicate that shellfish played a significant dietary role during all occupations and that marked shifts in species exploitation occurred between Occupation 2 and Occupation 3.

Ceremonially-derived features from Occupation 2 include a unique cache of artifacts and a series of dog burials. Occupation 3 has produced a series of human interments and cremations which parallel Susquehanna tradition cemeteries of southern New England.

Possible explanations of the technological, subsistence and ceremonial shifts between Occupations 2 and 3 include environmental change and the replacement of Moorehead phase populations by Susquehanna immigrants.

The Turner Farm site is a shell midden, about one acre in extent, situated on a low terrace at the southern tip of Fish Point, North Haven, Maine. This terrace borders a crescentic gravel beach along its southern margin and a bog along its western margin. The midden lies between 2 feet below and 15 feet above the modern high water mark. North of the site is situated a 60-80 foot high ridge which is oriented east-west. Soil in this vicinity is an intermittent glacial till overlying highly fractured acid volcanic bedrock.

The site was first recognized as one with potentially valuable components during the author's initial survey of North Haven in 1969. This survey stressed the discovery of preceramic components, which, it was hoped, would indicate the length of human exploitation of the coast and would yield data pertaining to the origins and life styles of early populations in the area.

Several sites were tested in 1971. Two weeks were devoted to the Turner Farm site, during which time plummets, gouges, harpoons and a harpoon foreshaft were recovered from the site's lowest levels. These materials clearly resemble those from Maine's Red Paint cemeteries and especially those from the Nevin site, excavated by Byers during the 1930's but never fully reported. Above these materials were found broad-bladed, stemmed points

and other artifacts bearing clear affinities to the Susquehanna tradition of southern New England and New York. These assemblages represent components referred to in the following paragraphs as Occupations 2 and 3 respectively.

The promising results of 1971 led to further excavation in 1972 and again in 1973. By the close of the 1973 season, we had confirmed the identity and stratigraphic separation of the two early components, and had encountered a series of later preceramic and ceramic components which lies beyond the purview of this report. By 1974, an earlier component, Occupation 1, had been tentatively isolated.

Chronology

Recent radiocarbon dates from the Turner Farm site have extended the documented age of coastal occupation in Maine by over 1,000 years. The earliest thus far, 5290 ± 95 B.P. (SI 1925; charcoal) is from a small pit at the base of the midden. Also from this pit is a small stemmed projectile point similar to specimens recovered from the subsoil surface in the eastern half of the site. These artifacts together with a few crude bifacially chipped knives of similar stratigraphic provenience, appear to represent a small component which the author has called Occupation 1. No midden deposits have been definitely associated with this occupation, but other small pits from the same area, as well as a number of shell filled pits about 3 feet in diameter, do appear to have been dug and refilled at this time.

Occupation 1 bears no recognizable relationship to other known components in the Maine-Maritime area. Specifically lacking are typological similarities to Occupation 2 or to the undated but presumably early material from the Hirundo site in Alton, Maine (Sanger and MacKay 1973; Sanger 1975:60-67).

Three dates have been obtained from Occupation 2: 4555 ± 95 B.P. (SI 1923; charcoal), 4410 ± 80 B.P. (SI 1920; swordfish sword) and 4390 ± 55 B.P. (SI 1921; charcoal). Two dates from one whitetail deer antler found in Occupation 2 midden are 2705 ± 60 B.P. (SI 1926A) and 3115 ± 65 B.P. (SI 1926B), but they are regarded as inaccurate.

Thus, Occupation 2 appears to predate by several centuries other dated components of the group in the Maine-Maritime area, and increases its known temporal range to about 800 years (4500 B.P. - 3700 B.P.).

Three dates have been obtained from Occupation 3. They are 3650 ± 75 B.P. (SI 1922), 3515 ± 80 B.P. (SI 1924) and 3630 ± 85 B.P.

(SI 1919), and are within the range extrapolated by Dincauze (1972) for similar material in southern New England. Furthermore, they fall about 100 years later than dates from late Occupation 2 related components, e.g., the Goddard and Stanley sites (Bourque 1976:44; Sanger 1975:62). This indicates a chronological boundary between the two groups at 3700 to 3600 B.P. At the late end of the Susquehanna sequence in Maine are the dates from the Eddington Bend crematory, 3430 ± 145 B.P. (SI 789), and the Hathaway crematory 3355 ± 125 B.P. (SI 887) (Snow 1975:50-51). However, occasional reports of later Susquehanna tradition artifact styles from both interior and coastal sites suggest that the tradition may have persisted in central Maine after ca. 3300 B.P.

Later components at the Turner Farm have produced fewer charcoal samples and are not yet adequately dated. Three samples were dated after the 1971 field season; they produced dates of 4050 ± 220 B.P. (GX 2464) from the subsoil surface below Occupation 3 midden, 2275 ± 130 B.P. (GX 2463) from a thick shell lens which contained dentate stamped pottery and slender stemmed projectile points, and 1200 ± 100 B.P. (BX 465) from a late shell lens of unclear cultural provenience.

Faunal Analysis

The Turner Farm faunal assemblage is the first from a preceramic site in the Maine-Maritimes area to be systematically collected and analyzed, and has provided new insight into early coastal subsistence patterns in this area. Dr. Joseph Waters and Mr. David Morse have completed analyses of bone collected during the 1971-1974 seasons, and the summary presented below is based upon that sample. The analysis of bone from the 1975 season is not yet completed. However, no major changes in species frequencies are anticipated.

In Occupation 2 animal bone is especially abundant. The remains of swordfish (*Xiphias gladius*), white tail deer (*Odocoileus virginianus*) and seal (primarily grey seal, *Halichoerus grypus*) predominate. It is clear that maritime hunting played a dominant role in this economy. In Occupation 2, however, only small fish of herring-bluefish size are at all well represented among the marine species with sea mink (*Mustela vison macrodon*) and deer dominating the non-marine fauna. Bone refuse is relatively scarce in Occupation 3, possibly suggesting the increasing abundance of vegetable food after ca. 4500 B.P. Shellfish, primarily the soft shell clam (*Mya arenaria*)

are slightly more abundant in Occupation 3 than in Occupation 2.

Preliminary artifact analysis suggests that Occupations 2 and 3 represent basically different subsistence strategies. For example, piercing weapons of bone and swordfish sword are quite common in Occupation 2 while they are quite rare in Occupation 3 where the majority of artifacts are broad bladed chipped stone knives and spear points. Clearly, faunal analysis confirms this hypothesis. The reasons for this shift are not clear, but the disappearance of swordfish and quahog from the Occupation 3 faunal samples suggests that a drop in water temperature may have played a role. The implications of such a cooling trend are discussed below.

Settlement Structure

The following observations are based upon partially completed analyses of the site's major structural elements, e.g., artifact and bone clusters, apparent house floors, cooking pits, hearths and burials. Completion of these analyses awaits the integration of data recovered during the 1975 season.

Two years after its initial recognition, Occupation 1 remains poorly represented in our sample. No midden deposits can be definitely associated with it, but the small stemmed projectile points which typify it cluster at the eastern end of the site where a series of small features was encountered below the midden, in subsoil. These pits and possible hearths contain shell and small amounts of bone refuse suggesting their origin as cooking features.

Occupations 2 and 3 are composed of alternating shell and shell-free lenses. The shell-free lenses appear to have been occupation surfaces and have produced concentrations of artifacts and bone. The shell lenses show few signs of direct occupation and have produced small samples of bone and artifacts. They seem to represent dumps deposited near adjacent shell-free living surfaces.

The shell-free strata of Occupation 2 have produced four artifact clusters ranging from ca. 10 to 20 feet in diameter. These clusters have differing compositions and seem, at this time, to represent work areas. Swordfish sword, an industrial raw material, is consistently associated with these clusters, but the major bone refuse clusters tend to be peripheral to artifact clusters. Most small pits and hearths, which were apparently used for shellfish cooking, are not directly associated with either bone or

(SI 1919), and are within the range extrapolated by Dincauze (1972) for similar material in southern New England. Furthermore, they fall about 100 years later than dates from late Occupation 2 related components, e.g., the Goddard and Stanley sites (Bourque 1976:44; Sanger 1975:62). This indicates a chronological boundary between the two groups at 3700 to 3600 B.P. At the late end of the Susquehanna sequence in Maine are the dates from the Eddington Bend crematory, 3430 ± 145 B.P. (SI 789), and the Hathaway crematory 3355 ± 125 B.P. (SI 887) (Snow 1975:50-51). However, occasional reports of later Susquehanna tradition artifact styles from both interior and coastal sites suggest that the tradition may have persisted in central Maine after ca. 3300 B.P.

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artifact clusters. No prepared floors or well-defined post mold patterns have been encountered in Occupation 2.

Three basin shaped beach gravel floors have been encountered in Occupation 3. They are between 10 and 15 feet in diameter and are littered with bone refuse and artifacts. The best preserved of these was discovered during 1974. It was partially surrounded by a well-defined ring of fire-cracked rock which adjoined a large, rock-strewn surface extending ca. 20 feet to the southwest of the floor. The distribution of rock suggests a house with a door and adjoining "yard" area to the southwest.

Ceremonial Features

Between 1972 and 1974, a series of five dog burials was encountered in Occupation 2. Near one of the burials was a cache of utilitarian and probably ceremonial objects similar to those we have come to expect from human burials of this period. However, the cache did not contain red ochre or human bone. These features reveal two entirely new aspects of ritual behavior in a group which is already noted for its elaborate human cemeteries. No isolated dog burials or caches have been reported elsewhere in the Maine-Maritime area at this time level.

In 1974 and 1975, we encountered a series of human burials in subsoil below the midden while exploring the limits of two Occupation 2 artifact clusters. The burials were of two basic types. Five graves contained the interred remains of between one and six individuals accompanied by red ochre. Only one of these graves contained artifacts in definite association. An additional ten graves contained cremation burials, most of which were well furnished with artifacts of the Susquehanna tradition. Many of the artifacts are nearly identical to those from cemeteries of this tradition in southern New England described by Dincauze (1975:26-32).

All burials were made in subsoil and were overlain by midden containing Susquehanna materials. Since the interments associated with red ochre resemble those from the Red Paint cemeteries, they were initially interpreted as associated with Occupation 2. However, three out of five graves were "intruded" by deposits containing cremated bone and Susquehanna artifacts, and one contained an unusual series of bone, antler and stone artifacts, some of which closely resemble those from nearby cremation burials. Radiocarbon dates from all features are pending and should clarify their relationship to Occupations 2 and 3. For the present, however, associational data suggest that all

burials pertain to Occupation 3 and represent a complex set of mortuary practices, many of which have not been observed in Susquehanna cemeteries to the south and west. Analysis of skeletal material has been undertaken by Sonja Jerkic at the Memorial University of Newfoundland.

Conclusions

The Turner Farm site was inhabited by 5300 B.P., earlier than any Archaic component yet dated in the Maine-Maritime area. Artifacts so far associated with it bear no resemblance to other assemblages in that area. Little is known about the site's first occupants, but it is clear that they included shellfish in their diet. The recognition of this early component indicates that it should be possible to locate other early unsubmerged sites on the coast, and that it is still too early to speculate upon the densities of early populations there.

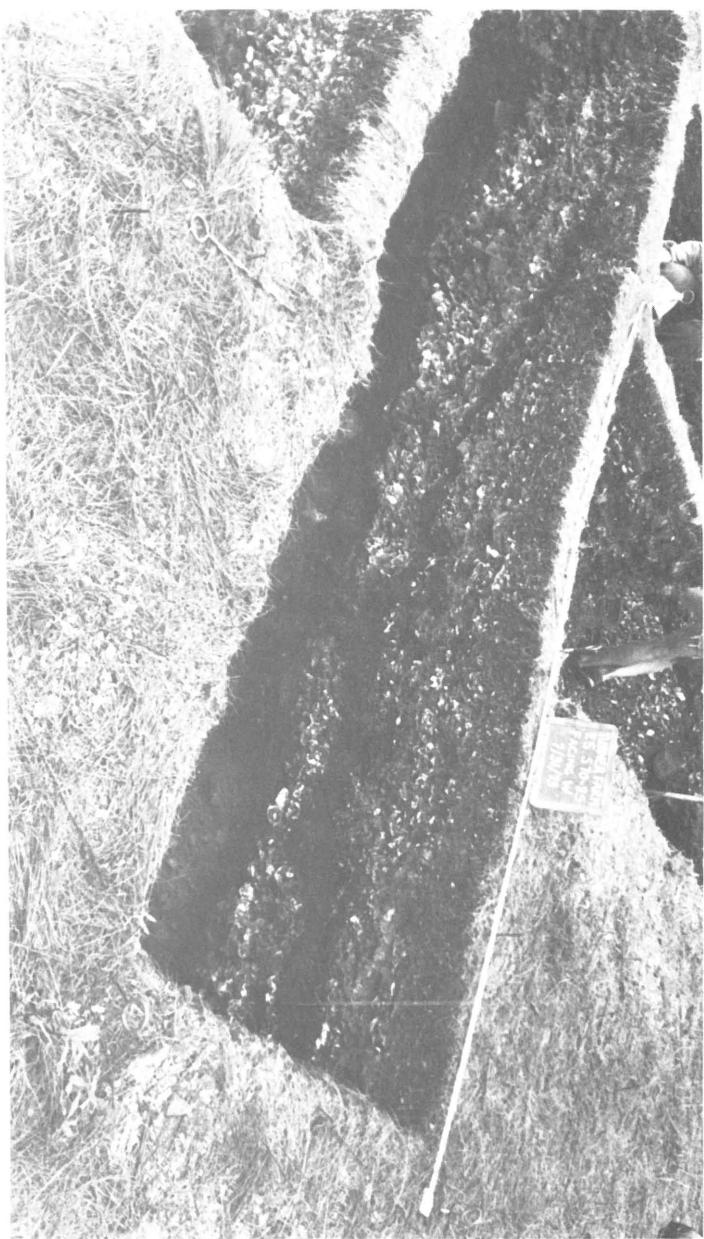
The second occupation at the Turner Farm site dates to ca. 4500 B.P. and belongs to a group including the "Red Paint" cemeteries of Maine and New Brunswick and early components at the Nevin, Waterside, Tafts Point, Goddard, Stanley and Hirundo sites. Faunal data from Occupation 2 confirm the importance to this group of maritime hunting, probably from dugouts. Recent suggestions that this group specialized in caribou hunting (Snow 1974:16) are not substantiated at the Turner Farm site, nor have caribou bones been identified in any related component in Maine. Other recent claims that shellfish exploitation spread into Maine from southern New England ca. 3000-2000 B.P. (Braun 1974:583) are unsupported by dates from shell-bearing Occupations 1, 2 and 3. In fact, the Turner Farm is currently the earliest dated shell midden in New England.

The seasonal movements of this group have not been determined with certainty. Indeed, until now there were no substantial data upon which to base such determinations, and data from the interior are still very sparse. However, the writer has suggested elsewhere a seasonal model based upon the Turner Farm faunal data, scattered faunal data from other sites and upon interior and coastal site distributions. This model includes summer maritime hunting and fishing, spring and fall riverine fishing and winter interior hunting (Bourque 1975:41-42).

The origins of this population are unclear. Conflicting models have been advanced by Sanger (1973:128-130; 1975), who proposes their development from the Vergennes phase of the Laurentian tradition, and Tuck (1971:350-354; 1975), who



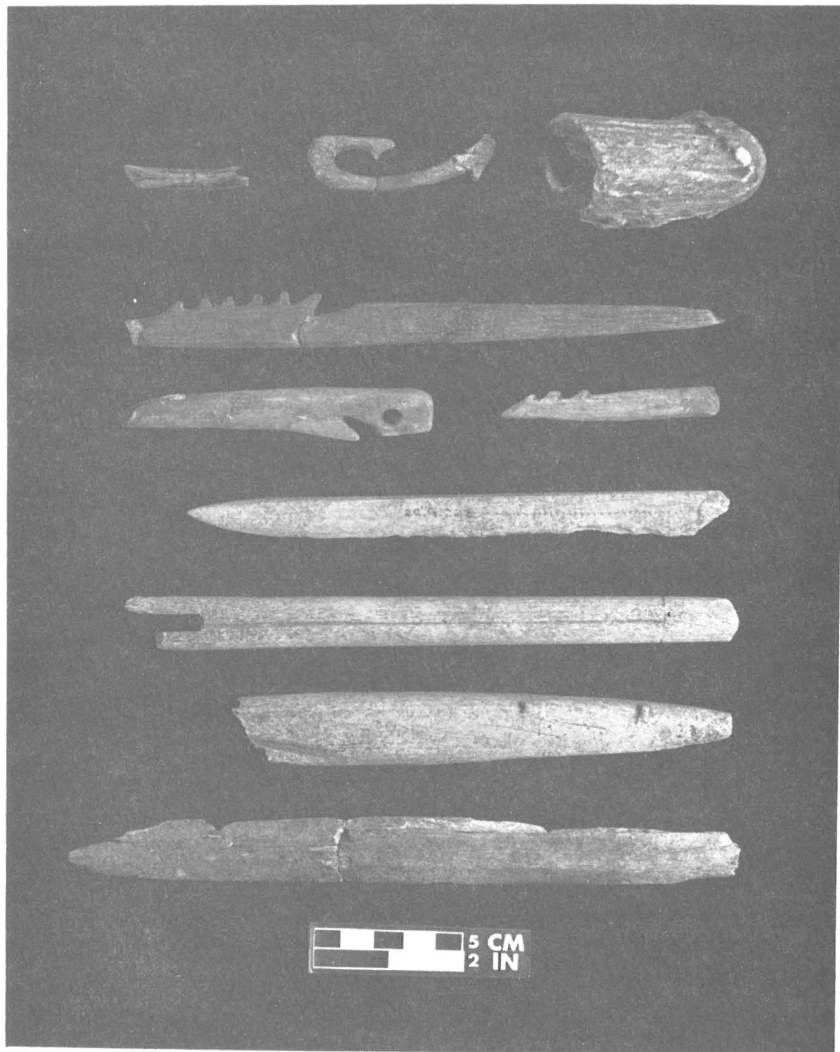
Excavation at the Turner Farm Site. Excavation at this site is by five foot squares with bents or walls between squares to retain a record of the stratigraphy. The site is on the National Register of Historic Places.



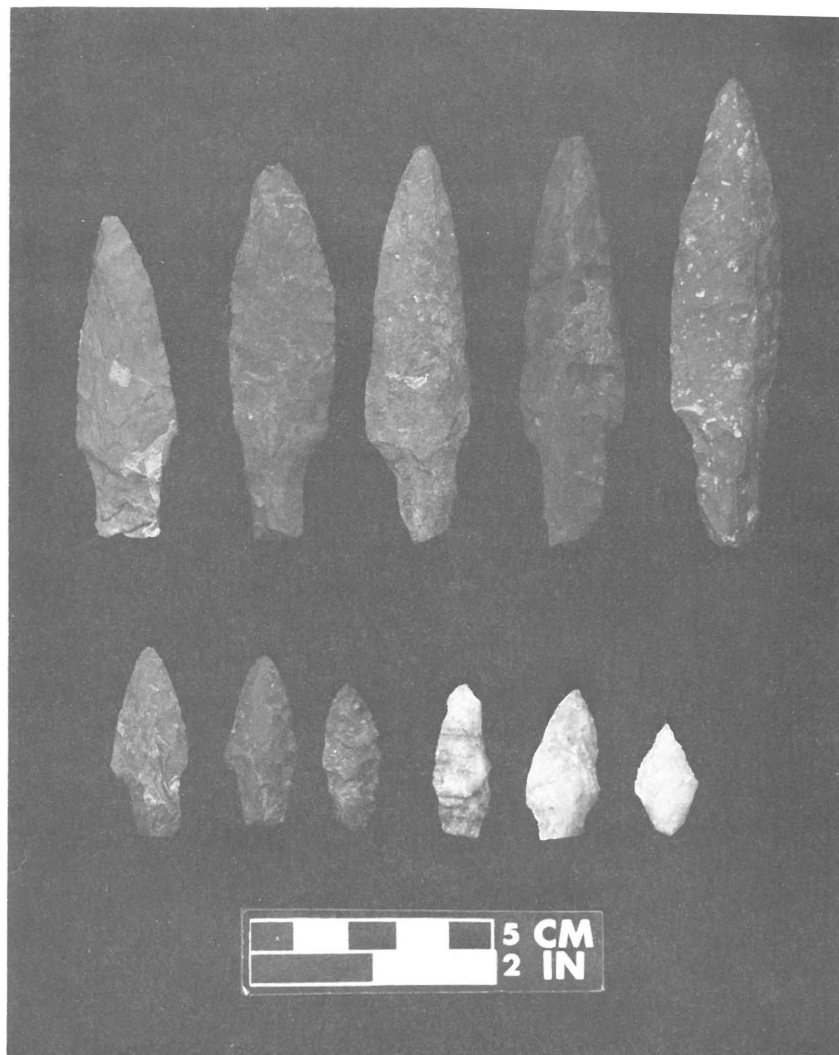
Stratigraphy at the Turner Farm site. The white flecks in the wall are clam shell, while the dark stain may be the floor of a dwelling.



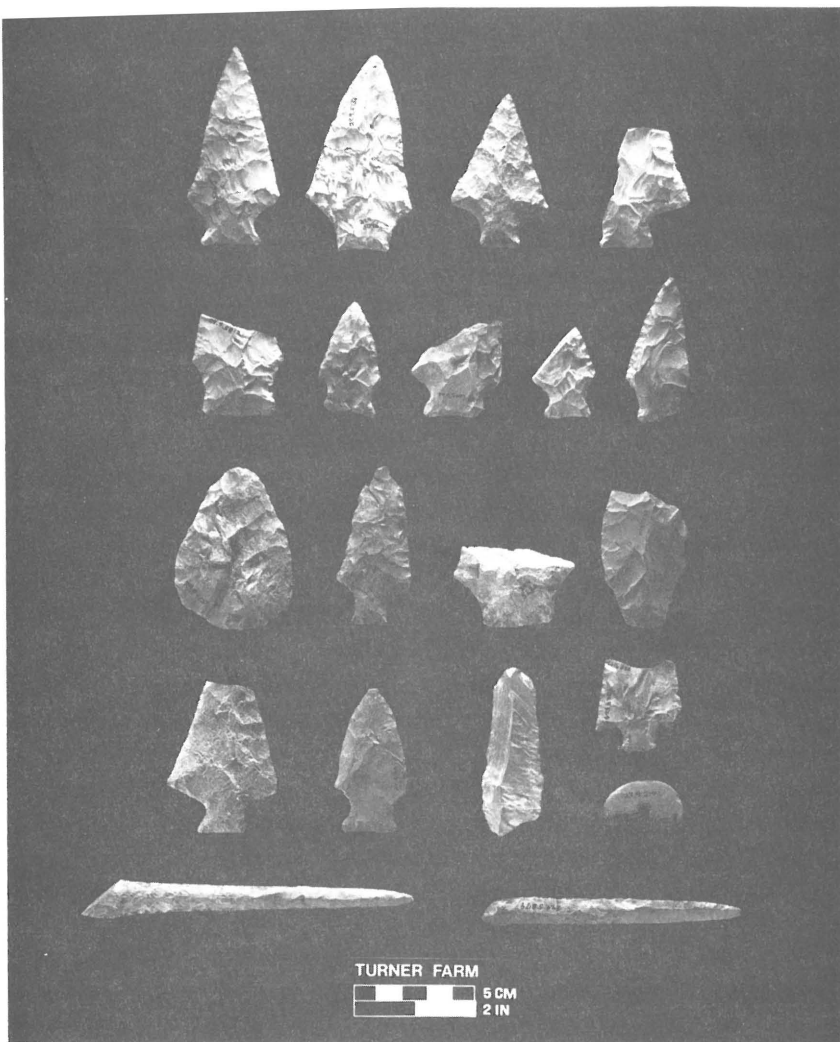
A pit dug into the subsoil at Turner Farm. This pit originated with Occupation 3. In the pit were found many charred food bones, including deer.



Various bone, tooth, and antler objects from Occupation 2 at the Turner Farm. Upper row: beaver tooth knife, bone fish hook, antler haft. Row 2 to bottom: swordfish sword spear, bone harpoon, and bone spear, decorated bone knife, harpoon foreshaft of swordfish sword, bone knife, lance tip of swordfish sword.



Chipped stone points from Turner Farm. Those from the upper row are from Occupation 2 dated to around 4,400 years. Below are specimens from Occupation 1 dated at 5,300 years ago.



Chipped specimens from Occupation 3 at Turner Farm. Many of these specimens were recovered from cremation burials dated to around 3,600 years ago.

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Who Were The Red Paints?¹

by David Sanger

The "Red Paint People" have been immortalized in Maine Prehistory. No other group has received so much attention in both field work and in the literature. Despite this fact it seems that there is still a basic lack of understanding concerning these people, their origins, culture and demise. We are far from having all the answers, and I do not claim that this short article will provide them. What I would like to do is to review some of the explanations, and offer some suggestions.

Perhaps the earliest systematic excavation was that of Willoughby (1898) at several cemeteries in Maine. He was followed by Warren K. Moorehead, whose 1922 book recounts the exploration of numerous cemeteries. Later archaeologists have dispaired over Moorehead's techniques; if only he had followed the example of Willoughby! Moorehead used the term "Red Paint People", although he did not invent it, while Willoughby preferred the more technical sounding "Pre-Algonquian Group". Both men recognized the essential differences between the culture of the historic Indians and that of the red ochre graves, and both were convinced of the great antiquity of the latter. But not all archaeologists of the time were convinced and a series of exchanges took place in journals such as *American Anthropologist*. Snow (1969) provided references to some of these articles which today have little but historic interest.

In the 1930's Douglas Byers and Frederick Johnson of the R.S. Peabody Foundation excavated the Nevin shell midden site, near Blue Hill, Maine. There, beneath later occupations, they found several burials covered with red ochre and accompanied by the characteristic artifacts. Due to the presence of shell in the midden the skeletons did not decay and artifacts of bone, antler, and tooth were preserved. Unfortunately, a full report on this important site has never appeared in print. The Nevin site was not the only site on the coast to yield "Red Paint" artifacts, but it was one of the best preserved.

Shortly after World War II, B. L. Smith (1948) performed a gigantic task by pulling together collections from various Maine

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sites and making an analysis. Smith's work is probably the most useful review of the artifacts to date, despite the many problems caused by artifacts being lost, collections mixed, etc. Smith elected to refer to the manifestation as the "Maine cemetery complex," a definite improvement over the "Red Paint People," because it recognizes the burial aspect of the evidence. I shall return to this important point later.

At the same time Hadlock and Stern (1948) re-excavated the Hathaway site at Passadumkeag, Maine, a site previously opened up by Moorehead. They added to Moorehead's total and established that the clusters of artifacts and red ochre were in fact burial pits.

In 1959 Byers published a review of the Archaic of the Northeast. He suggested that the red ochre burials fit into a coastal culture he called the "Maritime Boreal Archaic." Together with Wendell Hadlock, Byers worked at the Ellsworth Falls sites, eventually piecing together a sequence which included some artifact forms found in red ochre burials. Two radiocarbon estimates of 3900 B.P. and 3600 B.P. were the first in Maine for Archaic materials. The Maritime Boreal Archaic has not been widely used as an integrative term although it has been revived in a slightly different form in James Tuck's, "Maritime Archaic Tradition."

The appointment of Dean Snow to the University of Maine at Orono opened a new era in the study of the red ochre burials. Snow began his research into the problem with a third excavation at Hathaway in 1968. Still more burials were located and Snow (1969) published a summary account of the work and the artifacts recovered. In his reconstruction Snow used the term "Moorehead complex" to refer to the burials and the grave goods. A year later (1970) Snow read a paper at a meeting in which he presented a seriation for the Moorehead complex in Maine. A seriation is an arranging of artifacts, sites, or anything else in an order according to age. It is based on the concept that people's ideas of how to do things change in time. Just as the late night movie can be dated by car models, skirt lengths, or hairstyles, so an archaeologist will try to discover the styles in prehistory. Snow's seriation was based on the presence or absence in sites of certain artifacts such as plummets, particular point styles, slate points, etc. But, unless we can find the seriated objects in a site clearly stratified one over the other, there is no way of being sure which end of the seriation is "up" or more recent, and which end is the older. Unfortunately, the radiocarbon dates from the Hathaway site are confusing and

ambiguous. Snow cited a date of about 5000 B.P. for the beginning of the Moorehead complex and terminated it sometime after 3600 B.P., a date based on the Ellsworth Falls sequence.

Working with some of the same sites Bruce Bourque also produced a seriation (Bourque 1971). This seriation differed in order from that of Snow, possibly because Bourque used a different range of artifacts. Bourque correctly noted that a presence or absence type of analysis for seriation purposes presupposes that all burials in a site are of the same age, something which cannot be taken for granted. To sharpen the technique Bourque did a seriation on grave lots, that is, he used presence or absence of artifacts in individual graves and arranged those in a seriation. Again, the results differed. Recently I have seriated the Maine sites with additions from Canada on the basis of percentages of tools within a site. As might be expected, the results differed from those of both Snow and Bourque.

In other parts of the world the seriation technique has worked out well. Why is it that three archaeologists get as many seriations out of the same data? First, we cannot be sure of the basic data in so many instances. The early workers did not realize the importance of keeping proper association records and we cannot be very confident of their grave lots. To further compound the problem they made little attempt to keep the collection together so that today it is hard to be sure what the contents of any one cemetery was. Second, we have a dating problem. No Maine cemetery, with the exception of the ambiguous radiocarbon dates for the Hathaway site, can be securely dated. Given these handicaps, it is little wonder that the seriations produced differing results.

Recent discoveries in Canada have helped the situation. In 1968 and 1969 James A. Tuck excavated the Port au Choix site in western Newfoundland (Tuck 1970, 1971). The red ochre-covered skeletons and characteristic Moorehead complex tools linked the Port au Choix cemetery with the Maine sites. Especially close relationships are seen between the Port au Choix and the Nevin sites, the latter near Blue Hill, Maine. In both instances skeletons and bone artifacts were preserved. At Port au Choix the burials were placed into a sandy beach with old sea shells and the bodies were covered with limestone slabs. It surely was fortunate because we have bone daggers, needles, harpoon heads, and other perishable items preserved because of the sandwiching effect of two sources of carbonate — the shells and the limestone. Several radio-carbon dates were received and an average date of about 3850 B.P. is indicated.

At the same time Donald MacLeod was excavating another Moorehead complex site in eastern Newfoundland, the Curtis site near Twillingate. Skeletal preservation was lacking but the stone implements and the red-ochre graves clearly pointed to a close relationship to the Maine sites. Radiocarbon dates from the Curtis site are a little more recent than those from Port au Choix and the stone tools are a little different.

In 1969 a letter from an amateur archaeologist resulted in a major excavation in New Brunswick. Lionel Girouard, of Minto, New Brunswick, advised me of a Moorehead complex site on the Thoroughfare between Grand Lake and Maquapit Lake in central New Brunswick. I visited the area in 1969 and decided to bring in a crew the following summer. Lionel agreed not to dig the site any more himself and we were able to conduct a proper excavation in which 60 graves were examined and 400 stone pieces recovered. This is another example of how archaeologists can cooperate with each other to maximize the efforts. In the final report (Sanger 1973) there is a detailed discussion of the site, its contents, and its implications. Radiocarbon dates on the last burials averaged around 3800 B.P. No charcoal was found with the earlier graves and they may be a century or two older.

In summary, three Canadian sites have produced artifacts and graves types like those of Maine, and a very close cultural relationship is indicated. These sites date between 3400 and 4000 B.P. and it seems likely that the Maine cemeteries should date similarly, except that I doubt if any of the latter are as recent as 3600 B.P. Hopefully, we will someday be able to date the Maine sites with greater dependability.

What do we know about these people after close to 100 years of research? I think it is most important to realize that nearly all of our data come from cemeteries. It has been most difficult to locate and excavate the habitation sites of these peoples. In Maine there is the Ellsworth Falls sequence but specific cross ties with the burials are few. Bruce Bourque may have a habitation of these people at the Turner Farm site on North Haven Island and we look forward to more excavation at that important locality. At the Hirundo site on Pushaw Stream there is a component which has artifacts reminiscent of those found in cemeteries, but again specific ties are still lacking. This data bias from burial sites has too long clouded the issue. We can no more reconstruct the culture of 3800 B.P. from burials alone than someone in the future could work out our civilization on the basis of our cemeteries. We must have a number of habitation components before we can

begin to make sweeping cultural generalizations.

The evidence, it seems to me, suggests that we are dealing with a highly specialized burial cult, which extends from the Kennebec River in Maine, through New Brunswick, Nova Scotia, and thence to Newfoundland. The particular combination of red ochre graves in cemeteries and the characteristic artifacts has not been located in Labrador or along the north shore of the St. Lawrence River to date. The burial cult, which I have called the "Moorehead burial tradition," has its roots in an interest in burial ceremonialism which is found in middle to late Archaic stage traditions from the Great Lakes east. It reaches a peak, or florescence, in our area for reasons as yet unknown. If the Canadian dates are right, the Moorehead burial tradition may have been relatively short-lived, spanning perhaps 1000 years in its classic form. I hypothesize that its demise might have been brought on by the influx of a new culture, and quite possibly a new population, moving eastward along the coast from Massachusetts around 3600 B.P. As our work at sites like *Hirundo* continues I suspect we will find that the Moorehead burial tradition represents the mortuary ritual system of people participating in what Ritchie (1965) has called the "Laurentian Archaic."

The Moorehead burial tradition includes the following traits: burial primary (articulated body) flexed or extended; burial secondary (disarticulated) or bundle; interment in cemeteries away from habitations and overlooking water; inclusion of much red ochre in the grave; a particular set of artifacts stressing ground stone forms over chipped stone; no apparent association between nature of inclusions in a grave and the age and sex of the body; and the inclusion of many non-utilitarian tools.

When the archaeologist attempts to analyze this pattern in sociological or physiological terms he can only speculate. So let it be understood that this is sheer speculation based on some fact and much thought.

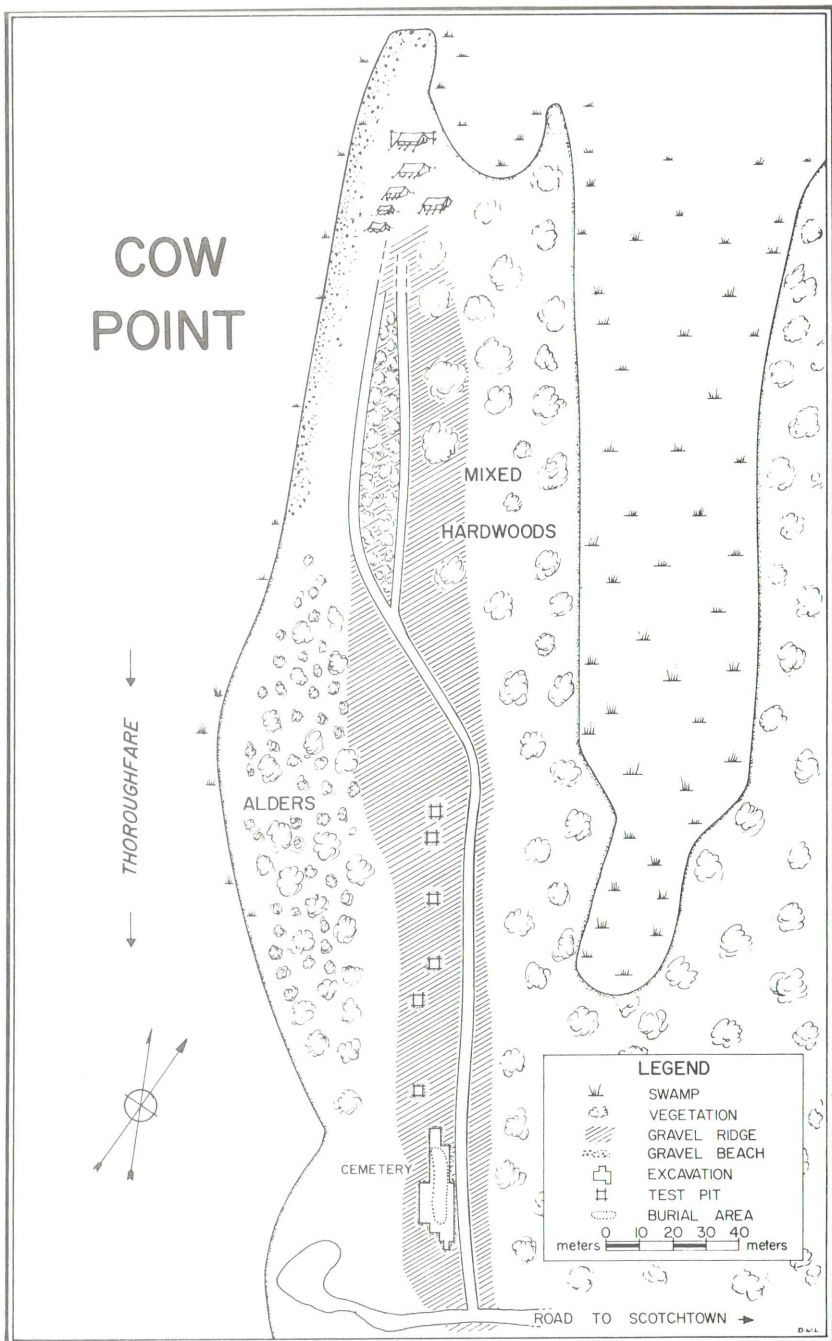
Part of the burial practice involves the lavish use of red ochre. How is this to be interpreted? A commonly-seen interpretation is that the color red represents blood or life. Yet these people knew that their kin were dead and surely they realized that sprinkling red powder over the corpse would not restore life. With this in mind my students and I searched the literature for Indian groups in North America who associated the color red with death. We found the Objibwa (Cree) of the Canadian Boreal Forest associate red with "the land of the setting sun — the land of the shadows of

the dead." Further north, the Koyukok Athapascans do not wear red in a cemetery because red is the color by which one can contact the "spirits of the dead." Perhaps we have here the reason for red ochre in the graves. By covering the deceased with red ochre the mourners were assisting their kinsmen into the land of the spirits. Speculation to be sure, but more reasonable I think than believing that the Indians thought they could restore life by the act of including red ochre.

The particular choice of artifacts is confusing. We are accustomed to thinking in terms of a tool kit which the deceased could use in the spirit world. Yet some of the inclusions are strictly of a non-utilitarian or ceremonial nature. There is no pattern visible between kinds of objects and sex of the individual, and there is the emphasis on ground stone when in their life they used chipped stone tools so extensively. It does not seem to me that this tool kit was included for use in the spirit world, or if it was, the new surroundings would be far different from the one just left. At this time I have no answer save the suggestion that factors other than a concept of the after-life guided the kinds of grave inclusions.

To return now to our title, "Who Were the Red Paints?", I have tried to show how our research had lead to the conclusion that *there never were any such people*. What we as archaeologists have been guilty of doing is excavating the physical remains of a specialized burial cult and treating that evidence as if it pertained to their entire culture. No wonder they have remained so mysterious! I suggest that we consider the Maine-Maritimes area occupied by Laurentian Tradition people who moved in here from the west around 5000 B.P. These people brought with them an interest in burial ritualism which included red ochre. In time they adapted their culture to the new environment, and, to judge by the number of artifacts left behind, they proliferated. Towards the end of the Laurentian Tradition a concern for the dead manifested itself in the spectacular Moorehead burial tradition, a cultic mortuary ceremonialism which spread rapidly throughout the Northeast among groups with the Laurentian Tradition cultural heritage. There is no need to invent the arrival on our shores of European groups responsible for the red ochre burials. Such ideas are totally irreconcilable with the facts. By 4000 B.P. the Moorehead burial tradition reached a climax as represented by the red ochre cemeteries. Encroaching groups from Massachusetts appear in Maine by around 3500 B.P. Their arrival coincides with the end of the Moorehead burial tradition and the Laurentian Tradition way of life.

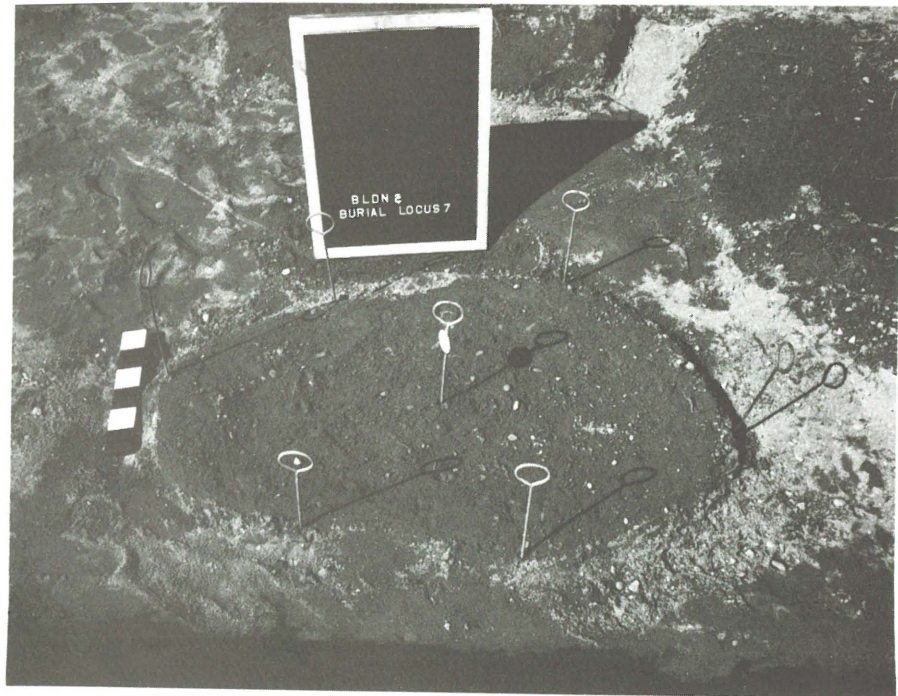
Since this paper was written five years ago our conceptions of the mortuary practice have not changed very much. The lack of chronology in Maine continues to plague us. We do have far better collections from sites like Turner Farm and Hirundo that would appear to represent reasonable candidates for related habitation sites, yet on close examination of the assemblages from these two sites there are some real problems in finding precise artifact analogues with the cemeteries. Perhaps the cemetery objects were so different from the ones in daily use that we will always be frustrated. Further to the north, red ochre burials with varying degrees of similarity to the Maine cemeteries have been reported from Labrador. The degree of resemblance is in the eye of the beholder, unfortunately, and so the questions of age and distribution have still to be resolved to everyone's satisfaction. The evidence early in 1978 still seems to me to support the spread of a highly ritualized burial pattern in a cultic fashion. The sheer numbers of cemeteries in Maine would suggest a southern (that is Maine) origin for the Moorehead burial tradition, although isolated items of the complex, such as red ochre, may be much older. No doubt archaeologists working in the Northeast will continue to worry about the cemeteries and express their thoughts in conferences and written papers. An issue like this one is simply too good to leave alone for long.



The Cow Point cemetery on the Thoroughfare between Grand and Maquapit lakes, central New Brunswick. Excavation here in 1970 resulted in the recovery of nearly 60 burials.



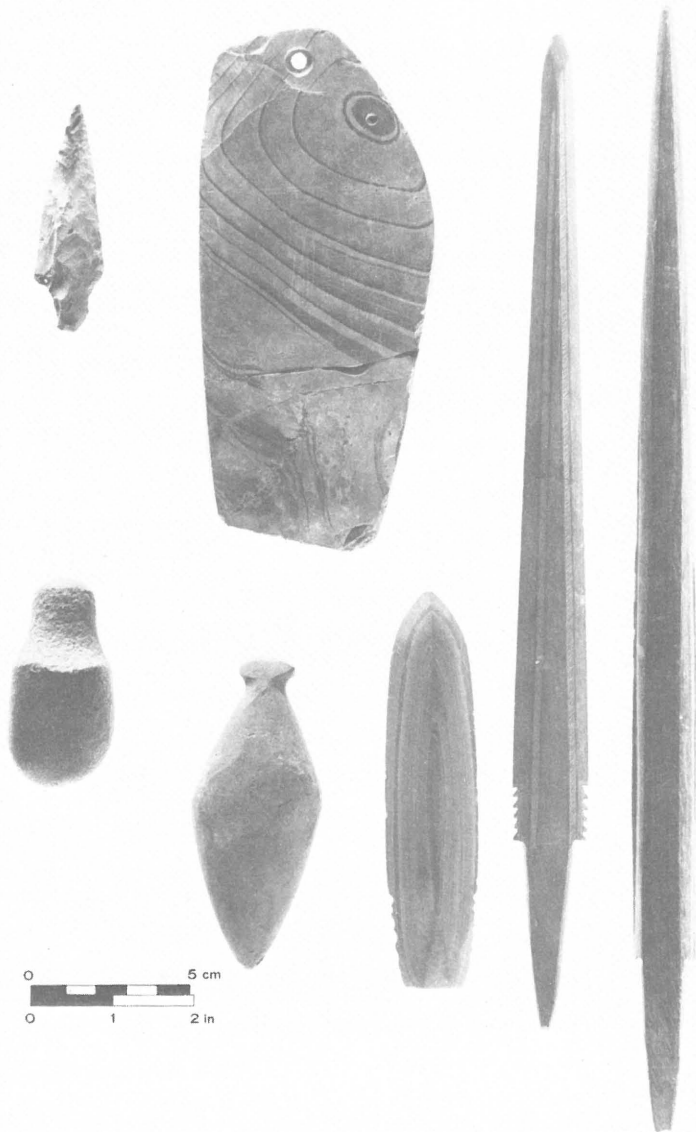
Excavation at Cow Point. Many sites like this once existed in Maine, but gravel pit operations and early excavations destroyed most of them. No reasonably intact cemetery of this type has been excavated in Maine for half a century, and the prospects for finding an undisturbed site are not good.



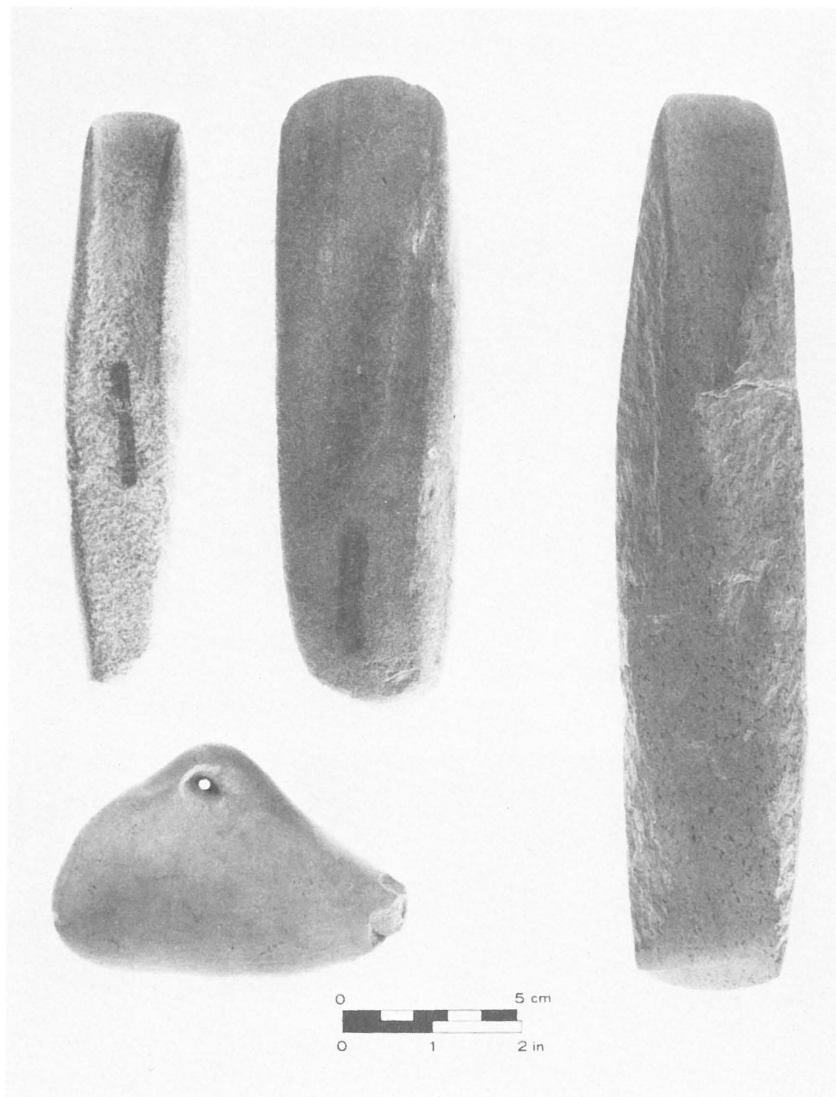
The bottom of a Cow Point grave marked by an oval shaped stain of red ochre. The scale is 30 cm or roughly 1 foot. Burials were curled up, or flexed, in order to fit into such a small pit. No recognizable bones remained in these pits.



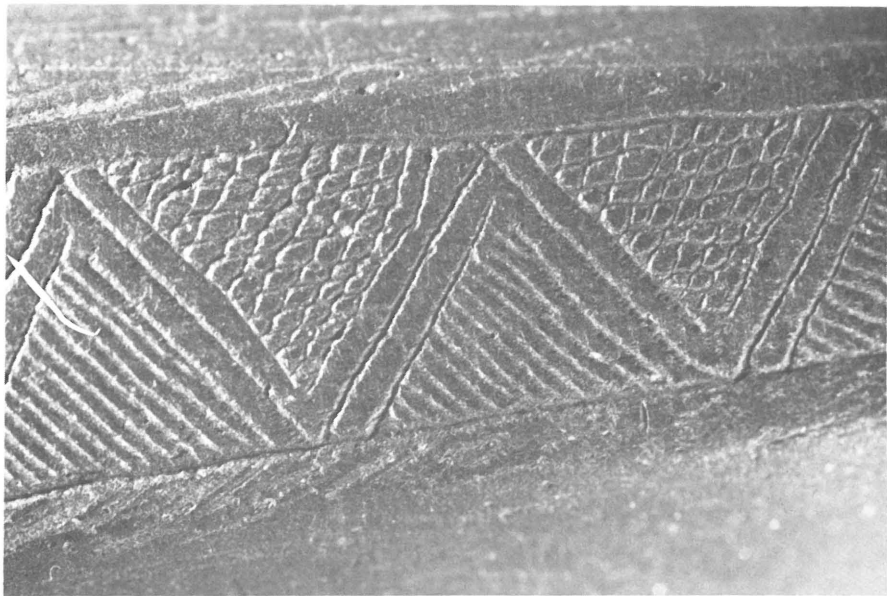
Two overlapping loci, or grave pits at Cow Point. The stone specimens are placed as grave offerings. Most prominent are the long, slate spearpoints or bayonets. Charcoal from graves like these indicate an age of around 3800 years ago.



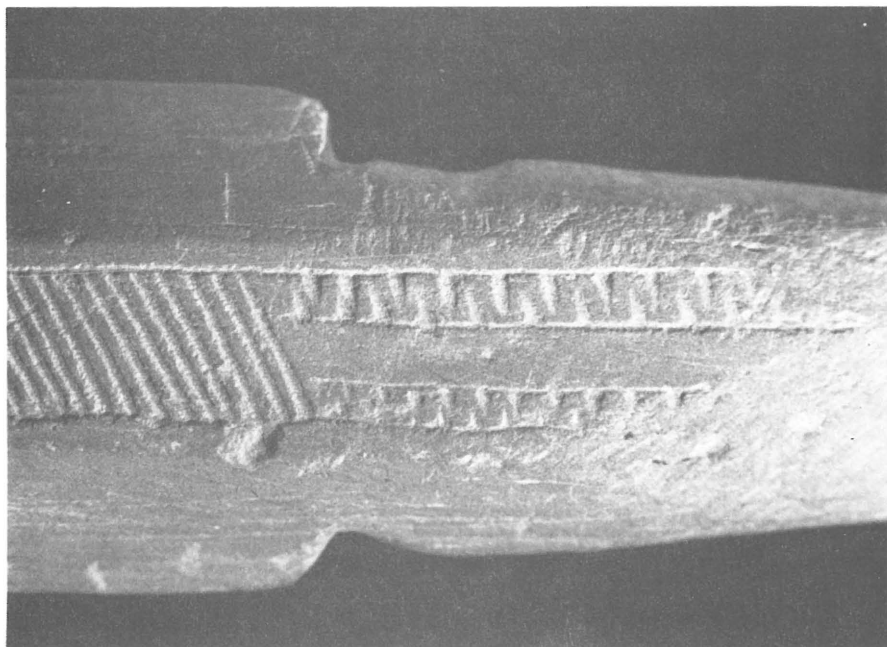
Selected artifacts from graves at Cow Point. The projectile point (upper left) is one of three from the site. Also included are two plummets (lower left), 3 slate points, and a pendant of banded rock.



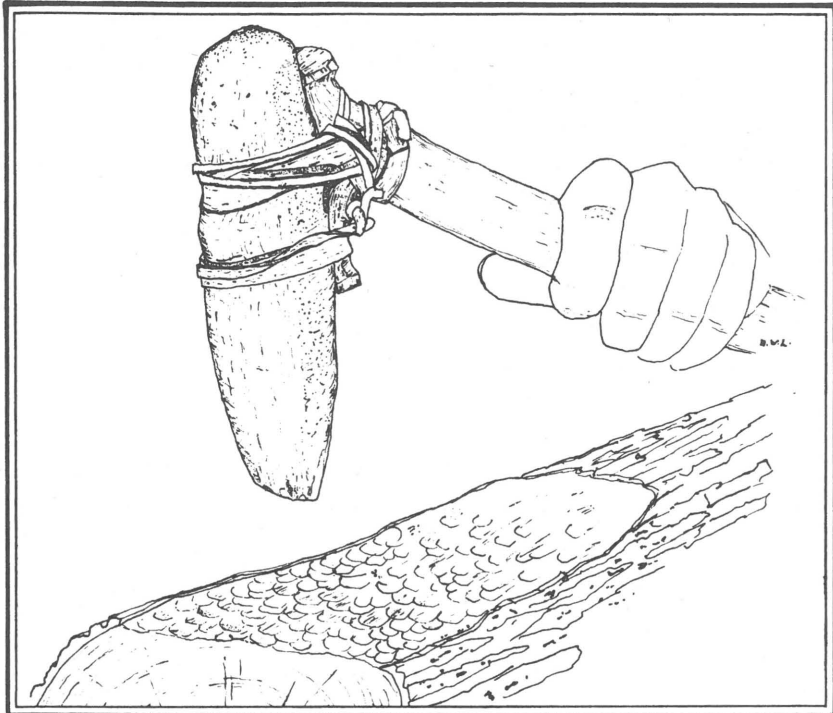
Additional artifacts from Cow Point. Celts, or adze blades (upper center) are the most common artifact group. More scarce are gouges (upper left) and the unique celt-gouge (right). At the lower left is a perforated abrasive stone.



Incised decoration on the central facet of a ground slate point from Cow Point. These delicate lines were cut into the stone by a sharp flake of stone. Magnification is approximately 5 times natural size.



Two forms of decoration extending onto the base of a slate point. Magnification is approximately 3 times natural size.



Reconstructed method of using a celt lashed to a wooden handle.

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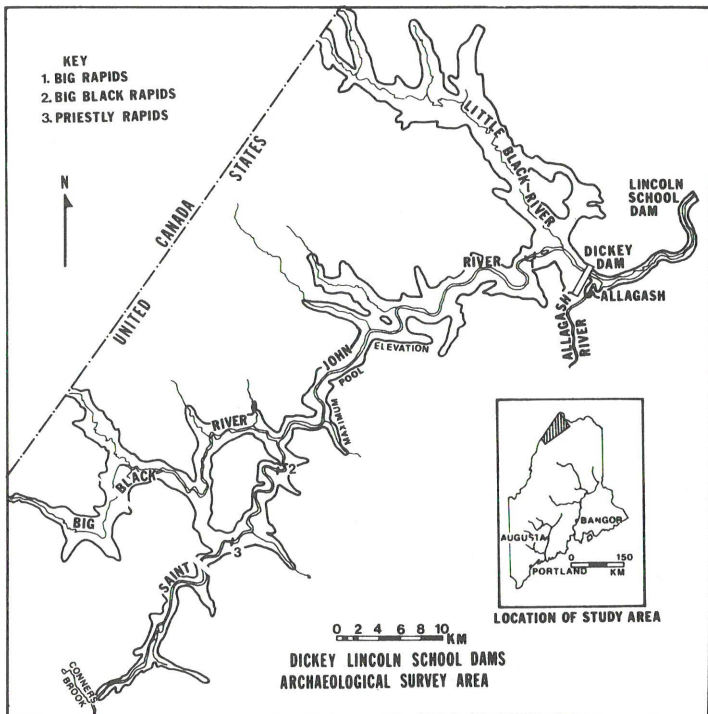
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CHAPTER 7

Archaeological Survey in the Dickey-Lincoln School Lakes Area, Northern Maine

by
David Sanger

The Corps of Engineers, New England Division, has been assigned the responsibility of assessing the need for, and the costs of, a major hydroelectric project in northern Maine. The project would consist of two dams, one at Lincoln School and the other at the town of Dickey, on the St. John River. Behind these two dams would be flooded approximately 88,000 acres of terrain, much of it in an undeveloped state. The University of Maine, Orono, was awarded contracts to provide the Corps with basic data on the project area. One of these contracts was to locate, assess, and propose a mitigation plan for the archaeological and historic resources. The work was conducted in the summer and the fall of 1976 and it became Appendix D of the draft environmental impact statement released for comments in 1977. This paper is an abridged version of the longer report titled, "Cultural Resource Management in the Dickey-Lincoln School Lakes Area, Maine," prepared by D. Sanger.



Federal regulations specify phased research leading to final mitigation proceedings, should they be required. Phase 1 is basically a literature search; Phase 2 usually consists of reconnaissance level survey with limited testpitting; Phase 3 involves more detailed survey and excavation designed to assess the importance of the sites; and Phase 4 is the action taken to avoid damage (mitigation proceedings) in the event the project is funded for construction. The contract with UMO called for Phases 1-3 to be completed by the fall of 1976, a schedule that allowed too little time for a full and complete examination of the area, and thus it became necessary to propose a sampling technique. After some negotiation of terms, price, and report date the contract was signed and the pre-field planning began.

The literature search did not take long. Archaeologically the area was practically unknown. Warren K. Moorehead (1922:230-33) canoed down the St. John in June, 1914, and noted sites in the Seven Islands area and again at the mouth of the Big Black River, the largest tributary in the upper dam area. Some finds were made at the confluence of the Big Black and the Shield's Branch, but little else was to be found between Seven Islands and the mouth of the St. Francis River. In 1967, in response to an earlier assessment of the reservoir area, Wendell Hadlock, assisted by a crew of experienced woodsmen and archaeologists from the Robert Abbe Museum, conducted a short reconnaissance. The large site at the mouth of the Big Black was tested under the direction of Alice Wellman and a few flakes and a fire hearth were exposed at Seven Islands. Hadlock concluded that the archaeological resources were minimal and that the area was relatively unsuited to Indian prehistoric occupation based upon his evaluation of the game hunting potential.

In 1973, I visited the area supported by a Faculty Research Grant from UMO. This brief visit was adequate to get an impression of the area, especially the problems of transportation. The area represented a logical continuation of research interests stemming from my 1967 field work in the Mactaquac Reservoir, the 1968 survey of the Tobique River (Sanger 1971), and the excavation of Cow Point (Sanger 1973), all on the St. John River system downstream of the Dickey-Lincoln (D-L) area.

An increase in information was required for adequate prefield preparation. Air photos provided by the Corps were examined from several viewpoints. Marshall Ashley of the School of Forest Resources (UMO) studied selected areas for indications of disturbance as revealed in the growth and cutting patterns.

Harold Borns of the Department of Geological Sciences (UMO) examined the photos in an attempt to reconstruct the geomorphology of the study area. The techniques and results are described in another paper (Ashley and others, 1978).

A literature search conducted by David Smith, of the Department of History (UMO), revealed that early settlement by Europeans avoided the D-L area, stopping at the St. Francis River. From Civil War times on, however, there was increasing activity in the form of lumbering, and farming in support of the woods operation.

The archaeological contingent at UMO planned field strategy and began the extensive preparations that resulted in an orderly survey effort, rather than a series of adventures. Robert MacKay (UMO) looked after a myriad of vital details to ensure that our field gear and all recording equipment was in perfect condition. Our major items of equipment included 3 vehicles (2 with 4-wheel drive) and three canoes (2 equipped with motors for upstream work) and assorted tents, excavation gear, and recording equipment.

An area of 88,000 acres is too large to cover extensively in a single summer, so a sampling procedure was invoked. A popular methodology consists of dividing the research area into equal units and selecting at random certain units for examination. This *random testing* procedure assumes that the subject, the site, is randomly distributed throughout the study area. Prior experience in the Northeast indicates that this assumption is unwarranted. The experience has been that specific environmental features have significantly influenced prehistoric settlement. In the interior, likely areas are confluences of waterways, inlets and outlets and thoroughfares of lakes, and rapids requiring carries. Another attraction to prehistoric man was the presence of a scarce resource, such as high grade flint, suited for implement manufacture. These features were plotted on maps and they constituted "high potential" areas designated for testing. Just as the random testing method has drawbacks, the "high potential" search strategy has a flaw. If archaeologists look only where they expect to find sites it easily becomes a self-fulfilling prophecy. Our final research plan was to minimize that risk by testing and searching areas of believed "low potential" as a test of the predictive model. We did not, however, feel justified in testing the "low potential" areas to the same degree of intensity as the "high potential" because of the shortage of time available to us.

Field work began in mid-June after the spring run-off. The

crew consisted of myself as field director, assisted by R. MacKay. Roy Gardiner of Allagash hired on as "outfitter" and guide. The remainder of the permanent crew was made up of 6 undergraduate and graduate students at UMO, all of whom were field experienced and carefully selected for their ability to do archaeology and to maintain their equilibrium under trying conditions. Part time assistance was provided by Robson Bonnicksen (UMO) and Robert Bradley, historic archaeologist. Conditions during the summer of 1976 were anything but favorable and the crew bore up admirably. A canoe trip down the St. John is fun. Two months of slogging along the banks, being eaten by insects, and nearly always wet, is not much fun!

Our plan was to conduct reconnaissance at both ends of the D-L area simultaneously. Bob MacKay and 2 students surveyed from the town of Allagash to Lincoln School, working out of Gardiner's camps. The remainder of the crew set up at Priestly Bridge at the North Maine Woods campsite. In the forenoon of the first day we drove in and set up camp. In the afternoon Roy Gardiner and I went upstream by canoe to examine Seven Islands while Rob Bonnicksen and the remainder of the crew searched for sites around the campground. On our return I learned that 3 sites had been discovered. It seemed an auspicious beginning to find so many sites on the first day.

As it turned out we located quite a number of sites between Priestly Rapids and the upper end of the reservoir area. The sites were situated on narrow terraces affording a level camping area above normal summer high water. Many of these sites were eroded by ice and water and were revealed by the presence of fire-cracked rocks and flakes at the bases of the eroded cut-banks. Upon discovering a site the crew ascertained the length, breadth, and depth by testpits. We were surprised to find that many sites were situated with apparent disregard for features such as confluences and rapids. They seemed to represent largely suitable camping areas and were utilized in a sporadic way. This discovery caused us to change our field tactics and thus was developed the "bank walk" wherein crews of 2 would be assigned a several mile stretch to walk, examine, and shovel test any flat area suitable for camping. Our initial "high potential" areas for sites did in fact contain sites, but all too often lumbering activities had so altered the natural landscape that only a few traces of sites remained.

The major site in the D-L area seems to have been the Big Black site located at the mouth of the Big Black River. Known even before Moorehead's time, the site has been continuously

looted by travellers on the river, who have dug for a St. John souvenir. The better part of a week was spent testing for undisturbed areas should further work be necessary. This site is on the National Register of Historic Places.

Upstream on the Big Black we surveyed to the Quebec border. The Big Black is a mixture of deadwater and quickwater with some fine "moose meadows" between good fishing "holes." We located sites above the confluence with the Shield's Branch, including a very interesting site on a high terrace well up above the water. The landscape appears to have changed since Moorehead's time because the features he described are no longer visible.

The Little Black River heads up in Quebec but it is a smaller flowage than the Big Black. It is substantially disturbed and altered and the one site we located had barely any intact deposits. Many years of lumbering activity has also altered the mouth of the Little Black so that we were unable to locate the site suggested by the wigwam on Moorehead's map.

The confluence of the Allagash and the St. John must have had some important sites but only one was located. No sites were found between the town of Allagash and Lincoln School.

In addition to the systematic walking of the banks and testing likely-looking places, we evolved a systematic random testing program for those areas where there were no natural exposures to aid our search. Using the airphotos, test sections were identified at 400 meter intervals in the densely foliated areas. Each section was tested by 4 test pits spaced at 10 meter intervals along the bank. A large number of these pits were dug with negative results, and indeed, most of the test sections were in areas of anticipated low potential, so that the results were not altogether discouraging.

The field survey identified 37 prehistoric sites. Many of these were badly disturbed due to natural and cultural activities and it is certain that numerous sites have been lost. With the exception of the Big Black site, the sites were not large, although some did occur sporadically for a 100 meter or more strip along the water's edge. It is necessary to attempt an honest assessment of the cultural resources of an area and the completeness of our inventory must be questioned. Given the time constraints and the ensuing limited testing design it seemed inevitable that sites were missed. If the project is funded for completion the resulting archaeological and other activities may be counted on to disclose new sites. It would be surprising, however, if the sites were large. Prime areas for buried sites would be the higher elevations that we

on the Damariscotta there is the famous group of oyster shell heaps. Many of these heaps were mined for chicken food in the 19th century, but substantial deposits still remain. Today, there are no oysters in the vicinity of the oyster shell heaps and archaeologists do not know when the sites were abandoned. Ceramic Period radiocarbon dates of 1,600-2,100 B.P. were obtained on samples of shell from the base of one site (Myers 1965).

The American oyster requires warm, brackish water and the right conditions existed in the tidal pool above Damariscotta as sea levels rose. But as sea level continued to rise the salt pond became too saline and cold. Eventually the oyster population diminished and the Indians abandoned the pond area as a major shell collecting area.

The unique oyster shell midden sites warrant a full-fledged research program combining archaeology with environmental disciplines.

The downstream, more estuarine, members of the Boothbay cluster are clam shell heaps. Once again, the amount of systematic research is very limited, amounting to a little more than site survey and collecting from surface sites. A research program comparing the upstream and downstream sites would be most interesting.

The estuary of the Penobscot River contained a great many sites and has been actively researched in recent years. In 1968, William A. Ritchie extended his interest in southern coastal New England to the Penobscot Bay area. The excavations, which formed the basis of Bruce Bourque's PhD Thesis, "Prehistory of the Central Maine Coast," were around Deer Isle (Bourque 1971). Several sites, some of them quite large, were tested by 5 foot squares in an attempt to recover artifacts in stratigraphic relationship in order to build a basic cultural sequence for the area. The test squares usually revealed a disturbed upper level, labelled Stratum 1, followed by strata rich in clam, mussel, and other shell fish, together with remains of mammal and finned fish in great abundance. Most features seem to be pits associated with cooking activities. The excavations and subsequent examination of collections, which abound for that area, enabled Bourque to establish a basic sequence of changes in pottery attributes and projectile points, while the analysis of the faunal remains by J. Waters provided valuable data on diets and season of occupation.

During the general survey following the excavations, Bourque examined sites in the Fox Islands and re-discovered the

could not adequately survey because of the time involved in digging "blind test pits" in the forested ridges. While the yield of such a testing program might be low in terms of site numbers, any sites in these habitats could be archaeologically most significant. A thorough program would involve at least another summer similar to 1976 in terms of time and manpower.

Field work in the D-L is not easy. The river and its tributaries form highways for travel at the proper water level, but during most of the summer that level is rarely present. In recent years there has been a great increase in the number of logging roads, a great convenience to the traveller. However, once an area is logged over the roads are no longer maintained, culverts wash out, and travel becomes difficult. Travel soon becomes the major consumer of time and energy. On occasions the work areas were so removed from the base camp that it became necessary to equip crews for days and nights away.

The artifact recovery was not high because time for extensive excavations was not available. The artifacts recovered were generally similar to those known further downstream on the St. John and in the Penobscot and Kennebec drainages, but there were also some unfamiliar specimens. Some sites showed local cobble reduction into tools while others demonstrated finishing work on bifaces. The largest and most diverse sample came from the Big Black site. None of the specimens could definitely be assigned an age in excess of 3000 years. It is possible that the basal deposits in the deeper sites (nearly 1 meter) have a greater antiquity, but we did not recover diagnostic specimens. Another possibility is that the erosional cycle has been violent enough to destroy older sites. Finally, it is possible that older sites will be found in areas far removed from the current watercourses. There is always the possibility that the area was not utilized previously to 3000 years ago, but this seems relatively unlikely considering the 10,000 year tenure of man in the Northeast.

There are no well developed cultural sequences for northern Maine and adjacent Canada, so that interpretation of the prehistory of the valley will have to await detailed excavations. A few fluted points of suggested PaleoIndian age are known from northern Maine but none come from the D-L area. Nor were there any large side-notched points or the distinctive ground stone implements of the Laurentian-Moorehead tradition. In New Brunswick, on the Tobique River, an unusual assemblage named the Tobique complex (Sanger 1971) was found in an environment very reminiscent of the D-L area. It is possible that similar

artifacts will be found in the latter area, but the individual specimens are, in isolation, not sufficiently diagnostic. Most of the diagnostic projectile points were corner-notched and stemmed and similar to specimens found elsewhere in Maine dating to the ceramic period.

The acid soils of the D-L area result in little preservation of bone, so it is difficult to reconstruct aboriginal use patterns in the area. A certain amount of information can be gleaned from the general ecology of the area and the location of sites. The main mammal resources in the area today are deer, moose, bear, and beaver. There is evidence to suggest that deer came into the area in the last century replacing the caribou. Just what the prehistoric situation was is unknown. Fish in the study area consist of trout and small "trash fish." The landlocked salmon are introductions dating back about 70 years. In general, that part of the St. John above Grand Falls lacks the rich fish resource of the lower reaches of the major rivers in Maine and New Brunswick. My evaluation of the resources of the D-L area is that of limited potential except in specific areas such as the flats at Seven Islands and the open valleys of the Big Black. This observation echoes that made by Wendell Hadlock (1968:11) in his report on the ecology of the area.

Given this apparent low carrying capacity it is a little mysterious that so many sites were found along the St. John. If the Indians were not there to make a living, then why were they there? In the Northeast archaeologists have implicitly assumed that sites represent basically habitation sites from which people hunted, fished, and foraged. That the prehistoric people travelled extensively is also taken for granted, but sites are rarely considered to have functioned largely in this context. Travel in Maine was largely by water rather than across the forests and bogs. The upper St. John offers a superior travel route linking the St. Lawrence, Kennebec, Penobscot, and St. John river systems. The hypothesis, after reviewing the field evidence, is that the D-L area served primarily as a travel route, and not as a place for long term residence based on a stable local resource. Such a hypothesis helps to explain the location of sites on convenient flat spots all along the river, and not just at confluences. If this assessment of the archaeological resources of the D-L is correct, their main value lies in testing a more general hypothesis that in the Northeast there are areas serving vital functions that are not immediately involved in the food quest. Any balanced understanding of the regional prehistory will have to include studies of these areas. It

would not be surprising to learn that these temporary sites were as important to the Indians as the larger habitation sites.

The number of significant historic sites is limited. The historical records indicate that the most important recent activity in the upper St. John has been lumbering, and that from Civil War times onwards the Seven Islands region served as a hub from whence lumber crews departed for the winter's cutting. Today the houses and farm buildings are overgrown cellars, but at one time they were year round residences. They represent a unique combination of two major Maine enterprises — lumbering and agriculture — that are normally in some opposition regarding land utilization. At Seven Islands there was a symbiotic relationship; the farms looked after the horses and oxen used in the winter and provided winter fodder. In addition to the farms there were depots, or local headquarters, for timber contractors. Seven Islands could be reached by road from Ashland and Quebec and upriver from Allagash during the rise of water in the fall.

What is the government's obligation should the dam be funded? Federal regulations are clear on this matter. Any hydroelectric project must be proceeded by an examination of the archaeological remains, and those felt to be significant must be salvaged. The test for significance is National Register eligibility. The criteria for Register eligibility are not all that clear, and perhaps necessarily so given the great diversity of archaeological sites in the Nation. In order to be eligible for the National Register, archaeological sites should have the capacity to add significant data on the prehistory of the region. This significance is best expressed in terms of research potential, but because of the great disparities that exist in the state of our knowledge from area to area, significance in one area may be substantially less in another.

The first step in developing an understanding of local prehistory is to work out the basic cultural chronology. There are essentially two ways to accomplish this task. One can arrange the finds with reference to other, better understood areas, by matching similar artifacts. This technique assumes that the sequence of events will be the same, or nearly so, in the two areas under consideration. The second method is sounder and relies on developing cultural chronology within the area utilizing stratigraphic and radiometric techniques. If this latter technique for chronology building is to be employed there must be sites in relatively good condition with preserved charcoal. The need for cultural chronology in the D-L region suggests that sites capable

of providing data on chronology should be eligible for Register nomination.

A second criterion is that of providing information on how man utilized his space over time. Sites in a variety of micro-environments are needed. Therefore, we selected some sites that were scattered throughout the proposed reservoir area.

Finally, Register sites should be capable of answering questions of local or regional interest. A number of sites in the area have the potential to test the hypothesis developed earlier that in the Northeast there may be important areas that did not function primarily in the food quest. The upper St. John Valley may have served as an important communications route used by a variety of peoples travelling from the St. Lawrence drainage to the Kennebec, Penobscot and St. John.

Considering these three criteria, 9 sites were proposed as having National Register eligibility and therefore should have further work done on them in the event the project is constructed.

The contract requested UMO to prepare a program for mitigating the loss of sites in the eventuality of final funding. There are few mitigation procedures open in the case of a hydroelectric project. Inundating the sites does not preserve them because the water action winnows away the soil and thus destroys much of the context of the artifacts and features. Retaining dams and coffer dams are prohibitively expensive and the sites in northern Maine cannot be moved *en mass* such as the Egyptian temples along the Nile. Unless the water levels can be held below site elevation, the only reasonable mitigation is excavation.

Once the eligible sites are determined the next step is to work out the scope, scheduling, and cost of the mitigation program. Decisions have to be made regarding the extent of excavation at each site; big sites may be sampled whereas smaller sites may be completely excavated. Excavation techniques vary considerably from archaeologist to archaeologist and for pricing a middle ground must be chosen between the time intensive precise measurement of every specimen and cruder techniques. Logistic problems are also taken into account in the estimates of time. Analysis time must be included as must the various supportive disciplines such as geology and paleoecology.

Of the various historic remains in the D-L area the most significant, and the only ones judged eligible for National Register nomination, is the group at Seven Islands. National Register significance for historic buildings is a different matter than that for prehistoric sites because Register buildings may

reflect architectural excellence and still lack a high degree of social significance. The Seven Islands group of buildings has no architectural significance because most are demolished, but the significance measured socially is high. A well integrated program at Seven Islands could reveal many details about life in a northern Maine farming-lumbering community that are not currently available. A three way program of history, oral history or folklore, and historic archaeology is recommended. Logistical considerations are less in the case of the Seven Islands group because a camp could be established right at the sites.

Federal regulations suggest that up to one percent of the total construction costs may be allocated to the archaeology and history of the impacted area. The estimated costs (in 1976 dollars) of salvaging the remains in the reservoir is \$800,000 exclusive of various indirect institutional costs and company profits. A more realistic estimate is over \$1,000,000 depending upon the value of the dollars at the time of construction.

The report "Cultural Resource Management in the Dickey-Lincoln School Reservoir Area, Maine" contains more details. The report has been deposited in many Maine libraries as Appendix D of the Environmental Impact Statement, or it can be obtained by contacting the Corps of Engineers at Waltham, Massachusetts. Once the various reviews of the impact statement are complete and all suggested changes taken into account, the recommendations for the cultural resources will become part of the construction plans.



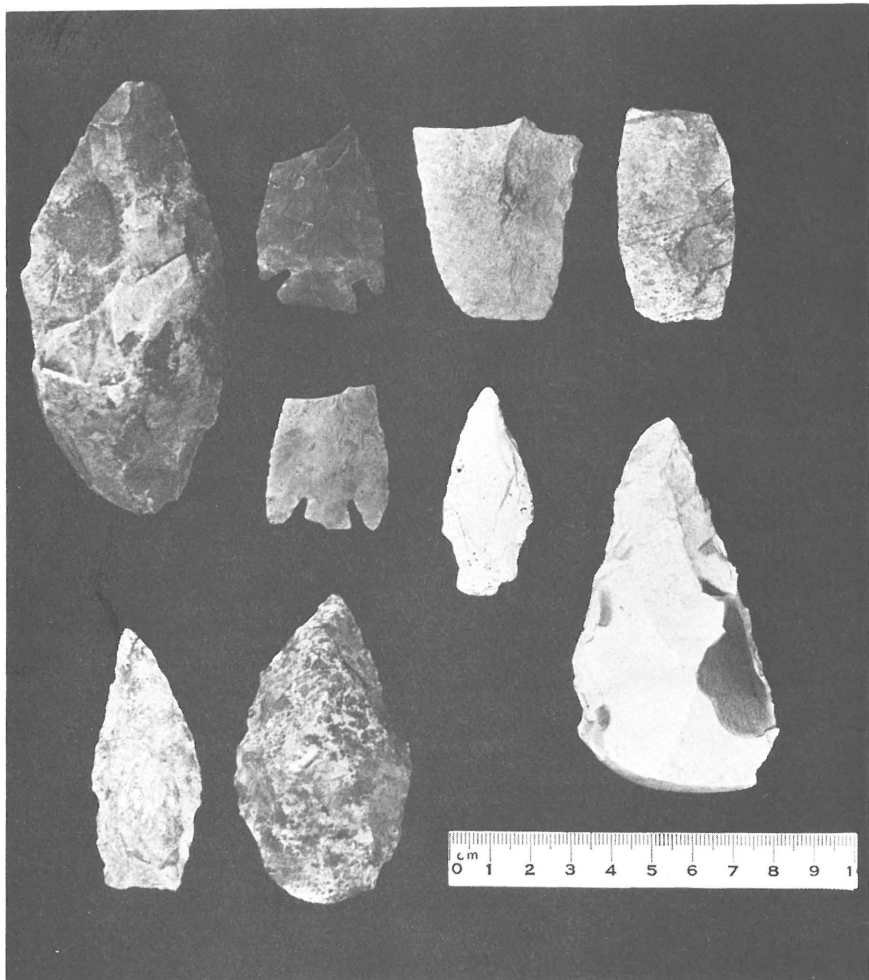
A site on the St. John River in the proposed reservoir area.



Damage to a site on the St. John caused by ice. The trees are also scarred by ice. Such damage is continuous and destroys many sites.



Testing operations at the Big Black site. The workers in the background are preparing a contour map of the site. The Big Black site is the largest one in the proposed reservoir area, and it is on the National Register of Historic Places.



Selected artifacts from prehistoric sites in the Dickey-Lincoln area.



A barn foundation at the Seven Islands historic site; a 19th and early 20th century agricultural-lumbering community.

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CHAPTER 8

The Ceramic Period In Maine

by
David Sanger

The Ceramic Period begins with the introduction of ceramics into the area sometime before 2,000 B.P. and ends with the advent of written records about A.D. 1600. Ceramics, as a concept, was not invented in Maine, but spread as an idea from sources to the south and west. The Ceramic Period offers a convenient artifact-horizon marker and so has been used to refer to essentially the last 2,000 years of the prehistoric record.

Following the Laurentian-Moorehead period (5,000 to 3,800 B.P.) and the subsequent Susquehanna period, there is a gap in our knowledge spanned only by a few collections and artifacts until the introduction of ceramics. At several sites there are stemmed points, large scrapers, and chipped and ground adzes. There are no radiocarbon dates from these sites in Maine, but a related site in New Brunswick's Passamaquoddy Bay has a date of about 2,400 B.P. It is unclear at this time if ceramics were grafted onto this culture or if a totally new way of life appears. Most archaeologists would probably select the add-on hypothesis but the evidence is not conclusive. One fact does emerge from our limited research, however, and that is an impression of greatly increased site density from 2,000 B.P. onwards. Speculations on the reasons for site density must be tempered with site preservation considerations; nevertheless, the increase in sites at this time is dramatic and parallels in some ways the marked increase in numbers with the introduction of the Laurentian-Moorehead tradition into the area about 5000 B.P.

The events of the Ceramic Period can be regarded as the prehistory of Maine's Native Peoples. There is a problem, however, in working at the level of specific tribes. Depopulation caused by war and diseases and the subsequent shuffling of peoples has resulted in tribal boundaries that cannot reflect those known prehistorically. On a broader scale we can think of the prehistory of Maine and the Maritimes as the prehistory of those Algonkian speakers generally known as the Abnakis; including the Micmac, Malecite, Passamaquoddy, Penobscot, Kennebec, and Pennacook groups.

Although European explorers and fishermen were occasional visitors to the coast during the 16th century, it was not

until the 17th century that much useful documentation occurred. Almost a century of contact thus transpired prior to the first effective records by Samuel de Champlain in 1604 (Biggar 1922) and Father P. Biard in 1613 (Thwaites 1896). These Frenchmen recorded for the first time the annual seasonal round of the Northeast Indians, and from the accounts it is possible to piece together a fair amount of information on the way of life as it was in the early 1600's (Bailey 1937; Hoffman 1955).

The Abnakis in most of Maine and the Maritimes made their living by hunting, fishing, and gathering vegetable foods. Traditionally they have been described as wintering in the interior forested lands and spending the summer on the coast. A view of seasonal migration from the coast to the headwaters of the major rivers has become the stereotyped image of Maine Indian movement in the past. The seasonal round emphasized the hunting of moose, caribou (interestingly not deer) and beaver, and fishing for anadromous and localized fish species. Late winter and spring were the lean times, just before the spring fish runs. Settlements were largely temporary and featured the conical shelter or wigwam. Larger summer houses are also reported. Champlain illustrates "quonset" huts for southern Maine.

One of the questions that comes up is the practicality of using Maine as a geographical unit for discussing prehistory. It seems that many of the statements we can make are applicable to the area east of Merrymeeting Bay and the archaeology of the Ceramic Period is no exception.

The Sites

It is paradoxical that, while sites of the Ceramic Period are so common, the amount of firm data is decidedly limited. The main reason for the scarcity of data is the heavy research interest in the "Red Paint" problem. The Ceramic Period sites have apparently been considered of more local interest and therefore less fashionable to excavate and describe. In truth, the potential for a fuller archaeological record increases dramatically during the Ceramic Period due to preservation, and there are indications that the latter part of the record will soon receive the attention it merits.

There is a very large number of known ceramic age sites; the total of all sites in this period would run into many thousands in Maine. They can be divided into two major categories, the shell heaps or middens and the non-shell heap sites. The distinction is more than the presence or absence of shell, because the shell

neutralizes the normally acid soils with the release of calcium carbonate from the shell, thus creating a favorable environment for preservation of bone, antler, and tooth, substances rarely preserved in non-shell sites. With this more-intact record comes a better rounded picture of prehistoric life that includes valuable data on diet, seasonality, and implements made from organic materials. Another bonus of the shell heaps is the rapid deposition caused by the piles of shell, so that physical separations between artifacts and features are greater, resulting in fewer ambivalent situations. A problem with the shell heap sites is the unfortunate degree of erosion created by rising sea levels all along the coast. Few, if any, sites have escaped some destruction and countless others have been obliterated. Digging by untrained collectors has contributed to coastal site destruction, while coastal developments for recreation and for summer homes has destroyed still others.

The interior sites generally lack preservation of anything but stone and ceramic artifacts, and their location along the waterways in Maine has resulted in damage from flooding. Scarcely a waterway in the State has not been dammed at some time in the past, with the result that most of the interior sites have been altered. Another unfortunate event has been the tendency for Europeans to establish mills and towns at the major falls on the rivers. While the Europeans were interested primarily in water power, the Indians favored these localities as prime fishing stations.

Considering all these destructive agencies, both natural and man-made or cultural, the number of relatively intact, high research potential sites, is limited.

The Casco Bay group has received the least amount of attention from professional archaeologists and thorough survey has only just begun. Consequently, it is difficult to evaluate the nature of the sites and their record. Some of the shell heaps are, or were, very extensive. Artifacts from these sites tend to be a little different from specimens found further to the east, bearing a greater resemblance in some ways to artifacts recovered from Massachusetts sites. Human burials are apparently more common in shell heaps in Casco Bay. Many of the same species of animals were being exploited but the numbers of hard shell clams or quahogs increase and scallops appear in the sites west of Penobscot Bay.

East of Casco Bay is a cluster around Boothbay and the tributaries of the Sheepscot and Damariscotta Rivers. Upstream

Turner Farm site, which also has a rich ceramic level above the Archaic stage components described in Chapter 5. Continued survey work in the islands has revealed many more sites of the Ceramic Period.

Recently, the University of Maine, Orono, has been working on Isle au Haut under a contract with the National Park Service. In Duck Harbor there is a series of sites related to a prehistoric quarrying operation that may have been a major source of raw material for chipped stone implements in Penobscot Bay.

A little to the east of Penobscot Bay is Frenchman Bay, bounded by Mt. Desert Island on the west and Schoodic Point on the east. This area has also been long known as one with a very high site-density, and the scene of many excavations carried out by various groups, some under the auspices of the Robert Abbe Museum. These excavations were performed some decades ago and consequently never described in a manner that allows for a detailed evaluation of the results. Whereas the Penobscot Bay excavations were concerned with cultural chronology and questions of subsistence and seasonality, the Frenchman Bay work seems to have been aimed at artifact recovery with less emphasis on other matters.

Survey by University of Maine at Orono teams in recent years has added many new sites to the inventory in the Frenchman Bay area. Excavation of eroding sites has been sponsored by the National Park Service at Fernald Point on Mt. Desert Island and at Frazer Point on Schoodic Peninsula. Fernald Point has thus far been tested for significance and then excavated along the seaward side of the site where erosion is rapidly tearing out large chunks of the site. After excavation a sturdy seawall of rock was placed to protect the remainder of the site. Until further work can be done in Frenchman Bay, the Fernald Point site will have to carry most of the burden of cultural history for the Ceramic Period in the area.

Located at the mouth of Somes Sound, the Fernald Point site is one of the largest remaining sites in the area, measuring about 70m by 40m. In places the midden deposits reach 1m in depth. Tests and area excavation disclose functionally specialized areas within the site. Dump areas are revealed by shell and masses of bone, many of them of small fish. These areas are excavated for a sample of refuse, not for chronology or features. Features functioning as cooking areas and a single semi-subterranean housepit are present in other parts of the site. The Fernald Point site was occupied throughout much of the Ceramic Period and

there are those who believe that it was the site of Pierre Biard's ill-fated mission of 1613, destroyed by Thomas Argyll after a 6-week life. No traces of the mission were found in the excavations, but that does not necessarily mean that the mission was not located at Fernald Point.

Machias Bay is smaller than some of the other clusters but it also contains a high site-density. A very rapidly eroding shoreline has taken a severe toll of sites, and amateur looting has been commonplace in recent years. In an attempt to gain some data a UMO team under the field direction of Robert MacKay excavated between disturbed areas in 1973. The resulting information, when analyzed in conjunction with amateur collections, will probably have to stand for a once very rich prehistoric area.

The final area in this brief survey is the Quoddy area made up of two bays, Passamaquoddy and Cobscook. Cobscook Bay has been surveyed by crews from the R.S. Peabody Foundation in Andover, Massachusetts, and some sites were tested. The same group also surveyed in Passamaquoddy Bay in the mid-1950's, but most of the work there took place on the Canadian side of the border between 1968 and 1978 under the auspices of Canadian and U.S. funding. One of the most extensive coastal programs to date, Passamaquoddy Bay research has provided a wealth of detail on life during the Ceramic Period (Bonnichsen and Sanger 1977; Davis 1974; Sanger 1971). Final reports, under the direction of D. Sanger, are in preparation.

Ceramic Period sites in the interior are also found in concentrations. Sites occur on the banks of most navigable streams, and around lake shores. Only in unusual circumstances are sites found away from a significant water source. The most extensive program at an interior ceramic site is the *Hirundo* project (Chapter 4) on Pushaw Stream. Ceramic age deposits are found throughout the site; however, the most significant deposits are those in Area C, the downstream end of the excavation, where a wide range of artifacts occur in the upper 10-15 cm. Excavations in 1975 disclosed bones and the 1977 season recovered still more mammal and fish remains.

Ceramic age artifacts occur throughout the lake systems of Maine and there are many large collections that were gathered during periods of low water. One attempt to systematically record the collections in the northern part of the State was initiated by Milton Hall and Wendell Hadlock (Butler and Hadlock 1962).

Recently, Robson Bonnichsen of the University of Maine at Orono has begun a new program to study man's relationships to a

large interior Maine lake. Selecting Munsungan Lake as the research area, Bonnicksen reports sites around the Lake and on higher terraces. There are also sites well away from the lake where deposits of high grade chert outcrop. Although it is still too early to specify which sites belong to the Ceramic Period there are undoubtedly numerous examples.

Many of the sites found during the Dickey-Lincoln survey of 1976 (Chapter 7) are from the Ceramic Period, as are known sites on the major rivers in the rest of the State.

Cultural Reconstructions

In spite of the fragmentary nature of the data on ceramic age sites, the data, when taken together, do allow us to construct something of the prehistoric way of life in Maine from about 2,000 years ago to A.D. 1600. There is a very real danger in constructing a picture out of this diffuse data because it leads to the conclusion of cultural homogeneity throughout the area. In order to mitigate the problem the sites or areas that provide a specific bit of data will be identified. The reconstruction of the Ceramic Period will be accomplished through discussions of adaptive strategies; that is, those techniques utilized by prehistoric man to cope with the problems of extracting a living out of the environment of the time.

Physiographically, the last 2,000 years of Maine's history have not seen a great deal of change. The vegetation, as revealed by several pollen diagrams, remained a mixed northern hardwood and conifer forest, with possibly an increase in spruce towards the end of the period (Chapter 2). Other lines of evidence suggest that the northern latitudes were in a colder period, the Neoglacial, after about 500 B.P. The beginning of the Ceramic Period, around 2,000 B.P., was in a colder spell. The effect upon man is not clear at this time, but possibly the widespread distribution of caribou in central and northern Maine in historic times is partially attributable to harder winters during the Neoglaciation.

Settlement Patterns

Settlement pattern data are of two major kinds, the sites and their locations, and the dwellings within the sites.

Ceramic age sites, while widespread in Maine, are not distributed randomly. One cannot expect to find sites everywhere. Along the coast there is a very decided preference for southerly and easterly exposures. Sites facing in other directions are so scarce

that archaeologists begin to examine the area for evidence of a unique resource. One such example occurs in the Isle au Haut portion of Acadia National Park, where several small sites in Duck Harbor face north. Large amounts of fragmented rock provided a clue to investigators and a short search revealed a prehistoric quarrying operation (Johnson and Sanger 1977). The sites were selected for the presence of the rock, and the normal locational factors were ignored. A second "rule" of location for coastal sites is that of ready access to fresh water. Not all coastal sites are shell heaps, but those that are usually have a convenient shellfish bed reasonably handy. Exceptions can be found to this "rule," and may be expected when sea-level rise has eroded away the silty-sandy sediment favored by clams.

The clusters of sites noted in this chapter tend to be located in estuaries of large rivers or in locations where several smaller rivers empty into the sea. Each one of the clusters needs to be analyzed independently in some detail, but some suggestions may be made for estuarine conditions in general in Maine. Estuaries, due to the history of their formation, offer substantial areas for clam flats that can then retreat inland as sea level rises. The rivers act as highways into the interior for man and for other animals, especially anadromous fish and their predators. Therefore, the biological carrying-capacity tends to be higher, a distinct advantage for man.

Inland sites are also located with respect to a set of "rules." Prime site localities are at rapids and at waterfalls where fishing is good. Outlets of lakes are favored for sites, as are points of land in lakes, thoroughfares between lakes, and rivers and streams entering lakes. Also popular are confluences of rivers and streams with rivers. Low, easily flooded locales do not usually feature sites. Examples of "rule breaking" are found in the Dickey-Lincoln School reservoir area where sites are frequently on level terraces beside the river without the presence of normally-preferred land forms. As explained in Chapter 7 these sites probably functioned as travel sites where a handy campground was the primary concern. A second example of "rule breaking" is the situation at Munsungun Lake where Bonnicksen and Hall (personal communication) report sites well removed from the lake but in conjunction with a chert source. There may be small sites in the hinterlands away from waterways that served as temporary hunting camps, but to date we have no authenticated record of such sites.

Data on dwellings are only available for sites of the Ceramic

Period. In 1884, G.F. Mathew reported depressions in an unplowed field in Passamaquoddy Bay, New Brunswick. To Mathew the excavations suggested houses dug into the ground. His observations were generally ignored by archaeologists who either dismissed them as unsound or failed to read the report. In 1970, 86 years later, excavations at the Sand Point site in Passamaquoddy Bay (Sanger 1971) revealed structures identical in every detail to those described by Mathew (1884). The Passamaquoddy Bay houses are semi-subterranean, ranging in depth from 60 cm to just under 10 cm below ground level. Always oval in outline, they range from 3.5 to 4.0 m in length and slightly less in width. The best-preserved examples have sunken interior fireplaces placed towards one of the ends, the hut entrance. Slightly-elevated benches around the fireplace served as sleeping areas. Post holes indicate poles 5-10 cm in diameter circling the hut. Rocks, used for additional support are present and, at one housepit site, crushed shell was placed around the base of the covering, possibly functioning to reduce drafts. There is no archaeological evidence of the type of covering. There was considerable manufacturing and general tool utilization going on within the house as revealed by the high incidence of tools and waste products. As the living floor became dirty the occupants brought up beach sand and gravel and spread it over the floor, until the house filled up and it was eventually abandoned.

Dwellings like these may be present in other coastal sites. At Fernald Point the 1977 excavations disclosed a similar dwelling but unfortunately nearly one-third was eroded away by the sea. The descriptions of sites around Deer Isle (Bourque 1971) suggest that houses may have been there also.

In order to find houses, especially the more shallow examples, ordinary test squares of the meter or 5 foot square variety, dug in isolation, are inadequate. Excavators have to be aware of the possibility of dwellings and must then open up larger areas to encompass all or most of the house. Interior sites excavated to date lack houses. Perhaps the dwellings were of a more temporary nature with fewer physical remains for evidence.

Coastal sites contain functionally specialized areas. Among those recognized to date are the houses and their associated manufacturing areas, the dump or midden areas for the discarded shell, bones and broken artifacts, and, occasionally, human burials. Other areas may also be present but have not, to date, been clearly identified. Clear delineation of site activity areas remains a major goal for future Maine archaeology.

Subsistence Patterns

Closely related to the settlement questions just discussed is the matter of subsistence, or how people make a living. Although there is currently no archaeological evidence, it seems likely that sometime during the Ceramic Period agriculture spread to western Maine. There is no way of evaluating the relative significance of the crops as opposed to food produced by traditional hunting-and-gathering techniques, but it is reasonable to assume that cultivated crops only supplemented wild produce. Corn, beans, and squash were the most likely vegetables grown. East of the Saco River the Indians utilized native foods exclusively except perhaps for an occasional traded item.

The best evidence for subsistence again comes from the shell heaps because of the favorable soil conditions for preservation. Bones from several sites have been analyzed, largely for species determination, minimum individual counts of each species, and seasonality. To date the largest collections analyzed are from sites in Passamaquoddy Bay and the Penobscot Bay areas.

The lists of food remains from the coastal sites indicates a high degree of eclecticism among the inhabitants. From the one base of operations (the site), Indians exploited several marine and terrestrial habitats.

Shellfish are well represented, and with the exception of the oyster-dominated middens of the Damariscotta region, soft shell clam (*Mya arenaria*) remains are the most plentiful. In lesser amounts are shell of the blue mussel (*Mytilus edulis*) but this species does not preserve as well as the clam, so it is difficult to assess the relative importance of each. Other shellfish are present in lesser numbers. Finned fish, sea mammals, and shore birds round out the marine animals represented in the remains.

The terrestrial faunal list is headed by the white tail deer, and locally beaver counts are very high. In Passamaquoddy Bay there are some moose and caribou. A large mink (*Mustela vison macrodon*) now considered extinct, is quite common in the Turner Farm midden, but elsewhere the smaller fur bearers are infrequent.

Some attempts have been made elsewhere to quantify the dietary value of food derived from the sea as opposed to that from the land. These attempts suffer from the problems of differential preservation and reporting. For example, the delicate bones of small fish will not be preserved like those of moose.

Analysis of the animal remains permits one to make some

comments on the time of year, or seasonality, of occupation. Some animals are particularly useful because of their known living habits. Migratory birds are especially helpful for determining seasonality. The presence of adult, male, deer skulls with evidence of naturally dropped antlers is a good winter-kill clue. It is possible to age animals at the time of death by the study of teeth and bone development, and this may provide data on site seasonality.

By combining all of these techniques from the Passamaquoddy and Penobscot Bay sites a pattern emerges. There is no doubt whatsoever that these sites were occupied during the late fall through spring (Bonnichsen and Sanger 1977; Bourque 1973; Sanger 1971). Summer-only species are not represented, but species available the year round are present. No very young (less than six months old) animals are known.

The evidence leaves us in an interesting position. Some animals have little seasonality value because they are year around residents of the coast. Because these species are in the sites we cannot rule out year around residence. On the other hand, if the sites were occupied for all four seasons one would expect to see some summer-only species or indicators. The best hypothesis to explain the faunal remains is that the sites on the coast were primarily late fall to spring residences, and were depopulated in the summer.

The soils of interior sites feature low pH values. These acidic conditions are not conducive to preservation of food remains; however, at both the Young and *Hirundo* sites on Pushaw Stream the 1977 excavations recovered small pieces of mammal and fish remains. Analysis has not proceeded far enough to identify species or to confirm seasonality, but the hypothesis that these sites served primarily as summer fishing stations is still favored. The location of other interior sites may yield some circumstantial evidence for seasonality and subsistence. Many of the localities would appear to be chosen with an eye for fishing and a disregard for exposure to weather. The combination suggests that they functioned as summer fishing camps taking advantage of the migratory fish such as the salmon, alewife, shad, and eel.

If our reconstructions are accurate, the seasonal round would see Indians along the coastal zone during the fall through spring months, and in the interior waterways during the summer. The reconstruction does not imply that all people invariably moved in this fashion, only that this was the usual behavior pattern. The hypothesis fits the archaeological evidence and makes sense

considering the harshness of the interior winters in Maine and the high productivity of the interior waterways during the anadromous fish runs. The major argument against this hypothesis is the historical record to be discussed below.

Artifacts

The Indians made and used a variety of tools as they adapted to the environments of Maine. Implements found in sites are manufactured from stone, bone, antler, tooth, and clay. Unfortunately, these tools are regarded by most amateurs as the "very stuff" of archaeology, when in fact they are nothing more than ways to obtain further insights into the behavior of man. Artifacts can be thought of as functioning in several different aspects of any culture, but most of those recovered from Maine sites of the Ceramic Period seem to have served to assist in the process of making a living. Archaeologists refer to artifacts in functional terms, such as arrowheads, scrapers, and so on, but in actual fact these labels are assumed from analogs with recent peoples who used tools of similar appearance. In the Northeast the transition from Native to European goods was almost completed by the 17th century so that actual accounts of Maine Indians using traditional tools and materials are unknown.

Chipped stone tools vary in form from one part of Maine to another, but throughout the Ceramic Period there are some definite styles that are quite distinctive to the period. In the third millenium B.P., just prior to the advent of the Ceramic Period, most chipped spear points and/or arrowheads were quite large and had stems that tended to be parallel to contracting in form. During the last 2,000 years two basic forms emerged; side-notching and corner-notching produced expanding stems, while other points were triangular with straight to slightly concave bases. A very popular raw material for Ceramic Period points was a green felsite, often called "Kineo felsite." It is recognized by large phenocrysts of feldspar in a fine matrix. It is often assumed that all felsites came from Moosehead Lake, especially the Mt. Kineo exposures, but felsite from numerous northern Maine sources can be picked up in gravels in much of Maine. There are, it is true, several known sources of felsite where actual prehistoric quarrying occurred (Bonnichsen 1977). Other cryptocrystalline rocks occur locally near sites, and generally speaking the acquisition of suitable raw materials seems not to have been a problem. The very fine cherts of the Lake Munsungun area were quarried and distributed quite widely prehistorically.

Ground stone artifacts are less common during the Ceramic

Period than earlier. Most sites have a few ground celts (axes and adzes) and perhaps an abrasive stone or two, but compared with the Laurentian-Moorehead period the amount of ground stone is slight.

Artifacts of bone and antler are common in the coastal sites. Some of these tools are quite simple in form, while others, like harpoon heads, are more sophisticated. Bone and antler tools functioned as harpoon heads, points for various spearing devices (such as fish spears), needles and awls, and beaming (fleshing) tools.

Beaver teeth are present in large quantities in some sites and are rare in others. The Passamaquoddy Bay sites contain several hundred beaver teeth modified to make tools. The lower incisors are the most common with a few upper examples. The beaver teeth are used hafted, or "as is" in a split mandible. It is generally assumed that the modified beaver incisors functioned as cutting and slotting tools for working wood and softened bone and antler.

Ceramics, by definition, occur throughout the period. Pottery never assumes the numerical importance that it does elsewhere in North America. In Maine, ceramics are restricted almost entirely to vessels; pipes are quite rare, and figurines unknown. The vessels are unpainted and handmade either from coils (most common) or by moulding. Firing is done in an oxidizing atmosphere, probably around an open fireplace. For temper, sand and gravel (grit) is used, as is crushed shell. Shape varies only a little; from a fairly wide mouth the vessel expands to rounded shoulders and then contracts to a pointed base. Decorations are achieved by impressing various carved stamps and cordwrapped paddles on the wet clay and by incising the clay. These decorative elements can be combined in a number of different ways to provide archaeologists with convenient time markers.

Historic records indicate the presence of many wooden artifacts, and of these we have no traces in the archaeological record. The best that can be done at this time is to examine artifacts used to make wooden implements, hope that a fluke of preservation will occur, and not forget that we are missing an important part of the material culture inventory.

Human Burials

Human burials from the Ceramic Period are rare. Burials have the potential to provide a considerable amount of information about prehistoric peoples, including physical

characteristics, diseases, diets, and social ranking. The very few burials known from the Ceramic Period are inadequate to give us much data. It would seem that however the deceased were disposed of, only rarely were they interred in shell heaps. The known burials tend to be flexed and are accompanied by few artifacts.

Historical Records

Historical records begin in Maine by 1524 with the voyage of Verazzano, but really useful documentation first occurs after A.D. 1600. This fact is important because it means that close to a century of contact between Indians and Europeans had taken place when the first detailed observations were recorded. During that century many changes took place, especially in the areas of tools, settlement, and subsistence. Failure to recognize the nature and causes of these changes can result in an erroneous picture of the prehistoric way of life, especially if archaeologists take the historic records and use them uncritically.

A prime example is the matter of seasonal residence, which was in summer on the coast and in winter in the interior. This pattern seems to be the opposite of the current best explanation of the archaeological data. The reason for this apparent shift may lie in the fact that the summer was the optimum time for European voyagers, and if the Indians wished to participate in the fur trade they had little choice but to be on the coast at the same season. It also seems possible that the coastal fur-bearing animal populations were quickly eradicated, making trapping in the interior necessary. The winter, being the prime time for fur pelts, is the trapping season. Other historically-documented Indian customs may be different from the prehistoric so that the use of direct analogs must be approached with caution.

It would put a fine cap on the Ceramic Period to locate and carefully excavate a well-preserved site reflecting the first influences by European voyagers.

Conclusions

In this chapter the Ceramic Period has been portrayed as a period of considerable homogeneity in Maine. While this may be the correct image, it should be stressed that very little work has been done, and as further research is conducted more heterogeneity may emerge. It is clear at this time that somewhere in central Maine, in the Kennebec to Androscoggin drainages, there is a dividing line or zone. West of that line one gets the

impression that similarities are more with southern New England. At this time, the data base is so slim that this idea should be called a hunch.

Where we do have data on the Ceramic Period some observations can be made on the sequence of artifact changes, but other aspects of culture seem relatively unchanged. This observation may, however, be a reflection of the kind of research to date, reinforced by archaeologists' expectations of cultural stability. The kinds of detailed analysis required to shed light on this problem are just beginning.

The first known ceramics in Maine are very thick, tempered with coarse grit, and have a surface treatment made by impressing with a cord wrapped paddle on both the exterior and interior surfaces. In southern New England and New York similar appearing ceramics are referred to as Vinette I. In Maine they have a limited distribution and they are currently undated. Soon after 2,000 B.P. ceramics are well established. These ceramics are quite distinct from the earlier specimens in that they are very thin, well-fired with fine grit, and are decorated by a stamping tool that produces small, tooth-like marks known as dentates. By about 1,000 B.P. the vessel walls thicken, the temper becomes coarser, the dentates get larger and are replaced by twisted cord wrapped around a stick or paddle. At this time there is also a shift to shell tempering in place of grit. In the waning years of the Ceramic Period a very fine, thin ceramic spreads eastward along the coast from a suspected southern New England source. One of the fascinating aspects of this history is the apparent decline in the use of ceramics from 1000 B.P. on and, by the beginning of the historic period, the total replacement by birch bark and European copper vessels. It is clear that the decline in ceramic use was started long before the first contacts with Europeans, but the reasons for the decline are not known. Because the functional replacement was probably birch bark it will prove extremely difficult to demonstrate the replacement process. The diminished utilization of ceramic vessels in Maine is the reverse of the pattern in the Iroquois areas of New York and Canada, and serves to emphasize the regional development of Maine's Native Peoples.

Projectile points also change throughout the Ceramic Period. The contracting stemmed forms of the immediate pre-ceramic period are replaced by parallel to expanding stemmed variants, initially broadly notched but becoming increasingly narrowly notched through time. By historic times two main forms were in use. In eastern Maine prevalent forms were well made

with narrow side or corner notches, while in central and western Maine triangular points were more common. These changes are apparently one of style because the later points do not appear to be any more functional than the earlier ones.

Another artifact class that has some history of change is the ubiquitous scraper. Specimens from the end of the pre-ceramic period are large, but throughout the Ceramic Period they get smaller and seemingly more plentiful. This observation from the eastern portions of our area has not been confirmed from the western.

In spite of the artifact shifts throughout the last 2,000 years of Maine prehistory, it does not seem to me that the way of life changed all that much. Most of Maine during this time was closely related to events in New Brunswick and Nova Scotia. Agriculture, palisaded villages, burial mounds, and strong ceramic traditions that typified southern New England and New York did not take hold in Maine. Part of the reason may be that the aboriginal agriculture was unable to cope with the long freezing season of central and eastern Maine. It may also be that there was a long-standing tradition of being different from the other areas so that the inability of the agricultural practices had little to do with the lack of similarities with other areas.

For Chapter 8 Figures see pages 147ff.

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Historical Archaeology in Maine: Problems and Future Directions

by

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The Emergence of Historical Archaeology as a Science

In the 1930's the first archaeological excavations took place at Williamsburg,¹ intended as a primary source for the complete reconstruction of buildings and grounds.² Although primitive in comparison to today's techniques and knowledge, these excavations really mark the beginning of American historical archaeology as a science, as opposed to a destructive hobby. More to the point, excavation was correctly recognized as an indispensable tool to those involved with historical and architectural reconstruction. Excavation had also taken place at Jamestown in the same decade,³ but the real effort to recover data from this much-eroded site was not made until the 350th anniversary of Jamestown's founding (1607) was fast approaching.⁴ In the meantime historic sites, when attention was paid to them, faced destructive rather than constructive excavation.

Until recently historical archaeology in America has been concerned almost exclusively with such restoration projects. Now it has at last been seen to be of importance from the point-of-view of pure research: That is, the controlled excavation of humble sites as well as not-so-humble sites in order to glean information on such subjects as standards of living, demography, construction techniques, diet, living patterns, industry, and trade (from overseas or with the aborigines) has increasingly become the principal aim of the science.

¹*A Handbook for the Exhibition Buildings of Colonial Williamsburg* (Williamsburg, 1937), 78-9. In this context, the site of the Governor's Palace and gardens was excavated.

²Cf. Noel Hume, Ivor, *Historical Archaeology* (New York, 1972), 73 for photograph of parallel cross-trenching.

³Forman, Henry C., *Jamestown and St. Mary's, Buried Cities of Romance* (Baltimore, 1938). This sort of title suggests how far the science has come.

⁴Cotter, John L., *Archaeological Excavations at Jamestown*. Archaeological Research series No. 4, National Park Service, U.S. Dept. of the Interior (Washington, 1958). And for the layman, Cotter, John L. and Hudson, J. Paul, *New Discoveries at Jamestown* (Washington, 1957).

In this regard it can be said that historical archaeology has caught up with prehistoric archaeology (anthropology). The reason for this lag is simple enough. Whereas America's prehistoric past has for half a century or more received scientific attention, until recently the sites of our ancestors of a century or two or three ago were not deemed worthy of being researched on a scientific basis — they were just too young for archaeological excavation.

All of this is not to say that today scientific techniques are being applied to all excavations of historic sites. In fact this is far from the case, and the same can be said of prehistoric sites. What can be said at this time is that historical archaeology has come of age, in theory at least.

The purpose of this chapter is to examine the State of Maine from the standpoint of historical archaeology. Maine's resources will be examined on a chronological basis, and the status of the science to date in Maine will be analyzed. Then the theoretical and practical problems of this subject will be considered.

Maine's Historic Archaeological Resources

Any discussion of Maine's historic archaeological resources should begin with the nebulous proto-historic period. And with this, the question of pre-Columbian European contacts arises. There is no reason to dismiss the possibility that a stray Phoenician ship passed the Maine coast, or even foundered on it; even less reason to dismiss a Viking or later Norse presence of some sort, given the relative proximity of a Scandinavian site in Newfoundland. There is reason, however, to say at this time that there is no *scientific evidence* which could tend to prove such pre-Columbian contacts: amateur groups can point to alleged megaliths of Neolithic appearance in New Hampshire,⁵ "rune-

⁵Cf. Mystery Hill and the New England Antiquities Research Association. The remarkable research carried out by Barry Fell should be noted here, recently recounted in *America B.C., Ancient Settlers in the New World* (New York, Quadrangle/The New York Times Book Co., 1976). Fell contends that from about 800 B.C. onward, Phoenician, Egyptian, and Celtic traders and settlers filtered into the American southwest, Mississippi Valley, and northeastern North America. He cites as evidence stone chambers and mounds from diverse localities, particularly New Hampshire and Vermont, which he associates with very crude incisions on rocks in these areas. The incisions he interprets as Celtic ogams related to epigraphic material from Spain and Portugal representing Punic texts. At this time the evidence for these highly improbable theories is either entirely lacking or extremely circumstantial. In any case such theories could never be proven unless an archaeological site were to yield pottery and other artifacts, from controlled excavation, identifiable as Neolithic, Bronze Age, or Iron Age European. Until such time the stone chambers will remain as 18th- and 19th- century root-cellars and the inscriptions as random scratches on local rock.

stones" from Spirit Pond in Phippsburg, conical ceramic jugs of alleged Phoenician form from off the shore of Castine.⁶ But in the final analysis the evidence to date for pre-Columbian Europeans in Maine is inconclusive, if not entirely lacking. This will continue to be so until such time as a site with artifacts *in situ* is encountered. For now, all that can be said is that Viking or earlier sites of European origin are more likely to turn up in Maine than in say, Nevada. For this reason, judgement should be reserved on the question and field workers should bear in mind the possibility — however remote — of encountering European artifacts predating the 16th and 17th centuries. In short the possibility of pre-Columbian European contacts with the Maine coast should not be dismissed out of hand, just as assertions of such contacts should not be made at this time.

It is with the contact period of the 16th century that Maine's historic archaeology begins to have practical application. Various voyages by explorers on behalf of England and France between 1497 (Cabot) and 1606 (Hanham and Pring) are documented as relating directly or indirectly to Maine's coast. It is also known that quite early in the 1500's the Grand Banks fishing grounds off Newfoundland experienced a 'gold rush' at the hands of Portuguese and other western European fishermen that changed Europe's diet over night. It certainly is not unreasonable to see such seasonal activity straying southward into the Gulf of Maine at an early date. And if it did, it is on Maine's outer islands that the odd 16th-century artifact will most likely turn up. Beyond finding traces of seasonal fishing bases of this period, there is always the possibility that more substantial sites of the 16th century will be discovered. Unless the archival sources are deficient, however, there was apparently little activity in Maine up to the early 17th century that is likely to produce conclusive archaeological data.

The 17th century is a different story altogether. Maine stands out as no other state in its remarkable number of preserved sites dating from 1604 to 1700. This is due in part to its important economic and military role in the 17th century and in part to the fact that the State since 1700 has not suffered the demographic and industrial pressures which other states have — pressures not compatible with fragile sites.

The islands have already been mentioned in the context of the shadowy 16th century. The shadows disappear by the teens

⁶Maine Sunday Telegram, January 2, 1977, page 4A.

and twenties of the 17th century when small communities, no longer seasonal, were thriving on the Isles of Shoals, the islands of Casco Bay, Richmond's Island, Stratton's Island, Damariscove, Monhegan (until 1625), Matinicus, and of course St. Croix, where de Monts started an abortive French colony in 1604. Mainland sites dating from the 1620's and 1630's are known at Cape Newagen, Sheepscot, Pemaquid, and New Harbor. Even earlier is Popham (1607, though perhaps not yet positively located). Many 17th-century sites are known from documentary evidence, though their exact locations have yet to be archaeologically pinpointed: Piscataqua/Kittery, Agamenticus/York, Wells, Cape Porpus/Kennebunkport, Biddeford/Saco, Black Point/Prout's Neck, Presumscot/Falmouth, Pejeboscot/Brunswick, Cushnoc/Augusta, Norridgewock, Woolwich, St. George's River/Cushing, Pentagoet/Castine, St. Sauveur, and 'Beyond Penobscot'/Machias. And this list must be considered partial. There is much more of 17th-century Maine yet to document and locate. The state is rich in sites of the very period for which conventional historical research is weakest in archival source materials.

If Maine is rich in 17th-century sites in comparison with other states, it enjoys a glut of 18th-century archaeological resources. With a well-nigh complete break between 17th and 18th-century settlement due to the devastating series of Indian Wars which destroyed most of English Maine, many sites, such as Sheepscot and Pemaquid, afford a fascinating study of the profound differences in economy, settlement patterns, and construction between the two distinct periods. The later colonial and Federal periods also abound in early industrial sites worthy of close examination.

Speaking of industrial sites, the 19th century is also well-preserved in the state and the whole science of industrial archaeology could well be applied in this regard. Maine also has, in its northern half, the equivalent of 'ghost towns' on its remote lakes and river-systems, memorials to the expansive timber industry which created 19th-century Bangor.

Before leaving the subject of Maine's historic archaeological resources a word should be said of the many shipwrecks which litter the relatively shallow waters of the state's estuaries, rivers, and harbors. The shelves around many of the islands are also rich in this resource. Recently a survey of sites has been undertaken in the Kittery area and excavations continue in Stockton Springs Harbor. A beginning has hardly been made in studying Maine's underwater archaeological resources.

Problems

Prehistoric archaeology is well-defined in terms of what sites apply to the science: the sites range from the earliest known to the latest of the proto-historic and early historic period. There the field overlaps with and gives way to *historical* archaeology. But having started with the proto-historic period, where does historical archaeology come to an end? Unlike prehistory, which in Maine permanently terminates with the arrival in force of the English and French, history is open-ended and so is the archaeology which is concerned with it. Everything around us today will fascinate the archaeologist of five hundred years from now. Everything ultimately becomes archaeologically interesting. But we cannot put a glass bubble over Madawaska or Wiscasset and freeze them in time as a favor to researchers of the twenty-fifth century. All we can do is to preserve the sites, structures, and artifacts of our time which we perceive to be significant, and we have to be very selective.

Those periods and sites which attract the historical archaeologist today do not include many of those which will interest him tomorrow. This cannot be helped. All one can do is to identify as best one can from the limited perspective of the present those periods and sites which seem important.

In this context the Maine Historic Preservation Commission has established a set of guidelines for assessing priorities among archaeological sites of the historic period (see following chart). A sliding-scale is used with age, status, location, and historical associations all taken into account. Age (17th, 18th, or 19th century) is the basic criterion with earlier sites being of higher priority. This is not based on an "older the better" philosophy, but rather on the fact that we know least about the European settlement of Maine in the 17th century and that sites of that period are thus of prime research importance. Conversely, the 19th century in Maine is much better documented than the 18th. Like most guidelines, however, these are by no means rigidly imposed. The Commission, for example, has determined that the 19th-century Seven Islands Archaeological District on the St. John River is of great importance given its remote location, good state of preservation, and fascinating historical context.

Archaeological sites of the historic period are as prey to destruction by inept amateurs and treasure-hunters as prehistoric ones. Two examples will graphically illustrate this great problem. In a museum in Boothbay Harbor can be seen a remarkable array of early English artifacts, ranging from 9/64

	WORTHY OF TESTING ON BASIS OF SURVEY	WORTHY OF CONTROLLED EXCAVATION
17th Century	All Sites	Sites Directly endangered
18th Century	Sites directly endangered; Sites indirectly endangered which have strong historical associations and/or are exceptional for geographical area or period.	Sites directly endangered which have strong historical associations and/or are exceptional for geographic area or period.
19th Century	Sites directly endangered which have strong historical associations and/or are exceptional for geographical area or period.	Generally none.

pipe-stem fragments, early pipe-bowl forms, bone-handled forks, German saltglaze stoneware sherds, early glass wine bottle fragments, and animal bones. These scientifically valuable (yet intrinsically worthless) finds were collected recently with a clam-fork on a small island just off the tip of Southport Island at Cape Newagen (see 17th-century sites, above). The present writer in company with the landowner inspected the site, which had been pillaged to the extent that worthwhile scientific examination is now probably out of the question.

During the summer of 1974 the present writer conducted a small-scale controlled excavation of Fort Shirley (1752) on the grounds of Pownalborough Court House, Dresden. Throughout the summer, on an average of once a week, one or more visitors with metal detectors turned up, wishing to search for artifacts. Some of these people left politely, others attempted sweeps of the lawn secretly, while one became enraged that his right to use a detector on grounds open to the public was being infringed upon. In all cases it was asserted that neat incisions to retrieve treasure would aid the grass by aerating it.

Make no mistake about it, historic sites are constantly threatened by a hobby: treasure-hunting with metal detectors, which provides in many cases a significant source of income for those who are active and persistent.

There is no easy solution to the problem of vandalism. Even if a State law were to be passed which licensed metal-detectors and provided stiff penalties for their unauthorized use (both effectively out of the question), there would still be the well nigh insuperable problem of policing. (A proposal noted later in this chapter could be of great help in this regard, however.)

Historic sites, like those of the prehistoric period, invariably are clustered along the coast and inland waterways of Maine. This was due to transportation and power needs. Today, development (both residential and commercial) is most prevalent in those same areas, for different reasons. What this means is that 17th-, 18th-, and 19th-century sites are constantly subject to disturbance or destruction by development. Natural forces in these same areas — water erosion in particular — also take their toll. For example, perhaps a third of the 17th century Pemaquid settlement site has been washed into Pemaquid Harbor over the last three centuries; and this erosion continues to this day.

One of the most crucial problems facing Historical Archaeology in Maine today is the lack of trained personnel in the state. Aside from the present writer there appears to be no one in

Maine with the kind of academic/professional credentials that the Federal government is increasingly demanding who is involved with sites of the historic period. On the other hand there are four professional prehistorians (anthropologists). Maine is not exceptional in this regard, however: historical archaeologists are nationwide a rare breed compared with their prehistoric counterparts. But Maine, as much as or more than any other state, has a crying need for professionals who can deal with the 17th to 19th centuries, given the State's extraordinary resources.

Looking farther into the future, there will be a great need for professionals who can specialize in one or more aspects of the field, such as period, site type, and certain categories of artifacts (e.g., ceramics).

How can this severe lack of personnel be improved? At present there are no State or private sector positions in Maine calling specifically for an historical archaeologist. This goes for all State agencies, the State University, and private societies and colleges. Moreover, there is no mechanism for training in this field, the only exceptions being excavation experience on the rare historic site being competently investigated, a joint anthropology-history degree program at the University of Maine at Orono, and the internship program of the Historic Preservation Commission. None of these is adequate, nor could it ever be. The Historic Preservation Commission staff is intensifying its historic sites survey and research and the Commission is partially funding a full-time teaching position in the science at the University of Maine at Orono. These are important steps toward attending to a field which until very recently has been to a great extent ignored in Maine. The present writer, as an Augusta-based civil servant, handles review responsibilities, a degree of rescue work, and the preparation of nominations to place significant historic sites on the National Register of Historic Places, along with carrying out archival research and field surveys, particularly in the important southern and mid-coastal areas of the State. The academic at Orono will be active in similar ways, but he will specifically teach the science of historical archaeology to undergraduate and graduate students and will in addition carry out field surveys and summer excavations for research and educational purposes.

What the alternatives? The first would be once again to ignore the problem and let Maine's historic sites — some of which may be of national significance — suffer gradual destruction. Federal environmental legislation increasingly will not tolerate

this. The second alternative would be to make increasing use of out-of-state consultants.

This second alternative works, in the sense that sites are investigated and salvaged. It is not a political question, nor an emotional one. A state as rich in historic resources as Maine must have its own mechanisms and personnel to study and protect its heritage. There is no practical alternative.

The inadequate funding in the past for historical archaeology in Maine has bared yet a final problem which has to be dealt with. This problem is the stabilization and interpretation of selected sites following excavation. Unlike most prehistoric sites, sites of the historic period — no matter how ephemeral the features — offer scope for restoration, reconstruction, or mere stabilization of exposed structures. This scope should be addressed at the more important state-owned sites, not simply for the education of the public, but also to provide the taxpayer with something tangible to appreciate for his money. As long as archaeology is an obscure and highly intellectual science, the taxpayer (and by extension, the legislator) will have little sympathy for it. At present Pemaquid is a crucial example of what needs to be done in the area of stabilization. Every winter the frost moves the once clay-mortared field-stone foundations, scattering rocks randomly; water gradually dissolves brick hearths; children cause damage in the summer; weeds fill the cellars obscuring steps, flagstone flooring, etc. The taxpayers and the site itself deserve more. With this in mind the Historic Preservation Commission has researched the technological problems of stabilizing exposed features in this climate, and it has offered its expertise and a Federal grant to attack this problem at Colonial Pemaquid in the summer of 1978.

Significance of Historical Archaeology

As outlined above, we know that Maine is rich in archaeological sites of the historic period; but we can still only guess how rich this resource is. Our knowledge is limited simply because until recently no organized effort was made to carry out a systematic survey and inventory in this regard. Such a long-term project is now beginning to solve the problem, rediscovering lost sites and finding new ones. As a result of the discovery of new sites, dramatic new theories about Maine's early history could develop, theories which could have not been arrived at using conventional historical and archival tools.

Following survey, controlled testing and excavation is of course invaluable at selected key sites (see chart above).

But beyond rescue work and large-scale excavation there is a small-scale yet indispensable role for historical archaeology to play, a role in architectural restoration. Limited digging at entrances, for example, can determine the date of an otherwise undateable doorway which seems later than the rest of a building. Another more specific example: trenching located positively the original site of the Oakum House in the 19th-century Percy and Small Shipyard in Bath, to which site the building was returned as a part of the overall restoration of this National Register property. Historical archaeology is also of great use in reconstructing ornamental landscapes around historic buildings, such as gardens. In short, the historical archaeologist can often be as valuable as the historian and architect in the context of restoration.

The Role of the Maine Historic Preservation Commission

The Maine Historic Preservation Commission is the only agency at present in the state with a capacity to deal with historical archaeology. Its role should thus be examined briefly.

The potential negative impact of federal, federally-funded or federally licensed construction on sites of the historic period is now being constantly monitored as an aid to the State Historic Preservation Officer's review responsibilities.

If, as a result of such construction, significant archaeological material of the historic period turns up unexpectedly, Commission staff time is expended to rescue such material from impending destruction.

A long-term survey and inventory of Maine's Historical Archaeological resources has been initiated. As described above, this process is essential. Furthermore, it is required by the National Register Program.

Significant archaeological sites of the historic period are now being nominated to the National Register, taking their place beside important prehistoric sites. In the past two years six important sites have been so nominated. *Richmond's Island*, south of Cape Elizabeth, was the site of a trading post by 1627/8 and became an important fishing station from 1632. *Damariscove Island*, off Southport, was identified as an ideal settlement site by Captain John Smith in 1614, saw seasonal fishing activity shortly thereafter, and was the site of a year-round fortified settlement from 1622. The Sheepscot Historic District contains the highly

significant site of *Sheepscot Farms*, the well-preserved remains of a thriving village which may have been founded as early as 1630. The *Clarke & Lake Company Site* in Arrowsic was established in 1654 and prospered as an industrial complex until 1676 when it was destroyed (like most English settlements in Maine) in the first of the Indian Wars; Bates College has conducted limited excavations here since 1970 on one of at least half a dozen structures. The *Colonial Pemaquid Archaeological District* has been greatly expanded in area to cover important features across the river from the early 17th-century site administered by the State Bureau of Parks & Recreation. Finally, the *St. John's Anglican Church & Parsonage Site* in Dresden is a reminder that the 18th century is also a period of importance to historical archaeology in Maine; this site contains the buried remains of a church, parsonage, cemetery, wells, and ornamental garden which were built in 1770-71 but abandoned by Tories in 1779.

The Historic Preservation Commission also supports historical archaeology through the National Register Grants-in-Aid Program. In 1975 funds were provided in the survey of Stockton Springs Harbor to locate the wreck of the privateer brigantine "Defence" of 1779; since then major funding has been made available for the excavation and conservation of artifacts from that significant underwater site. The Commission's expertise and funding capacity has already been noted in connection with the 1978 excavation and stabilization work at Colonial Pemaquid; when this work has been completed on the superimposed officers' quarters of 1692 and 1729, the Commission plans, in co-operation with the Bureau of Parks & Recreation and Mrs. Helen Camp, to publish a sequel to Mrs. Camp's *Archaeological Excavations at Pemaquid, Maine, 1965-1974*. In addition the Commission is providing funding to preserve and restore the Fort House at Pemaquid which may be adaptively re-used as an on-site archaeological and administrative center.

The Long-Term Future

Many issues have been noted here involving the field of historical archaeology and its past and present role in Maine. Some mention has been made of the kinds of minimal state-wide staffing which historical archaeology needs in Maine to function effectively (two professionals based in Augusta and Orono, respectively). And this chapter has also noted the problems from

which the science suffers nationally. It should conclude by proposing long-term solutions to these problems.

Lack of trained personnel in Maine has been recognized and minimum staffing and educational opportunities will be met shortly.

Adequate funding is the only solution to the challenge of stabilizing and interpreting historic archaeological structural remains as exposed by controlled excavation. The importance of addressing this problem on educational grounds, as well as moral grounds (repaying the taxpayer for his support) has been discussed.

The only solution to the problem of sites which are washing away into our ocean and rivers is to get to them before they are gone and either to salvage what survives or to take measures to stop or to retard the process of erosion. All of this also requires a funding commitment.

The question of vandalism is not necessarily tied to monetary solutions: Laws can and should be passed, but even an enormous force of paid archaeological policemen (an absurd thought) could never effectively eliminate treasure-hunting depredations. Perhaps the best solution to this problem has been effected by the Province of British Columbia:⁷

It is harnessing, on a volunteer basis, persons interested in archaeology to act as archaeological wardens. The wardens, numbering 30 at present, are scattered over the province, and are charged with reporting violations of the legislation⁸ and new site locations. There is an equal responsibility to promote a public understanding of archaeology. This harnessing of interest in public energy is probably the only way the conservation of our archaeological heritage is going to be achieved⁹.

⁷Turnbull, Christopher, "Of Backdirt and Bureaucrats: The Role of Government in Canadian Archaeology" in *New Perspectives in Canadian Archaeology*, Royal Society of Canada (Ottawa 1977).

⁸Provincial law provides for a fine of up to \$1,000.00 and up to six months imprisonment for unauthorized excavation of any site on Crown land, all burials and pictographs/ petroglyphs (wherever sited), and any site designated by minister order. No artifacts may leave the Province of British Columbia without ministerial authorization.

⁹Cf. McGimsey, Charles R., *Public Archaeology* (1972) for the Archaeological programs of the fifty states. To my knowledge, none of the states has instituted a formal "warden" system like that of British Columbia. Arkansas, with the strongest State archaeological survey program, has passed strict legislation to try to protect sites. This legislation carefully protects the rights of the private landowner, and thus encourages his support of the survey.

Such a mechanism, if it can be maintained once set up, would be of great use in Maine from the standpoint of survey and inventory, as well as policing strict site protection legislation. As for the former area, the present writer has been working toward creating an informal network of "informers," mostly local historians, to feed him information. Such an informal network could be converted to a formal voluntary warden system with relative ease, along the lines of the mechanism established by British Columbia. In addition the Maine Historic Preservation Commission is preparing a simple Historic Archaeological Sites Inventory Form which will be sent to local historical societies to solicit information on historic sites state-wide (see following form).

Archaeological sites of the historic period in Maine have for too long been all but completely neglected, but at last the State has provided a mechanism for their proper identification, rescue, and study. Of all the states, Maine would have perhaps the greatest to lose in failing to recognize and support historical archaeology. For the fact is that this loss is finite and constant: at this very time the sites of our ancestors from the 17th century onward are being swept away by erosion, development, and vandalism. Once lost, they are gone forever, along with all the invaluable data they can provide. As each site is washed into the ocean or bulldozed or raped by a clam fork, a permanent yawning gap is exposed in Maine's and America's heritage. All practical measures are being taken as quickly as possible to forestall this loss. We are acting none too soon.



Damariscove Harbor: site of fishing base around A.D. 1614 (on a seasonal basis), and 1622-76 (year round).



Colonial Pemaquid: site of Fort William Henry (A.D. 1692-1696) and Fort Frederick (1729-1775).



Sheepscot: a 17th century road bisecting the village site of A.D. 1630-1676.



Arrowsic: Clarke and Lake Company archaeological site of A.D. 1654-1676.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Sites Inventory

Site Name (if known): _____

Nearest Village/Town: _____

County: _____

Site Type (s):

- | | | | |
|-------------------------------------|--------------------------------|-------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Fort | <input type="checkbox"/> House | <input type="checkbox"/> Settlement | <input type="checkbox"/> English/American |
| <input type="checkbox"/> Industrial | <input type="checkbox"/> Dump | <input type="checkbox"/> Underwater | <input type="checkbox"/> French |
| <input type="checkbox"/> Other | | | |

Approximate Period (s): _____

Condition of Site: _____

Endangered By:

- | | | | |
|----------------------------------|---------------------------------------|--------------------------------------|------------------------------------|
| <input type="checkbox"/> Erosion | <input type="checkbox"/> Construction | <input type="checkbox"/> Cultivation | <input type="checkbox"/> Vandalism |
|----------------------------------|---------------------------------------|--------------------------------------|------------------------------------|

Any Past Excavation? ☐ Yes ☐ No

If yes: by whom? _____

Any Artifacts Available for Study? ☐ Yes ☐ No

Documentary/Archival Information (if known):

Property Owner's Name & Address:

Site Location (draw sketch - map):

Any Additional Comments: _____

Your Name & Address: _____

Additional Persons

To contact: _____

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Conclusions

by
David Sanger

This chapter discusses two very different kind of topics. First, it is a review of the prehistoric record as we know it today, with mention of the more interesting problems and observations. Second, it is a statement on the nature of the archaeological resource and its conservation and effective management.

Following the retreat of the last glaciation and the establishment of vegetation, man moved into Maine. His presence is known only through a handful of fluted points in generally unsatisfactory contexts. A fluted point was found by R. Bonnicksen (personal communication) in 1978 in the Munsungan Lake area, where further research is planned. Elsewhere in the Northeast these fluted points date to 11,000 - 10,000 B.P. About all that can be said at this time is that during the Paleo Indian period at least some people lived in Maine in a tundra environment. Searching for Paleo Indian remains is not likely to be a fruitful activity at this time because of our poor understanding of the paleo-environments and landscape at that time. As geological and paleo-ecological studies proceed we may expect this situation to change to the point where an informed search and research program can be initiated. Currently, our best strategy might be to wait for a chance discovery and to keep in mind the possibility of Paleo Indian sites when evaluating the potential impact of engineering projects involving major landscape alterations.

The long Archaic stage is also poorly represented during the early and middle periods, but by 5,000 B.P., with the sudden appearance of the Laurentian tradition, the pace quickens considerably. At 5,000 B.P. the Maine forests had a southern New England aspect. Shortly thereafter the spectacular Moorehead burial tradition began and the coastal adaptations such as Turner Farm flourished. Around 3,800 B.P. there was a sharp change in Maine culture with the appearance of a southern culture, the Susquehanna. The record dims at this point and does not pick up until the Ceramic Period at about 2,000 B.P.

The Ceramic Period sites are numerous and in the shell heaps are quantities of potential data on the direct ancestors of Maine's historic Native Peoples.

A problem oriented prehistoric archaeology is a relatively recent phenomenon in Maine. The early emphasis on the Red Paint cemeteries was not really a response to an anthropological problem so much as a search for fine objects for display. There were debates over the age and cultural affiliation of the "Red Paints," and those exchanges of views seemed somehow to set the tenor for future work. For example, the Turner Farm and the Hirundo projects were largely conceived to work on the Red Paint problem. As archaeologists learned something of the mortuary complex and the accompanying habitation sites, their attention shifted to an explanation of the demise of the culture and the presence of its successor, the Susquehanna. Recently, there has been some attention paid to the early and middle Archaic and the scarcity of remains in Maine from 10,000 to 5,000 B.P. (Chapter 3) (Sanger and Bourque n.d.). The rich ceramic period has been slighted, partly because it is of more local interest than the other topics. Hopefully, this unfortunate tendency will be corrected in the very near future.

The research to date has focused on and brought attention to the question of cultural replacement. At issue here is the fates of the Laurentian-Moorehead tradition and the following Susquehanna. Explanations in archaeology, like those in so many other disciplines, go in fads. A century ago all change was explained as migration of peoples, but as archaeologists began to acquire more data the tendency was to see cultural and population continuity. It then became fashionable to discount migration and to evoke it only as a last resort. After a series of exchanges on the subject, the archaeological community in the Northeast finally seems ready to accept the probability of a real population replacement in Maine. However, the actual nature of the replacement and the reasons for it have not been satisfactorily explained. There are some contemporary environmental shifts that could potentially have influenced the replacement, but wholly convincing explanations are probably well in the future.

A problem of an entirely different nature is the scarcity of remains during the early and middle Archaic. Here we see concern with essentially negative evidence, always a problem. Arguments that are environmentally founded seem to be favored.

If the picture we have is accurate, the prehistory of Maine does not appear as a smoothly flowing chain of linked events. Rather, we see an interrupted picture with site scarcity followed by periods of apparent density. Explanations for this record will

undoubtedly consume much time and effort in the future, if for no other reason than the fact that it does not meet archaeologists' expectations.

The emphasis on explanations based on environmental factors has helped to develop paleo-ecological data of potential utility. The terrestrial data are well advanced and just beginning are attempts to reconstruct paleo-marine conditions. Out of this will develop ways to better integrate the cultural with the paleo-ecological record. At this time it is clear that some cultural events are synchronous with environmental changes, but correlation in time is not a demonstration of causality. It does, however, point to areas where further research would be profitable. A major difficulty at this time is the integration of environmental records with the cultural because they are both abstractions and not comparable entities.

Resource Management

If future generations are to find utility and satisfaction in the archaeological record of Maine, steps must be taken soon to insure that there will be a record left. The conservation ethic in America is slowly developing in the area of historical resources, although the financial commitments to date are far less than those in some other countries. In the area of archaeology, the eastern seaboard states have the poorest record, and New England has lagged behind the rest of the country, a circumstance due in part to reticence on the part of the prestigious universities to engage in local archaeological research.

The Federal government, with the passage of the National Historic Preservation Act of 1966, established the State Historic Preservation Officer (SHPO) position and with it mandated a high degree of state autonomy in developing a cultural resource management plan. Maine has been particularly fortunate to have had two SHPOs with a real interest and concern for the historic resource. Under the direction of the current SHPO, Mr. Earle Shettleworth Jr., archaeological surveys and excavations are being conducted with Federal funds matched against local funds and services. The full potential of the various legislative acts cannot be realized without a great deal of cooperative effort between all agencies and institutions concerned with history.

In order to have an effective cultural resource management program in Maine several ingredients are necessary. Basically there must be a balanced program of teaching, research, and state

agency regulation. The absence of any of these will result in a weak effort.

The teaching of archaeology can be considered at various levels. One is the informal level where a certain amount of information is disseminated through workshops, museum displays, mass media presentations, and articles and books designed for a lay audience. In Maine we have altogether too few competent museum displays and the professionals have not been as active in the non-formal instructional area as they might. This situation can be remedied by the hiring of more professionals with explicit job descriptions to work in the area of public education. An alternate approach could be the training of paraprofessionals to carry out these same ends.

Formal education in archaeology is largely at the post secondary school level. To date, the only major program is at the University of Maine, Orono, where there is both undergraduate and graduate student training in Maine archaeology. Undergraduate training is also available at the University of Maine, Portland-Gorham, and at Bates College, while the Maine Maritime Academy has run a field school in underwater archaeology in conjunction with the *Defense* project. Archaeology is taught in a number of Maine's schools and a few even have a field work aspect to their program. Unfortunately, there is no provision for training high school teachers to do Maine archaeology and until that level of professionalism is injected, the high school programs cannot reach their potential. In fact, more harm than good can easily be done by a well-meaning teacher and his eager pupils. The major problems with formal education in archaeology in Maine has been the lack of institutional support. While large departments of history emphasizing the European experience have been allowed to develop, the 11,000 years of Native history has been ignored or relegated to a low priority. There are some signs of change in the University of Maine system and that should have a beneficial effect.

Research into the prehistory of Maine has a long record of diletantism and sporadic incursions by scholars based outside of Maine. The lack of a strong Maine institutional committment until the 1970's puts this state almost 50 years behind many others in terms of its archaeological development. Fortunately for archaeology, when the university system began hiring archaeologists, it made ample provision in the contracts for a substantial amount of research time. The emphasis on hiring research-oriented faculty has greatly enhanced the professionals'

ability to attract outside funding. Similarly, the decision to employ a research archaeologist at the Maine State Museum has been most beneficial to the research effort.

Research must be carried out by qualified personnel with the facilities to excavate properly, record, conserve, curate and describe the results. Anything less is not only unproductive, it is destructive of a fast disappearing resource, one that cannot be renewed.

The role of the State agencies is the third side of the triangle. Federal and State regulations regarding archaeology must be competently administered by professionals who know the law and the resource. One without the other is unacceptable, and for this reason there are specific Federal guidelines regarding the individuals that must be on the State Historic Preservation Officer's staff. The SHPO must have access to an historian, archaeologist, and architect, and consult with them when reviewing environmental impact statements. Inadequate review could result in the destruction of historical resources by construction activities without any adequate information salvage.

The key to a balanced program is a sound research effort. Without research there can be no teaching of Maine archaeology. Without research the SHPO and his staff cannot know what is worth saving or how to expend developmental funds. However, the researcher must make his information available through the formal and informal teaching media if he is to be relevant to society from whence he derives his support. The point is that none of the three, teaching, research, and state agency, can exist in isolation in today's world. A steady trend towards cooperation between these three in the past five years bodes well for the future of archaeology in Maine.

Those interested and those professionally concerned will have to work together if the potential is going to be realized. There are several areas of concern that will require a cooperative effort; first, some really effective antiquities legislation must be passed at the State level. Existing Maine law is useful for preserving the underwater remains but does nothing for terrestrial sites other than those on state owned land, and even here there is a serious loophole. The State has no real control over sites on private lands unless a Federal agency is involved in a land modification scheme. The historical conservation movement is akin in many ways to the wildlife conservation and management programs of the past. Society as a whole frowns on out-of-season or indiscriminate

slaughter of animals and in Maine there are strict laws that cut across private land ownership. Why not pass similar legislation to protect archaeological and historic properties? Deer, after all, are a renewable resource; historic sites are not.

A good deal of the cultural history of Maine is in the coastal zone. The shell heaps and also the early historic aged sites are being eroded constantly. No Federal agency seems to be willing to mount the kind of program needed to evaluate the damage and then to rectify it. Yet, unless something is done, and soon, it will be too late for many sites.

In the final analysis, the future of Maine's historical heritage is in the hands of Maine residents. Only they can make sure that the right kinds of programs are present and that they will be administered by competent personnel. The Federal Government stands ready to help out financially and morally, but the State teaching, research, and regulatory agencies must have adequate State support to carry out their end of the job.

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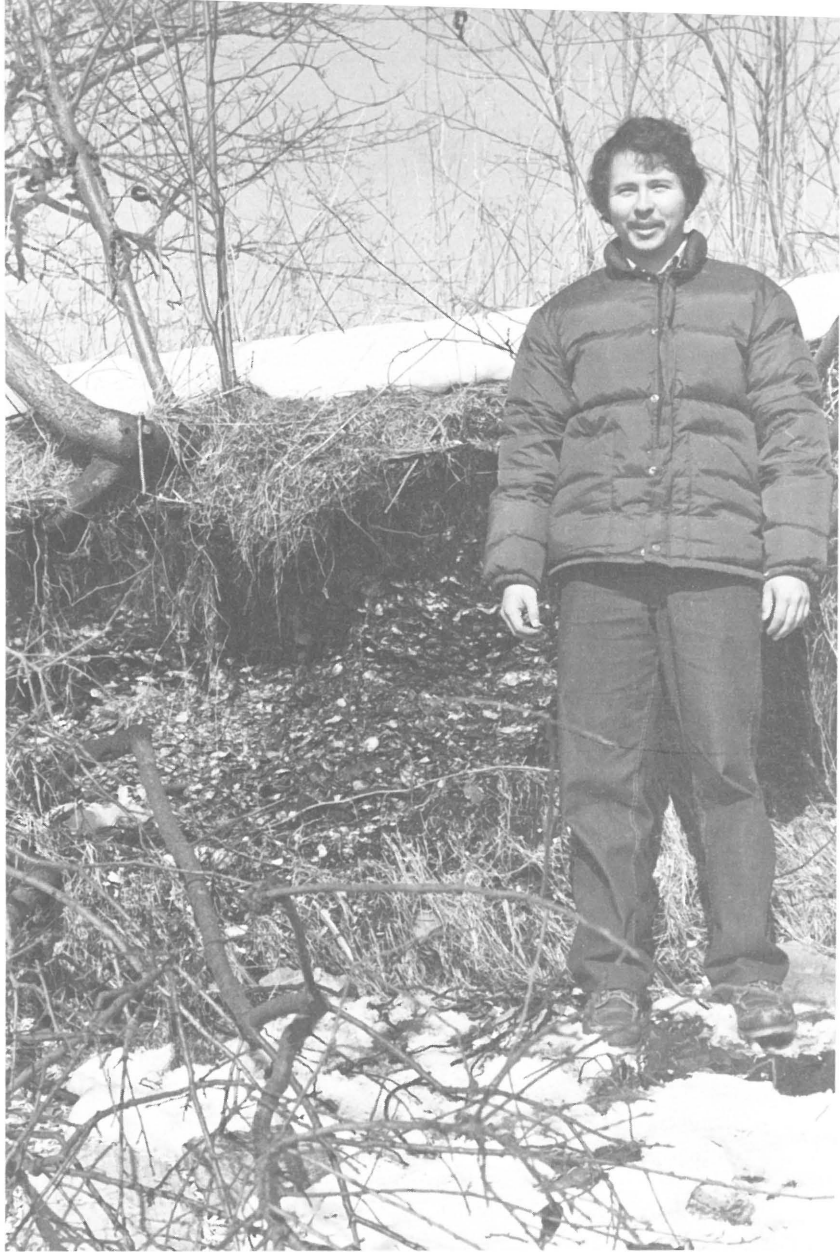
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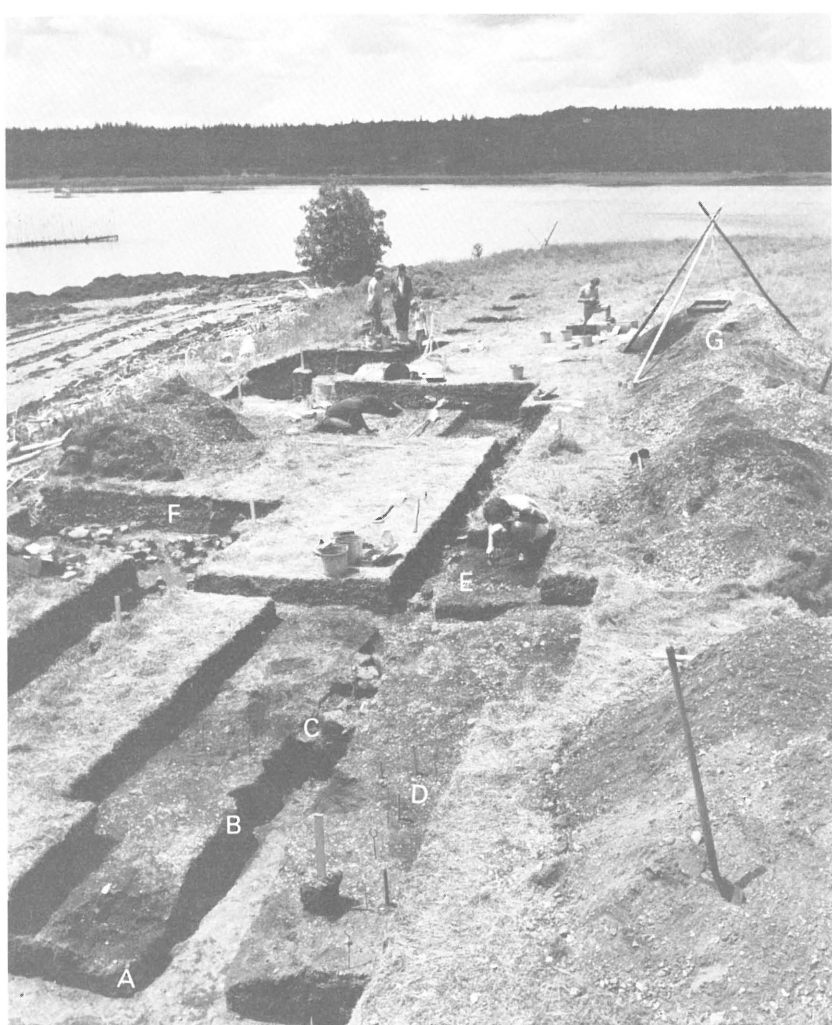
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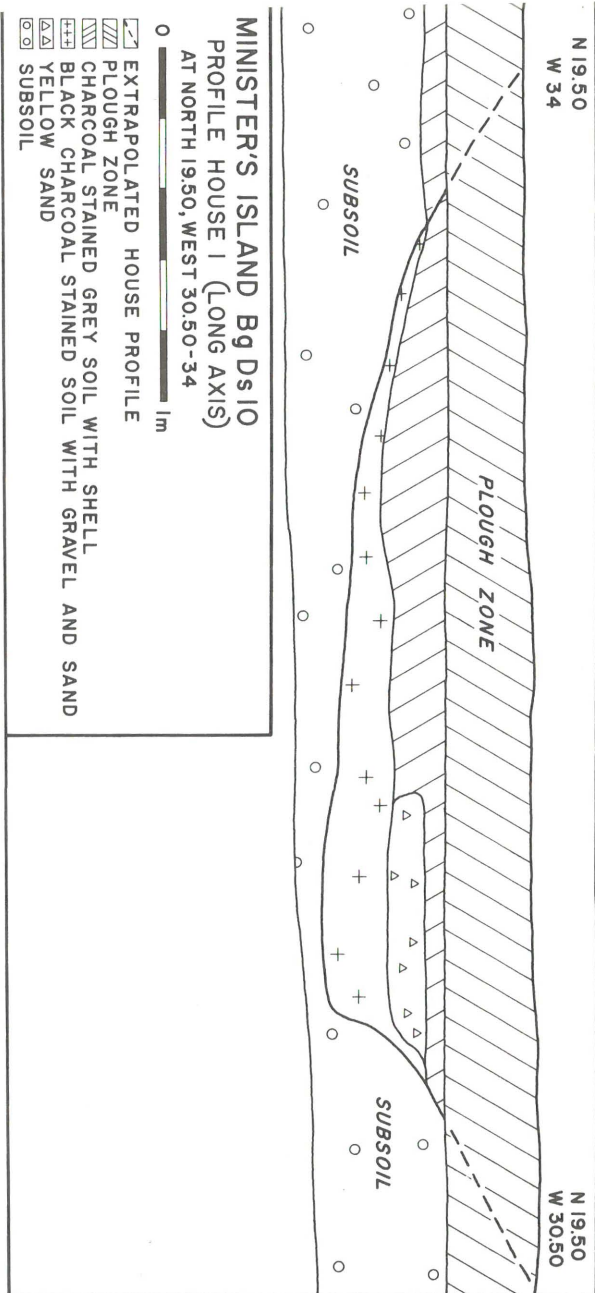
An eroding shell midden from western Maine. Sea erosion is systematically destroying these coastal sites by undermining the soft deposits. Most of the shell middens in Maine were created during the Ceramic Period, or between 400 and 2000 years ago.



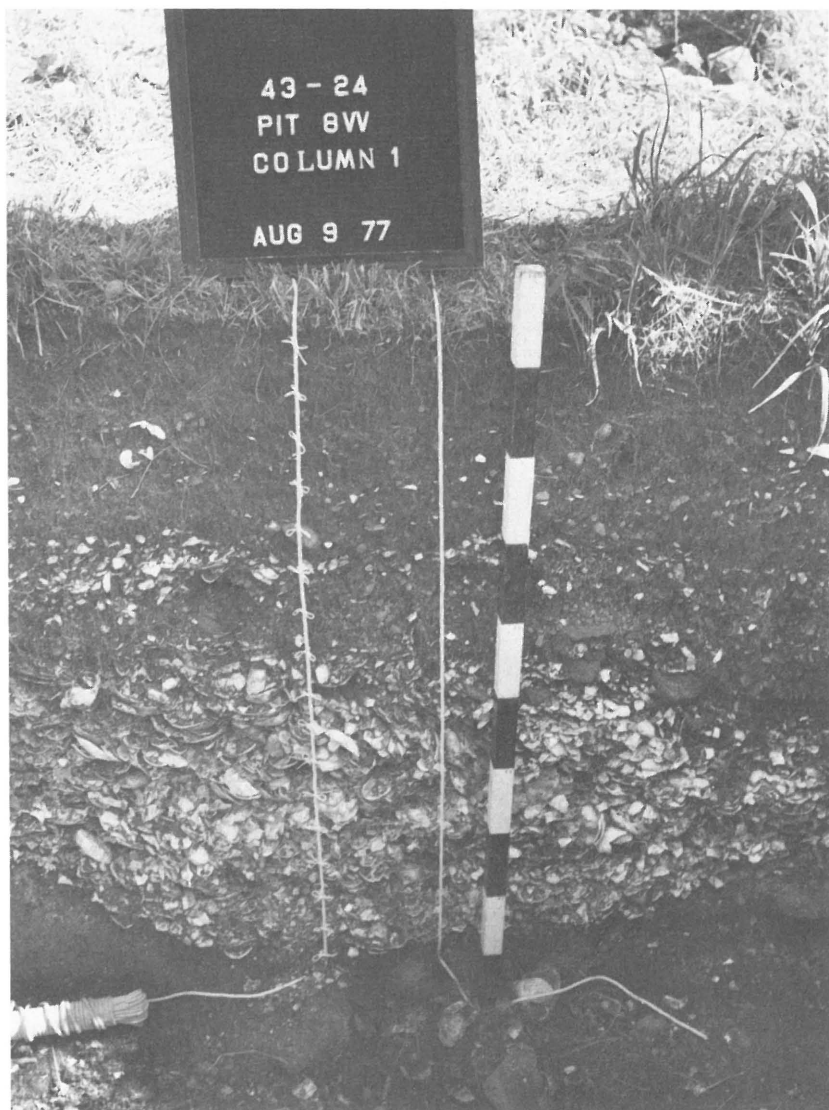
Excavation in a Ceramic Period shell midden in Passamaquoddy Bay. In the foreground are three overlapping semi-subterranean houses (A, B, E). House A has been excavated completely. House B is sectioned by a 50 cm wide trench (see also figure 4). A fire hearth (C) is partially exposed in House B. Small poles and surveying pins (D) mark positions of posts used to support a conical roof of the dwelling. Cooking hearths are exposed at the front of the site (F). Excavated midden is sifted through a quarter-inch mesh screen suspended from a tripod (G).



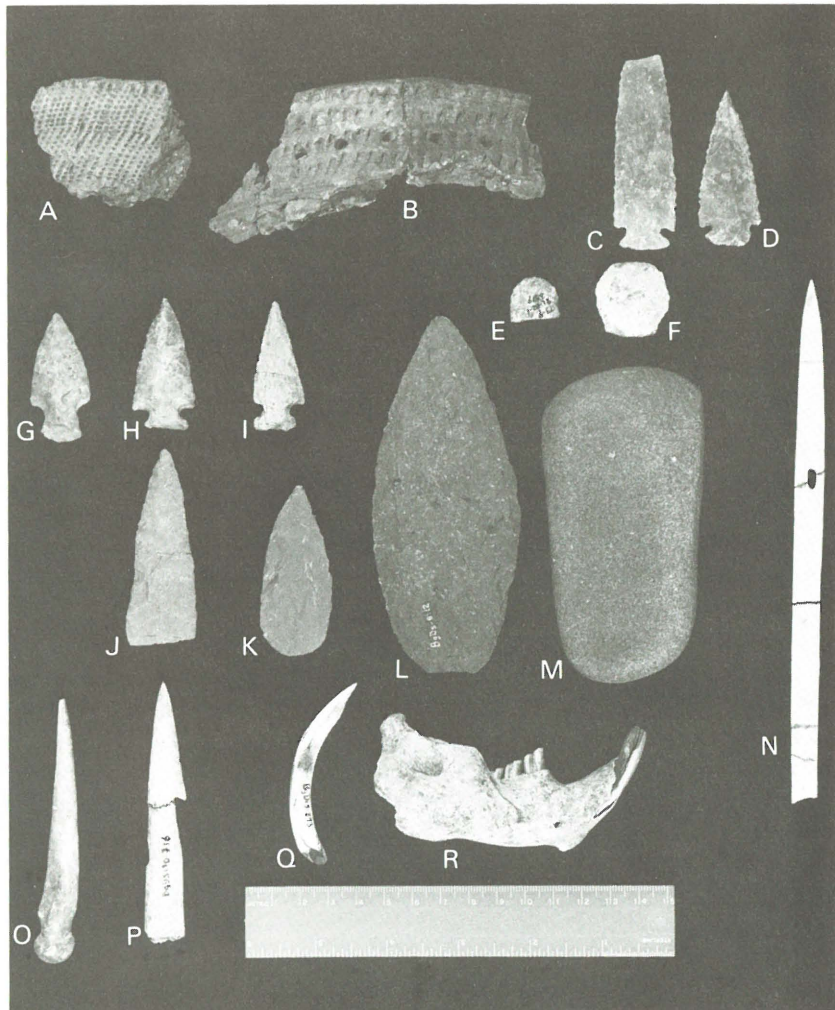
One-half of an excavated semi-subterranean house in an early Ceramic Period shell midden. This dwelling is radiocarbon dated to 1500 years ago. Rocks placed around the edge of the house helped support the framework of poles. Crushed shell was placed around the perimeter of the house. From edge to edge of the house the distance is approximately 4 meters.



Drawing along the long axis of a semi-subterranean house shown in excavation in Figure 2. The complete section is obscured by the disturbance in the upper level due to agricultural activities. The shell content of the deposits in houses is generally lower than that found in the dump area of sites but the artifact incidence is higher.



Profile of a shell midden in Acadia National Park in the central Maine coast. The profile is prepared for sampling the deposits in 5 cm units. Total depth is about 80 cm. Lower deposits are close to 100 percent shell, mostly soft shell clam (*Mya arenaria*). Also present in the shell dumping areas like these are food bones, broken artifacts, and some soil. The lower deposits in this section contain nearly 100 percent shell by weight.



Selected artifacts from the Ceramic Period in Maine, with suggested functions and probable time span.

A. Sherd of pottery vessel decorated by a stamping technique called "dentate" after the small, tooth-like marks made by a notched stick or bone pressed into the damp clay. Estimated age: 1000 to 1500 years ago.

B. Sherd of a pottery vessel decorated by a stamping technique called "cord-wrapped stick." Small holes are called "punctates." Estimated age: 400 to 1000 years ago. (See also p. 154 for a reconstructed vessel of this general type).

C, D. Corner-notched, stemmed bifaces: probable arrowheads. Estimated age: 400 to 1000 years ago.

E, F. Unifaces: probable hide scrapers. Estimated age: 400 to 2000 years ago.

- G. Expanding stem biface: probable arrowhead. Estimated age: 400 to 2000 years ago.
- H. Corner-notched, stemmed biface: probable arrowhead. Estimated age: 400 to 1000 years ago.
- I. Side-notched biface: probable arrowhead. Estimated age: 400 to 1000 years ago.
- J. Non-stemmed biface: probable knife. Estimated age: 400 to 2000 years ago.
- K. Non-stemmed biface: probable knife or blank for arrowhead. Estimated age: 400 to 2000 years ago.
- L. Non-stemmed biface: probable knife. Estimated age 1000 to 2000 years ago.
- M. Ground stone celt: probable ax head. Estimated age: 400 to 1000 years ago.
- N. Bone needle: probable knitting needle. Estimated age: 400 to 2000 years ago.
- O. Bone implement: probable awl. Estimated age: 400 to 2000 years ago.
- P. Barbed bone point: probable harpoon head. Estimated age: 400 to 2000 years ago.
- Q. Modified beaver incisor: probable knife. Estimated age: 400 to 2000 years ago.
- R. Lower jaw of beaver with modified incisor worn down through extensive use: probable knife with jaw employed as haft or handle. Estimated age: 400 to 2000 years ago.



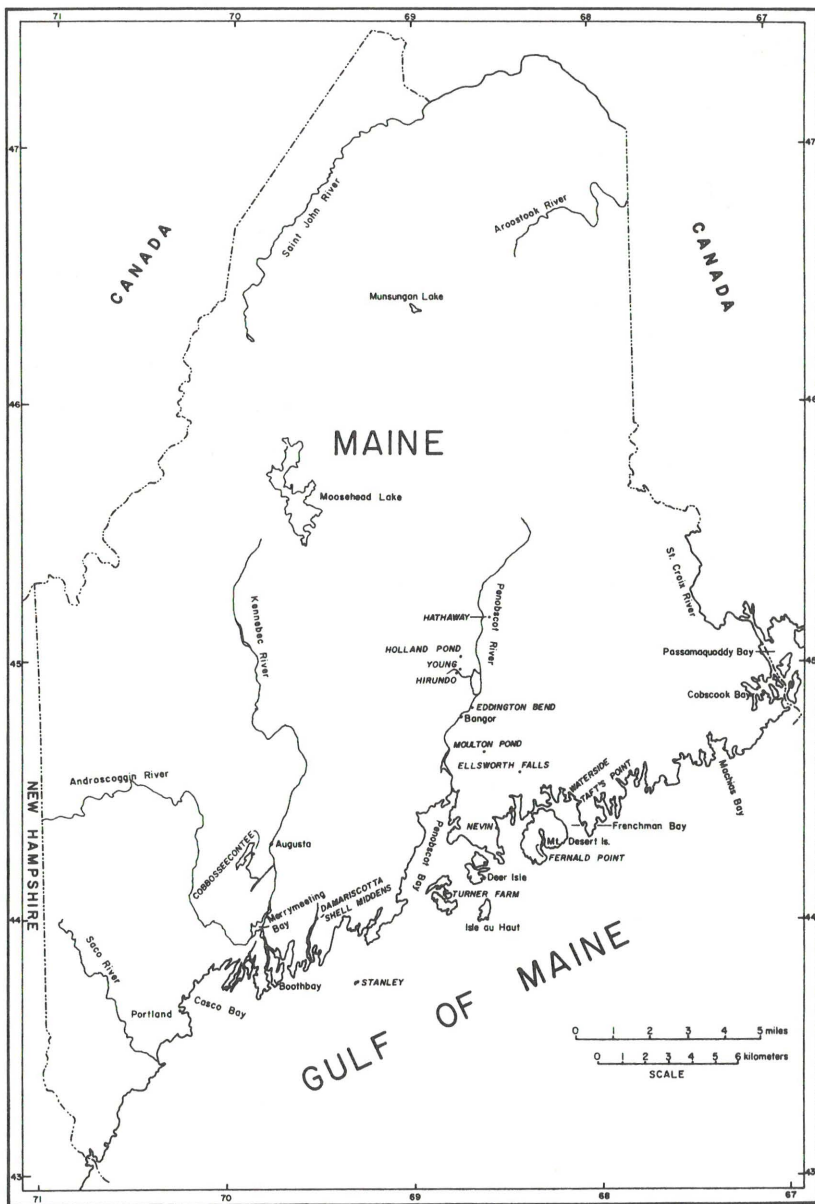
A reconstructed, small, ceramic vessel from a western Maine coastal shell midden. A vessel like this is made of grit-tempered marine clay, built up of coils, later smoothed over. When partly dried the vessel is decorated with a paddle or stamp consisting of a twisted cord on a stick. Hence the general category "cord-wrapped stick" ceramic. The encircling holes, or punctates, are produced by a pointed object. The clay is turned into ceramic by firing in an open fireplace, producing a brown surface. Complete vessels are very rare in Maine as the ceramic is brittle. Cord-wrapped stick decorated vessels are thought to be indicative of the period between 400 and 1000 years ago in Maine. This reconstruction represents the more recent end of the temporal range for this kind of ceramic. Drawing by Richard Will.

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includes them in his Maritime Archaic tradition. Materials from the Hirundo site (Sanger and MacKay 1973; Sanger 1975:63) do bear close typological relationship to those from Vergennes sites in New York and Vermont (Ritchie 1969:84-89), and also resemble in a more general way the assemblage from Occupation 2 at the Turner Farm and related components. However, Vergennes-like material in Maine and the Maritimes presumably dates to ca. 5000 B.P. while Occupation 2 dates to ca. 4500 B.P., allowing relatively little time for the typological shifts proposed by the Vergennes origin model. Furthermore, after 4500 B.P. very close resemblances, including technology, subsistence behavior and ceremonialism, prevail among sites as distant as Port au Choix, Newfoundland, and Waterville, Maine. It is difficult to see how such broad scale similarities could have developed from a Vergennes base, since no such manifestation has been discovered in the Newfoundland-Labrador area. Snow, however, has suggested that an intrusion of southern influence into the Newfoundland-Labrador area accounts for these similarities (1975:15). This writer thinks this suggestion deserves careful consideration.

Tuck's Maritime Archaic model exhibits comparable weaknesses when extended to include sites in the Maine-Maritime area. While sites like Port au Choix can logically be viewed as local developments in the Newfoundland-Labrador area, their closest analogs in Maine and the Maritimes cannot now be viewed as an *in situ* development from earlier Maritime Archaic manifestations. The population represented by Occupation 1 at the Turner Farm site may conceivably provide the missing link in Tuck's model, but for the present, specific resemblances between the Newfoundland-Labrador area and the Maine-Maritimes area postdate 4500 B.P.



Map of Maine with many of the sites and localities mentioned in the chapters.

Hill region of Maine, while members of the Robert Abbe Museum excavated sites in the Frenchman Bay area described by W. Hadlock (1939). Following World War II, the Peabody Foundation extended its range into the Maritime provinces with survey and excavation directed by Byers. In the 1950's the New Brunswick Museum got into the field archaeology business briefly when J. R. Harper was on their staff.

In the 1960's a major effort was made at the Paleo-Indian site at Debert, Nova Scotia. Supported by the NSF, Canadian and Nova Scotian governments, Byers directed a multi-disciplinary effort. A report on the archaeology was published in 1968 by G. F. MacDonald. Also in the 1960's the National Museum of Canada sent R. Pearson (1970) to work in the Maritimes during the summers.

Up until this point hardly any institutionally sponsored archaeology was carried out by local agencies. There were no archaeologists attached to local universities or to state or provincial agencies. Local museums occasionally sent out parties, but their limited resources and personnel problems prevented any long-range commitments. Only in Maine did an active amateur society develop, and that is relatively young.

In the middle to late 1960's, the picture began to change. The Nova Scotia Museum hired an archaeologist in 1968, and now 2 universities in that province have an archaeologist on staff. New Brunswick has a provincial archaeologist but still no full time university appointments. Prince Edward Island has yet to appoint an archaeologist. The University of Maine began a local commitment in 1966 and the State Museum followed in 1972. Finally, the National Museums of Canada have had an archaeologist working in the Maritimes, mostly New Brunswick, since 1966. For more detailed histories of research see Snow (1968) and Noble (1972).

This brief summary of the history of archaeology in the Maine-Maritimes area is not intended as an apology; nor is it intended to cast unfavorable light on those who did toil at working out the local prehistory. But it is important, I think, to recognize the lack of long-term commitment by local institutions, and the fact that for many years most of the effort was made by museums and foundations located outside the study area. There are many gaps in our cultural record and very few analyzed and published collections from which to construct a detailed sequence. Hopefully, this will change as more archaeologists elect to work here and gain a feeling for the area.

Geology and Paleo-ecology

Laurentide Ice covered the Maine-Maritimes area, but by 13,500 B.P. parts were free of ice. One thousand years later the whole area was ice free, and by 11,000 B.P. there were no ice barriers or large glacial lakes which would have impeded man's immigration into the area. Sea levels were approximately 180 feet lower at 11,000 years ago (Borns 1971). With the exception of rising sea levels, most of the geological events of interest in this area were essentially over by the time of man's entrance.

The paleo-ecologic picture for our area is derived largely from palynological sources, although other techniques are currently being used. There are a great many published pollen diagrams for this area, but only a few have radiocarbon dates which allow us to correlate the pollen at a particular time with cultural events. Some diagrams have one or two dates, often bottom dates, and from these we have to extrapolate dates based on the assumption that the sediment accumulated at a constant rate. In 1969 Margaret Davis published an important paper based on her work in Connecticut. Backed by a large number of radiocarbon determinations, Davis presented a technique for working out the pollen accumulation rates, for a more accurate picture of the vegetation at specific times.

Recently, the same techniques have been utilized by Ronald B. Davis and Theodore Bradstreet of the University of Maine to establish the vegetation sequences in Maine. One diagram is completed and this is presented in a simplified form in Figure 1. Two other diagrams, also from Maine, are in process. In time we hope to have a detailed picture of past vegetation in Maine. A sediment core recently taken near the Debert site in Nova Scotia is being analyzed by Daniel Livingston (Duke University), and Robert Mott of the Canadian Geological Survey has recently described diagrams from New Brunswick. Until more details are available we will have to utilize the Moulton Pond diagram, bearing in mind that one core cannot "speak" for the entire area nearly as well as a number of local diagrams. However, the overall similarities between Moulton Pond and other diagrams suggest that we are not dealing with a unique record.

Moulton Pond is on the Bar Harbor road about 15 miles from Bangor. A 35 ft. sediment core was taken and dated by 16 radiocarbon dates, the oldest of which was 13,500 B.P. Pollen from 35 levels was counted and a manuscript detailing the procedures and the results is available (Bradstreet and Davis 1975).