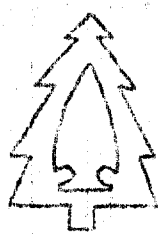
MAINE ARCHAEOLOGICAL SOCIETY



CONTENTS

Vol. 1 *Fall - 1971* *No. 3*

PUBLISHED BY THE MAINE ARCHAEOLOGICAL SOCIETY
SOCIETY OFFICE WILSON MUSEUM CASTINE, MAINE

MAINE ARCHAEOLOGICAL SOCIETY

OFFICERS

PRESIDENT		
Mr. Marshall Rice	Deer Isle	04627
FIRST VICE-PRESIDENT		
Mr. Donald R. Wood	Saint George	04857
SECOND VICE-PRESIDENT		
Francis Soper	Box 435, Orland	04472
SECRETARY		
Mr. Sumner A. Webber	Coopers Mills	04341
TREASURER		
Mrs. Jean T. MacKay .	P.O. Box 133, Stillwater	04489

EDITOR

Lloyd Varney . . . . . 15 Elmwood Ave., Waterville 04901

SOME INTERESTING PROBLEMATICALS 2285

Steve Feher

Artifacts that fall into no recognizable categories, or stray from the usual form, can often puzzle and aggravate the excavator but they do "spice up" the "digs" and so lend a touch of uniqueness to the site wherein they originate. They sometimes indicate new trends of activity and development within a culture, or serve as evidence of intrusions from other cultures. In the end, they may be the source of new knowledge concerning the lives of the craftsmen who fashioned them.

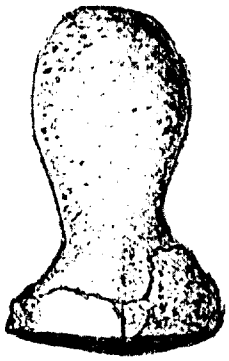
The four objects illustrated were all uncovered at a Washington County site that had previously yielded a wealth of points, blades, large tools and potsherds; all recognizable as such. At first glance, we were struck by their toy-like appearance. This was rather unusual and moving for seldom do we come across anything in the course of excavating that speaks of, or even suggests, children. However, we are well aware that, as with so many first impressions, this may be completely unfounded and erroneous.

Number 1 is a three-dimensional piece and sits on its roughly semi-oval shaped base much as a chess piece does. The upper part is thin and blade-like and a thin layer of material has been exfoliated or eroded from its surface. It is fashioned of a reddish-brown sandstone and might possibly have served as some sort of gaming piece or counter.

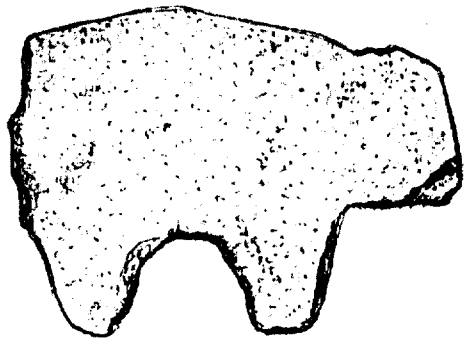
Most viewers have at once commented that number 2 looks like a bear. The likeness is undeniable even though some fragments appear to be missing. It is also shaped of reddish-brown sandstone about 1/4" thick. In effect, it is an effigy in silhouette.

Number 3 also of reddish-brown sandstone, about 1/4" thick, is a complete puzzle. Only the smoothly ground edges indicate that it is apparently man made. There are some indications that it may be part of a larger piece.

These three objects were probably either pecked, scraped or ground into



1



2

3

4

shape, or else a combination of these methods was used.

Number 4 is made of a shale-like material about 3/16" in thickness and was carved out by a keen edged tool; sharp cuts are clearly visible especially at the "notches". While both knife-like and spear-shaped in appearance it would have been of little use as either for none of its edges shows any evidence of cutting or piercing capabilities. They are all smoothly rounded and the material is too soft to have held suitable edges. We are prompted to wonder of what use could a knife be that couldn't cut or a spear that couldn't pierce. It might well have served as the point for some Indian boy's toy lance or spear.

Although uncovered in the same general area, at approximately the same level, these artifacts seem to have nothing definite in common save that, as previously noted, three of them are fashioned of the same material. This area also produced numerous finds of large, rather crudely fashioned tools made of this same reddish-brown sandstone which occurs commonly hereabouts as cobbles and boulders.

By holding these objects in different positions a variety of possible explanations and uses can be imagined for each and one can easily be carried away by conjecture. Probably the discovery of more items of this nature will prove to be the only means of shedding conclusive light as to the true nature of these very intriguing problematicals.

# # # # # # # # # # # # # # # # #

SHELL MIDDENS LOCATED IN JERICHO BAY

Sheep Island	1	Sunshine	8	Torreys Island	1
Crow Island	1	Bea[illegible]Island	1	Little Babson Island	1
Pond Island	1	White Island	3	Stove Island	1
Opiechee	3	Black Conarys Island	2	Deer Isle	9
Swans Island	2	Campbells Island	1	Big Lazygut Island	1
Harbor Island	1			Camp Island	1

There may be other locations but these are middens which are large enough to have been inhabited for some time, and where artifacts have been found.

SHELL MIDDENS 2286

by Marshall Rice

Most Archaeologists, or would-be Archaeologists, are familiar with the terms "shell heap", "shell midden" and "kitchen midden". Since many society members live away from the coastal areas of Maine and are not familiar with middens, it has occurred to me that some enlightenment on the subject might be welcome. "Kitchen middens" are defined by Webster as "refuse heaps marking the site of a primitive habitation." Since I have lived on the coast, on Jericho Bay, for many years and for the same length of time have either surface searched or dug in many shell heaps, I will endeavor to describe them in some detail.

There are several conditions which govern the location of shell heaps. They are good clam producing areas; southerly exposure; a bank, or at least land high enough to afford good drainage; and an accessible supply of fresh water. Of course, we are going back in history hundreds of years; but since the same conditions exist today in the same areas, I am taking the liberty of describing the middens as if they were in use today.

There is a reason for clams being where they are, and a word of explanation is necessary. In considering the availability of clams, one must remember that here in Maine our prevailing winds are from the southwest, and that clam seed or "spat", like seed of much of our marine life, goes through a floating stage before going to the sea bottom. At this time the floating seed is at the mercy of wind and wave. These two actions combine to cause most of the seed to find its way eventually to southerly exposed flats. To be sure there are clams found on the north shores, but they are not as numerous. This source of supply, coupled with the warmer southern exposure, is the main reason that nearly all middens face in a southerly direction. Of course, there are exceptions, for no doubt, routes of travel

followed the easiest way to good food producing areas. Since Indians crossed water to some of the off islands, landing places on the north sides of these islands were necessary. At some northern sites there is enough shell to indicate the place as a camp, and some artifacts may also be found there. Such spots were undoubtedly used as stopping places rather than as long inhabited areas.

Most middens are located on ground high enough to offer a good vantage point, a minimum of mosquitoes, and a breeze; all three factors made primitive life more bearable. Near most middens there is a source of fresh water, either a stream or a spring area. However, since there are large middens on some of the smaller islands without a water supply, the early Indians must have had some means of carrying water as many of these islands have no fresh water within one half mile.

The coast of Maine is dotted with these refuse piles containing shells, bones, pottery shards, artifacts, and occasionally European trade goods. Most trade materials found today are beads, hand axes, the well known tomahawk, Raolin pipes, and an occasional iron or copper piece. Whether the iron and copper were traded or formed by the Indian is a point of conjecture in some cases. Both types of pieces are found. The majority of heaps are made up of soft shell clam shells but there are other kinds. At Damariscotta, for example, we find heaps up to 30 feet in depth composed of pure oyster shell. Farther down the coast in the Brunswick-Harpswell-New Meadows River area the shell is predominantly quahog, commonly known as hard shelled clam. As one progresses farther on down the coast, he will again encounter the soft shell clam. Some of the New Meadows River middens, where guahog shells abound, look never to have been dug. These shell heaps are difficult to excavate because the shells are large and not easily moved. Except for the two areas mentioned above, most middens are predominantly soft shell clam; however, any marine mollusks that could be used for food have had their

shells left behind, for example, quahog, oyster, soft shelled clam, mussel, whelk, periwinkle, and scallop. Lobsters and crabs were probably eaten, but their shells gave up very quickly. I have never been fortunate enough to find either. In some heaps due to soil acidity and high moisture content, bones and scallop and mussel shells deteriorated quickly. On the other hand some sites with fair to good drainage have good specimens so more bones, bone parts and teeth are found since they have not deteriorated, the teeth due to heavy enamel are generally well preserved. Those from porcupine, beaver, seal, fox, deer, moose, bear and other animals are common. If materials are sifted, teeth of smaller animals may show up; these are difficult to identify. Sometimes a whole mandible is found with teeth intact. Beaver teeth were used as scrapers. The roots of moose teeth seem rather soft, and they deteriorate more than the tougher enameled tops. Human teeth are also found and one wonders the reason for their presence in the refuse. They generally look to be in good condition. Parts of bird beaks, fish spines, leg, wing, wishbones and rib bones of sea birds are all abundant in some sites, but are in various stages of decay. Clam, whelk and quahog shells are hardest and are generally in as good condition as when discarded. I know of six burials in shell middens with parts of the skeletons in good condition. A Swans Island site produced a perfect skull. This was carbon dated at 1300 BC $\pm$ a few years and authenticated by the Peabody Museum of Cambridge, Massachusetts. Parts of another skeleton from another burial at another site were sent to the University of Maine, and the date of burial given was about 1600 A.D. The person, a woman, was about 30 years old.

(Remember these are all coastal shell middens of which I write)

Once a shell heap has been dug or plowed up, the underlying layers of shell become disturbed. What had for years acted as a watershed (actually a shell roof below the sod) now is mixed with soil, shells are broken, and with freezing and thawing, immediate deterioration begins. Instead of layers of

pure shell below the sod, there will be a mixture of black earth and broken pieces of shell. The black earth is typical of middens. Since most heaps have been excavated to some extent, it is almost impossible to try to determine age through stratification; but most heaps are of the ceramic period.

Pottery shards are abundant in some areas but are always in quite small pieces. These also decay readily, as moisture and frost are their enemies. Excellent pieces of the rims seem to remain, perhaps because they are thinner and fired better.

There is no definite correlation between depth of shell and number of artifacts. Pond Island in Jericho Bay has a site with shell approximately nine feet deep, while other sites in the area have only a few inches of shell. Consider the small shallow midden written about by Lloyd Varney in Summer 1971 issue of Maine Archaeology Association. This site is very near Pond Island and has produced hundreds of artifacts.

In all of my coastal excavation I have never found any place, either near or apart from the shell area, that looked as if it had been inhabited; no hearth stones or artifacts attest to its having been an inhabited area. My deduction, therefore, is that the early people lived <u>on</u> these shell middens, smelly and fly infested though they may have been.

Actually there is much more to searching for artifacts than just digging a hole in a midden. Several studies could be made in connection with identification. A person should be familiar with types of points, tools, etc. He should be able to identify the shells, also the bird and animal bones and teeth. All areas should be gridded, dug and sifted carefully. All worthwhile materials should be catalogued as to depth and position, as well as site number. A short write-up of the day's activities will help in reconstructing the dig at a later time.

Much more could be written, but if I have helped any of the members to understand better about shell middens, this has been a worthwhile project.

AN ISLAND SITE 2287

by Don Wood

One of the sites that I have been working is on an island in the town of St. George. It is one of four small islands that make a natural breakwater for the harbour at Tennants Harbour.

This particular site is on the next to last island from the mainland, but can be reached in four to five minutes by boat. Two nice beaches and the best clam flats in the area may very well explain the reason for the presence of a shell midden.

At the eastern end of the island are high ledges which slope toward the west to a small field and alder swamp. The midden is located beyond this toward the beach.

The midden itself is situated on the south west side of a small cove and covers an area of not more than 200 square feet. It is composed mostly of the shells from soft shell clams, with some welk shells, a few scallop and mussel shells. The deposit varies from 6 inches to 2 feet in depth over most of its area.

There is no sod or bunch grass (so called) over the shells, but there is some soil covering everything left by the early inhabitants. And, where grass is lacking, milk weed and thistles make up for this over absence.

The finest exploration of the site was conducted in an attempt to locate surface materials. A very careful search failed to locate either stone or bone tools

Finding nothing which had erroded out I started a trench near the edge of the site and proceeded until the excavation reached the opposite edge of the midden

The trench, which was 3 feet wide, apparently crossed the most productive (artifact wise) part of the midden. All excavating was done with

a small, fine tined garden tool, and a G.I. trenching tool to move the loose shell.

A total of 7 whole and 21 broken or crude points, numerous scrappers, and one perfect stemless knife have been recovered. Bone points and awls were plentiful, as were the teeth of seal, moose, and various small animals.

There were a few small potter sherds present in the shell, but none matched.

This appears to be a good site, but it will have to wait until spring. I will report my findings at a later date.

# # # # # # # #

FOR YOUR READING

Some of the following general interest magazines should be available in almost any local library. The Articles noted are of Anthropological or Archaeological interest.

SCIENTIFIC AMERICAN

June 70, p. 112	An Archaic Indian Cemetery in Newfoundland. James A. Tuck An alkaline soil with unusual bone preservation
p. 100	Neoglaciation. Denton and Porter glacial fluctuations over last 6000 years
Nov 70, p. 30	Woodhenges. Geoffrey Wainwright. An informative part of Britain's Neolothic
Feb 71, p. 32	The Iroquois Confederacy. James A. Tuck New evidence on the origin and social evolution.
Mar 71, p. 46	Australopithecus a toolmaker? a note
April 71, p. 36	Early Man in the Andes. Richard S. MacNeish
p. 52	note - Antiquity of Australopithecus
Jun 71, p. 59	Paleo-Indian jump-kill site also used by Archaic Indians. a note.
p. 102	An Early City in Iran. C.C. & Martha Lamberg-Karlovsky a busy trade center 5500 years ago
Sept 71, p. 105	Energy Flow in a Hunting Society. Wm. B. Kemp
p. 117	Energy Flow in an Agricultural Society. Roy A.Rappaport
Oct 71, p. 63	Carbon 14 and the Prehistory of Europe. Colin Renfrew Corrected C14 dates indicate that culture did not spread from east to west.
Nov 71, p. 72	The Dead Sea Scrolls. Shemaryaho Talmon. A translation of.

(Continued on page 20)

FROM THE ARCHAEOLOGY LAB

THE ATTRIBUTE ANALYSIS TECHNIQUE

The Archaeology laboratory is using the attribute analysis technique for artifact studies. In this technique each artifact class (such as projectile point, pottery sherd, scraper, etc.) is broken down into a number of individual parts With projectile points, for example, we analyze each specimen noting the outline of the edges, the form of the stem, the shape of the barb, and so on, until all aspects are covered. When all the points from a particular site collection are studied we can describe that collection in terms of the numbers of points which have expanding stems or curved bases, or whatever attributes we wish to discuss. Measurements are made of each artifact and these are entered into the final description of the specimens. The end result is a very powerful technique for analyzing a collection and describing in print exactly what it is we have found. If several collections are described and measured in the same way, using identical terminology, we can readily compare one collection with another and get an accurate, objective measure of the similarities and differences. Such data are essential if we are ever to accurately reconstruct the prehistory of Maine.

The attribute analysis technique is an alternate approach to the more traditional 'type analysis'. In type analysis, the archaeologist places artifacts into named types on the basis of what he considers to be diagnostic attributes. Unfortunately, no two archaeologists ever think alike, and unless a type is based on one or two carefully defined attributes, confusion and general misunderstanding prevail. The problems are compounded when a type, named for one area, is transferred to another, perhaps several hundred miles away. To attempt to apply William Ritchie's New York State projectile point typology to Maine collections would result in chaos. Few points would fit all of the criteria listed by Ritchie, and

it would become a subjective assessment on the part of each archaeologist as to whether or not each artifact did, or did not, conform to the original type.

An archaeologist is involved with a great deal more than documenting history. This is only the beginning. Archaeologists are vitally concerned with processes of prehistory. Why did a particular event occur? What were the alternative ways available to man and why did he select the one he did? The basic data for these questions and many others are to be found in our observations about man's behavior, his technology, his housing patterns, ritual behavior, his environment, and so on. The conclusions we reach regarding man's past are only as good as the data on which the interpretations are based, and it follows that sloppy data recovery techniques can only lead to erroneous conclusions. Because of this, every archaeologist, whether or not he makes his living at it, should be concerned that the data gathering stage be as precise as possible. This includes the excavation, the catalogue or artifacts, and the analysis of the specimens.

The archaeology laboratory is establishing a system for the analysis of specimens which, it is hoped, will keep subjective assessments to a minimum. All artifacts are being studied according to a system of attribute analysis which allows for precise description and easy manipulation of the data for further analysis and comparison.

The system works like this. For each artifact class (a projectile point for example) we decide upon a number of attributes which describe the shape of the specimen. A decision is made on the types of measurements to be taken, and where these are to be made. Then a form is drawn up with each attribute listed. Specimens are examined individually and the appropriate attributes checked off on the form. This information is then transferred to a master chart which can be used in further calculations, such as, the size range, percentage of expanding stems, or whatever the analyst feels is meaningful. We now have an accurate record of the specimens with the

information ordered in a way which is extremely useful. Because everyone involved in the project used the same attributes, translation is not required. As an added bonus, the close examination of each artifact will frequently result in the discovery of data which was not apparent at first glance.

The drawback of the attribute analysis system, up to now, has been the overwhelming mass of data, requiring hours of labor to sort and calculate. This tedium and great expenditure of time is now largely eliminated by the computer and the methods of information storage and retrieval which can recall and manipulate a fantastic amount of data in minutes. The attribute system is ideally suited to the computer and, once the basic attribute sheets are completed, little extra effort is involved. To date, no computer can answer the kinds of questions posed earlier concerning prehistoric man's behavior; that is still the realm of the archaeologist. But the sensible use of modern technology can greatly increase our capacity to answer these questions by performing the laborious tasks of retrieving and mathematically manipulating the data.

Members of the Maine Archaeological Society are well aware of the tremendous gaps in our knowledge of the prehistory of Maine. A lot of digging has occurred, but how many detailed, fully documented, site reports have been published? The many private and public collections may have brought a measure of pleasure to their owners, but beyond this, how have they contributed to our understanding of the prehistory of our State?

With the techniques of attribute analysis, combined with the aid of the computer, we have a way to make a complete inventory of what is known about the archaeology of this State. If each of us systematically analyzed our collections in accordance with a standard set of attributes we can eventually complete an inventory which could then serve as a basis for a description and a better understanding of Maine prehistory.

We are prepared to make available to Society members, and any other

interested parties, attribute sheets for the analysis of Maine collections. These will then be coded, prepared for the computer, and the information stored on tape. The data will be permanently recorded and available for analysis. In this way, the results of our labor, and the valuable historical record, will be documented for succeeding generations. I can think of no way to make a bigger contribution to the archaeology of the State and, at the same time, learn a great deal more about the artifacts and the people who left them behind.

In the following issue we will publish an attribute sheet and complete instructions on its use. In the meantime, any comments on this idea, pro or con, will be appreciated.

# # # # # # # #

UNIVERSITY OF MAINE SUMMER FIELD SCHOOL, 1971

The last part of the session we started a new area that is now designated "Hirundo, Me 73-9" We were tipped off to this spot by Bill Winters of Old Town (see Me Arch Soc Bul #4, Oct. '65).

The site is located within the Hirundo Wildlife Refuge on Pushaw Stream. This Refuge has been developed by the Larouche brothers and is open to the public. Parts of the area are being used for a continuing biological research program as well as archaeological research We are extremely fortunate to have landowners so interested and cooperative.

At this time the site appears to cover an area roughly 50 by 200 meters and there may be more We do not have any valid material for C14 dating and as yet we have no clear stratigraphy. Archaic material is mixed with Woodland. We expect that the Summer School will be working here for at least two summers. If money becomes available for adequate supervisory manpower we hope that we may be able to work out some plan for members and other qualified people to help us at the site. We will have specific details available for the Spring Bulletin and Meeting. # # #

PASSAMAQUODDY BAY PREHISTORY: A SUMMARY 2288

By David Sanger
Department of Anthropology
University of Maine at Orono

The St. Croix River forms the International Boundary between Maine and New Brunswick, Canada, as it flows south and then east into Passamaquoddy Bay. Prehistoric Indians utilized the large interior lake system of the St. Croix and harvested the rich marine resources of Passamaquoddy Bay. This brief paper will summarize the archaeological research in the Passamaquoddy Bay area, and touch upon some of the events of the prehistoric period.

One of the first to call attention to the numerous sites in the Passamaquoddy Bay area was Baird (1881). He was followed by a group of naturalists from the New Brunswick Natural History Society who excavated at Phil's Beach, near Bocabec, in 1883. The project was described in detail by Mathew (1884) whose perception and grasp of the problems of archaeology was outstanding for the time. A little later, the historian Ganong (1899) published a work on the historic resources of the province of New Brunswick with a section on known archaeological sites, both historic and prehistoric.

Nearly fifty years elapsed before any further work was undertaken. During the 1950's the R.S. Peabody Foundation sponsored survey and excavation in New Brunswick under the direction of Doublas Byers. The Passamaquoddy Bay area was examined and one of the larger sites, Holt's Point, was excavated. A brief note on etched pebbles from the site has appeared (Fowler 1966) but no account of the overall work. Several years later, R. Pearson, then employed by the National Museums of Canada, excavated three sites in the Bay. A brief summary statement of his testing has recently been published (Pearson 1971). In addition, there have been the sporadic diggings of amateurs and occasional sorties by professionals who have left us no record of their activities.

In 1967 a large-scale program of excavation was initiated. Backed by

ample funding from the National Museums of Canada and the Province of New Brunswick, the most recent Passamaquoddy Bay Archaeological program has been able to systematically survey and test all the known sites in the Bay, and to conduct substantial excavation at others. Survey and excavation from 1967 to 1970 resulted in the location of more than fifty sites, the excavation of eight, and the recovery of over 4,500 artifacts, not including unused flakes, small pottery sherds, etc. Some of the analysis has been completed but a great deal of integration and interpretation remains. The discussion to follow outlines the extent of knowledge arranged chronologically by periods of time.

The Early period, which would include paleo-Indian, is not represented in the area and plays no part in the current discussion. The land was available to Indians of this period as H. Borns (1971) has indicated.

The Middle period may be said to begin around 6,000 years ago with the presence of Laurentian Tradition (Ritchie 1965) people in the interior lakes on the St. Croix drainage system. Characteristics of the Laurentian Tradition in this area are large, side-notched and stemmed projectile points, ground stone adze blades of both the gouge and flat bit varieties, ground slate points, plummets, red-ochre smeared burials of the Moorehead complex, and an adaptation to the interior lake resources. A variant, perhaps only seasonal, may have made its livelihood on the coast hunting seas mammals (Tuck 1971). So far as we now know, these people did not place the reliance on the shell fish which characterizes the later inhabitants. Unfortunately, no traces of coastal marine mammal hunters have turned up in the Bay area. Possibly, the increasing sea levels (Grant 1970) have obliterated the older sites and we never will find them. On the other hand, site survey to date has not been oriented towards locating their living areas due to the emphasis on the location of shell midden sites.

The Late period starts around 3000 years ago and continues to the early 17th century when the Historic period begins. It is dominated by shell midden

sites along the coast and an impression of de-population of the interior lakes. The dependence on shell fish as a protein base represents a re-orientation to the local resources. Soft shell clam (Mya arenaria) is by far the dominant species, with only inconsequential amounts of mussel (Mytilus edulis), and other shell fish. Deer and beaver are the most prominent mammal remains. In lesser amounts are moose, caribou, bear, and seals. Limited quantities of bird and fish remains are found.

It is not possible to be precise about the starting date for this coastal adaptation pattern, but I doubt that it came about slowly through a long trial and error proceedure. More likely, it was introduced full blown from areas to the south where the initial experimentation took place. Ritchie (1969) has demonstrated the presence of the shell fish utilization pattern by 4,000 years ago in Massachusetts, and there are sufficient similarities in artifact forms, mainly projectile points, to suspect the introduction of this way of life to Passamaquoddy Bay by at least 3000 years ago At this time we do not have sufficient data to speculate on whether the new concepts arrived via the movement of new people into the area, or whether indigenous populations adopted the techniques transmitted by diffusion of ideas It is possible that both occurred.

From about 2000 years ago to the Historic period we have relatively far more information concerning the life ways of the Passamaquoddy Bay inhabitants About this time ceramics are introduced. The earliest examples share many attributes with the Point Penninsula wares such as dentate and rockered dentate designs, some psuedo scallop motifs, and later, cord wrapped stick impressed pottery. In contrast with areas to the west where the Iroquois Traditions developed, pottery seems to assume less emphasis and has degenerated both in quality and in quantity by the Historic period.

Projectile points change through time from the stemmed forms to those with wide corner notches, to specimens with narrow corner and side-notching. A large array of cutting and scraping tools is found but surprising few

stone piercing or drilling implements.

Among the organic tools it is the beaver incisor which heads the list in numbers. These ubiquitous artifacts can be grouped according to the way in which they were hafted. Some were left in the lower jaw which was snapped at the 'chin'; others were removed and hafted in handles of wood or antler. Harpoons, bone points, awls, and needles are among the organic artifacts.

From sites dated between 2000 years and about 800 years we have evidence of semi-subterranean houses, a dwelling type in which some of the house is below ground surface level. These are oval to round pits averaging three meters on the long axis by about 2.5 meters across. A conical structure resembling the Historic wigwam was pitched over the depression which averaged 50 cm. We have no information concerning the covering of the structure. Inside, one or more hearths are noted. The houses are situated behind the midden areas unless later occupants have filled the depressions with shells and other garbage from their activities. By plotting the distributions of artifacts recovered in sites with houses of this type it can be seen that a great deal of the manufacturing occurred within, and little took place in the midden regions. In those later sites, where semi-subterranean houses are not present, the artifact distribution is more random, although there is still some patterning in evidence.

The semi-subterranean house form may be associated with a practice of wintering on the coast. Analysis of the faunal remains suggests the possibility of year around habitation. Birds, which can be sensitive seasonal reflections, indicate some fall through spring occupation. More research is needed to adequately document the correlation of the houses and winter residence.

Towards the termination of the Late period there are indications of a scarcity of deer in the Passamaquoddy Bay region, perhaps an anticipation of the Historic period when deer were very scarce until the mid 19th century.

This shortage, which may be linked with a worsening of the climate at that time, may have influenced the dual coastal-inland pattern noted in Historic times.

An interesting observation resulting from our work is the apparent abandonment of the New Brunswick side (east) of the St. Croix River by AD 800 and a movement eastward to the Digdequash Harbor area. Grant (1970) has documented the rather substantial rise in sea levels in the Bay of Fundy, and has arrived at an <u>average</u> rate of rise of one foot per century. Not only is this washing out older sites, but it results in relatively brief occupancy of any one clam gathering area. Clams require silty-sandy beaches in an inter-tidal area to thrive. When sea levels rise and erosion of the land occurs, beach slopes may increase in pitch until the slope is too great to allow the deposition of the fine sands required for clam survival. Coarse sand and gravel replaces the muddy bottoms and other shell fish species, such as mussels and whelks, replace the clams. With the diminishing of the clams the Indians abandoned their nearby site and moved to new clam beds. This at sites like Sand Point and Fidlitz, which are located on the St. Croix River as it debouches into the Bay, one would have difficulty today in obtaining a good feed of clams. These sites are radiocarbon dated at around AD 50 and AD 650 respectively.

Examining our knowledge of the Passamaquoddy Bay area, we can claim to have some idea of the culture between about 2000 years ago and the Historic period. Prior to that there are some large gaps in our knowledge. Most critical is a better understanding of the first intensive shell fish exploitation patterns. It seems unlikely that we will find our evidence in Passamaquoddy Bay, and so attention will be focused on nearby Cobscook Bay where sea level changes and erosion may have been less destructive. Further work needs to be done, also, on the question of the presence of Maritime boreal hunters. Were these people representative of a widespread "Maritime Archaic Tradition", stretching from Blue Hill to Newfoundland as

Tuck suggests (1971)? Or were they primarily inland oriented Indians who made infrequent, or perhaps seasonal, trips to the salt water to hunt seals? In either event, what was the relationship between these people and those who had a primary adaptation to the marine resources - the shell fish gatherers?

These are important questions. At this time the answers can only be put forward as hypotheses to be verified or refuted. These hypotheses serve as guides to future research. As further work in easternmost Maine begins to produce answers, we can anticipate the formulation of new, equally challenging hypotheses

REFERENCES CITED

Baird, S.F., 1881, "Notes on Certain Aboriginal Shell Mounds on the Coast of New Brunswick and New England", Proceedings of the U.S. National Museum, Vol IV, Washington, D.C.

Borns, H.W., 1971, "Possible Paleo-Indian Migration Routes in Northeastern North America - A Geological Approach", Maine Archaeological Society, Vol. 11, No. 1, pp. 33-39.

Fowler, W., 1966, "Cache of Engraved Pebbles from New Brunswick", Bulletin of the Massachusetts Archaeological Society, Vol 28, No. 1, pp 16-17, Attleboro.

Ganong, W., 1899, "A Monograph of Historic Sites in the Province of New Brunswick", Transactions of the Royal Society of Canada, Second Series, Vol V, Section II, pp. 213-357.

Grant, D.R., 1970, "Recent Coastal Submergence of the Maritime Provinces, Canada", Canadian Journal of Earth Sciences, Vol. 7, Part 2, pp. 676-689, Ottawa

Mathew, G F , 1884, "Discoveries at a Village of the Stone Age at Bocabec", Bulletin of the Natural History Society of New Brunswick, No. III, pp. 6-29, St. John.

Pearson, R J , 1971, "Archaeological Investigations in the St. Andrews Area, New Brunswick", Anthropologica, pp. 181-190, Ottawa

Ritchie, W.A , 1965, The Archaeology of New York State, The Natural History Press, New York

Ritchie, W A , 1969, The Archaeology of Martha's Vineyard, The Natural History Press, New York.

Tuck, J.A , 1971, "An Archaic Cemetery at Port au Choix Newfoundland", American Antiquity, Vol. 36, No. 3, pp. 343-358.

(Con't from page 9)

SMITHSONIAN

May 71, p 20 — Neanderthal, Iraq's Shanidar Cave. Ralph S. Solecki 60,000 B P

Oct 71, p 34 — James Deetz, one of the new breed of Archaeologists, and Colonial Archaeology

NATURAL HISTORY

Dec 70, p 8 — The Great Pyramid Debate. Weeks & Edwards

p 62 — The Florentine Codex, a review. A 16th century friar's tale of Aztec codex.

Jan 71, p. 74 — Never in Anger. Jean L. Briggs. A review of.

Feb 71, p 50 — Beyond Civilization. Paul Bonnehan on the past, present and future of man

Mar 71, p. 33 — Lola. Anna M. Chapman the last survivor of the Selk'nam of Tierra del Fuego

May 71, p — Peoples of the Pacific. Mead & McClanahan

Jun-Jly 71, p. 24 — Watch out you Might Assimilate. K. L. Pearson Cultural flexibility may be the answer to survival for the Pueblo Indians

Aug-Spt 71, p. 48 — Welfleet Tavern. Ekholm & Deetz an early whaling tavern on Cape Cod

Oct 71, p. 66 — Social Climbing in the New Hebrides. Kal Muller

NATIONAL GEOGRAPHIC

Feb 71, p 272 — Titicaca, Abode of the Sun

May 71, p. 296, 330, 343 — Lands and Peoples of Southeast Asia

Jun 71, — Mesa Del Nayar's Strange Holy Week

Aug 71, p — Help for Philippine Tribes in Trouble

Spt. 71, p 420 — Brazil Protects Her Cinta Largas Indians

SCIENCE

Jan 22, V 171, #3968 p 280 Prehistoric Domestication of Animals, Effects on bone structure

Apr 2, V 172, #3978 p 54 Early Center of Bovine Husbandry in Southeast Asia, Northeast Thailand, earliest domestication known.

Apr 9, V. 172, #3979 p. 126 Archaeological Methodology & Remote Sensing, testing of aerial sensing devices

May 7, V 172, #3983 Land Clearance in Irish Neolithic, three stages beginning 4000 BC.

Jun 11, V. 173, #3988 p 1119 The New Archaeology - Towards Social Science.

Jly 2, V. 173, #3991, p 23 Gorilla-sized Ape from Miocene of India.

Aug 6, V 173, #3996 p. 511 Tools for Archaeology; Aids to Studying the Past

Spt. 17, V 173, #4002 p. 1129 Archaeological Traces of Early Hominid Activity, East of Lake Rudolph, Kenya.

Oct 22, V 174, #4006 p 261 Deep-water Archaeology

MEMBERSHIP

The Maine Archaeologocal Society is a non-profit educational organization, with a stated purpose of fostering amateur archaeological activity and knowledge in the State of Maine

Anyone interested in membership should contact Mrs. Jean T. MacKay, P.O. Box 133, Stillwater, Maine, 04489. Checks should be made payable to The Maine Archaeological Society.

Classes of membership are:

Individual	$2.00 per year
Family	$3.00 per year
Institutional	$3.00 per year

* * * * * *

EDITORIAL POLICY

All manuscripts or articles should be submitted to the editor. Originals will be returned if requested.

Any article not in good taste or plainly written for sake of controversy may be withheld at the discretion of the editor and editorial staff.

The author of each article or paper that is printed will receive two copies of the bulletin in which his work appears.