ANCIENT TIMES IN THE HOCKOMOCK POINT AREA: ARCHAEOLOGY AT THE TODD SITE

By David Sanger

Introduction

During the 1980s the University of Maine, Orono, conducted archaeological and paleo-environmental research in western Muscongus Bay with the aim of understanding how local environments, both marine and terrestrial, had changed and how the aboriginal people adapted to these variations. Part of a more extensive program to research past adaptations to the ever-evolving Gulf of Maine, archaeologists and their geological colleagues focused on the western Muscongus Bay area, following several years of research in the Boothbay Harbor region. This short report begins with some overall background, both geological and archaeological, before focusing on Hockomock Point.

The Geological Record

The Gulf of Maine was formed by geological events that established the local bedrock and the surficial geology, as well as local paleo-geography. Of particular significance for mid-Maine coast topography are the long, north-south trending bedrock formations that underlie the various peninsulas such as Keene Neck, composed of granite and high-grade, meta-sedimentary rocks that outcrop on the surface. During the last glacial advance 3 km of ice buried the area. The glacier deposited till over the undulating landscape. Sand and gravel mined in local borrow pits date to these events. By 13,000 radiocarbon years ago the ice had retreated from the coastal zone, leaving a depressed landscape over which the sea rushed in to an elevation of about 300 m above modern sea level. This transgression deposited the silt-clay sediments known as the Presumpscot Formation, commonly seen as a blue to gray stratum in local sand and gravel pits.

Following the ice retreat the land began to rebound, and sea level fell off to a lowstand approximately -65 meters around 10,500 years ago. Major ice caps in the high latitudes continued to tie up much of the world's water supply. At the time the Gulf of Maine exhibited a very different character. Known as the DeGeer Sea, geologists model the sea as both warmer and saltier than present. Two offshore shallow banks, Browns and Georges, were above sea level, and the narrow Northeast Channel formed the only connection with the Atlantic Ocean. As the various icecaps began to melt, sea levels around the world began to rise quite rapidly with profound impacts on exposed continental shelf landscapes. Along the coast of Maine, however, the amount of sea-level rise has exceeded average global numbers, due to coastal subsidence whose cause's geologists continue to debate. The impact is obvious and devastating to coastal landowners who see more and more land eroded with each high water event. For the Gulf of Maine oceanographic system the major consequence was the development of tides that define the system today, and made the Gulf one of the world's most biologically most productive bodies of water.

Past and Present Oceanography

Marine biologists have long recognized the impact of the tides on the water column. Forced by the Atlantic Ocean tidal cycle, waters moving into the Gulf of Maine carry a mixture of warm Gulf Stream surface water with colder bottom water flowing south along the Nova Scotia shelf. The water enters the Gulf and moves rapidly over irregularities, such as islands, rising from the ocean floor. These irregular landforms or fronts force the water upwards bringing with them nutrients, especially nitrates, which normally would remain on the ocean bottom. Once exposed to the sunlight, the nutrients form the huge plankton blooms, the so-called biological building blocks. Geologists have cored "deeps" in the Gulf of Maine and interpreted the micro-faunal foraminifers and diatoms incorporated in the sediment. They estimate that from a biological perspective the modern Gulf of Maine began to form only after about 5,000 years ago, at which time basically modern micro fauna had developed. Sea-level rise rates began to slow down just previous to that time but biological productivity continued to increase for another few thousand years.

Decreased sea-surface temperatures were one of the consequences of the increased tidal regime and water column mixing. Many species changed their migration patterns or became isolated relict species, with impacts for the Gulf's Native people. On the banks of the Damariscotta River are huge middens of oyster shells, a species once common in the lower reaches of the river. By about A.D. 1000 sea-level rise permitted the influx of oyster drills, and the oyster population soon crashed. In the Hockomock Point area there were once thriving populations of hard-shell clams (quahogs), as seen in the bottoms of archaeological sites, later replaced by soft-shell clams and blue mussels, whose biology permitted them to reproduce in the colder water. Pelagic species, such as swordfish, were once common along the coast of Maine. Indians hunted them until about 3,800 years ago when the swords and bones disappeared from archaeological sites. Swordfish, a Gulf Stream species, bask on the surface in temperatures a degree or two of 60^0F (~16^0C), when they can be harpooned from canoes, probably made of birchbark. As sea-surface temperatures lowered the swordfish moved away from the coast and out of range of the Native hunters. Isotopic analyses that measure the ratio of O^{16} to O^{18} in shellfish at the Todd site document the temperature changes, also reflected in coastal vegetation responding to regional climate patterns.

Locally, terrestrial vegetation also evolved through time. A sediment core from the bottom of Ross Pond, less than 5 km away from Hockomock Point, contained tundra plant species pollen at 11,700 radiocarbon years ago, which changed to a closed canopy and a white pine forest until 8,600 years ago, when it became dominated by eastern hemlock. About 4,700 years ago hemlock populations crashed from the Great Lakes to Nova Scotia. A northern hardwood mix, which would have been much more attractive to deer and other mast-dependent animals, replaced the vast hemlock forests. Humans would have profited from the change. Sometime around 1,000 years ago the spruce-fir coastal forest became ascendant. Many of these changes reflect species migration and climate change, and all have significance for humans making a living by hunting and gathering animals and plants on the landscape.

The Historic Record of People

Archaeologists are often asked, "What tribe lived here"? This is a complicated issue. When Englishman George Waymouth anchored in Muscongus Bay in 1605 he met Native people. Also in 1605, Champlain sailed along the Maine coast from the St. Croix River on the Maine-New Brunswick border. He called the Native people Etchemins. The boundary between the Etchemins and their neighbors, the Almouchiquois, was the Kennebec River. The Etchemins had been hunters, fishers and plant gatherers for thousands of years. Not until Champlain reached the Saco River did he encounter the first corn-growing agriculturalists. Today, we know the descendants of the Etchemins as Penobscots, Passamquoddies, and Maliseet. It seems very likely that descendants of the Muscongus Bay Etchemins can be found among those who today self-identify as Penobscot and Passamaquoddy.

We know very little about the overall lifestyle of the Muscongus Bay people due to the terrible early seventeenth century epidemics followed by massive depopulation and relocation. Summaries of pre-European societies are based on sketchy accounts extrapolated from various descriptions, especially early French reports from Nova Scotia and New Brunswick. We do know that they lived in small, mobile groups made up of kinsmen. Through marriage they deliberately fostered an extensive network of kin as a hedge against hard times in one area, a source of suitable marriage partners, trading relations, and information. They would have recognized a territory and it is not accurate to refer to their lifestyle as nomadic.

People had been living in Maine for close to 11,000 years. Archaeologists refer to the earliest inhabitants as Paleoindians. Other than their distinctive tools, especially the fluted points, and a preference for high-quality chert—often procured from considerable distances—to make tools, little else is known. Archaeologists speculate they hunted caribou; there is no evidence they hunted late Pleistocene animals such as mammoths as they did elsewhere. Collectors have picked up a few artifacts from this period in the Boothbay region.

The next period is the Archaic, an unfortunate term which really only means post-Paleoindian and pre-pottery. Archaic period artifacts include large chipped spear points, and many ground stone pieces such as axes and gouges, ground slate points, ulus (semi-lunar shaped knives of slate), and plummets. Unlike the Paleoindians they used local sedimentary and metamorphic rocks, which they pecked and ground into shape. It was also the period of the red ochre burials that gave rise to the unfortunate and inappropriate term "Red Paint people." They had a littoral-zone adaptation and procured the pelagic swordfish and cod, in addition to deer, moose, beaver, and sometimes seals. They also hunted an extinct sea mink adapted to the littoral zone (*Mustela macrodon*) (nearly twice the size of the modern mink *M. vison*). Due to sea-level rise there are no known intact sites of the Archaic period in the western Muscongus Bay area, although one has been found on Monhegan Island. The term Moorehead phase has been applied to the latter stages of the Archaic period. Around 3,700 years ago we recognize a sudden and dramatic shift in all aspects of the culture—subsistence, technology, places of settlement, and burial ceremonialism. The new culture, which most archaeologists suspect represents a population replacement, is the Susquehanna tradition, named for its origin in the mid-Atlantic region.

By about 3,000 years ago the idea of turning clay coils into ceramics through firing in an open hearth came to Maine, heralding the Ceramic (also called Woodland) period. The overall way of life may not have changed all that much; however, the cultural contacts seem more to the north, rather than south and west. We know a great deal about this period thanks to the numerous shell middens that still dot the shoreline. Our main source of information for the Hockomock Point-Hog Island area comes from the University of Maine's extensive excavation of the Todd site.

Excavations at the Todd Site

In 1983, during our site survey of Muscongus Bay, University of Maine Ph.D. student Douglas Kellogg tested a large shell heap or midden—the Todd site—located on the north site of Hockomock channel facing Hog Island. The research interested the late Elizabeth "Betty" Noyce, who agreed to sponsor a major excavation at the site, with much appreciated cooperation from the National Audubon Society. Accordingly, in 1985 we arrived with a crew of 15 graduate and undergraduate students and spent 7 weeks at the site. Mature growth spruce covered the site. Local informants suggested that the site had never been plowed, something our excavations confirmed. After cutting up some large spruce blow-downs, we exposed a sizeable area on the western end of the site, where we opened up a block of midden ranging up to 1 meter in depth. We designed the methodology to find remains of semi-subterranean houses, which we knew to be about two by three meters in diameter. Previous experience had shown us that people living on these sites tended to dump the remains of the meals and general garbage over the bank. They didn't live there, not surprisingly, but preferred the back areas where we excavated. However, the garbage tells us what species comprised the diet, so it is important to test those areas too. After making a contour map and setting out a grid system, we excavated the site using small hand tools, such as pointed mason's trowels and other small implements. In all, we excavated about 55 m^2 during the 1984 field season. We returned for a short excavation and dug another 7 m^2 in 1994.

Crew members examined all midden deposits as they excavated, and then screened the deposits through one-quarter inch (6.3 mm) mesh hardware cloth to recover items that passed unnoticed in the shelly matrix. Small items, like the tiny fish vertebrae, will slide through 6.3 mm mesh, so we took 16 column samples (each 25 cm to a side and 5 cm thick) for later processing in the laboratory. Graduate student David Skinas, who wrote his Master's thesis on the stratigraphy of the site, processed the column samples and tied the deposits into the overall excavation. We discovered a number of extensive, black, shell-free deposits, which we interpret as house floors. Unlike house floors we found in Downeast Maine sites (east of the Penobscot River), the Todd site house were less saucer-shaped.

Another University of Maine graduate student, Karen Mack, analyzed the thousands of artifacts from the site for her thesis, building on Skinas' stratigraphic analysis. Certain artifacts are diagnostic of particular times, comparable to the geologists' index fossils used for defining time periods. Most sensitive are pottery sherds which change in form and surface treatment (decoration, in a rough sense) quite frequently. James Petersen and David

Sanger published a detailed analysis that divided the Ceramic period into sub-periods based on changes in the pottery. Numerous radiocarbon dates on closely associated charcoal provided beginning and end dates for the ceramic periods (CP-1 to CP-7). The Todd site, where we had 30 radiocarbon dates, proved to be one of the best, most closely controlled Maine coastal sites, and it figured prominently in the scheme. Chipped stone spear and arrow heads can also function as index fossils, but are not as informative as the pottery.

We combined the stratigraphy with the house floors and artifacts to form a number of cultural zones. At the Todd site we recognized five zones, the earliest of which dates from about 3,500 years ago, and a brief occupation by Susquehanna tradition people. Shortly thereafter, Ceramic period people moved in and left deposits that range in depth to 1.2 meters. Native people occupied the Todd site most intensively between about 2,200 and 1,000 years ago.

Shells in a shell midden neutralize the normally acidic soils of Maine's coastal sites. Whereas in the interior we rarely find intact food bones, on the coast they are extremely plentiful. Graduate student Jeffrey Sommer wrote his Master's thesis on the bones from the Todd site, from which we reconstruct diets, with the caveat that we can only analyze remains brought back to the site and then tossed out in the garbage heap. Feasting around a slain moose still in the field, for example, will not be reflected in the site bone list and subsequent diet reconstruction, as will meat cut off the bone in the field and carried back to the camp. In addition, seeds and other floral remains rarely survive in shell middens, further limiting our dietary reconstructions. It is clear that the inhabitants of the Todd site enjoyed a balanced diet of marine and terrestrial species, especially white-tail deer and beaver. Early on in the occupation they captured a number of quahogs, but later, as cooling waters eliminated their breeding season, the inhabitants specialized, as already mentioned, on cold-resistant soft-shell clams and mussels. They used brush weirs set in the mud flats to capture flounders (mostly winter flounder) and sculpins, ugly fish whose livers contain much oil, highly desirable in the winter. The bones of the tomcod (*Gadus tomcod*), a small fish that spawns in local streams beneath the ice in mid-winter, were especially plentiful. A variety of shore birds were taken, but not song birds.

Did they eat lobsters? Archaeologists are asked this question frequently. No lobster shells were found in our work, and to the author's recollection, no lobster remains pre-European in age have been recovered in other excavations. Did the Indian people eschew lobsters for some reason, or do we have a problem with preservation? No definitive evidence one way or the other has materialized, although crab shells have survived in shell middens elsewhere.

Previously, archaeologists had argued that the Native people only came to the coast in the summer and then went inland in the winter for trapping and hunting. Our work exploded that myth. We found clear evidence for year-round occupation of the coast and the presence of a different people in the interior, prior to the alterations caused the by depopulation following the disastrous epidemics introduced by Europeans. Some animals may be available on a seasonal basis only, such as migratory ducks. Seasonal changes in growth patterns form our best seasonality indicators. Many mammals in regions of seasonal climatic variation exhibit seasonal growth rings in

their teeth. Wildlife biologists routinely section slain deer teeth to ascertain their age. Using similar techniques archaeologists examine deer teeth growth rings to estimate season of death. Most important because of their numbers, however, are the analyses of clam growth rings based on controlled studies carried out in the Damariscotta River at the Darling Center. Clams lay down an arrest phase ring in the winter and a growth ring of different color in the spring when clams begin to feed again. A sectioned clam shell will reveal what time of year death occurred. We examined 97 sectioned clam shells from the Todd site. Most came from the cold season—fall through spring. Based on all the indicators, we cannot say that people lived at the Todd site continuously year-round, but it seems likely that people lived at the site during all seasons over more than a millennium.

By about A.D. 1000 people seem to have abandoned the Todd site as a major campsite and moved on. Archaeologists like to know why people came to a site in the first place, and then why they left. Here we turn to our reconstructions of the local environment for insights. Most archaeological sites in the area feature a large mudflat which provides clams and a safe, soft, canoe landing. The Todd site does not. There is a very small beach and a steep, rapidly eroding bank. In short, it does not meet our expectations. With the assistance of UM geologist Daniel Belknap who used seismic profiles, verified by bottom sediment cores, we reconstructed the paleo-geography of Hockomock Channel. By 5,000 years ago sea levels had just reached the area and began to cut a channel, which by 3,500 years ago grew to create Hog Island and separated it from Keene Neck. When the early occupants moved to the Todd site they would have had ready access to large mudflats, ideal for clams and canoe operations. In time, rising seas scoured the channel, removing the soft, intertidal sediment. It is reasonable to conclude that the loss of mudflats by 1,000 years ago encouraged the Todd site people to look elsewhere for a site, one that proved easier to operate their small boats, and always provided a meal of clams when other pursuits failed. There are a number of sites in the vicinity that make good candidates for post-Todd site occupations.

Summary

We selected the Todd site on Hockomock Point for an intensive research project after a long search. Tied into the excavation was a detailed reconstruction of local paleo-geography and vegetation that could lead to better comprehension of why people selected the site and why they abandoned it. The work, which has provided many details on aboriginal lifestyles between 2,200 and 1,000 years ago, has emerged as perhaps the best example of an integrated inter-disciplinary approach to Maine coastal archaeology.