The Hunt's Island Site: A Prehistoric Vantage Point on Hampton Harbor

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Introduction

Native Americans used Hunt's Island in Hampton Harbor from between 4000 to 5000 years ago until probably into the 17th century. One obvious attraction of the area was the variety of plants and animals present in the rich and diverse environments: Forest, estuary, marshes, harbor, tidal mud flats, and open ocean. The prehistoric occupants of the island left behind an archeological assemblage of stone tools and debitage, ceramics, and, thanks to a shell midden that counteracted the acidity of the soil, bone tools and faunal remains. The assemblage suggests the occupants cooked and ate food; made and repaired stone and bone tools; and made and repaired leather or woven objects needing some sewing.

Context

Hampton Harbor, a lagoon behind the barrier beaches protecting it from the open ocean, is located about 1.5 miles north of the Massachusetts border and 5.3 miles north of the mouth of the Merrimack River. The harbor results from the confluence of three rivers, Brown's, the Blackwater, and the Hampton, and numerous small streams (Figure 1). At present, the open water of the harbor covers about 380 acres at high tide and the surrounding marshes amount to about 3400 acres (United States Atomic Energy Commission [USAEC] 1974:2-16).

Hunt's Island (marked by the triangle in Figure 1) is a four-to-five acre area of dry land in the tidal marshes west of the harbor's open water. The island is about a quarter-mile from Rocks Road peninsula, the nearest mainland at the western edge of the marshes, and one and one-half miles from the open ocean. A slough running east-west divides the island approximately in half. The underlying bedrock of the region is crystalline metamorphic and igneous (USAEC 1974:2-8). The soil of Hunt's island is Hollis-Charlton very rocky fine sandy loam, characteristic of outcroppings of bedrock or glacial till that protrude through the marshy soils that surround them. These soils are primarily wooded, with white pine and oak being most common. Besides appearing on Hunt's Island, these soils appears on all the islands of the harbor and on the peninsulas jutting out into the marsh (Breeding, et al. 1974:23).

Access to Hampton Harbor from the ocean is through a gap in the barrier beaches. As one comes straight in through the gap, Hunt's Island is the first dry, wooded land seen beyond the open water and the marshes. Today the ecosystem of the harbor is a rich source of food for a variety of wildlife. The tidal range is about 2.6 meters, resulting in substantial low-tide mudflats. About 88 percent of the estuary volume of water leaves and returns each tidal cycle, resulting in a fairly high, but constant level of salinity (USAEC 1974:2-8). Much of the decaying plant matter produced in the marsh goes out to sea with each change in the tides, feeding fish outside the harbor as well as in it. All this contributes

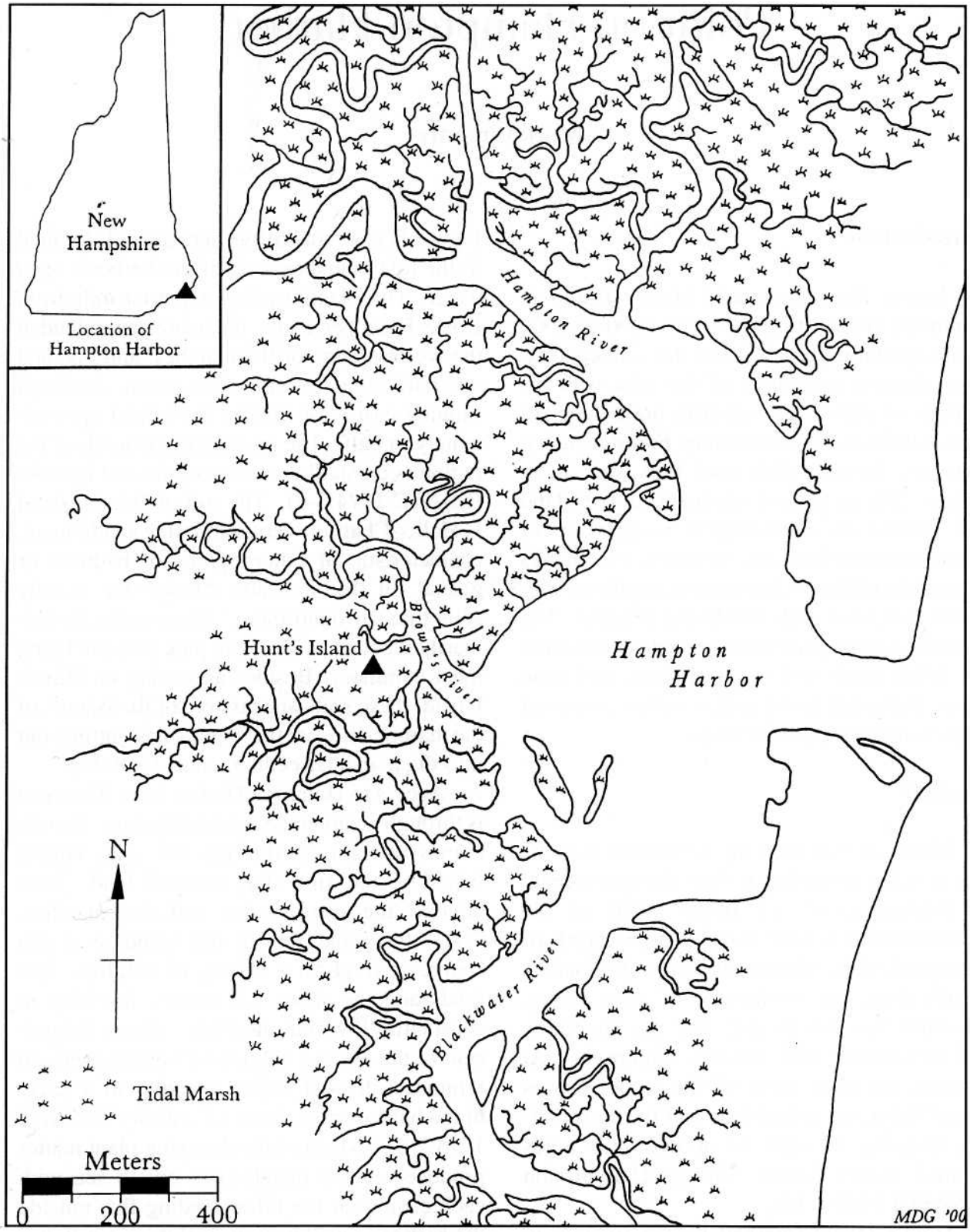

Figure 1. Location of Hunt's Island in Hampton Harbor (after USGS Exeter quadrangle, 42070-H7-TM-025).

to a wide variety of terrestrial, estuarine and marine fauna in diverse environments.

The rise in sea level after the end of the last ice age means that the appearance of the harbor today is not the same as it was during the earliest known Native American occupation. When sea level was lower, some of the marshland between the island and the present open water was wooded, since tree roots were found in an excavation in the marsh 90 meters closer to the open water (Robinson and Bolian 1987:27).

The rate of this rise has been estimated at 1.1 meters per 1000 years for the last 4000 years and 2.3 meters per 1000 years at least for the few thousand years before that (Keene 1971; Kellog 1988; Oldale 1986). At the beginning of the Late Archaic period, the earliest period of occupation of Hunt's Island for which evidence exists, sea level was about nine meters lower than today. By the end of the Late Archaic, sea level was about 3.3 meters lower than today. The high-water line in the harbor moved inland during this period, engulfing parts of the forest and increasing the size of the estuary. After 4000 BP, when the rate of sea level rise decreased, the accumulation of sediment carried into the harbor by the rivers and streams was able to keep pace with the rising water level. The amount of open water versus estuary in the harbor stayed generally in balance even as the water level continued to rise (Keene 1971:66-68). It was in this setting, then, that humans lived, traveled and worked for thousands of years.

The most recent uses of the harbor and surrounding land have included various sports (hunting, fishing, and camping), residential development, extensive drainage ditches that were cut to improve the quality of the hay, and a nuclear power plant. In the early years of this century and in the preceding three centuries, local inhabitants used the harbor for fishing, clamming, and barging; used the salt-marshes for hay; and used the uplands around the harbor area for farms and settlements. Even before the first colonial land grants for this land in 1639 (Hampton 1989:268), the New England coast had been visited and traversed by Europeans as far back as the 1520s (Brasser 1978:79-80). This presence overlapped with the final years of the Native American use of the harbor area.

Native Americans in the area left behind their own traces of occupation, although they were not as large or as visible as those of later inhabitants. The land area shown in the map in Figure 1 is the locale of 11 archeological sites beside Hunt's Island (not all of them still extant) recorded in the state-wide site files maintained by the New Hampshire Division of Historical Resources. Two of these Native American sites are close to Hunt's Island and therefore germane to a discussion of it.

The Rocks Road site (NH 47-21) was on the mainland about 800 meters west of Hunt's Island at a location now within the bounds of the Seabrook nuclear power plant. It was excavated in 1974 and 1975 (Robinson and Bolian 1987:19-20). Almost all the prehistoric artifacts came from a portion of the site on a south-facing slope adjacent to the marsh. The range of lithic and ceramic artifacts showed sparse activity in the Late Archaic period, some activity throughout the Woodland period with a peak during the Middle Woodland, and a clear Contact period presence (1987:38-44). An extensive shell midden estimated at 1500 to 2500 square meters existed near the shore (Bolian n.d.:7). The shell layer was 20 cm. thick near the marsh but thinned out to only a few centimeters thick farther inland (Robinson and Bolian 1987:28). Due to the discontinuous nature of midden, the site was deemed likely to have been occupied intermittently by small groups. (Bolian n.d.:10).

The other site near Hunt's Island, the Seabrook Marsh site (NH 47-22) was in the marsh at the edge of a creek about 90 meters east of Hunt's Island (Robinson 1985:22). Although much eroded, it also gave evidence of long-term habitation, possessing a Small Stemmed point component and a Susquehanna component. No ceramics were found at the site. The youngest reliable radiocarbon date was 3400 BP (1985:41). The site was apparently abandoned as sea level rose and the location slowly changed from dry land to marshes subject to tidal flooding.

The Archeological Study

A small part of the Hunt's Island collection came from work in the 1960s and early 1970s by three members of the New Hampshire Archeological Society -- Eugene Finch, Mike Jenkinson, and William White, who called the site to the attention of archeologist Charles Bolian of the University of New Hampshire (Hoornbeek 1976:91). While excavation at the Rocks Road site was being done in advance of construction for the nuclear power plant, field work at the Hunt's Island and Seabrook Marsh sites, both of which were outside the construction area, was done by volunteers.

At the Hunt's Island site (NH 47-20), the fieldwork was done on a part-time basis between September 1974 and May 1976 by students from the University of New Hampshire and volunteers from the New Hampshire Archeological Society. The setting of the site, an island in the tide marsh, made for some interesting experiences by the excavators, who walked out to it each day through the marsh, wading or jumping the creeks that crisscrossed the marsh and keeping a close eye on the change of the tides. This watchfulness was not always successful; occasionally workers got caught there at high tide (Evelyn Fowler, personal communication 1999). Despite the tidal hazards, they found it a peaceful spot to work, being very much away from civilization (Mary Dupre, personal communication 1999). The view from the site was across the marsh and the open water of the harbor. Buildings and traffic were visible at Hampton beach just over a mile away, but the immediate setting was very peaceful.

The whereabouts of most of the original field documentation (including all the maps) is unknown. Most field records that do exist are incomplete transcriptions. In some cases, the only evidence that a particular level was reached in a particular excavation unit was a tag in an artifact bag. No feature logs or inventory lists have been located. There is thus no way of determining how much of the collection is missing.

Existing records indicate that 17 excavation units and an unknown number of auger holes were spread over the southeast quarter of the island. Sixteen of the units measured 1.5 meters on a side; one was half this size. The lack of maps means that only a very general idea of the placement of excavation units relative to each other can be gained. In only two known instances did one unit adjoin another. The total area excavated amounts to no more than about 40 square meters, or less than one percent of that quarter of the island. The intent of the field work was to gather data that could be used to plan later large scale excavations (Hoornbeek 1976:93). This hoped-for later fieldwork did not occur, though.

The island was a wildlife sanctuary in the 1970s and the owners asked the excavators to preserve as much of the vegetation as possible. Deciding that a grid system would be difficult under this circumstance, the field supervisor chose to cluster the units into five small areas called "zones" (Hoornbeek 1976:92). The placement of the excavation units was based

on judgment and was intended to explore spots thought likely to produce artifacts or to determine the extent of the shell midden visible near the shoreline. Given the lack of a systemic, organized sampling strategy, it cannot be determined from the collection or documentation how representative the tested areas are of the entire site or whether the artifacts recovered are themselves a representative sample.

Arbitrary excavation levels of 10 cm were used for the most part, but in a few cases the natural stratigraphy was followed. The depth to which units were excavated varied from level 2 (10 to 20 cm below surface) to level 6 (50 to 60 cm below surface). Units were dug down to culturally sterile soil or to bedrock. Eleven of the units were excavated to level 4, and the other six were excavated to level 5 or 6. Several units near the shoreline were dug until they filled with water. Soil was screened with 1/4-inch mesh. Records indicate that several soil samples were taken, but only one small one is now known. Historic materials, common in the topmost layers, were also saved. The use of arbitrary 10 cm excavation levels limits the degree of resolution that can be seen in the stratigraphy, and therefore limits the degree of refinement of the chronology. The use of 1/4-inch mesh means that the excavators would have missed things smaller than 1/4-inch not visible to the eye.

Field records indicates six instances of finds being described as features at the time of discovery. These included concentrations of shell or bone and presumed fire pits. While eight charcoal samples were in the collection, only one of them was documented well enough to be tied to a specific feature. This feature was a fire pit between 26 cm. and 36.5 cm below surface, and 48 cm in diameter. The charcoal sample from this feature was dated to a conventional radiocarbon age of 1360 +/- 70 B.P., or a calibrated 1-sigma result of AD 640 to 705 (Beta 106854).

I began work on the collection in September 1996 by locating all the artifacts and documents stored in various places throughout the University of New Hampshire Archaeology Laboratory. It was apparent that a good deal of laboratory work had been done at some time in the past. Most of the artifacts had been cleaned. Artifacts were packed in bags, with the artifacts from each level within each excavation unit sorted by material (i.e., faunal, ceramic, or stone). Some individual items such as projectile points and identifiable bone fragments had been bagged separately. Some broken pieces had been glued together. Nothing had been catalogued in any fashion, but some pieces had a provenience number inked on them.

My goal for the laboratory phase was to catalog the collection, describing it and recording all the details of material and provenience that still existed. In effect, I wished to complete the work that had been started more than 20 years before but left unfinished. I catalogued all the artifacts so as not to lose any information relating to the contents of each provenience bag as I had found it, since the contents of a given provenience bag may have been split up under several catalog numbers. For example, if a bag of lithic debitage contained several kinds of raw material, I catalogued each kind separately. Each of the provenience bags was numbered and entered into the catalog for tracking purposes, so that the contents of each bag (as I had originally found it) could be reassociated if the need ever arises. I used the categories and card format of the NH Division of Historic Resources (Boisvert and Healy 1996), even though I could not fill out every field on the card. I weighed all artifacts as they were catalogued. Some artifacts, e.g., ceramic rim sherds,

bifaces, etc., were weighed and measured individually. In other cases, the weight I recorded for a catalog number was the total weight of all the artifacts that made up that number. For my own analysis, I entered the entire catalog, amounting to 1262 cards, on a personal computer database. I did not know when I started how much I would use all this data myself, but the database will be the foundation of more detailed study should the missing field records ever be located.

Although I was trying to bring good cataloging practice to the project, in some ways I decided just to pick up where previous work had left off. I accepted at face value what field documentation I found. I also accepted what species identification had been made of faunal remains. I made at least a general identification of the raw material of all lithic artifacts. I decided to split lithic debitage into individual catalog numbers by type of material, though, rather than keeping it bagged strictly by provenience.

Historic Artifacts

The historic artifacts in the collection (kitchen items, building debris from a shack once on the island, and fragments of tobacco pipes and of tools) are consistent with the known uses of the marsh. Haying of the marsh grass was a major seasonal activity from the time of the earliest settlers in the 1600s until the early 1900s. During the harvest season, the farmers sometimes camped "along or near the Hampton River or anywhere they could take the boat in the tents so if the tide did come up a little, they would be high and dry" (Fogg 1981:24). In all probability, Hunt's Island, being one of the spots of dry land in the marsh, would have been one these camping places. Picnickers, sportsmen, and local children used the marsh and its islands for camping, swimming, fishing and clamming. The historic material in the collection is a sample of the residue of all these activities.

There are no items in the collection clearly attributable to the Contact period. One tubular shell wampum bead was reported to have been found by the excavators (Robinson and Bolian 1987:46; Robinson, personal communication 1998), but its location is unknown and there is no reference to it in any documentation I found. The oldest identified item is a clay pipe bowl of the 17th century (Hoornbeek 1976:91).

The historic material was not completely confined to the topmost level. Fifty-two percent of the total number of historic artifacts (amounting to 32 percent of the total historic weight) were found below level 1. On the other hand, the distribution of the diagnostic prehistoric material (as much as this could be discerned within individual units) was not chaotic. This suggests that the presence of some historic artifacts below level 1 was more likely the result of a downward migration than of a wholesale churning of the soil. I did not locate any evidence suggesting that the site had ever been plowed.

Shell Midden

A shell midden was evident along the shore of the southeast quarter of island, but did not extend north of slough that cuts across the island east to west. The midden extended one to three meters into marsh in some spots. The number of excavation units dug did not allow an estimate of the length and width of the midden. The degree to which the shells had been pulverized varied greatly across the midden and from layer to layer. Shells were visible at the ground surface near the shoreline, but were covered with up to 10 cm of soil further inland. There were some discontinuous deposits of

shell farther inland than the apparent edge of continuous midden. The midden extended to about 40 cm below surface at its deepest spots, which were near the shore. Farther inland, it thinned out gradually at the edges, without well-defined or abrupt margins. In some spots, though, it thinned out rapidly. Along the wall of one excavation unit, the midden thickness went from 20 cm to nothing in a distance of 1.5 meters.

Ceramics

The prehistoric ceramic assemblage from Hunt's Island totals 1210 fragments weighing 1968.7 grams. Both grit temper and shell temper are seen in the collection. Grit tempered sherds predominate, amounting to 1707.3 gr. (86.7 percent). Shell tempered sherds amount to 261.4 gr. (13.3 percent).

I used a vessel lot analysis to determine how many vessels I could discern. This technique can be thought of as what Petersen and Power (1985:113) called "descriptive reconstruction," aiming to group sherds that can be demonstrated to have come from the same original vessel. When tied to stratigraphy, absolute dating, and the like, or when tied to known geographical or temporal sequences, vessel lot analysis can elaborate the cultural sequence of the site.

I distinguished sherds from each other by based on style and technological details, using in the analysis all rim sherds and others that were distinctive. By far, most sherds were too small or too nondescript to be useful. For all sherds I considered temper material, surface treatment, decorations, and thickness. For rim sherds I also used differences in lip form.

I identified thirteen vessel lots, twelve of them on the basis of three or fewer sherds. The thirteenth vessel lot accounted for 30 sherds, since it had been partially reconstructed at some time in the past. Five of the thirteen vessel lots are temporally diagnostic. Sherds from these are illustrated in Plate 1. Together they show a presence at the site during the Early and Middle Woodland. There is one Vinette I vessel lot (Items F and G in Plate 2) from the Early Woodland. Two vessel lots with pseudo-scalloped shell decoration (Items D and E) indicate the Early Middle Woodland period. There is one vessel lot with punctate-dentate decoration (Item C) from the Middle Middle Woodland. Finally, there is one vessel lot with cord-wrapped stick decoration (Item A) from the Late Middle Woodland period. I did not identify any Late Woodland vessel lots. The remaining eight vessel lots are not temporally diagnostic.

A plasticine cast of the two Vinette I sherds showed an S-twist cordage had been used, similar to the Early Woodland vessels from the Rocks Road site (Goodby 1995:58). On a broader geographical scale, Petersen has related the twist of cordage used to impress vessel surfaces to spatial and temporal patterns in New England. He notes (1996:103-104) that during the Early Woodland period evidence from Vermont and New Hampshire sites shows 80 percent S-Twist and 20 percent Z-twist. However, he also found Z-twist to be more common on the Maine coast during this period. So, the Hunt's Island Vinette I sherds, while the cordage twist matches that of the Rocks Road sherds and is the prevalent New Hampshire type, are not like those of the Maine coast, only a day's journey away. Together, the Hunt's Island and Rocks Road Vinette I sherds raise the question of whether a cultural boundary (at least regarding cordage twist) existed somewhere between Hampton Harbor and the Maine sites from which Petersen drew his sample.

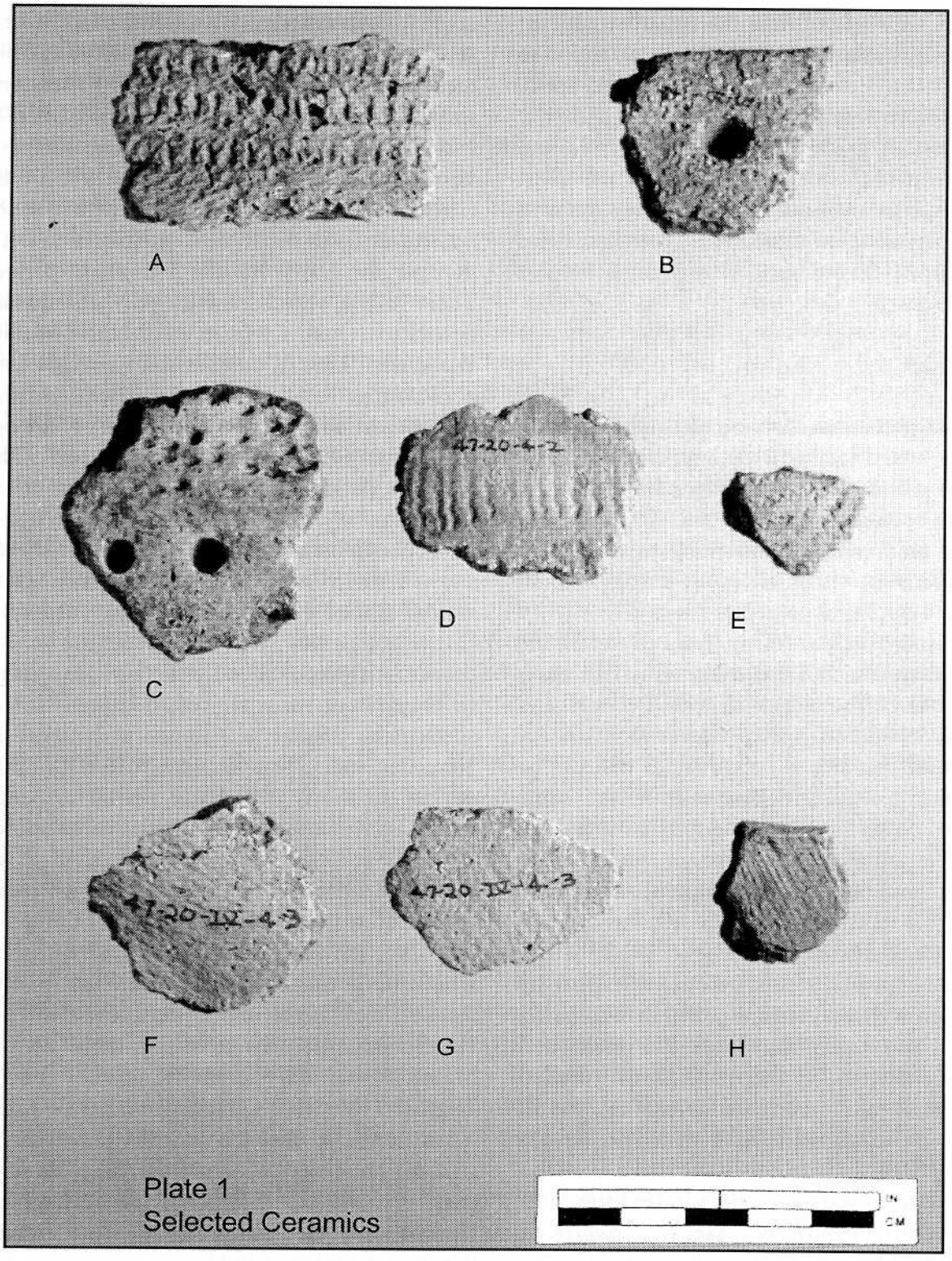

Plate 1. A. *c/n 3, vessel lot 1, cord-wrapped stick.* B. *c/n 8, vessel lot 4, punctate.* C. *c/n 78, vessel lot 7, punctate-dentate.* D. *c/n 55, vessel lot 8, pseudo-scallop shell.* E. *c/n 68, vessel lot 9, pseudo-scallop shell.* F, G. *c/n 77, vessel lot 10, Vinette I.* H. *c/n 110, vessel lot 13, untyped. Note: c/n is catalog number.*

Table 1. Bone Tools and Fragments

Number	Type	Length (cm)	Width (cm)	Thickness (cm)	Wgt (g)
733	Point	5.8	1.8	0.4	2.3
735	Harpoon	8.8	1.3	0.7	5.4
736	Awl tip	1.8	0.7	0.3	0.3
737	Awl tip	1.4	0.6	0.1	0.1
738	Unknown	4.7	1.5	0.8	2.4
739	Unfinished point	7.4	3.0	1.9	8.5
740	Unknown	3.4	2.7	0.2	0.9
741	Harpoon frag	7.6	1.7	0.7	6.2
742	Awl tip	3.4	1.0	0.5	0.9
744	Awl tip	1.6	0.9	0.5	0.4
746	Unknown	1.6	1.3	0.6	0.4
1045	Awl tip	3.7	0.7	0.4	0.7

Worked Bone and Faunal Remains

There are eighteen pieces of worked bone (including one of turtle shell) in the collection, amounting to 52.7 gr. These include seven awl tips, two harpoon fragments, two possible projectile points, a flaking tool, and six pieces of unknown function. Twelve of them are illustrated in Plate 2 and described in Table 1.

Each of the five awl fragments (Items B to F) appears to be a broken tip. They range in length from 1.4 cm to 3.4 cm. There are no pieces in the collection that might be corresponding basal fragments. Perhaps in each case the remaining base was resharpened for further use. The presence of awl tips indicates that one activity at the site was the manufacture or repair of items needing sewing: skin garments, woven matting, or the like.

There are two objects that appear to be bone projectile points (Items I and L). One (Item I) is a triangular fragment 5.8 cm long that was grooved and then snapped along one edge (the uppermost edge in the illustration) but has a natural break along the other edge. The other apparent bone point (Item L) appears to have been in work, using one end of a mammal long bone as the raw material, when it was either lost or discarded. The two deeply-scored lines visible in the illustration do not cut completely through the bone.

There are two harpoon fragments in the collection (Items J and K). The more fragmentary of the two (Item J) is 7.6 cm long and shows only the remnants of the bases of barbs. The other harpoon (Item K) is 8.8 cm long. It was discovered whole but broken in excavation. The surface had been carefully smoothed during manufacture and the barbs, still intact, show careful workmanship.

Several bone objects of unknown function are also in the collection. One is a squarish piece 1.6 by 1.2 cm (Item A) showing cross-hatched lines scored into it. There is a fragment of turtle shell (Item G) that has a hole drilled into it with three curving lines radiating from the hole. Perhaps it was part of a pendant of some kind. Finally, one (Item H) is a frag-

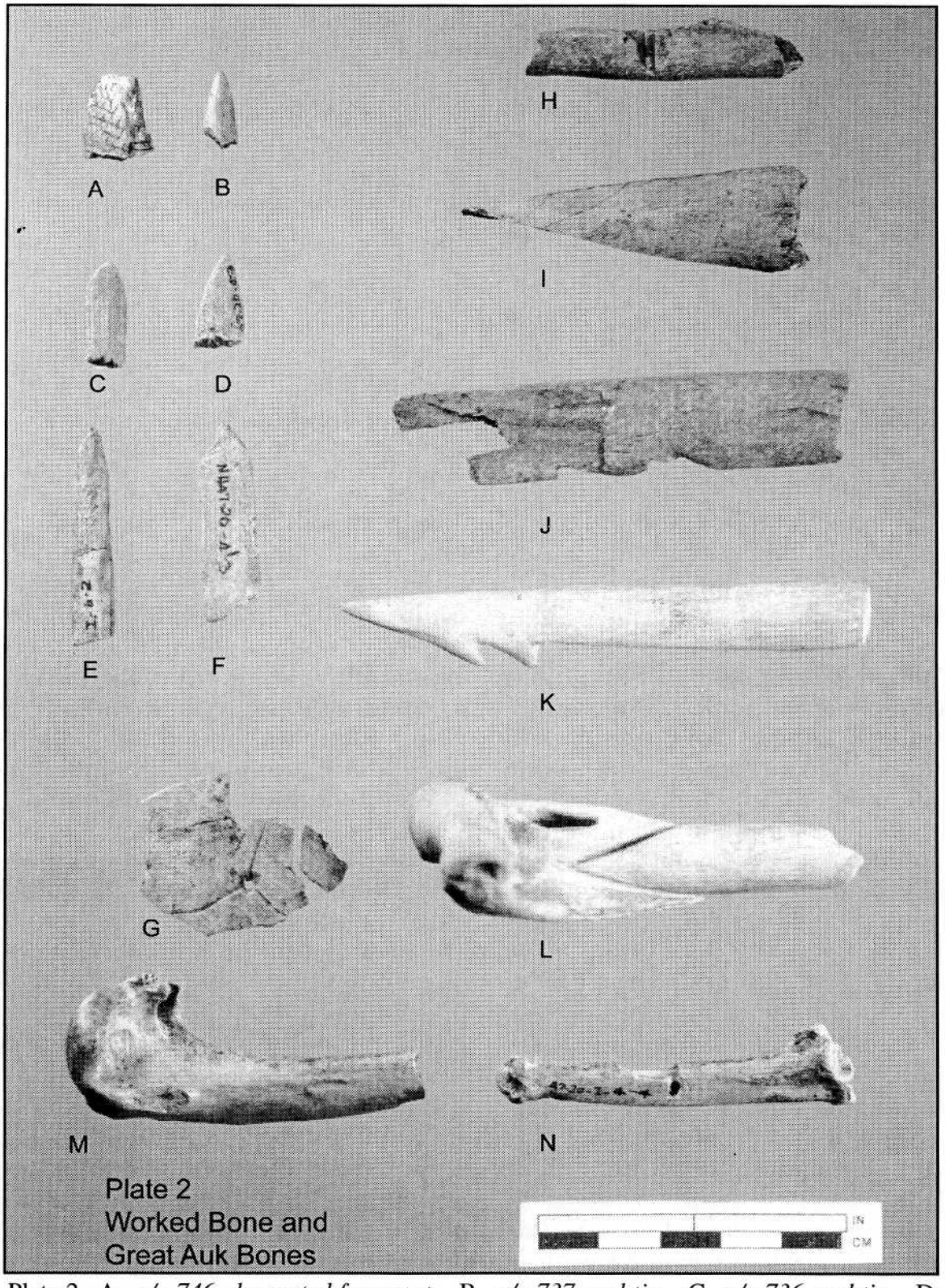

Plate 2. A. *c/n 746, decorated fragment.* B. *c/n 737, awl tip.* C. *c/n 736, awl tip.* D. *c/n 744, awl tip.* E. *c/n 1045, awl tip.* F. *c/n 742, awl tip.* G. *c/n 740, worked turtle shell.* H. *c/n 738, worked bone.* I. *c/n 733, bone point.* J. *c/n 741, harpoon fragment.* K. *c/n 735, harpoon.* L. *c/n 739, unfinished point.* M., N. *c/n 951, great auk bones. Note: c/n is catalog number.*

ment of long bone partially cut through. Its intended use remains unknown.

The weight of the worked bone described above accounts for less than one percent of the faunal remains in the collection. The remainder amounts to 9706 fragments totaling 4709.6 gr. Of this amount, bone accounted for 82 percent by weight of the total faunal remains in the collection, shell accounted for about 15 percent, and teeth for about 3 percent. The documentation suggests that all bones and teeth fragments were saved. Most pieces of bone are only small fragments. Only a few very small bones were whole.

Table 2 lists the identifications made by Billee Hoornbeek and Brian Robinson in the 1970s. Taken as a whole, the list indicates the occupants used a variety of terrestrial and aquatic species: Nine species of mammals, two of birds, four of mollusk, one of reptile and one of fish. However, the bones represented by the identifications in Table 2 amount to only 19.3 percent of the total quantity and 26.4 percent of total weight of faunal remains recovered. Since some other bones were tagged as "identifiable," the potential exists that other species might be identified in the future.

Two of the bones in Plate 2 (Items M and N) deserve particular mention. They were identified as being from the great auk (Pinguinus impennis), a large flightless sea bird, extinct since the mid-nineteenth century, that previously migrated in large numbers along the east coast. It was killed for food by European fisherman beginning about 1500, and later for its feathers (Hoornbeek 1976:93). These two bones were the first reported find of great auk remains in New Hampshire and attracted statewide attention (Warner 1976:1), although remains were found soon after at the Seabrook Marsh site. Other great auk remains have been found on the coast of Massachusetts at the Clark's Pond Shell Heap site (Bullen 1949:130) and the Wheeler site (Barber 1982:66), and on the coast of Maine at the Turner Farm site (Bourque 1995:89).

Table 2. Faunal Identification

Birds	**Mammals**
Canada Goose	Seal
Great Auk	Beaver
	Deer
Mollusks	Fox
Clam	Lynx
Sea Clam	Meadow vole
Quahog	Porcupine
Snail	Racoon
	Wildcat
Fish	
Cod	
Reptile	
Turtle	

Note: Some other faunal remains were identified only to broader catagories than species, i.e., Fish, Canid, Herbivore, Cetacean.

Lithic Tools and Debitage

The lithic assemblage includes a variety of tools and debitage. Table 3 shows the number of each type of artifact and the percent of the total artifact count that the type makes up. Projectile points and fragments make up almost half of the total of formal tools (20 of 46). The other pieces include nine scrapers and nine biface fragments. One flake knife, a drill, 3 pieces esquillee, and utilized flakes account for the remainder. Table 4 presents dimensions of the diagnostic points, while Table 5 includes dimensions for the all the points along with the other bifaces.

Table 3. Percent of Lithic Artifacts by Function

Item	Number	Percent
Projectile point or fragment	20	43.5
Other bifaces or fragments	9	19.6
Scrapers	9	19.6
Utilized flake	3	6.5
Piece esquillee	3	6.5
Drill	1	2.2
Knife	1	2.2
Total	46	100

Plate 3 shows the projectile points. The diagnostic points span the Late Archaic to the Late Woodland periods. There one a Late Archaic Brewerton Eared-Notched point (Item I) of a fine-grained dark gray volcanic. There are four quartz Small Stemmed points (Items B through E) from the Late Archaic or Terminal Archaic; Three of these (Items C, D, and E) are milky quartz. One specimen (Item B) is an almost clear crystal quartz with only a slight cloudiness. From the Early Woodland period there is a Meadowood point (Item A) of fine-grained dark gray volcanic. There are three Middle Woodland Jack's Reef Corner Notched points. Two of these are of jasper (Items F and G); Item F has been heated until the outside is a light gray color. The side not visible in the plate has a fracture out of it that shows an interior red color. Item G is mustard colored, not having been heated treated. The third Jack's Reef Corner Notched point (Item N) is of a mottled porphyry showing light and dark gray material. It is not only larger than the other two points and of a different material, but is of a different pattern, having parallel sides. The Late Woodland period is represented by a Levanna point (Item H) of gray volcanic.

All other fragments in plate 3 (Items J to M and O to Q) are untyped. One untyped point (Item J), found in the screeen but attributed to 23 cm below surface, is a one-eared specimen of gray volcanic. Two pieces (Items L and M) are of a very fine-grained greenish-gray porphyritic rhyolite resembling that from the Mt Kineo area of Maine. One of these (Item L) is the base of a triangular point that resembles a Late Woodland period Madison, but is incomplete. The other (Item M) may also have been the base of a point, but it now bears a spur on its base that shows polish from use wear and could have been used as a graver or scraper. There is one point of slate (Item O).

Other stone tools in the collection are illustrated in Plate 4 and details about them are presented in Tables 6 and 7. There is a knife (Item B) of dark green volcanic material, not as fine grained as the rhyolite mentioned above, with reddish inclusions, perhaps of iron oxide. It was made from a large flake and fits very comfortably in the hand. The uppermost edge in the illustration has been bifacially retouched. There are nine end scrapers in the collection. All show steep edge angles. Six of them have edge angle greater than 60 degrees, and the thinnest edge angle is about 48 degrees. All but one (Item A) show readily visible-edge wear. Three of them (Items E, F, and J) are the same greenish-gray rhyolite as items L and M in Plate 3. One (Item D) is a reddish chert, while another (Item G) is of a black chert. The others are made of either dark gray volcanics (Items A and H), quartzite (Item C), or crystal quartz (Item I). The remaining items in Plate 4 include a drill (item K) of black chert or very fine-grained volcanic, and three utilized flakes.

There are a number of other bifaces in the collection, but they are too fragmentary to be assigned to a type. The range of raw material in this group mirrors the more complete bifaces: quartz, quartzite, dark gray volcanics, and a small number of dark cherts.

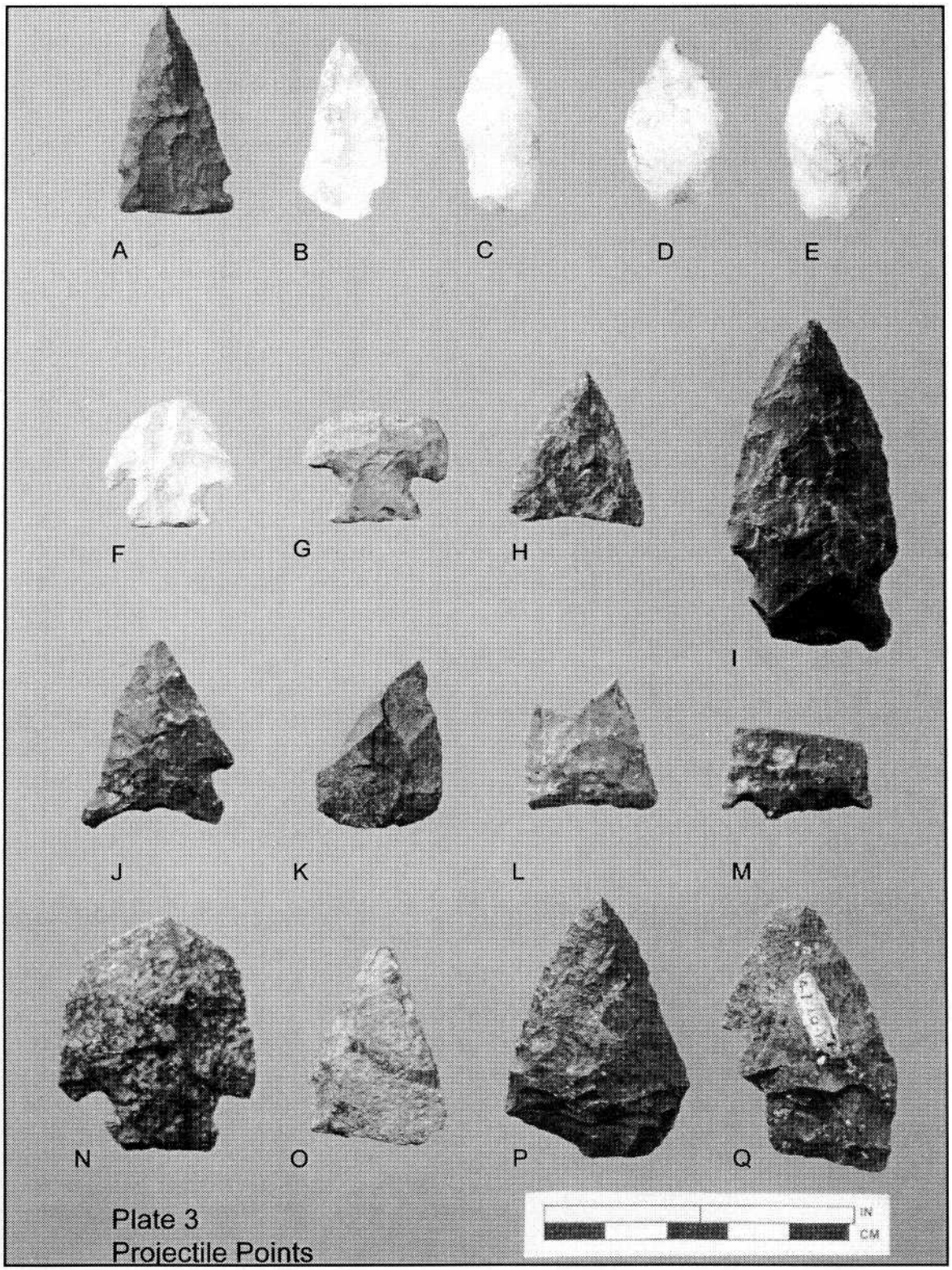

Plate 3. A. *c/n 556, Meadowood.* B. *c/n 115, Small Stemmed.* C. *c/n 497, Small Stemmed.* D. *c/n 498, Small Stemmed.* E. *c/n 499, Small Stemmed.* F. *c/n 555, Jack's Reef Corner Notched.* G. *c/n 320, Jack's Reef Corner Notched.* H. *c/n 243, Levanna.* I. *c/n 413, Brewerton Eared-Notched.* J. *c/n 202, untyped.* K. *c/n 557, untyped.* L. *c/n 348, untyped.* M. *c/n 192, untyped.* N. *c/n 210, Jack's Reef Corner Notched.* O. *c/n 274, untyped..* P. *c/n 119, untyped.* Q. *c/n 158, untyped.* Material: A, K - *unknown.* B, C, D, E - *quartz.* F, G - *jasper.* H, I, J, L, M, N, P, Q, - *volcanic.* O - *slate. Note: c/n is catalog number.*

Table 4. Dimensions of Projectile Points in Millimeters

1. Brewterton Eared-Notched	Range	Mean	N
Length	-----	56.0	1
Max width	-----	-----	--
Ht. max width	-----	-----	--
Width of base	-----	-----	--
Stem minimum	-----	21.0	1
Thckness	-----	10.7	1
Width/Thickness ratio	-----	-----	--

2. Small-Stemmed	Range	Mean	N
Length	29.9 -33.3	31.8	4
Max width	14.2 -16.8	15.5	4
Ht. max width	14.7 -16.0	15.2	3
Width of base	5.2 - 7.8	6.7	3
Stem minimum	5.2 - 7.8	6.7	3
Thckness	6.5 -10.3	8.2	4
Width/Thickness ratio	1.6 - 2.6	1.9	4

3. Meadowood	Range	Mean	N
Length	-----	35.3	1
Max width	-----	19.4	1
Ht. max width	-----	0	1
Width of base	-----	19.4	1
Stem minimum	-----	16.9	1
Thckness	-----	5.5	1
Width/Thickness ratio	-----	3.5	1

4. Jack's Reef Corner Notched	Range	Mean	N
Length	22.4 -39.3	30.8	2
Max width	21.0 -32.2	25.7	3
Ht. max width	10.0 -12.5	11.5	3
Width of base	-----	16.4	1
Stem minimum	11.6 -16.5	13.3	3
Thckness	5.7 - 8.3	6.6	3
Width/Thickness ratio	3.7 - 4.2	3.9	3

5. Levanna Triangle	Range	Mean	N
Length	-----	26.1	1
Max width	-----	22.8	1
Ht. max width	-----	0	1
Width of base	-----	22.8	1
Thckness	-----	5.6	1
Width/Thickness ratio	-----	4.1	1

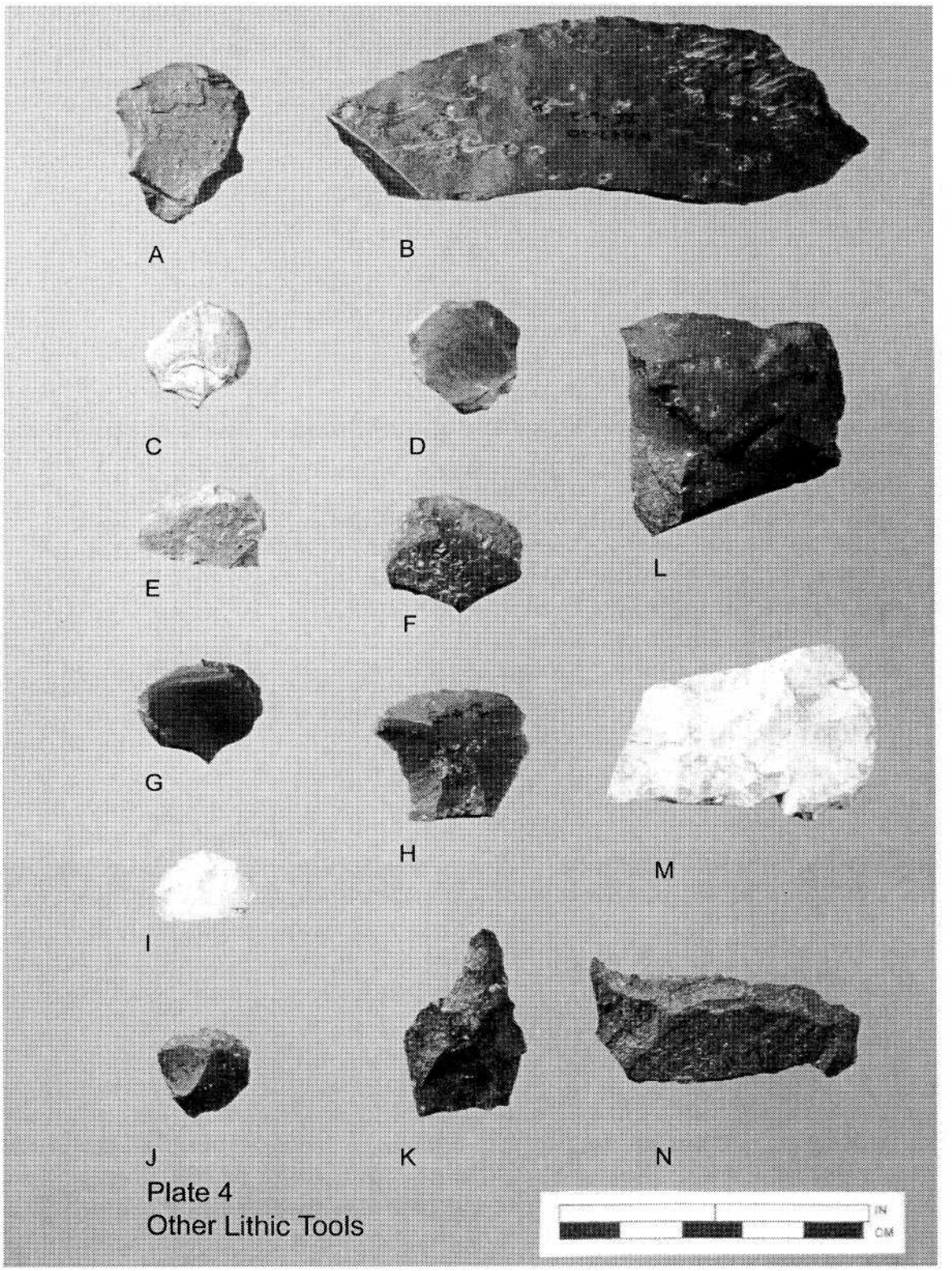

Plate 4. A. *c/n 554, scraper.* B. *c/n 565, knife.* C. *c/n 525, scraper.* D. *c/n 414, scraper.* E. *c/n 146, scraper.* F. *c/n 553, scraper.* G. *c/n 160, scraper.* H. *c/n 269, scraper.* I. *c/n 132, scraper.* J. *c/n 270, scraper.* K. *c/n 284, drill.* L. *c/n 273, utilized flake.* M. *c/n 118, utilized flake.* N. *c/n 296, utilized flake.* Material: A, B, E, F, J, K, L, N - *volcanic.* C - *quartzite.* D, G, H - *chert.* I - *quartz.* M - *jasper. Note: c/n is catalog number.*

Table 5. Inventory and Dimensions of Bifaces

Catalog Number	Type	Materia	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)
115	Small Stemmed	Quartz crystal	3.1	1.4	0.7	2.5
119	Untyped	Volcanic	4.4	3.1	0.8	8.8
141	Possible preform	Quartz	3.9	2.6	1.2	12.1
158	Untyped	Quartz	4.6	3.0	0.8	7.9
176	Bifacally worked fragment	Quartzite	4.4	2.7	1.4	15.5
179	Bifacially worked fragment	Chert	2.4	1.2	1.7	2.2
187	Bifacially worked fragment	Volcanic	4.7	3.6	1.3	13.7
192	Untyped (basal fragment)	Volcanic	2.5	1.5	0.5	2.4
202	Untyped projectile point	Volcanic	3.1	2.6	0.6	3.4
210	Jack's Reef Corner Notched	Unknown	3.9	3.2	0.8	9.7
221	Bifacially worked fragment	Quartz	2.7	2.0	1.4	6.8
227	Bifacially worked fragment	Chert	2.7	2.2	0.8	5.0
240	Bifacially worked fragment	Volcanic	4.7	3.9	1.7	34.7
243	Levanna	Volcanic	2.6	2.3	0.6	2.7
274	Untyped projectile point	Slate	3.3	2.3	0.4	3.0
284	Drill	Volcanic	3.0	2.0	0.9	4.2
320	Jack's Reef Corner Notched	Jasper	1.9	2.4	0.6	2.7
321	Untyped (tip fragment)	Unknown	1.8	1.3	0.6	1.1
347	Untyped (lateral fragment)	Unknown	2.2	1.2	0.4	0.8
348	Untyped (basal fragment)	Volcanic	2.3	2.2	0.4	2.2
359	Untyped (tip fragment)	Volcanic	2.1	1.1	0.5	0.9
413	Brewerton Eared-Notched	Volcanic	5.6	2.8	1.1	16.7
463	Bifacially worked fragment	Chert	3.1	1.6	0.8	3.9
497	Small Stemmed	Quartz	3.3	1.4	0.9	3.8
498	Small Stemmed	Quartz	3.0	1.7	0.7	3.0
499	Small Stemmed	Quartz	3.3	1.6	1.0	4.9
555	Jacks Reef Corner Notched	Jasper	2.3	2.1	0.6	1.8
556	Meadowood	Unknown	3.5	1.9	0.6	3.1
557	Untyped (basal fragment)	Unknown	2.9	2.1	0.5	2.3
565	Knife	Volcanic	9.1	3.6	1.1	31.7
605	Untyped	Jasper	1.5	2.1	0.5	2.0

Table 6. Inventory and Dimensions of Scrapers

Catalog Number	Material	Length (cm)	Width (cm)	Thickness (cm)	Bit Angle (deg)	Weight (g)
132	Quartz	1.7	1.2	0.4	48.0	0.8
146	Volcanic	2.2	1.5	0.5	50.5	1.9
160	Chert	2.1	1.8	0.5	70.5	2.0
269	Chert	2.3	2.6	0.5	67.5	3.0
270	Volcanic	1.5	1.6	0.5	51.0	1.1
414	Chert	2.1	1.9	1.1	70.5	2.4
525	Quartzite	1.8	1.8	0.5	64.5	2.0
553	Volcanic	2.3	1.9	0.6	67.0	3.1
554	Volcanic	2.9	2.3	0.7	68.0	5.4

Table 7. Inventory and Dimensions of Other Tools

Catalog Number	Type	Material	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)
284	Drill	Volcanic	3.0	2.0	0.9	4.2
565	Knife	Volcanic	9.1	3.6	1.1	31.7

Debitage makes up 29 percent of the weight of lithic material in the collection. Volcanics are the most common type of raw material, making up 33 percent of the debitage weight. Black or dark gray are the most common colors of volcanics, but red examples are also present. The greenish-gray porphyrytic rhyolite mentioned earlier appears as a small amount, i.e, 2.1 percent. Quartz is 12.7 percent. Pennsylvania jasper is about 8.4 percent, with other cherts making up 5.8 percent. Black, gray, and red are the most common colors of these other cherts. Some of the chert is probably from the Munsungan area of Maine, most evidently a distinctive mottled red/green variety, but it is difficult to say, based on a visual inspection, exactly how much chert is from that locale. Other raw materials appear in minuscule amounts: feldspar, granite, hornfels, quartzite, and slate taken together amount to about 3 percent of the debitage weight. About 39 percent of the debitage is not yet identified. This is not to say it is exotic, though; the materials may prove to be only less common examples of volcanics or metamorphics.

Taking the debitage as a whole, the average weight per flake is 0.88 grams. The volcanics average 0.87 gr. per flake. Quartz flakes are the largest, averaging 1.3 gr.; the cherts as a group (including jasper) show the smallest size flakes, averaging 0.42 gr., reflecting retouching or trimming of very fine-grained material at a distance from its source. The generally small size of all flakes in the debitage, if representative of activities at the site, suggests that late stage reduction and/or retouch were far more common activities than earlier stage reduction.

Table 8. Percent of Total Weight of Each Class of Prehistoric Material By Excavation Level, With All Units Added Together

Level	Ceramic	Faunal	Stone
Unknown	9.8	6.1	18.7
1	8	12.5	16.7
2	66.7	45.7	40.1
3	13.7	25.3	18.9
4	<1	8.2	3.6
5	1.1	2.2	2
6	<1	<1	0

Table 9. Percent of Total Weight of Each Class of Prehistoric Material By Excavation Level, For Zone I and Zone IV Separately

Level	Zone I			Zone IV		
	ceramic	faunal	stone	ceramic	faunal	stone
Unknown	21.7	4.3	18.9	<1	<1	0
1	4.7	12.7	19.7	10.4	13.1	14.3
2	60.3	40.3	25.4	72.4	66.4	60
3	10	28.1	25	16.5	19.7	24.4
4	<1	11.4	7	<1	<1	1.4
5	2.7	3	4	0	0	0
6	<1	<1	0	0	0	0

Notes:

Zones I and IV together account for:
98.7 percent of ceramics
98.8 percent of the faunals
88.5 percents of flakes and bifaces (most of the remainder in this class is from unprovenienced material collected in the 1960s)

Dating the Peak Usage of the Site

Stepping back from a consideration of individual artifacts, what can be said about the duration and intensity of the occupation of the site? Hunt's Island was occupied during the Late Archaic and throughout the Woodland period, as evidenced by various diagnostic artifacts: a Brewerton point from the Late Archaic, Small Stemmed points from the Late Archaic or Terminal Archaic periods, a Meadowood point and Vinette I pot sherds from the Early Woodland, Jack's Reef Corner Notched points and pseudo-scalloped shell sherds from the Middle Woodland, and a Levanna point from the Late Woodland.

If the collection is indicative of the history of the site, then there was more occupation in the Woodland than in the Late Archaic period. Not only are there more diagnostics from the Woodland, but the total cultural material from the Woodland period, defined as that produced by those levels of the excavation that produced ceramics, is far greater than the cultural mate-

rial from the lower levels. Tables 8 and 9 show the percent of each type of material (ceramic, faunal, stone) found in each level of the excavation. Table 8 shows all 17 excavation units aggregated, while Table 9 shows an aggregation for each of the two productive groups of units, i.e., Zone I and Zone IV. Table 8 shows that surface collecting and levels 1 to 3 together produced over 97 percent of the ceramics, produced over about 88 percent of the faunal remains and over 94 percent of the lithic material. Table 9 shows that the same pattern of the ceramic levels producing most of the total cultural material holds true when Zone I and Zone IV are considered separately.

When looking at the percent of material from each level in the excavation, there is clearly a greater density in level 2 for all three types of cultural material, as shown in both Table 8 and in Table 9. However, interpretation of this fact is complicated by the likelihood of some downward migration of artifacts after deposition, either by differing rates of shell decomposition or by various forms of turbation. Both of these processes are common in shell middens (Brennan 1977:136; Sanger 1981:40).

Excavators at Rocks Road site found pronounced downward migration and compression, resulting in the Woodland period artifacts being found in a single layer 10 cm thick (Robinson and Bolian:1897:27). It is apparent, though, based on Tables 8 and 9, that whatever similar migration and compression occurred at Hunt's Island was not as pronounced as at Rock Road. The presence of artifacts in significant amounts in levels 1 and 3 shows that Woodland period artifacts were not so severely compressed.

If it is accepted that the greater density of artifacts in level 2 results at least partly from a greater usage of the site, and not completely from post-depositional processes, then this greater usage was arguably within the Woodland period. The significant presence of ceramics below level 2 offers evidence of earlier Woodland occupation. Two facts muddy the water when trying to gauge when within the Woodland period any peak usage of the site occurred. First, the excavation levels were 10 cm. thick, precluding a fine-grained resolution of the stratigraphy. Second, the picture is further complicated by the existence the midden itself. Shell middens develop in discrete episodes, rather than at a constant rate over time or a uniform rate across a site (Brennan 1977:123; Sanger 1981:38). The rate of buildup for the site as a whole may change over time and some parts of the site may build up faster than other, just as some parts of the midden may decompose faster than others. All of this can create spurious associations of artifacts (Sanger 1981:40). Field records do not record the microstratigraphy of the midden, although this is not purely a result of missing documentation. A lack of attention to the complexities of middens was common in northeast archaeology at least as recently as the 1970s (Sanger 1981:40).

There may indeed have been periods of more or less intense usage of the site, but the lack of field data, a paucity of diagnostic artifacts, and problems inherent in trying to interpret a shell midden all mean that there is no effective way of determining precisely when any peaks of usage occurred. We must leave it saying only that usage of the site evidently was more intense during the Woodland period than earlier.

Discussion

The Hunt's island collection comes from surface collecting and from the 17 excavation units dug over an area of about 1 acre. The collection indicates an occupation of the site dur-

ing Late Archaic and Woodland periods. The diversity of artifacts suggests a variety of activities. Tools of stone and bone were made, used, and broken on the site. The broken awls indicate the sewing of clothing, mats, or the like. Scrapers suggest the working of various materials such as bone or wood. A variety of food items were collected and cooked.

When the Seabrook Marsh site was occupied in the Late Archaic period, the land between it and Hunt's Island, not yet having been effected by the rising sea level, was probably wooded. Hunt's Island was only 90 meters away from the Seabrook Marsh site. Perhaps it was simply one of a number of activity areas back in the forest where tasks were performed and over which people ranged. On the other hand, as the highest ground near the Seabrook Marsh site, it may have had some particular function. In either case, given the substantial Late Archaic evidence at Seabrook Marsh site and the sparse evidence of this period from Hunt's Island, the latter may have been only a satellite of the former.

As the sea level rose, the Seabrook Marsh site was abandoned and the trees between it and Hunt's Island were gradually replaced by marshgrass. Hunt's Island became the last spot of dry land as one traveled from the mainland east to the harbor's mouth. The island became a vantage point where people could watch what was happening in that part of the harbor. So long as people on the shore of Hunt's Island periodically looked up from whatever task they were doing, they could remain attuned to the movement of game animals and flocks of birds, changes in the weather, and the comings and goings of other people. During the times when the Rocks Road site was occupied, Hunt's Island may have served as a satellite location. If the occupants of Rock's Road wanted to know what was going on in the harbor, Hunt's Island was better for this than any point on the mainland. This is not to say that Hunt's Island could not have been occupied when the Rocks Road site was vacant. Evidence does not allow us to say one way of the other.

Although the prehistoric occupants of Hunt's Island endured the effects of New Hampshire's coastal climate and the seasonal annoyances of insects, they had a relatively stable food supply marked by considerable variety: fish from the estuary and the sea, shellfish and crabs from the shallows, and many different plants and animals from the nearby uplands. The island also offered a vantage point from which to overlook a harbor and estuary much more idyllic than may be seen today.

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