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EDITOR'S NOTE

Once again, the articles in this issue of the Bulletin revolve around a particular theme – the sites and material culture of the Woodland period, which extended from roughly 3000 B.P. to the time of European contact. It is also known as the Ceramic period since pottery vessels, or at least fragments of them, are a distinguishing characteristic on most sites.

The articles address this theme in several ways. One is technology. Rainey describes an unusual feature and, after testing several hypotheses, concludes that it was used for ceramic production around 2100 B.P. With firm ¹⁴C dates and associated wasters, this site provides an important example of pottery making near the end of the Early Woodland period. The second approach presents specific examples of ceramics recently recovered from Late Woodland to Contact period sites in central Massachusetts. Ritchie describes two ¹⁴C dated vessels from a rockshelter in Uxbridge, while Dudek and Chartier present an example of a third ceramic style from a rockshelter in Clinton. Chartier’s article provides an interesting case study for how subtle the evidence for European contact can be. In this instance, the presence of European faunal remains indicate that an otherwise ordinary-looking Late Woodland site actually post-dates Contact. A final approach looks at the occurrence of Woodland period sites in a broader regional context. Binzen compares the frequency of Woodland period sites to those of the preceding Late Archaic and finds that, contrary to what has often been asserted, Woodland period sites are well represented. As always, my thanks go to all the authors for contributing excellent articles. Thanks also go to my faithful proofreaders Shirley Blancke and Kathy Fairbanks for catching all the errors I missed.

Finally, Dena Dincauze provides a personal remembrance of Elizabeth A. Little, Past President of the Massachusetts Archaeological Society and Editor of the Bulletin, who passed away last summer. An earlier version of these comments was read at a memorial service held in Betty’s honor on September 12, 2003 at the First Parish Church in Lincoln, MA. Plans for a more comprehensive volume celebrating Betty’s life and accomplishments are currently underway. This is a joint project of the Massachusetts Archaeological Society and the Nantucket Historical Association with Mary Lynne Rainey as coordinator. It will contain a comprehensive review of Betty’s work as well as a series of scholarly articles by friends and colleagues. Current plans call for this volume to be completed by late 2005.

James W. Bradley
An Early Woodland Period Ceramic Production Feature in Bellingham, MA

Mary Lynne Rainey

Site Context

In 1999, the Public Archaeology Laboratory, Inc. (PAL) conducted a data recovery at the East Terrace Locus 1 Site in Bellingham, MA (Figure 1; Rainey 2000). The site was one of several discovered along the banks of the upper Charles River in 1997 during planning stages for an electric generating facility and associated natural gas interconnect route. Prior to the data recovery, the site was interpreted as a medium-sized Late Archaic to Middle Woodland period domestic base camp, where one or more family groups resided (Leveillee and Waller 1998). These conclusions were based on a general lack of hunting gear, the presence of aboriginal pottery, calcined bone fragments and a feature believed to be a living surface, perhaps part of an Early Woodland household structure. The feature was exposed in a \( 1 \, \text{m}^2 \) unit set back from the river terrace. It consisted of a layered sequence of disturbed soils containing charcoal, small pieces of fire-cracked rock, and a few quartz flakes.

Although many other sites have been recorded in this interior setting, few have been systematically studied. Virtually nothing is known of Native ceramic traditions here, and the potential for new information from the East Terrace Site was promising. The only ceramic study specific to this area was based on a 1967 Charles River survey by Dena Dincauze (Dincauze 1968). Although the ceramic sample was very small, she observed, 'a marked preference for smoothed vessel bodies in the Charles basin collections' (Dincauze 1975:14). Since that time, there has been little new information regarding development of ceramic technologies in this region of Massachusetts.

Data recovery at East Terrace Locus 1 involved
excavation of 5% of the site within the construction easement, comprising 105 m². The pipeline route parallels an existing power line easement, intersecting a section of the Charles that is broad and slow-moving. The Charles is the longest river in Massachusetts, traversing 80 miles on an irregular, winding course through 22 communities (Figure 1). The river was reportedly called the 'Quinobequin', or 'meandering river' by local Native people (Bickford and Dymon 1990:62). The pipeline route through the East Terrace Locus 1 site intersects a prominent, rocky knoll 240 ft above sea level composed of large biotite granite surface boulders, outcrops and gravel as well as occasional pockets of clay. Along its northwestern perimeter, the rocky terrain drops steeply in elevation (about 40 ft) to the margins of the Charles River flood plain. To the south and east away from the river, the terrain is gently sloping to flat, where subsurface conditions change dramatically to silty sand with intermittent boulders.

Feature 1

Prior to fieldwork, several research questions were identified in the areas of ceramic studies, Native architecture and domestic households, and Late Archaic to Middle Woodland period settlement patterns. The data recovery excavation targeted the suspected domestic structure (Feature 1) and other verified locations of features or artifact scatters. A 2 x 2 m unit placed adjacent to the suspected dwelling exposed a circle of large granite boulders 2 m in diameter with an approximate 1 m gap directly on the east side (Figure 2). Homogenous charcoal-rich soils formed a nearly continuous band along the northern, western and southern interior sides of the enclosure. The largest boulders were of the same color, composition, general size and shape. Flat surfaces were tightly fitted in some sections and angled roughly 45 degrees out from the floor. The dense charcoal deposits found within the enclosure at 30 cm below surface continued beneath and beyond the

Figure 2. Feature 1, East Terrace Locus 1 Site.
enclosure to about 70 cm below surface; evidence that the feature originally consisted of a large, bowl-shaped pit. Concentrations of highly deteriorated granite high in crystalline content were found in the center. Throughout the initial excavation, only charcoal and rocks were recovered in the one-eighth inch screening.

As excavations proceeded, the large size and formality of Feature 1’s construction led to an initial hypothesis that this might be a Transitional Archaic Period mortuary component, perhaps a primary cremation facility. Charcoal samples from upper levels were rushed out for radiocarbon dating and Native American representatives were contacted. One-eighth inch screening was used to search for small fragments of calcined bone, fish scales or charred botanical remains, however none were recovered. Once an Early Woodland period date of 2100 ± 70 B.P. (Beta-133668) was received, the cremation facility hypothesis was abandoned.

Elsewhere on the site, fieldwork revealed a dispersed selection of seemingly unrelated cultural deposits: a rhyolite workshop on the knoll near the river terrace; a quartz workshop at the opposite end of the site; a small Middle Archaic period deposit; and an isolated ceramic deposit. Seven projectile points were recovered, including one Neville, four Orient Fishtail variants, and two non-typed-triangular points. Test areas immediately surrounding feature 1 were either sterile or contained very low densities of cultural material. Faunal remains were absent and there was virtually no evidence of domestic activity.

Other Interpretations

At the conclusion of fieldwork, the meaning and purpose of Feature 1 remained a mystery and became the focal point of further inquiry. Soil and charcoal samples underwent flotation analyses, wood species identification and soil chemistry analyses. One additional charcoal sample from the bottom of the feature (65-70 cm below surface) dated to 2050 ± 100 B.P. (Beta-142358), consistent with a date from the upper level of the feature and the associated deposits found during the site examination. Calendar calibrations of the three dates from Feature 1 contexts at 95 percent probability intersect for a 510-year span during which the feature was created and used, modified and reused, and finally abandoned.

Flotation analyses of 12 soil samples resulted in recovery of small amounts of macro-botanical remains. These consisted of charcoal samples, 16 unidentified charred and non-charred plant parts, two charred seeds belonging to the heath family, and 3 unidentified charred and non-charred seeds. Insect parts were also recovered. Wood species identification was completed for 11 charcoal samples from Feature 1. These were taken in 5 cm levels from a column that extended from feature surface to its bottom. Lucinda McWeeney (Peabody Museum of Natural History at Yale University) conducted the analyses and concluded that all samples were derived from trees of the red and white oak groups (*Quercus* sp.). There was no evidence of charred, non-woody plant parts. According to McWeeney, ‘the predominance of oak charcoal recovered from Feature 1 at Bellingham suggests that the species was intentionally selected to produce a hot steady, fire’ (Rainey 2000, Appendix E, p. 8). McWeeney and her associate Leo Hickey also examined a few highly deteriorated rock specimens. A preliminary wash and microscopic examination of residue did not provide any evidence of phytoliths.

Soil chemistry analyses using Lamottes tests were carried out on a column of ten soil samples and three non-feature control samples. The objective was to look for high calcium and/or phosphorous readings that might have been caused by the burning of human or animal bone. Calcium and phosphorous readings from the feature contexts were then compared with soil chemistry data gathered from human burial contexts at two other sites using the same procedures (Leveillee 1998; Herbster and Cherau 2001). The minor fluctuations in calcium were not sufficient to argue that Feature 1 might be associated with animal processing or with the human cremation process.

During the data recovery fieldwork and subsequent analyses, many ideas were posed regarding the purpose and meaning of Feature 1. The initial mortuary concept was dismissed based on the Early Woodland period
radiocarbon dates and the complete absence of bone. It was also suggested that Feature 1 might be the remains of a ceremonial sweat lodge. Based on cumulative lines of evidence and strongly supported by charcoal analyses that indicated an extremely hot, oxygen-poor environment for an extended period of time, the sweat lodge theory was also dismissed.

Another plausible idea was that Feature 1 represented a type of cooking facility in which large-scale plant and/or animal processing was carried out. Given the riverside setting, fish roasting or drying was an obvious possibility. Terrestrial species including deer or other medium to small-sized mammals would have been another possible food resource. Elsewhere throughout the region, analyses of macro-botanical and faunal remains, tool assemblages, and associated features, supplemented by Native American ethno-historic accounts, have provided good evidence for the construction and use of stone hearths in domestic contexts. A food-related interpretation for Feature 1 seemed logical. Technical parallels existed between some of the feature’s structural elements and those of earth ovens used outside the region. The Archaic period earth ovens of the Southwest, specifically those at Hinds Cave in Texas and at other sites in the lower Pecos River region, are a good example (Derig 1999:659-674). At Hinds cave, one such feature consisted of a ring of burned rock, 1.2 m diameter, and radiocarbon dated to 1,820 ± 70 B.P. (TX-2733). In addition to projectile points, large quantities of botanical remains were recovered from two of the Hinds cave earth ovens included 40 plant taxa represented by 9,576 seeds and fruit fragments (Derig 1999:662). Derig also built experimental versions of these ovens to test models of caloric yield and concluded that these features provided a low return at high cost (1999:673).

Here in the Northeast, evidence for the processing and consumption of marine and terrestrial resources in association with hearth features is common. On Martha’s Vineyard, for example, Ritchie excavated hearths and/or earth oven features at many sites. These he interpreted as domestic cooking facilities due to the presence of floral and faunal remains (Ritchie 1969). Some of these Martha’s Vineyard features have morphological parallels with Feature 1 at the East Terrace Locus 1 site. These include circular plan outlines, burned rock concentrations and deposits of charred wood. Many were constructed on the ground surface in shallow, basin-shaped pits. Despite the similarities, none of the hearths investigated by Ritchie contained the volume of charred wood found in Feature 1, and most were associated with extensive food remains. In contrast, there was little evidence for food-related activities in Feature 1. Even with the site’s high soil acidity, some evidence of floral or faunal remains would be expected within the dense charcoal and rock fill if this feature had been used to process bulk food items. The absence of food remains was verified through flotation analyses, wood species identification, and an acid wash of rock samples.

Another factor in the interpretation of Feature 1 was the overall cultural context of the site. No evidence for any kind of aggregated settlement was found nearby. Furthermore, all of the Early Woodland period sites in the immediate area with evidence of domestic activity (small hearths, calcined bone or charred botanical remains, chipped stone tools, etc.) indicate a pattern of limited duration campsites and small-scale consumption. Although a small collection of stone implements was recovered at the East Terrace Locus 1 site, they represent the cumulative debris from multiple successive site visits that took place before, during and after the construction of Feature 1.

Evidence for Ceramic Production

After considering ceremonial and subsistence-related explanations, the idea that Feature 1 represented an experimental pottery kiln or open firing pit was explored. The granite enclosure, feature placement and nature of the fill are widely recognized aspects of outdoor pit-firing technology, prehistoric and modern. The site’s location afforded the potter(s) with necessary clay and tempering materials, while maintaining a safe distance from habitation areas. The feature’s placement, set back from the exposed and elevated river terrace, would serve to minimize wind flow. Reduction or elimination of airflow is required for the survival of vessels fired in an outdoor facility (Rice 1987:15). Charred wood samples were consistently identified as oak, a preferred species commonly referred to in contemporary
descriptions of outdoor pottery firing techniques in other regions. Although conjectural, anomalous high aluminum readings from feature soils may have been caused by deterioration of clay vessel fragments.

I believe that Feature 1 evolved in two, short-lived experimental stages. Initially, this was a large fire pit using oak as a primary fuel. Secondary modifications designed to raise and maintain temperatures included the addition of a well-constructed granite enclosure and internal use of smaller rocks high in mineral content. When these technical improvements were made, some of the debris from inside the pit may have been removed and deposited on the exterior perimeter of the new structure. Layered deposits found outside the enclosure during the site examination, and interpreted as a habitation floor, may be explained in this way. Small charcoal and granite anomalies found south of the enclosure during the data recovery could represent the former locations of individual vessels removed from the kiln as part of a gradual cooling process.

In addition to the feature itself, the discovery of a discrete vessel fragment dump supports the argument for ceramic production taking place at the site. Of the 310 vessel fragments recovered during the data recovery, 298 came from this one deposit. None of these ceramics showed intentional surface decoration. Rather, larger vessel sherds exhibited shallow, patterned relief across one or both surfaces (Figure 3). An unusual serrated argillite tool recovered from a nearby unit may have served as a decorating implement (Figure 4). However, since no decorated sherds were recovered, this is conjectural.

Many of the sherds were characterized by diagonal, parallel ridges and valleys. These are interpreted as coils and coil joints, roughly smoothed by hand or possibly with a paddle or implement of some kind.

The interior surfaces of some rim fragments appear to have been reinforced by hand through pinching, thereby diminishing the visibility of the coil joints. The clay used to make this pottery was tempered with crushed feldspars and other minerals readily available on the site. Many of the vessel sherds show breakage patterns perpendicular to the orientation of coils, and significant color variations in cross-section, characteristics that may be evidence of waster sherds (Kapches 1994). The ceramic fragments were discovered in a section of the site that was not intensively used, about 50 m south of Feature 1. There was no associated evidence of domestic activity to suggest that the vessel(s) broke while in use. The absence of additional ceramic deposits may be attributed to a hypothetical brief period of kiln operation, and the likelihood that successfully completed products were carried away from the immediate area for distribution and use (Bernardini 2000:366).

Figure 3. Sample rim sherds from 'dump' from the exterior (A), interior (B), and top (C).
After considering all the lines of evidence, I believe that the pottery kiln hypothesis provides the most logical explanation for the internal structure and contents of Feature 1. It was built and modified during a relatively brief period during the Early Woodland period about 2100 B.P. By that time, the concept of clay vessels had evolved from a simple improvement in basket technology to a new and pragmatic household object. Possibly the general area was known by local potters as a convenient source of the clay, minerals, and water essential for pottery production. In this scenario, activities such as raw clay acquisition from the river margins, mineral extraction from outcrops for temper, and vessel construction on the smooth, flat surfaces of outwash boulders would leave little or no archaeological evidence.

The identification of a pottery production feature at East Terrace Locus 1 site does not imply a prolific and widespread pottery industry in Bellingham or within the region during the Early Woodland period. Feature 1 was not designed for large scale production and may have been a short-lived experiment. Research conducted as part of the data recovery program indicated that other sites in the general upper Charles River basin may contain evidence of similar features and processes. In the case of the East Terrace Locus 1 site, the choice of location reinforces the idea that this site was part of a larger social and cultural landscape during the Early Woodland period, significant for its geological heterogeneity, yet marginal to any associated domestic center. Whether the individual or group responsible for creating and using Feature 1 lived 100 yards or several miles away cannot be determined. With the exception of the discarded wasters, the ultimate destiny of any wares produced in Feature 1 is equally enigmatic.

Once Feature 1 was abandoned near the end of the Early Woodland period, there is very little evidence of any subsequent visits to the site. Why this was the case is not known. Elsewhere in the upper Charles River drainage, Middle and Late Woodland period activity has been documented at many sites including short-term camps and more complex habitation sites. By the Late Woodland period, settlement appears to be concentrated on the margins of the Charles River estuary (Dincauze 1973).

The recognition of an Early Woodland period kiln may have limited applicability to the firing techniques used during the Late Woodland and Contact periods. There are no ethno-historic accounts that describe specific pottery production techniques or firing in southern New England, and no reported archaeological sites that contain evidence of pottery vessel construction and firing. As Chilton has observed, it is likely that most pottery was fired in multipurpose hearths (1996:40). She cites Sagard’s well-known 17th century account of Huron pottery making in which women fired their pots in cooking hearths. On Cape Cod, Dunford has argued that pottery firing during the Late Woodland and Contact periods was incorporated into the larger cycle of maize horticulture, with green pots placed in surface fires as part of annual field clearing and associated ceremonial events (Dunford personal communication 3/01).

In the realm of ceramic technology, innovation and craftsman behavior, Feature 1 stands as a technical and contextual model for future studies, especially where similar features might be expected or discovered. As a feature type likely to be situated away from a community center, the chances of discovering comparative data on other sites may be low, since most CRM methods are structured around known or expected dense cultural deposits found through limited shovel testing. As a result it is important to consider the potential archaeological sensitivity of areas even when they are not obviously conducive to habitation. The social and cultural significance of Early Woodland period ceramic production sites such as Feature 1 will only be possible as additional information comes to light.

Figure 4. Serrated argillite tool.

Conclusion
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A Late Woodland and Contact Period Ceramic Assemblage
From the Hartford Avenue Rockshelter, Uxbridge, MA

Duncan Ritchie

Introduction

Rockshelters formed in either bedrock outcrops or glacial erratic boulders have been a small but valuable source of information about ancient Native American activities in the elevated uplands of central Massachusetts and Rhode Island. Many of these sites had multiple episodes of use from the Middle Archaic to Late Woodland or even Contact period, and were important elements in the cultural landscape of Native American peoples who used them over many generations (Arnold 1969; Fowler 1962; Lemire 1975; Waddicor 1969). Over the last several decades, cultural resource management investigations have found and studied important rockshelter sites in central and eastern Massachusetts. Among these are the Flagg Swamp Rockshelter in Marlborough (Huntington 1982), the Tall Pines Rockshelter in Clinton (Dudek and Chartier, this volume) and the recently excavated Den Rock in Lawrence (Carovillano 2003).

Many of these rockshelters had conditions that preserved fragile items such as ceramic sherds, faunal and floral remains better than open sites in the same environment. The Hartford Avenue Rockshelter in Uxbridge yielded a diverse assemblage of well preserved ceramic vessel sherds and faunal remains that illustrates this pattern. The assemblage of sherds from this site is significant for its information about Late Woodland to Contact period ceramic technology, vessel form and function/use in the interior uplands of the Blackstone River drainage basin. While this site also contained a relatively large and informative faunal assemblage, the ceramics are the primary focus of this article.

Site Discovery

Archaeological investigations leading to the discovery of the Hartford Avenue Rockshelter began in the spring of 1978 during an intensive Phase I survey of a 13.6 mile long section of the Route 146 highway corridor. This work was conducted by the Public Archaeology Laboratory (Brown University) for the Massachusetts Department of Public Works, now the Massachusetts Highway Department.

Six potential rockshelters were identified under overhangs along the western face of a large bedrock outcrop located about 700 ft north of the original Hartford Avenue overpass over Route 146 in the town of Uxbridge. Only the largest overhang of the six, designated as the Hartford Avenue Rockshelter, appeared to have been used as a temporary shelter by ancient Native Americans. A single test pit in the floor of this rockshelter produced a biface fragment of quartzite, a small ceramic sherd, pieces of quartz chipping debris and calcined bone. The thin, grit-tempered ceramic sherd suggested that it had been used during the Late Woodland period (Public Archaeology Laboratory 1978). During a second phase of investigations in August 1981, several test pits excavated into the floor of the rockshelter yielded more quartz and quartzite chipping debris, ceramic sherds and a variety of well preserved faunal remains including almost 100 pieces of bone, turtle carapace and freshwater mussel shell. This material was recovered from an organic, midden-like deposit with a maximum thickness of about 25 cm (Cox et al. 1981).

Burnt rock and calcined bone fragments in oxidized subsoil below this midden-like deposit were recognized as probable feature fill from a deeper occupation zone of unknown age. It was apparent that the rockshelter contained at least two roughly stratified depositions. The high density of ceramic sherds and faunal remains under the rockshelter floor suggested it was occupied primarily during the Late Woodland period. From this sample of sherds and bone fragments it was clear that intensive processing of animals hunted for food, their preparation and cooking as well as the subsequent discarding of food remains were the major activities during the Woodland period occupation of the site.
The Hartford Avenue Rockshelter was considered to be significant and eligible for listing on the National and State Register of Historic Places given its potential to contribute to understanding of ancient Native American use of upland forest environments in the southern Worcester Plateau area. A data recovery plan to mitigate the adverse effect of construction activities, including removal of the bedrock outcrops containing the site, was completed in October, 1983 by the Public Archaeology Laboratory, Inc (PAL) under contract with the Massachusetts Department of Public Works.

The research design for the data recovery program posed questions about the types of activities that took place at the Hartford Avenue Rockshelter through the prehistoric period, and what the depositional history of the site might reveal about Native American use of upland interior environments. The site was expected to contain evidence of both abandonment and episodes of intensive use during the Archaic and Woodland periods. The rockshelter appeared to contain archaeological deposits created during short-term occupations by groups of hunter/gatherers based in a core area such as upper Narragansett Bay or the lower Blackstone River while they hunted, foraged or traveled through interior uplands. The presence of shell-tempered ceramic sherds suggested that Late Woodland people using the shelter may have been based in a coastal zone territory such as Narragansett Bay (Ritchie 1985: 12,13).

Physical Setting

The Hartford Avenue Rockshelter was situated in the middle Blackstone River drainage within an area of rocky ground moraine deposits marked by numerous large glacial boulders and bedrock outcrops. Hillsides in this area reach maximum elevations of about 500 ft above sea level. The confluence of the Blackstone and Mumford rivers is about 1000 ft (300 m) northwest of the site location. The Mumford River is one of the primary tributaries in this part of the Blackstone drainage.

The rockshelter was created by a tilted ridge-like outcrop of Scituate granite gneiss (Zen 1983). At one point along a roughly 200 ft section of this exposure, a large opening had been formed by weathering and faulting in the west face of the outcrop (Figure 1). A short talus slope below the opening was covered with boulders that probably had their origin in the faulted outcrop. A nearly vertical face about 16.5 ft (5 m) in height formed one wall of the rockshelter. The rear wall was a low overhang caused by the upward tilt of the parent outcrop.

The open floor area and talus slope below it had a westerly aspect and were somewhat

Figure 1. The Hartford Avenue Rockshelter.
exposed to the northwest, however, the outcrop provided good protection from north/northeast winds. Beyond the talus slope the terrain gradually sloped to the west/northwest towards a small area of wooded wetlands. Drainage from these wetlands was oriented west to Dunleavey Brook, a small tributary stream to the Mumford River located about 1500 ft (457 m) from the rockshelter site. Within a one mile (1.6 km) radius of the rockshelter there is a range of upland forest and wooded wetland environments representing potential habitat for a diverse mix of plant and animal species. Wetlands along the Mumford River also appear to have been potentially important to the various prehistoric hunter/gatherer groups that used the Hartford Avenue Rockshelter. The assemblage of faunal remains found within the rockshelter illustrated the wide range of mammal and bird species used by ancient Native American occupants of this site.

The historic period construction of impoundments such as Lackey Dam about 2.5 miles (4.0 km) downstream from the rockshelter, have changed the original appearance of the Mumford River and created more open water and marsh than would have been present in prehistory. Other historic period alterations in the general vicinity appear to have been minimal, limited to forest clearing and the construction of stonewalls. Hartford Avenue, from which the rockshelter derives its name, was located about 1500 ft (457 m) south of the site. The original Route 146, a two-lane road, was built in the 1940s when the removal of bedrock and grading disturbed a narrow strip within about 80 ft of the rockshelter. Still, until its discovery, the Hartford Avenue Rockshelter had remained in untouched condition despite its near proximity to Route 146, the most actively used highway linking the urban centers of Worcester and Providence.

Site Structure and Depositional Patterns

The Hartford Avenue Rockshelter site was found to include a total area of about 20 m², which was substantially less than the original estimate of ± 100 m². The floor of the rockshelter was confined to a small triangular area of about 8 m² by the two bedrock outcrops forming the back wall of the shelter and several large boulders on the floor. This limited floor space appeared to have resulted in the formation of exceptionally dense amounts of cultural material, features and faunal remains. The talus slope outside the floor, which contained much lower densities of cultural material, was a narrow, rectangular strip about 12 m² bordered by a bedrock outcrop extending south from the rockshelter floor onto the talus slope itself. The talus slope was expected to have evidence of activities different from those represented in the rockshelter floor.

The floor area and upper talus slope contained concentrations of cultural material, faunal and floral remains associated with Terminal Archaic to Early Woodland, Late Woodland and Contact period depositions. One distinct concentration of chipping debris, calcined bone and floral remains occurred within the Terminal Archaic/Early Woodland level. The bone fragments were from medium and small mammals such as muskrat, and snake (Colubridae sp.). The floral remains were mostly carbonized hickory nutshell fragments. The central portion of a Late Woodland midden contained a dense deposit of ceramic sherds, faunal and floral remains and chipping debris. On the upper talus slope a concentration of ceramic sherds around a small hearth feature was associated with a Contact period occupation of the site.

Intensive use of the site during the Late Woodland period, especially the formation of a thick midden (20 to 25 cm) on the floor of the rockshelter, had affected the underlying Terminal Archaic/Early Woodland deposits. Identified faunal remains from the Late Woodland midden included deer, bear, beaver, muskrat, skunk, and turtle. A small amount of fish bone from an unknown species and freshwater mussel shell were also present. The deepest sections of this midden intruded into the Terminal Archaic/Early Woodland deposits, and some of the older chipped stone tools and debitage from these deposits were incorporated into the midden. A Middle Archaic Stark projectile point and two Terminal Archaic Orient Fishtail points were found out of their original context in the lower portion of the Late Woodland midden. Pieces of boulder-sized rock fall had covered and protected these midden deposits and their high densities of ceramic sherds, bone fragments and carbonized
floral remains (nutshells) by providing a sealed depositional context for them. Radiocarbon dates placed the formation of the midden at between 820 and 540 years ago (1130 to 1410 A.D.) with the rock fall having occurred some time after that.

Ceramic Assemblage

The data recovery program at the Hartford Avenue Rockshelter produced a large and well-preserved assemblage of prehistoric ceramic vessel sherds from the Late Woodland and Contact/Historic periods. The majority of the total sample (290 sherds) were reliably associated with one of the two features that represent the focal points of activity. Feature 6 was the deepest and densest concentration of faunal remains and ceramic sherds within the Late Woodland midden deposit. A radiocarbon date of 740 \( \pm 80 \) B.P. (Beta 8929) was obtained on wood charcoal from this feature. Feature 8 was a small hearth feature built on the talus slope during a Contact/ Historic period occupation. It contained the highest density of ceramic sherds found on the site. Charcoal from this hearth was radiocarbon dated to 290 \( \pm 100 \) years B.P. (Beta 9255).

These radiocarbon dated features and sherd concentrations provided an excellent opportunity to document ceramic vessel form, manufacturing techniques and stylistic attributes from securely dated cultural contexts. Compared with the coastal lowlands of southeastern New England such as Boston Harbor, Cape Cod and Narragansett Bay, Woodland period ceramics from central Massachusetts are virtually unknown. Therefore, one objective of analysis was to make comparisons between the ceramic vessels used at this interior rockshelter site and the Late Woodland and Contact period types from the better known coastal sites.

Ceramic sherds were found in all but four of the 18 m² excavation units. Three of the units not containing sherds were on the lower talus slope outside the rockshelter floor area. The highest densities of ceramic sherds occurred in the two excavation units that contained the features described above. In general, the ceramic sherds were tightly clustered around the estimated center of the Late Woodland midden deposit and several hearth features. With only two exceptions, all the larger (3 to 7 cm) rim, neck and body sherds were around the center of the midden or the two clearly identified hearth features (Features 5, 8). Smaller (0 to 3 cm) body sherds were more widely dispersed across the site area, including the lower talus slope and edges of the rockshelter floor.

The two basic ceramic wares, shell-tempered and grit-tempered, had somewhat different distributions. The shell-tempered sherds associated with the Late Woodland midden deposit were found mostly in the rockshelter floor. The grit-tempered sherds from the Contact/ Historic period occupation were mostly found in or near Feature 8 on the talus slope, although some were found in the floor area. Ceramic sherds were distributed through most of the vertical levels of the site from 5 to 30 cm below surface. Most of the sherds were recovered from the upper portion of the site 5 to 20 cm below surface. The deepest sherds in Levels 5 and 6 were in feature fill that had obviously intruded into the underlying archaic deposition. These basal portions of Late Woodland and Contact period features extended to depths of 25 to 30 cm below surface. There was no evidence to suggest that any ceramic sherds were associated with the Terminal Archaic/ Early Woodland occupation.

The analysis of ceramic attributes was based on a format designed by Dincauze (1975) to describe prehistoric sherds from sites in the Charles River drainage. This approach was used to group small samples of sherds into attribute clusters that, in turn, were assigned to general temporal divisions (Early, Middle, Late) within the Woodland period. Although the temporal affiliation was well established by radiocarbon dates, this format provided a way to describe sherd attributes in a consistent framework. It also provided comparability at a larger scale since the same attribute format had been used to analyze ceramic sherds from sites in the Taunton basin (Thorbahn, Cox and Ritchie 1983; Thorbahn et al. 1982).

The six attributes recorded from ceramic sherds were: temper (crushed shell, burnt rock/grit), color (Munsell color codes), thickness (in millimeters), surface treatment (cord marked, smoothed over cording, plain, etc.),
construction mode (coiling, slab construction), and decoration technique (stamping, incised line, etc.). The attribute analysis isolated two distinct ceramic wares and vessel forms associated with the radiocarbon dated Late Woodland and Contact/Historic features. These two ceramic types are described below.

**Grit-Tempered Ceramics**

A total of 176 sherds of grit-tempered ware were found in association with or in close proximity to Feature 8, the Contact period hearth on the talus slope. The temper used was a fine to medium grit or sand ranging in size from 2 mm to small flakes of mica. A few angular fragments appeared to be very finely crushed burnt rock. Some of the larger pieces of temper were exposed on the less carefully smoothed interior surfaces of the sherds. Much of the mica was probably a natural inclusion in the clay since very small flecks of it were dispersed throughout the sherds.

Color ranged from pale to brown (10YR 5/3, 6/3) on exterior surfaces. Interior surfaces tended to be somewhat darker grey/brown (10YR 5/2, 4/2), mottled grey or dark grey (10YR 4/1) particularly on the body sherds. Sherd thickness varied depending on the part of the vessel from which it derived. Rim, collar and neck sherds were about 6 to 7 mm in thickness. Lower neck sherds tapered very rapidly from 7 to 3 mm while body sherds were uniformly thin, averaging about 3 to 4 mm in maximum thickness. Both interior and exterior surfaces were smooth and the neck and body areas were undecorated. Faint, parallel striations are visible on the wiped surfaces, particularly on neck sherds. Wiping of the exterior surfaces seems to have brought the tiny mica flakes to the surface giving this ceramic ware a shiny, micaceous appearance. The rim and collar areas were carefully smoothed to a slightly burnished surface before any decoration was applied.

Vessel construction by some kind of slab technique was indicated by grit-tempered sherds with split, eroded surfaces. Thin slabs were probably molded together and compressed using a paddle and anvil. Decoration was confined to the rim and collar and consisted of fairly wide, shallow incised lines arranged on the collar in parallel and diagonal rows. Small notches or tick marks occurred on the interior and exterior edges of the vessel lip. The upper surface of the lip was plain. On the most intact rim and collar sherds, short diagonal notches along the outside of the rim were underlined by three rows of incised lines. Beneath this, sets of six diagonal lines were placed in triangular zones defined by lines punctuated with dots (Figure 2A).

These grit-tempered sherds appear to represent one vessel associated with Feature 8. The form of this vessel is difficult to reconstruct since few large sherds were recovered. It did have a wide decorated collar below a non-castellated, beveled rim, a slightly constricted neck with no decoration. The body was probably globular or semi-globular in form. This vessel was quite small with an estimated oral diameter of 5.5 inches (13.9 cm).

The decorative elements on this vessel closely resemble the motifs used on Chance Incised and Oak Hill Corded, two Late Woodland types common in eastern New York (Funk

![Figure 2](attachment.png)
Similar motifs also occur on New England ceramics. Both ceramic types have linear decoration arranged within triangular zones although on the Oak Hill ware the lines are cord marks rather than incised lines. Chance Incised vessels have three rows of horizontal lines below lips, which are decorated with small notches like the Hartford Avenue Rockshelter vessel. The rockshelter vessel does not have basal collar notches, a stylistic trait typical of later New York types such as Garogalike ceramics. It also shares few if any decorative or stylistic attributes like the castellations or nodes that appear on Shantok-type ceramic vessels found in Late Woodland to Contact period contexts across southeastern New England (Goodby 2002). Perhaps the greatest contrast is with the Bear Hollow site in nearby Sutton, a Late Woodland to Contact period site, which produced a fine sand tempered ware with a plain flat rim and no decoration of any kind.

Shell-Tempered Ceramics

A large sample of 114 shell-tempered ceramic sherds was found in the Late Woodland midden deposit covering the rockshelter floor. Most were from Features 3 and 6 in the central portion of the midden. The temper used in this ware was medium to fine fragments of shell ranging in size from 3 mm to less than 1 mm. The shell temper was evenly distributed throughout the sherds in fairly dense amounts. The less acidic soil conditions within the midden deposit preserved the shell temper in most of the sherds and some large fragments were occasionally visible on exterior surfaces. Some leaching of temper did occur on the shell-tempered sherds deposited near the less dense perimeter of the midden. A few small, rounded sand grains ~ 2 mm in diameter were visible in several sherds and may have been natural inclusions in the clay used to make this ware.

Color on both exterior and interior surfaces was very uniform, although organic staining from the midden soil matrix probably accounted for some of this. Exterior surfaces were dark grayish brown (Munsell 10YR 4/2). Some of the less stained surfaces were yellowish brown (10YR 5/4, 5/6). The leached sherds from the edge of the midden had similar exterior surface colors in the brown range (10YR 4/4, 4/3). The interior surfaces were generally darker grey to black (10YR 3/2, 2/1) with visible evidence of carbonized organic material on some sherds.

The thickness of this shell-tempered ware did not vary much over different vessel parts. Rim and neck sherds were all 6 to 7 mm in thickness. Body sherds were slightly thinner ranging from 5 to 4 mm in section. The exterior surfaces of all the body sherds were covered with partially smoothed over cord marks. Neck and rim areas were left plain to provide space for decorative elements and had striated, wiped surfaces. Some secondary smoothing of the neck area also appears to have taken place after the application of decoration.

In comparison with the grit-tempered ware, the shell-tempered sherds showed fewer tendencies to split and the vessel may have been constructed with a coiling technique. No definite evidence of breakage along coil lines was seen but sherd cross sections did not show the compressed, laminated structure visible in the grit-tempered ware.

A single decorative technique, stamping, was used on the lip, rim and lower neck sections of the vessel. The tool used, possibly a small comb, had five closely spaced teeth and produced a series of short diagonal rows. The lip was covered with even shorter rows slanted in the opposite direction from those on the adjacent surface of the upper rim. Each row consisted of small triangular impressions from the individual teeth of the stamping tool. The longest rows on the lower neck sherds contained seven triangular impressions, the short ones on the lip consisted of only two or three. The impressions on the lip were smoothed over during final straightening and finishing of the rim (Figure 2B).

Most, if not all, of the shell-tempered sherds belong to one vessel. The large rim and body sherds were found in Feature 6. This vessel had a narrow, decorated collar above a shallow neck and shoulders that expanded out from the neck into a jar-like body that probably tapered to a narrow, slightly pointed base. The oral diameter of the vessel was ~ 5 inches (12.7 cm) and it was ~ 10 inches (15 cm) in height.

This shell-tempered vessel shares some basic attributes with other Late Woodland ceramics
from coastal Massachusetts. Here a series of shell-tempered wares with ‘cord malleated’ bodies, plain necks and collars or rims with corded, stamped or incised decoration were the primary Late Woodland types. The closest analog to the rockshelter vessel may be shell-tempered ceramics from Late Woodland sites on Calf Island in Boston Harbor. The Calf Island vessels had smoothed over cord marked bodies and rims stamped with a toothed object applied at an angle leaving rows of triangular impressions. These rows were sometimes oriented obliquely and the same triangular stamping was used on the vessel lip (Luedtke 1980:48, personal communication 4/84). On Martha’s Vineyard shell-tempered vessels with cord malleated exteriors and short oblique or parallel lines of ‘corded stick’ impressions on the rim were made by Late Woodland groups. A radiocarbon date of 720 ± 100 years B.P. (Y-1852) associated with these ceramics on the Vincent site (Ritchie 1969) is very close to one of the dates (740 ± 80 B.P.) from the Hartford Avenue Rockshelter.

Summary

Both the incised grit-tempered and stamped shell-tempered vessels recovered from the Hartford Avenue Rockshelter differ significantly from the other Late Woodland ceramics found in the Taunton basin. The majority of ceramic sherds from Late Woodland sites in the I-495 highway corridor are from fine sand and/or shell-tempered vessels with little or no decoration. A large sample of several hundred sherds, all belonging to one fine grit-tempered vessel, was found in a Late Woodland/Contact period (435 B.P.) hearth at the Newcomb Street site in Norton (Thorbahn 1982). However, this vessel was undecorated with the possible exception of a few faint, impressed lines just below the rim. Dincauze, noting a preference for smooth, surface treatment on Late Woodland ceramics from the Charles River drainage, has suggested that this tradition might be centered in the eastern Massachusetts/Rhode Island region (1975:14). In contrast, Late Woodland/Contact period (550 B.P.) ceramics from the Campbell site in Narragansett, Rhode Island were thick, coarsely shell-tempered wares with channeled, scraped interior and exterior surfaces and wide, incised line decoration (Cox and Thorbahn 1982:92). Clearly, there is a great deal still to be understood in terms of sub-regional variation in Late Woodland ceramic technology.

In conclusion, an important feature of the rockshelter’s ceramic assemblage was its relative uniformity. All of the sherds recovered could be assigned to one of two basic ceramic types and these vessels belong to two discrete occupational episodes. From the available evidence, it appears that groups visiting the rockshelter only carried a limited number of ceramic vessels with them or did not stay at the site long enough to break more than one or two vessels. It seems likely that the Late Woodland and Contact period people who used the site did so only on a temporary basis and were not year-round residents. There is evidence that rockshelters served as temporary camps along important trail routes (Dincauze and Gramly 1973). The Hartford Avenue Rockshelter is located a short distance from Route 16 which follows the approximate alignment of the Old Connecticut Path. This was one of the major trail routes through southeastern New England passing through the present towns of Mendon and Uxbridge. Ultimately, this trail connected the Massachusetts Bay (Boston) area with the Connecticut River Valley near Windsor Locks, Connecticut (Ayres 1940). During the Late Woodland and Contact periods, a number of Native American settlements were located on or near the Path. The final occupation (Feature 8) at the Hartford Avenue Rockshelter may have resulted from the brief stay of a small group traveling along this trail.

Acknowledgements

Tonya Largy identified the faunal and paleobotanical remains from the Hartford Avenue Rockshelter. Jean Blackburn drew the original illustrations of ceramic sherds and vessel profiles. Gail Van Dyke of PAL prepared the graphics for this article.
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The Tall Pines Rockshelter, Clinton, MA and Rockshelter Use During the Late Woodland and Contact Periods

Martin G. Dudek and Craig S. Chartier

Abstract

Rockshelters have often been important locations for Native American activities. How, when and why rockshelters came to be used by Native Americans will be discussed with a focus on one small rockshelter in Clinton, MA, where part of a broken pot from the Late Woodland or Contact period was recently recovered.

The Tall Pines Rockshelter

The Tall Pines Rockshelter site consists of an exposed outcrop of gneissic schist on a lower terrace on the east side of Rubens Hill in Clinton, MA. Glacial erratics, some with exposed quartz veins, are present on the terrace and nearby slopes. The site was found during an intensive survey and investigated further through a site examination. The rockshelter formation consists of two natural overhangs that protected two gaps or splits in the rock (Figure 1). A grid of 61 test pits defined the limits of the site across the terrace, while ten 1 m² units were excavated within and around the rockshelter. Both chambers of the rockshelter were excavated completely. On the terrace adjacent to the rockshelter, shattered quartz was investigated revealing both natural weathering and cultural fracturing of quartz probably for the acquisition of usable chunks.

The north chamber of the rockshelter produced quartz shatter with very few flakes and a concentration of sherds from a collared Native American vessel. Several wall niches were present in the north chamber, the largest of which could have held a small pot (Figure 2, see next page). Several pieces of the same vessel were also recovered from the south

Figure 1. The Tall Pines Rockshelter.
chamber and beyond it. Southwest of the rockshelter was a small area with a few 18th century artifacts including burned scratch blue stoneware, redware, flint and wrought iron associated with calcined bone. This occupation dated from the third quarter of the 18th century and does not appear to be associated with the Native American pot.

The Tall Pines Rockshelter Pot

The Tall Pines pot is represented by 109 pieces of which only four are rim sherds. Of this total, 95 sherds were recovered from the north chamber, 10 came from the south chamber and four fragments were found outside of the rock shelter. All of the sherds have the same characteristics of paste, temper, surface treatment, thickness and color, suggesting that only one vessel lot, probably a single pot, is represented. About 20 to 30 percent of the pot is present.

A partial reconstruction of the non-castellated rim, collar and neck indicate a vessel about 15 cm in diameter (Figure 3). Vessel thickness varies from 5 to 7 mm at the rim and from 5 to 8.5 mm on the body. All sherds were tempered with fine grit and occasional larger pieces. The pot exhibits smoothing from scraping, wiping or brushing on the interior and exterior. Below the rim, a horizontal line of small punctations form an upper border below which are sets of vertically and diagonally incised lines. The collar base is defined by a second, more pronounced set of notches that marks the boundary between the collar and neck. Stylistically, the Tall Pines pot can be dated to the Terminal Woodland and Contact periods, or between the 15th and 17th centuries A.D. The use of punctations below the rim and along the collar base has been reported elsewhere in New England but is unusual in the Worcester highlands.

Technologically, the Clinton Tall Pines pot is similar to other Terminal Woodland and Contact period ceramic vessels from the Hudson, Housatonic and Connecticut River valleys (Pretola 2000). The pot was constructed by the coiling method, as confirmed through thin-section analysis by John Pretola (2002). The vessel was also well-fired in an oxidizing
atmosphere of sufficient duration to leave only a narrow black core in the middle of the section. Analysis of the tempering materials indicated medium to fine rounded sand grains and a range of minerals including orthoclase feldspar, quartz, clinopyroxene, orthopyroxene, and biotite mica, probably from a local source.

During the Woodland and Contact periods, the town of Clinton was well within the homeland of the Nipmuck. Therefore, this pot may be an example of local Nipmuck ware. A comparison of Mohawk pottery styles and those of possible Nipmuck origin is informative. Of the Mohawk types defined by Fowler (1946:3-4), all have three line linear horizontals, either over incised vertical and diagonal lines or over chevrons. The Tall Pines pot also has incised markings on a pronounced collar above a constricted neck. However, unlike Mohawk pottery, a line of punctations mark the top of the collar instead of horizontal lines, while vertical and diagonal lines occur in sets below.

Nipmuck pottery may also be represented at the Hartford Avenue Rockshelter in Uxbridge, Massachusetts where incised, grit-tempered pottery was recovered in association with a 290 ± 100 BP dated feature (Ritchie 1985; 2004). This vessel exhibited several characteristics similar to the Tall Pines pot. These include a wide collar with incised decoration below a non-castellated rim, a slightly constricted neck with no decoration, and a body that was probably globular or semi-globular, and fine to medium grit or sand temper. A characteristic that differs between Tall Pines and Hartford Avenue vessels is the lack of a notched collar base on the latter. However, it is not clear if this portion of the vessel was represented in the sherds recovered.

**Comparative Data on Rockshelter Use**

A number of previously reported rockshelters were reviewed for the present work (Table 1). From a survey of 12 rockshelters, it appears that only two were definitely used during the Middle Archaic period, while people using Brewerton or Squibnocket style points during the Late Archaic period occupied eight of the twelve. All 12 rockshelters were subsequently re-used during the Woodland period. Of these, two had Early Woodland components; three had Middle Woodland occupations while at least eight were used during the Late Woodland. Of the 12 rockshelters, all but one were used during the Middle Woodland, the Late Woodland or both.

Late Archaic period rockshelters were characterized by lithic production and evidence of habitation. These sites frequently produced a number of projectile points. In contrast, the Middle to Late Woodland occupations appear to have been more transient. Diagnostic points are correspondingly scarce. At three of the rockshelters, pottery was recovered with no associated lithics. At two of the sites, complete tobacco pipes were recovered. Two of the rockshelters had natural internal cavities within which ‘special’ artifacts were recovered. These included two pipes in one and a pendant in the other.

Three of the rockshelters contained pottery that appears to have come from individual Middle to Late Woodland pots. The House Rock rockshelter in Millbury contained possible fire-
Table 1. Rockshelter sites with the number of projectile points recovered and pottery occurrences.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Archaic/ Woodland</th>
<th>Woodland</th>
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<tbody>
<tr>
<td></td>
<td>Early</td>
<td>Middle</td>
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<tr>
<td><strong>House Rock</strong> (Bullen 1948)</td>
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<tr>
<td><strong>Indian Rock House</strong> (Powell 1981)</td>
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<tr>
<td><strong>Scituate</strong> (Fowler 1965)</td>
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<tr>
<td><strong>Hartford Avenue Uxbridge</strong> (Ritchie 1985)</td>
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<td>2</td>
</tr>
<tr>
<td><strong>Flagg Swamp</strong> (Huntington 1982)</td>
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<tr>
<td><strong>Bitter Rockshelter</strong> (Powell 1965)</td>
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<tr>
<td><strong>Arnold Spring</strong> (Arnold 1969)</td>
<td>1(?)</td>
<td>23</td>
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<tr>
<td><strong>Church Brook</strong> (Waddicor 1969)</td>
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<tr>
<td><strong>Aircraft Road</strong> (Zariphes 1970)</td>
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<tr>
<td><strong>Wilbraham</strong> (Mohrman 1946)</td>
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<tr>
<td><strong>Cracked-Rock</strong> (Lemire 1975)</td>
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<tr>
<td><strong>Hemlock Boulder</strong> (Macpherson and Ritchie 1998)</td>
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*Small-stemmed and Fishtail points are included and may date from the Early Woodland period.

cracked rock, a piece of calcined bone, one piece of quartz and 46 grit-tempered pottery sherds that were probably Late Woodland (Bullen 1948:16). The Hartford Avenue rockshelter in Uxbridge contained shell-tempered pottery from the Late Woodland period, radiocarbon
dated to 740 ± 80 B.P. as well as fine to medium grit-tempered pottery from the Contact or Historic period, radiocarbon dated to 290 ± 100 B.P. As noted, the latter pottery vessel exhibited several characteristics similar to the Clinton Tall Pines pot (Ritchie 2004). A rock shelter in Scituate investigated by William Fowler contained no lithics, but produced considerable shell and a pit feature with numerous pottery sherds from two collared pots (Fowler 1965:50). The sherds included a castellation and collar design elements with linear dentate and incised markings stylistically Late Woodland. In the same rock shelter, there was a crevice with an adjoining shelf on the inside of the shelter. Fowler noted that it was a natural ‘lay away shelf for objects worth preserving’ (1965:51). On this shelf, he found a long stem ceramic pipe and a second shell-tempered elbow pipe.

Several other rockshelters show evidence for similar caching or ritual-related behavior. While excavating a Late Archaic and Late Woodland rockshelter, Bernard Powell also found an artifact cached on ‘a shelf’, in this case a sandstone celt (Powell 1965:56). A possible human cremation burial was also uncovered along with a notched pendant and three round cobbles found in a deep recess in the wall of the shelter (Powell 1965:60). The Wilbraham rockshelter, excavated in 1946, included a human burial (Mohrman 1946). Pottery and triangular points found within the rockshelter suggested a late Middle Woodland to Late Woodland date. The Aircraft Road rockshelter in Middleton, Connecticut contained a midden with a complete clay elbow pipe, a complete steatite pipe, fragments of a third clay pipe and a Genesee point (Zariphes 1970:18).

As can be seen from this limited survey, Native people in southern New England considered rock shelters as special places as well as habitation sites. Several of these rockshelters contained burials or objects of ceremonial significance such as the smoking pipes.

Ethno-historical accounts of Native American use of rock formations

It is not known exactly what role caves and rockshelters played in the seasonal rounds and landscape narratives of the Native people. It is obvious from the artifacts recovered that Native people recognized and used these locations both as sacred places and fortuitous spots to camp. Some of the ethno-historical accounts that have been preserved help to shed additional light on this subject.

The mental as well as physical landscape of the Native world was marked with stones. These were locations where, as Edward Winslow stated in 1624, ‘any remarkable act is done’. The acts remembered or commemorated at these sites may be of a corporal or spiritual nature. The rocks may represent a place such as the Devil’s Den, Rhode Island where a group of Niantic fooled a band of Mohawks and thus saved themselves (Simmons 1986:273). Another example is Witch Rock in Rochester, Massachusetts, a place where Native ‘Pau-Waus’ are said to have sat and watched the mist rise from the cracks in this large erratic. In Mashpee, ‘sacrifice rocks’, as the English called them, are still recognized. During the 19th century, Native people who passed by these rocks would always cast a stone or stick upon the rock. It was believed that this was done in

‘acknowledgement of an invisible agent, a token of the gratitude of the passenger on his journey for the good hand of providence over him thus far, and may imply a mental prayer for its continuance’ (Simmons 1986:253).

A similar story relates to two stones located on the side of the road from Plymouth to Sandwich. In 1807, Kendall reported that

‘one of them may be six feet high, and the other four; and both are of ten or twelve ft in length; and they differ in nothing as to their figure, from the masses of granite and other rock which are scattered over the surface of all the adjacent country’.

He noted that Indians cast stones and sticks on these stones because they were told to and because they expected blessings from the observance of the practice, and evils from the neglect. When asked to whom this worship was offered? [they replied] ‘To a Manitou...’ or spirit (Simmons 1986:253).

In Mashpee, sacrifice rocks eventually evolved into what were called ‘taverns’. These were
stick and brush structures located along the side of the road where food, property or whisky libations were offered to the ghosts who were believed to wander the roads (Simmons 1986:254, 255). The practice of putting whiskey or alcohol at these sites led to them being called taverns. As can be seen, there is a Native precedent for recognizing large stones in the landscape and acknowledging them as special sites. Simmons characterized so-called 'sacrifice rocks', 'wishing rocks' and 'taverns' as an attempt by the living to keep in touch with the dead through memorials and shrines (Simmons 1986:251). These observations suggest that the pots occasionally found in rockshelters, especially when no other evidence of occupation is present, may indicate that these vessels were left as offerings, not because they were broken and discarded.

Acknowledgments

This paper is based on the Tall Pines Development site examination report by Timelines, Inc. (Dudek and Chartier 2002). Information on the pottery analysis comes from John Pretola, Appendix C of the same report.

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Waddicor, Arthur

Zariphes, Constantine
A Contact Period Fishing Point of Cow Bone
From Grape Island, Boston Harbor, MA

Craig S. Chartier

Abstract

This paper examines a Native-made bone fishing point recovered during intensive survey testing on Grape Island. This point, made from a piece of cow metacarpus, was recovered from a midden context that produced Native pottery and lithics as well as European-related artifacts. The point provides evidence for the incorporation of European fauna into the 17th century Native culture. It also emphasizes the need to look closely at the faunal remains recovered from 'Late Woodland' sites. Two case studies demonstrate how faunal remains can be used to distinguish Contact period components hidden within larger multi-component sites.

Introduction

In May 1997, Timelines, Inc. conducted intensive archaeological survey testing of a portion of Grape Island, one of the islands in the Boston Harbor Islands State Park. Testing was required prior to the installation of new benches near a stone house foundation. As a result, several features were identified and numerous artifacts recovered. The majority of the artifacts came from a series of shell middens encountered in the three test trenches. These middens are believed to date from the Late Archaic period to the early 18th century and represent the use of this area by Native people, both pre- and post-Contact, as well as Europeans. Among the artifacts recovered was a single-barbed bone fishing point. While this artifact is not unusual in and of itself, the fact that it was made from a fragment of European cow bone and associated with Native lithics and ceramic artifacts is important. The point was not identified as made of cow bone when initially found and catalogued, but was recognized during subsequent analysis of all the faunal remains from the site. This report has three main objectives: to place this unusual artifact within its archaeological context, to discuss its possible use in terms of Native fishing technology, and to encourage more careful examination of other potential Contact period faunal assemblages.

Site Context

The bone point was recovered from Trench 3, which was located approximately 30 m north of the seawall on the south side of Grape Island (Figure 1). An exposed house foundation dating from the 17th to 19th century was located roughly 25 m northwest. The trench was 1.75 m long and 0.75 m wide, and excavation was done at 10 cm levels following natural stratigraphy. All soil was screened through 1/8” inch hardware cloth (Dudek 1997: 54). Trench 3 revealed the following stratigraphy (see Figure 2, Levels 1-5):

- Level 1 at 0 to 10 cm was a disturbed surface layer of dark grayish-brown silty sand with modern shell and recent artifacts, such as machine-made glass, as well as older faunal remains and prehistoric lithics.

- Level 2 at 10 to 20 cm was a less disturbed layer of similar soil with increasing evidence of shell midden. Artifacts recovered included...
faunal remains and lithics like those from Level 1, as well as two fragments of grit-tempered pottery.

Level 3 at 20 to 30 cm was an undisturbed, moderately dense shell midden composed of dark grayish-brown silty sand. Numerous artifacts were recovered. These included one hornfels scraper, one quartz uniface, several utilized flakes and 84 pieces of debitage, representing a wide range of lithic material but primarily rhyolite. Four pieces of Native pottery were found. Two were shell-tempered ware; one of these was a rim fragment with a dentate stamped exterior (8 mm thick). Other ceramics included one piece of grit-tempered body (8 mm thick) and one piece of grit and shell-tempered pottery (9 mm thick) with a cord marked exterior. Indigenous fauna included shellfish (mussels, periwinkles and one other gastropod) and a fragment of sturgeon scute. European materials from Level 3 included a single piece of lead-glazed redware (with only the interior surface present) and seven pieces of cow (Bos taurus) metapodial bone, one of which had been made into a barbed point. The cow bone is described in greater detail below.

Level 4 at 30 to 50 cm was mottled-brown sandy silt with no shell. It did contain lithic debitage associated with Feature 8, a Late Archaic pit. This feature extended to a depth of 64 cm below surface and contained one piece of calcined bone and a slight amount of shell as well as debitage (Dudek 2000:56-57).

Level 5 at 50 to 64 cm was yellow-brown sandy silt that yielded no artifacts.

This stratigraphy indicated three episodes of use. Most recent was the disturbed upper layer with its mix of recent and ancient artifacts. Below this was an undisturbed shell midden dating from Late Woodland to 17th century. Portions of this midden post date European contact although it is unclear whether this means initial settlement in the area ca. 1628, or the period ca. 1675-1730, represented elsewhere on the site. The other trenches near the foundation yielded Native pottery as well as European fauna and ceramics dating to this later period. Beneath the shell midden was a Late Archaic, or possibly, earlier level. The late Dr. Barbara Luedtke tested this area in the 1970s and found a stemmed rhyolite point, possibly a Middle Archaic type, in the lower layers of the shell midden she encountered (Luedtke 1975:67).

The Bone Point

Seven pieces of cow bone were recovered from Level 3. When comparisons were made with moose and deer metapodial bones, the former were larger and more robust than the excavated examples while the latter were smaller and more gracile. All seven fragments appear to have come from the mid-section of a single right metacarpus. Metapodial bones occur in a
cow's lower front leg and are analogous to those that make up the palm of a human hand. Metapodial bones, the metacarpus and metatarsus, are dense and thick, ideally suited for bone tools. Six of the seven pieces were cross-mended forming a section 6.5 cm in length or roughly one third the length of a complete metacarpus (as based on a comparative example in the author's collection).

The seventh piece of cow bone may have come from the same metacarpus (Figure 3). This piece was 5.5 cm long, 1.6 cm thick and had a slight degree of curvature that matched the other cow bone fragments recovered from the same level. It also showed evidence of human modification into a barbed point through the grooving, splintering and scraping techniques described by Will (2002). Similar single-barbed bone points are common in Late Woodland shell middens. Several morphologically identical examples were recovered from nearby Spectacle Island (Simon 2002:5-6). This point was broken at the barb. Since it is fragmentary, it is not possible to tell whether it was discarded after use or was never completed.

17th Century Native Fishing

This point may have been intended to procure sturgeon. A fragment of sturgeon scute, the bony plates on the sturgeon's back and head, was also recovered from Level 3. Both Native people and English settlers appreciated these fish that could attain lengths up to 18 ft. The English so favored this fish that by 1634 the settlers in Massachusetts Bay pickled much of their catch and shipped it back to England (Wood 1977: 55). In England, sturgeon was used both for food and the production of isinglass, glue made from their swim bladders (Josselyn 1672: 32). Roger Williams, the religious dissenter who founded Providence Plantation, noted that sturgeon was called kauposh (singular) or kauposhshauog (plural) by the Narragansett, which he translated as 'he who is shut up or protected'. Williams also observed that sturgeon 'abounded in diverse parts of this country' and that Natives prized it so highly, that they would not furnish it to the English 'for such a cheap rate that it would be profitable' for trade (Williams 1973: 100).

Native people developed two special techniques to catch sturgeon. The first involved the use of gill nets that were strung up across the mouth of rivers or sand bars. These strong nets were made from native fibers such as milkweed, dogbane, false nettle, and possibly basswood bark. The second technique was night fishing from a canoe. Once sand bars were reached, a birch bark torch was ignited and waved over the surface of the water. It was believed that sturgeon would swim up to the light and 'tumble and play, turning up his white belly' into which a lance or spear was thrust (Wood 1977: 107). The preferred lance or spear was described as a 'sharp bearded dart' and was fastened to a long line. Originally these lance points were made of bone, however, after European contact they were made of iron as well (Wood 1977: 107). Fish spears, or anneganuhtuk, literally 'long spears', were also identified for sturgeon fishing by Roger Williams (1643) and John Josselyn (1672). Josselyn stated that they would hunt for sturgeon at night

'striking them with a fishgig, a kind of dart or staff, to the lower end whereof they fasten a sharp jagged bone with a string attached to it, [and] as soon as the fish is struck they pull away the staff, leaving the bony head fastened in the fishes body and the string to the canoe' (Josselyn 1672: 100).

Implications for Contact period Studies

The bone point from Grape Island illustrates the need for careful analysis of the faunal assemblages from Late Woodland sites in New England. Grape Island is the second site the author has encountered where the faunal remains have helped identify Contact or later Historic period components on a site otherwise
considered Late Woodland. The second example is the Tura site in Kingston, Massachusetts (Chartier 2001). Here the fragmentary remains of a complete European rooster were recovered from a small pit within a larger pit feature. The only other artifacts recovered from this feature were a few pieces of shell-tempered Native pottery and some lithic chipping debris. The rooster remains were initially identified as a probable duck species. It was not until a complete analysis of the faunal assemblage from this site had been done that the skeleton was identified as a rooster (*Gallus gallus*). As at Grape Island, the feature that contained the rooster was spatially separate from the other Contact/Plantation period materials recovered from the site. Without the rooster’s identification, this feature would have continued to be considered as dating from the Late Woodland.

**Conclusion**

The occurrence of a probable fishing point made from cow bone found on the Grape island site, as well as the rooster recovered at the Tura site, serve as cautionary notes to archaeologists working on Late Woodland sites in New England. It is important that the faunal assemblages from these sites be evaluated carefully as Contact or Historic period components may be hidden within typical ‘Late Woodland’ assemblages. Although the evidence for Native use of European livestock is often subtle, this largely unexplored subject has great potential for teaching us more about the early stages of acculturation and how Native people responded to and used the novel animals Europeans brought with them.

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Native American Settlement in the Upper Housatonic During the Woodland Period

Timothy Binzen

Abstract

Archaeological site data from the upper Housatonic watershed in western Massachusetts and northwestern Connecticut indicate that Native American settlement occurred during the greater Woodland period (500 to 3,000 years ago) at a rate generally similar to that seen during the preceding Late Archaic period (3,000 to 6,000 years ago). However, evidence for settlement during the Late Woodland period (after about A.D. 1000) is proportionally much more common in the southern part of the study area (Connecticut) than in the northern part (Massachusetts). This paper considers whether this difference is due to the nature of the data set or an actual shift in the settlement system in the six centuries before Contact.

Introduction

Recent research in archaeology and ethnohistory has demonstrated that Mohican settlements were widespread in the Hudson River valley of New York State during the Contact period, circa A.D. 1500-1600 (Dunn 1994; Lesniak 2001). In significant respects, the Mohican settlement system encountered by the first European explorers likely embodied patterns that had developed by the Late Woodland period, which began shortly before A.D. 1000. Less is currently known about the Native American settlements that were located to the east of the Hudson, in the upper Housatonic River valley of Massachusetts and Connecticut, during the Late Woodland and Contact periods. The notion that the upper Housatonic was a cultural “backwater” during the pre-Contact period has been refuted (Johnson et al. 1994). However, the belief persists that the upper Housatonic area served primarily as a seasonal hunting ground that witnessed only intermittent occupation by Native people in the centuries prior to the early colonial period.

Recent examination of archaeological site data from the Housatonic watershed in Massachusetts and Connecticut suggests that Woodland period occupations in the Housatonic Valley were more widespread than previously has been thought, a pattern supported by research regarding the Mohican settlements of the early Historic period in the upper Hudson and Housatonic valleys (Dunn 2000). This paper reviews archaeological evidence from the Housatonic, in order to suggest patterns related to the settlements of the ancestral Mohicans there.

Geographical and Historical Background

The Housatonic watershed is the largest river drainage between the Hudson on the west, and the Connecticut River on the east. The Housatonic River arises from three ponds, the largest of which is Onota Lake in Pittsfield, Massachusetts, forming fast-flowing streams that unite in the Berkshire Valley. From there,
the Housatonic meanders through extensive floodplains, passes through western Connecticut, and empties into Long Island Sound at Stratford, Connecticut. The Housatonic watershed occupies nearly two thousand square miles, of which approximately one quarter is in Berkshire County, Massachusetts. A small part of the watershed is located in eastern New York State (Bickford and Dymon 1990). The study area for this paper (henceforth “the upper Housatonic”) is shown in Figure 1 and consists of the Massachusetts portion of the watershed located in Berkshire County, combined with the northern half of the Connecticut portion in Litchfield County.

Because the central and northern reaches of the Housatonic were not navigable for European vessels during the early historic period, the river valley was less well known than the Hudson and the Connecticut river valleys. Surprisingly, the upper Housatonic was not explored by European colonists until the late 17th century, and was not extensively settled by them until the mid-18th century (Binzen 1997). In 1694, the Reverend Benjamin Wadsworth visited “a place called Ouunsetonuck formerly inhabited by Indians” (Smith 1946). This location, believed to be a fording point in Great Barrington, Massachusetts, is remembered today as the Great Wigwam Site. Wadsworth stated that

“Thro' this place runs a very curious river, the same which some say runs thro' Stratford, [Connecticut,] and it has on each side some parcels of pleasant, fertile intervale land”.

However, he went on to describe the area in general as “a hideous, howling wilderness” (Smith 1946).

Because the upper Housatonic was beyond the frontier of early New England, the documentary record concerning the Native American communities and villages located there in the Contact period is virtually nonexistent, and even during the early colonial period is sparse compared to the Hudson and Connecticut River valleys. This contributed to the misperception that the Housatonic Valley had long been devoid of Native American inhabitants, a misperception that was reinforced in the nineteenth century by DeForest (1852). In his history of the Indians of Connecticut, DeForest wrote that in the early historic period “the whole country now known as Litchfield County [that is, the Connecticut part of the upper Housatonic]...presented an uninhabited wilderness. The birds built their nests in its forests, without being disturbed by the smoke of a single wigwam; and the wild beasts, who made it their home, were startled by no fires save those of a transient war-party, or a wandering hunter”.

Europeans defined the Housatonic from the perspective of their regional settlement centers at Albany, Hartford and Springfield. Separated from the Hudson Valley by the steep escarpment of the Berkshires, the Housatonic valley also formed the last frontier of Massachusetts and Connecticut, forming a wedge of land unfamiliar to the colonial governments. During the early 18th century, this sense of remoteness and distance from the administrative reach of the colonial governments may have appealed to the sachems of the Mohicans (Binzen 1999); in the 1730s the Mohican sachems Konkapot and Umpachenee established a new political center in the upper Housatonic that attracted Native people from the Mohican diaspora and beyond (Frazier 1992).

Despite the frequent discovery of Native American artifacts in plowed agricultural fields, 19th-century historians tended to downplay or even ignore the Native American heritage of the region. By depicting the Native Americans as being primitive, few in number, and an improvident, “vanished” race, histories of that time helped to rationalize the confiscation of Native lands that had occurred during the Colonial period (Handsman and Richmond 1992).

Archival research has provided new insights into the lives of the Native people of the upper Housatonic during the early Historic period (Dunn 1994, 2000). The archaeological record also provides a unique link to their way of life prior to the Contact period, indicating where and how they lived, and perhaps offering a closer sense of who they were.

“Where are the village sites?”
Among the open questions challenging archaeological inquiry today are the following: Where are the Native American village sites in the upper Housatonic? If there was a sizeable Native population there during the Woodland period (500 to 3,000 years ago), where is the archaeological evidence of those communities?

Archaeologists have defined the greater Woodland period as beginning about three thousand years ago and ending with European contact. The period is divided into the Early Woodland (2,000 to 3,000 years ago), Middle Woodland (1,000 to 2,000 years ago) and Late Woodland (500 to 1,000 years ago) on the basis of changes in Native settlement systems and technologies. Archaeology indicates that during the greater Woodland period, the Native people of the Northeast manufactured pottery and adopted maize horticulture to a degree. The use of the bow and arrow (in addition to spears) began during the Woodland period, and the projectile point types indicative of occupations during the period include Levanna, Jack's Reef, Greene, Fox Creek, and Rossville points. Across the region, systems of trade intensified and social relations between the main tribal groups were formalized (Dincauze 1990). People lived in nucleated villages, practicing an annual round of subsistence that included fishing and hunting, and they favored river valleys and coastal areas for their major settlements (Lavin and Mozzi 1996). However, in most respects the cultural practices of the Woodland period were the continuation of cultural trajectories that had originated much earlier (Feder 1999).

There is a discrepancy, as yet unexplained, between early European explorers' descriptions of the Algonquian people they encountered, and the archaeological record from the Late Woodland and Contact periods. Although the explorers described well-populated Native communities, where people cleared and cultivated extensive fields and maintained great stores of maize, beans and squash (Dunn 1994), maize may not have attained its historically documented importance in Native diet, economy and spirituality until shortly before the Contact period (McBride and Dewar 1987). The archaeological evidence for maize cultivation in southern New England has turned out to be uncommon, and the centrality of maize cultivation in Native subsistence has been questioned. In western Massachusetts, no archaeological evidence for large, year-round horticultural villages has yet been obtained (Chilton et al. 2000).

Questions have been raised for some time concerning this lack of archaeological signs of Late Woodland village sites in New England (Thorburn 1988). An interesting set of explanations has emerged for this absence. One explanation has to do with the nature of European settlement. During the Contact and early Colonial periods, locations of the largest Native settlements typically became centers of trade between Native Americans and Europeans. In many parts of southern New England, European settlement followed the Algonquian pattern, and colonists took advantage of prime farmland that had been cleared and prepared by Native people. As a result, many of the largest Late Woodland villages may now be underneath the streets of cities like Albany and Hartford, unavailable for archaeological excavation (Snow 1980).

Another possible reason for the lack of evidence is that in places like the upper Housatonic, the main villages of the Algonquian people were not the large, palisaded Iroquoian towns often depicted in the movies. More likely, the Housatonic villages were smaller clusters of wigwams (Handsman 1989), and people moved regularly between summer and winter settlements, using small satellite camps for seasonal subsistence activities (Binzen 1997). Specific main village sites may not have been occupied for more than one or two generations before other locations were used nearby, in a form of rotation that precluded the outstripping of natural resources. Many horticultural settlements of the Woodland period may be deeply buried in floodplain areas, where they are beyond the access of conventional archaeological testing methods (Hasenstab 1999). It should be expected that the archaeological record resulting from a seasonal settlement system will be subtle, and a challenge to recognize today.

A third factor has to do with archaeological preservation. Four centuries of architectural development, intensive farming and collection of artifacts has resulted in the depletion of the archaeological record in the Northeast region (Hasenstab 1999). As it has been said, however,
the absence of evidence is not evidence of absence" (Thorbahn 1988). And indeed, recent research into the archaeological files from Massachusetts and northwestern Connecticut has offered evidence of widespread occupations in the Housatonic during the Woodland period.

Archaeological Evidence: The Woodland Period in the Upper Housatonic

The study area considered for this paper consists of the Housatonic River watershed in western Massachusetts and northwestern Connecticut, an area referred to as "the upper Housatonic." In his 1980 synthesis of New England archaeology, Snow proposed a watershed-based model for understanding the cultural dynamics of pre-Contact Native populations. It was presumed that the watersheds occupied by those groups defined the territories of tribal groups. However, the distribution of lithic materials and pottery styles in the lower Housatonic suggests that a mechanism of cultural interaction overrode these environmental parameters (Cassedy 1996), and it makes intuitive sense that the ancestral Mohicans would have used parts of both the Hudson and Housatonic river systems. Nonetheless, reference to the Housatonic watershed transcends the modern political boundaries between Massachusetts, Connecticut and New York, and creates a frame of reference that would have been meaningful to the ancient Native societies.

For this study, the state archaeological site files were consulted for 25 Massachusetts towns and eight Connecticut towns in the upper Housatonic. To date, the majority of archaeological sites known in the study area were recorded on the basis of information obtained from local collectors of Native American artifacts, and were not initially identified through systematic testing, although several cultural resource management projects have provided important overviews of pre-Contact archaeology in the area. These projects have included archaeological surveys in the Massachusetts towns of Lee (Macomber 1992), Pittsfield (Shaw et al. 1987), and Sheffield (Nicholas and Mulholland 1987). The most comprehensive analysis of pre-Contact Native American settlement and land use yet produced in the study area resulted from data recovery excavations at the Chassell 2 Site (19-BK-141) and Kampoosa Bog Site (19-BK-143) in Stockbridge, MA (Johnson et al. 1994).

Often, the site forms lack detailed information about site dimensions and artifact assemblages, and rely heavily on projectile point types to date sites. Five of the Massachusetts towns in the study area contain no recorded Native American sites at this time, and three of the towns contain only one known site. It is noted that many of the Connecticut sites were recorded as a result of public outreach efforts by staff of the former American Indian Archaeological Institute in Washington, Connecticut, who were trained in the recognition of Woodland period cultural materials. A comparable level of public outreach has not yet been attained in Berkshire County, Massachusetts, although efforts to this end would likely have favorable results.

It is probable that the pre-Contact Native American sites recorded to date in the study area represent just a fraction of those that actually exist. Given the increasing pressures of residential and commercial development in the region, however, there is now an urgent need to recognize and record as many additional sites as possible, in order to ensure that the cultural resources of the Mohicans and other Native people can be protected and, if necessary, properly investigated (Hasenstab 1999; Binzen 2001). While the site files of Massachusetts and Connecticut do provide important locational data, there is a great deal of research and site recording yet to be done to confirm some of the patterns that are suggested by this preliminary review.

The Massachusetts Sites

As of 2001, 112 pre-Contact Native American archaeological sites had been recorded in the Massachusetts portion of the study area (Table 1). Of these sites, 32% (T=36) contained evidence of occupation during the greater Woodland period. Among these Woodland sites, about one in six (16.6%, T=6) provided evidence of occupation during the Late Woodland period (after A.D. 1000). Overall, however, only 5.4% of all the Massachusetts sites currently offered evidence of Late Woodland occupations occurring after A.D. 1000.
Table 1. Information concerning pre-Contact Native American archaeological sites in the upper Housatonic study area.

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<td>(as of 1995)</td>
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The Connecticut Sites

As of 1995, 85 pre-Contact Native American sites had been recorded in the Connecticut portion of the study area (Table 1). Of these sites, 34% (T=29) contained evidence of occupation during the greater Woodland period. This is virtually the same proportion seen in Massachusetts. Among these Woodland sites in Connecticut, however, nearly three quarters (72%, T=21) provided evidence of occupation during the Late Woodland period, that is, after A.D. 1000. This is a frequency five times greater than that which is seen for the Massachusetts sites of the greater Woodland period. Overall, one quarter (24.7%) of all the recorded Connecticut sites had evidence of Late Woodland occupation.

Recent Outreach Sites in Connecticut

Recently, a public outreach event was held in the town of Salisbury in Litchfield County, Connecticut (Binzen 2002). Members of the public were invited to bring in Native American artifacts that they had found for identification (typically projectile points from agricultural fields), and plot the find-spots on topographic maps. Seventeen previously unrecorded pre-Contact Native American sites in the towns of Salisbury, Canaan and North Canaan were recorded. (Updates were obtained for three previously recorded sites.) Evidence for Woodland period occupation was reported from 5 of the sites. Of these Woodland sites, 3 had evidence of Late Woodland occupation.

Summary of Pre-Contact Site Information

In the overall upper Housatonic study area of 33 towns, a total of 214 pre-Contact Native American archaeological sites has been recorded. Of these sites, one third contained evidence of occupation during the greater Woodland period, which began about 3,000 years ago. Among the sites of the greater Woodland period, close to half provided evidence of occupation during the Late Woodland period, after about A.D. 1000. Overall, 14% of all the recorded sites in the study area have provided evidence of Native American occupation(s) during the Late Woodland period, or the six centuries leading up to first contact between the Native Americans and the Europeans.

Patterns from the Site Data in the Upper Housatonic

The archaeological evidence indicates that the frequency of occupations during the greater Woodland period (500 to 3,000 years ago) is virtually identical among sites in the
Massachusetts and Connecticut portions of the study area (Table 1). Proportionally, however, evidence for Late Woodland occupations (occurring after A.D. 1000) has been reported at five times more of the archaeological sites in northwestern Connecticut than to the north in Massachusetts. This would seem to suggest that Native American settlement in the northernmost quarter of the Housatonic watershed was comparatively sparse after AD. 1000. Johnson (1994) suggests that with the adoption of a seasonal round of horticulture and hunting during the Late Woodland period, the Native people of the Housatonic moved seasonally between separate settlements in the river valley and upland areas. It is possible that the Late Woodland sites in western Massachusetts, though fewer in number, were larger, more centralized settlements than the contemporary sites in western Connecticut. Alternative explanations involve the possibility of a proportionally smaller population in the northern part of the watershed; the apparent concentration of Native populations near the coast and in the valleys of the Hudson and Connecticut rivers during the Woodland period; and the possibility that archaeological evidence for Late Woodland occupations simply has had greater visibility in the lower part of the watershed.

The Late Woodland sites of the Housatonic in Massachusetts and extreme northwestern Connecticut may have been occupied by Native people who were affiliated with the Mohican society, while the sites in the Connecticut portion of the study area may have been small, seasonal, short-term habitations, used by people who were affiliated more closely with the Native communities of the lower Housatonic valley and the Connecticut coast. This possibility is supported by a previous study of the distribution of lithic materials and pottery styles in the lower Housatonic, which suggested that the Native people of the upper part of the watershed interacted more closely with the Mohicans of the Hudson (Cassedy 1996). In Stockbridge, Johnson (1994) reported the presence of a variety of lithic material (chalcedony) traded or transported from the Kent, Connecticut area on the middle Housatonic. This suggests cultural connections between the Native people of western Massachusetts and those living downriver, to the south. Archaeological evidence supports “historically documented, traditionally recalled ties” between the Native people of Stockbridge and the Native communities of northwestern Connecticut and western Massachusetts (Johnson 1994, citing Brasser 1974, 1978; Frazier 1992; Handsman and Lamb Richmond 1992).

Is there a natural landmark that symbolized a point of transition between the Native groups of the northern and middle Housatonic? Pawachtuek, the Great Falls on the Housatonic in Canaan, Connecticut (Dunn 1994), has the greatest drop in elevation on any major river in New England. It can be speculated that this landscape feature represented a gateway to Mohican country for Native people who traveled up the river from the south. Evidence of Mohican influence in the upper Housatonic north of Pawachtuek is provided by early documents from Albany, which demonstrate that the series of riverside flats upstream from the Great Falls all had distinct Mohican place-names at least by the late 17th century: Kenachkehantick, Achneganick, Awaankaniss, and Taashammik (Dunn 1994). It seems likely that these places along the Housatonic had been named by the ancestral Mohicans many generations earlier. The Mohican presence upriver in the Massachusetts towns of Sheffield, Great Barrington, Stockbridge and adjacent parts of New York between 1675 and 1750 has also been demonstrated (Dunn 1994, 2000; Binzen 1997). As Johnson (1994) observed, archaeological evidence from the upper Housatonic supports the tradition that the Native people of western Massachusetts had stronger cultural ties to the Hudson Valley than to the Connecticut Valley during the historical period, “ties that extend deep into the remote past.”

Although evidence for Late Archaic occupations that occurred three to six thousand years ago is very common in the study area, there is no indication that the rate of occupation significantly increased or decreased during the subsequent Woodland period. The sole exception to this observation is the relative scarcity of Late Woodland sites in the northern, Massachusetts quarter of the watershed. This was clearly a time when Native settlement intensified in the lower Housatonic and in coastal Connecticut. Perhaps a re-orientation of Native settlement towards the lower Housatonic, combined with an intensification of
horticulture in the Hudson Valley, attracted Native people from the northern Housatonic and resulted in the partial depopulation of the study area by the ancestral Mohicans after A.D. 1000. During the Colonial period, however, the strategic advantages of settlement in the remote "hunting grounds" of the Housatonic were once again recognized by the Mohican people (Binzen 1999). With the ascent of the fur trade in the 17th century, moreover, control of headwater areas had become a new priority for the Native people of southern New England (McBride and Soulsby 1989). The upper Housatonic area may have regained logistical significance for this reason also.

While it is possible that the Native population in the northern part of the Housatonic watershed decreased after A.D. 1000, people certainly did not disappear. In Massachusetts, several towns have sites with evidence of Native occupation during the Late Woodland period. These towns are Great Barrington, which includes the Skatekook Site (19-BK-28), the Great Wigwam Site (19-BK-25), and the Mt. Peter Site (19-BK-108); Sheffield, with the Clark's Field Site (19-BK-101) and the Chapin Farm Site (19-BK-103); and near the headwaters of the Housatonic in Pittsfield, with the Caldwell Site (19-BK-137), the Village Site (19-BK-5) and the Canoe Meadows Site (19-BK-13).

In northwestern Connecticut, the places that were favored for habitation during the Late Woodland are distributed along the floodplains and terraces of the Housatonic and its tributaries in Cornwall, Canaan, North Canaan, Salisbury and Sharon; the vicinity of the Twin Lakes and Lake Wononscopomuc in Salisbury; Lake Waramaug in Warren; and Bantam Lake in Litchfield.

Artifacts other than projectile points can provide insights into the Woodland period. Native American pottery is a well-known indicator of Woodland period occupations in the region. It is noteworthy that pottery has been reported from only four sites in the Massachusetts portion of the study area. It may be that this type of artifact has gone unrecognized or unreported at other Woodland period sites. Constituting one of the few sources of information about stylistic trends and ethnic affiliations, Native pottery merits further investigation in the upper Housatonic.

One of the most interesting secondary patterns to emerge from the Housatonic study involves the frequent occurrence of pestles. These tapered, cylindrical implements of worked stone were used to grind food materials, and are often associated with societies that practice horticulture. Frequently seen at sites of the Woodland period, pestles have sometimes been found in association with women in funerary contexts (Gibson 1980). Pestles have been reported from one quarter (25%, T=9) of the sites that contain Woodland period components in the Massachusetts portion of the study area. Among related implements, stone hoes were reported from sites in Massachusetts and Connecticut, and one mortar stone was reported.

Artifacts that may provide a glimpse into the symbolic and ritual aspects of Mohican lifeways in the upper Housatonic include a pestle with an animal head from a site in Great Barrington (19-BK-112), and a set of bear teeth with drill holes that evidently formed a necklace, from a site in Pittsfield (19-BK-171). Animal symbols were associated with the bear, turkey, deer, wolf and turtle clans in Mohican society (Dunn 2000).

Conclusions

In conclusion, archaeological site data indicate that Native American occupations did occur in the upper Housatonic study area during the greater Woodland period (500 to 3,000 years ago). However, evidence for occupations that occurred during the Late Woodland period (after A.D. 1000) has been recorded in markedly fewer locations in the northern part of the watershed. As the regional trade and communication networks of the Woodland period developed, the people of the upper part of the watershed appear to have had a closer social affiliation with the ancestral Mohicans of the Hudson Valley to the west than with the people of the Connecticut River Valley to the east. The people of the middle and lower part of the Housatonic watershed were probably affiliated with the large Native communities of the southern Housatonic Valley and the Connecticut coast. Native occupation of the lower Housatonic watershed in Connecticut
apparently continued at a steady rate during the Early and Middle Woodland periods, even intensifying during the Late Woodland. In the upper part of the watershed in Massachusetts, however, the number of Native American sites (and presumably the amount of settlement) appears to have decreased during the Late Woodland period, or it became concentrated at a smaller number of main villages in the river valley.

When colonists from New York, Massachusetts and Connecticut explored the upper Housatonic area in the late 17th and early 18th centuries, they documented vast tracts of forested land, but also many open meadows and the settlement areas of Native people who identified themselves as Mohicans. During the same period, Mohican leaders recognized the strategic benefits of re-settlement in the upper Housatonic. Although the Mohican town at Stockbridge may have been newly established in the 1700s, the community made use of a system of Native settlement, travel and land use which in many respects had first emerged in the Housatonic during the Woodland period.

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How does one eulogize a physicist who came into the social sciences through the garden door and rapidly became indispensable? Acquaintance with Betty was among the most gratifying adventures of my life; for more than 25 years she was student and mentor, colleague and friend. Her passion for understanding the world was fuelled by a childlike universal curiosity, supported by formidable analytical skills and nearly tireless energy. In short, she was the ideal scientist: curious about everything, observant, alert, analytic, energetic, resourceful.

A born teacher, she volunteered in schools where she effectively instilled questioning habits in children, as well as in college students at UMass, where she did her best to demystify mathematics for anthropologists. She taught herself the technicalities of radiocarbon dating and persevered to publish articles in journals respected by specialists in many fields. Her successful private study of 17th century English handwriting allowed her to make original contributions to New England history from off shore Nantucket, her major laboratory.

In honoring this unique human being, I set aside the temptation to merely list the titles of her many and diverse publications, and instead, offer select anecdotes from a single week in 1990 during which four women toured Newfoundland and Labrador, visiting archaeological sites of Indians, Eskimos, Vikings, Basques, English and French explorers. As new to the place as we all were, Betty provided an informed and running commentary on the vegetation, wildlife, and cultural landscapes.

- Near a ferry slip in Quebec, she requested a stop to investigate seal skins stretched on racks for drying and curing. Despite the thick black flies, Betty engaged the householder in conversation about the legalities of seal hunting and the process of curing skins. The man's young daughter was so interested that she stood around us in the cloud of flies, listening.

- Near the Puffin rocks, Betty was the one who took off her shoes to wade briefly in the chill, exotic waters of the Gulf of St. Lawrence.

- At the tip of Newfoundland, Parks Canada built a group of Viking turf-covered houses to create a successful tourist attraction. Minutely scrutinizing the grass growing on them, Betty asked the baffled guide why that particular grass was used for the reconstruction. She explained that, since Timothy grass was not brought to North America until the 18th century, it could not be authentic for Viking buildings. She was the first visitor to notice the critical anomaly.

- At an early Eskimo site on the coast, Betty volunteered to join the excavators in a midden thick with seal bones – the kind of dirty work that she loved. Later, we all stood agape as a Gulf of St. Lawrence sunset laid a broad, straight, brilliant orange carpet down the lower Gulf, reaching east from the river towards the shore of Newfoundland. As we watched, two whales breached and leaped through the orange stripe, taking our breath away. 'Fin whales' remarked Betty quietly.

- Betty realized that the small square 'cellar holes' we observed in a coastal meadow might be the products of early post-Viking explorers in the region. Later inquiries proved her speculation accurate. She also called my attention to stone alignments across a brook, relating them to my ongoing interest in the function of simple fish weirs.

- A few days after the trip, Betty sent each voyager pages of notes on the ground vegetation we had crushed underfoot, marking the species that were found on Nantucket (the ancient edge of the glaciers).

One couldn't ask for a better companion, whatever the activity. Betty enriched everyone who knew her.
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