

## **SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

Data Recovery excavations at the Muttock-Pauwating site recovered over 56,000 artifacts (N=56,050) spanning the Early Archaic to Modern era. Early Archaic artifacts, limited to two projectile point fragments, indicated the use of the area as a hunting locale, possibly where people stopped for brief periods to refurbish their tool kit. The Middle Archaic period was better represented, especially in the L2H impact area, where excavation found a short-term Middle Archaic camp below the later Woodland occupation. Middle Archaic occupation appears to have taken the form of a small camp where knappers refurbished lithic tools and carried out a limited number of activities. The Late Archaic was well-represented across the project area, consisting of repeated occupation of the site by small bands of people for limited periods of time. The most extensive Late Archaic evidence was in L4S where a large concentration of lithic debitage was found that relates to the occupation of the area by people using Squibnocket Complex tools. Susquehanna Complex tools were well-represented across the site, including Wayland Notched, Susquehanna Broad, Mansion Inn, and Orient Fishtail points, one drill, and the beveled cobble abrader. The last two items were burned, possibly as a result of being part of a cremation associated with a human burial somewhere on site. The burial may have been subsequently disturbed by late Woodland people, resulting in the mixing of these earlier artifacts with later material and the curation, and Late Woodland alteration, of the beveled cobble abrader. Early Woodland occupation was common in the southern half of the project area where evidence for this period took the form of Rossville and Lagoon points and pieces of Vinette I pottery. It is unknown what form the early Woodland occupation took, but were extensive and possibly associated with refurbishing hunting tool kits and possibly longer-term occupation. This is a question that researchers will investigate further when funding is available for radiocarbon dates. Middle Woodland occupation took much the same form as that of the early Woodland, a few points, actually fewer points than in the Early Woodland, and pottery sherds. This occupation is also ill-defined at this time. The Late Woodland occupation was the most extensive at the site with 69 houses, representing four different house forms, hundreds of anomalies, and extensive evidence of maize and bean horticulture.

Archaeologists developed the research design for the Data Recovery phase of field work at the Muttock-Pauwating site to gather information to help investigate four main research objectives:

**1) Does the site represent one large “Village” occupation event, several smaller temporally separate occupations or a combination of the two?**

Analysis determined that the most plausible conclusion is that the site represents a location that served as a community or “village” locale, possibly a portion of a much larger village in this portion of Middleborough. Numerous house forms were found aligned along similar axis, had similar dimensions, and were relatively regularly spaced apart from each other across the project area. Testing identified abundant evidence for the practice of horticulture in the form of hoes, macrobotanical remains, and storage pits. Several house forms showed evidence of the reoccupation of the home on a seasonal basis in successive years. Based on the fact that two to three different dwelling house forms were present, it may reflect occupation by successive generations- one that lived in smaller nuclear families occupying round to oval-shaped houses and another that consisted of larger more extended families occupying longhouses.

**2) Can the lithic materials used at the site tell us anything about pre-contact trade, territoriality or whether the site represents a camp or village location?**

Lithic types recovered indicated limited local exotic and far exotic trade during the Middle to Late Woodland periods. Local exotics arrived at the site from points of origin to the north (Saugus Jasper, Attleboro Red Felsite, Hornfels) and to the west or possibly southwest (steatite). Far exotics arrived from New York State and Pennsylvania. Overall, the occupants of the site favored local lithic types that could be acquired on or near site or from the southern New England area in general (quartz, quartzite, argillite, rhyolite). Based on the lithics alone the territorial focus of this community was more localized, possibly with a focus to the east (Plymouth) and southeast, versus a strong connection to the communities to the north in the Boston Basin. This may be evidence of the Late Woodland/ Contact Period territoriality represented in the chronicles of the early seventeenth century European explorers and colonists.

**3) Can the periods apparently present at the site, Middle Archaic, Late Archaic, Early Woodland, Middle Woodland and Late Woodland, be spatially separated and identified between and within the lots through the creation of SURFER plots and detailed artifact analysis?**

SURFER plots were found most revealing of refuse and occupation patterns associated with the Late Woodland occupations. In two cases, artifact distributions clearly showed foci of earlier occupations (L2H Middle Archaic concentration and L4S Late Archaic concentration). Other temporally diagnostic materials were more widely spread across the project area, generally blending in with the background noise present in the plowzone. This is most likely the result of shorter term sporadic occupation with a high focus that resulted in low visibility following centuries of plowing.

**4) What can the faunal and floral remains recovered tell us about the subsistence practices and, when combined with extant pollen core studies, about the paleoenvironment that existed during the site's habitation?**

Faunal remains show that the Late Woodland inhabitants of the southern half of the project area occupied the site in the spring, beginning at or just before the spawning runs of the Alewife in the Nemasket River. Faunal and floral remains show probable occupation throughout the summer and into the fall when inhabitants harvested horticultural crops and mast and presumably stored them for winter use. The presence of surf clams and other salt water shellfish species, shows that inhabitant made at least sporadic forays to either the east or south coasts where they collected these species. Ethnohistorically it is known that the inhabitants of Nemasket traveled to Plymouth in the spring to collect lobsters, and presumably shellfish. The shellfish species, especially the surf clams, are very plentiful in the Plymouth Harbor area and may be evidence of this seasonal coastal foray. The macrobotanical remains and the estimated extent of horticulture practiced at the site, indicate that the inhabitants surrounded their homes with planting fields, possibly resulting in the entire ~25 acres making up the peninsula on which the project area is situated, being cleared. Outside of the planting fields, areas of mast forest existed, including hickory and oak with grapes growing in open areas with exposure to the sun. Pollen core studies have found that some plant taxa that are known to have been important to Native foodways in the Contact Period (chestnut, hickory, beech) expanded north only in

the last few thousand years even though the summer temperatures exceeded modern values several millennia earlier than that.

The vegetational history may show a positive correlation with the cultural occupation of many sites in southeastern Massachusetts. The first clearly recognizable occupation in the project area was during the Middle Archaic period, a short-term encampment by people utilizing Neville and Stark projectile points, identified in the Lot 2 House impact area. This occupation was most probably focused on the wetlands to the immediate southwest of this impact area. At this time, drier conditions occurred and populations tended to camp near bodies of water such as swamps and wetlands. By the later part of the Late Archaic period and into the Transitional Archaic and Early Woodland periods (the second period of definitive occupation at the site), cooler, moister conditions prevailed and the distribution of hickory and, eventually by 2000 BP, chestnut forests, had spread into this area. The co-occurrence of more visible occupation, the rise in the use of soapstone and especially pottery, and the increase in mast forests are probably related. More mast that could be harvested for winter use (hickory and chestnut), new technology for processing the mast for long-term storage and possibly easier digestion (soapstone bowls and pottery), both could have led to the creation and use of base camps in the very Late Archaic into the Early Woodland periods, from which collecting and hunting parties would have based themselves around. These early base camps eventually may have evolved into community centers ("villages") once horticulture entered the diet of these people, possibly in the second half of the Middle Woodland Period. The Middle Woodland was also the period when chestnut pollen was very prevalent in the pollen spectra, which correlates well with the ethnographic data regarding the prominence of chestnuts in the Native diet during the Contact Period, a preference which appears to have had its roots in the Middle Woodland Period.

**5) What activities were carried out within each lot and does the archaeological evidence present in each lot represent discrete occupations or do occupations span more than one lot?**

Inhabitants carried out lithic reduction in all the lots with stages ranging from uniface production to biface production from previously prepared bifaces and core material. Cooking was evident to a greater or lesser degree in all the lots, being represented by fire-cracked rock scatters, pottery, charcoal rich deposits within anomalies, and carbonized floral and calcined faunal remains. Other activities included horticulture, with maize and beans being the two crops represented, food preparation, evident by pottery remains and complete or fragmentary examples of pestles and a muller. It is believed that women prepared animal skins using the unifaces and thumbnail scrapers recovered in several of the lots. In house and outside storage was also present in the form of medium size medium depth pit, mostly within houses, and large size deep depth pits outside of them. Possible evidence for ceremonial activity included the possible ceremonial or ritual association of the medium-size pits within the houses, the recovery of numerous crystals, hematite, and to fulgurites, the deposit of pottery and faunal remains in L2H, the recovery of two clay tobacco pipes, one steatite pipe blank, one effigy pestle, and four small round houses, interpreted as possibly representing women's menstrual lodges.

**Lithic analysis**

**1) Is there a difference in reduction strategies for the quartz versus non-quartz components**

**of the assemblage? Do any differences noted possibly relate to differential desired end product?**

Knappers reduced all of the lithic raw materials in similar ways, with bifaces being the desired end products. Quartz reduction resulted in a greater amount of shatter and core fragments versus other materials due to the crystalline nature of the material. All of the materials received most of their initial reduction elsewhere with the degree of off-site reduction increasing with the distance from the site where the parent source of the material as. Quartz and rhyolite, both of which obtained locally, had the highest occurrences of cortex on the debitage, but cortex occurrence was still lower than would be expected from complete on site reduction. It is theorized that the raw material as obtained a glacial drift cobbles with the majority of the initial cortex removal occurring elsewhere.

**2) Were raw materials utilized in the same manner or were flakes to be used in and of themselves the final product versus the production of bifaces?**

The raw materials were principally used for biface production. While utilized flakes were present, their occurrence was not particularly high. Knappers made Squibnocket Triangles from flakes with platforms remaining intact, preserved on one ear of the triangle body, so flakes, which were later reduced further to bifaces, were the probable product desired from the cores brought to the site versus the reduction of the core itself into a biface.

**3) What were the sources for the raw materials? Were they beach cobbles or quarried veins?**

Quartz, quartzite and rhyolite arrived at the site as initially reduced cores derived from glacially transported cobbles. Appropriate cobbles of all three of these materials are easily obtained from beaches such as those present in Plymouth. The presence of surf clams, common around Plymouth Harbor, as well as the ethnohistorical documentary evidence that records that Native people from Middleborough traveled to Plymouth Harbor in the spring, offers strong support that knappers could have easily obtained the raw materials for their seasonal biface need by knapping material on Plymouth beaches. The rhyolite from the Middle Archaic component present in L2H derived from rhyolite veins located off site and possibly as far away as Boston Basin. Knappers reduced the material to transportable cores and blocks and they may have cached these at the L2H location. Given the relatively physical and sample size of other exotic materials, they probably arrived at the site as cores or partially finished bifaces.

**4) Does the technology evident at the site in the lithic debitage relate to the level of mobility practiced by the people living at the site in the various periods?**

The presence of reduced blocks and cores in the Middle Archaic assemblage, possibly marking a cache location, may indicate a population on the move that visited the area as part of a prescribed seasonal round or as a frequented hunting stop. The relative scarcity of blocks and cores present in the remainder of the collection is more typical of mobile populations as well, people who rely on a good biface to replace broken tools. The occurrence of unifaces and utilized flakes has been noted as being possibly more commonly associated with sedentary populations, and their presence here would indicate the

presence of a semi-mobile population that remained in one location for extended periods of time. Seventeenth century Wampanoag people moved seasonally between winter quarters, spring seashore camps, summer planting grounds, fall deer hunting camps, and various foraging and collection camps located away from the main base camp, so they were a semi-mobile people.

**5) To what extent does the reliance on quartz by the inhabitants, span time periods? Was there a preference for quartz in one period over another?**

Inhabitants used quartz during all major occupations present at the site. Excavations recovered quartz associated with the Middle Archaic material in L2H, it was a strong component of the Late Archaic Small Stemmed/ Squibnocket Complex, and the use continued into the Late Woodland period. Quartz utilization was especially pronounced in the Late Archaic Small Stemmed/ Squibnocket Complex and in the Late Woodland Levanna Complex.

**6) How does Late Woodland quartz use differ or compare with Late Archaic use?**

Late Woodland quartz use appears to have centered on a finer and more complete bifacial reduction of larger flakes struck from a core as well as the use of quartz flakes as expedient tools. Late Archaic quartz use focused on a practical limited reduction of flakes to create small triangular points and lanceolate stemmed points, practical but not necessarily pretty or fine points.

**Pottery Analysis**

**1) Are the pottery fragments identified as vegetable tempered truly that or are they either shell-tempered with the shell having leached out leaving a cast that only looks like vegetable temper or pottery with accidental fiber inclusions?**

Archaeologists did not recover and vegetable tempered fragments during the Data Recovery excavations and it is postulated that the fragments previously identified as vegetable tempered are actually shell-tempered fragments where the shell has eroded out leaving a cavity that could be mistaken as being derived from burned away vegetable temper.

**2) What are the similarities and differences between the shell-tempered and the grit-tempered pottery from the site? Do enough differences exist to show a differential uses or temporal distributions of the two types of pottery?**

Shell-tempered and grit-tempered pottery sherds were very common at the site. Potters used grit-temper from the Early to Late Woodland periods, with temper sizes getting relatively smaller over time, to the point of being more like sand in the Late Woodland in some cases. Incised decorated pieces were shell-tempered, while pottery employed a wider variety of decorative techniques on the gravel-tempered vessels. Miniature vessels were commonly grit-tempered. Temper type appears to have certain temporal associations. Potters used gravel-temper throughout the Woodland Period while shell-temper, and fine grit-temper, appears as a Late Woodland phenomena.

**3) What is the relationship of the pottery shards recovered from the radiocarbon-dated features to those recovered from the rest of the site? Does the distribution of fragments**

**that are similar to the feature pottery support an interpretation of a small number of occupations at the site by a large number of people or multiple occupations by small groups?**

Unfortunately, due to the lack of radiocarbon dates from the project, this question can not be completely answered. Temper occurrence within anomaly occurrences mirrored those from across the site in general, indicating that the pots were in use at the same time as the inhabitants created features. Analysis found higher occurrences of shell-tempered pottery in anomalies in L6H, the impact area with the large deep pits containing carbonized maize and presumably dating to the Late Woodland period. They recovered more grit-tempered pottery from L2H anomalies, an impact area with only round house forms, possibly indicating earlier Late Woodland occupation, earlier than occupation in the southern half of the project area. Overall, temper distribution supports an interpretation of the impact areas in the southern half of the site as being occupied contemporaneously, while people may have occupied the northern lots (Lots 1 and 2) separately from the southern lots.

**4) Is there evidence of pottery manufacture, as is suggested by the recovery of unfired clay balls from the site in that past?**

Testing found no evidence of on site manufacture of pottery during the Data Recovery excavations. The types of evidence that would be indicative of manufacture included shallow basins with heavy charcoal deposits and misfired pottery or at the least, misfired pottery. Archaeologists found few pieces that could be even roughly defined as misfired or thermally failed.

**5) How does the type of pottery represented at the site reflect both the subsistence pattern suggested by the shellfish, faunal remains and lithics and the degree of mobility suggested by the lithic reduction analysis?**

The presence of thick-walled grit-tempered pottery is more indicative of more mobile populations, pottery that was durable and would not break as easily during the semi-often moves. Cooks may have also used them for simmering versus boiling. The presence of thin-walled, fine grit to sand tempered pottery is more indicative of semi-mobile populations with a greater degree of sedentism. Thin pots are more susceptible to breakage and thus would be better for more settled people. People may have boiled foods such as maize, versus the simmering done with the thicker earlier pots. Thicker grit-tempered pots appear to have continued in use in the Late Woodland possibly indicating simmering and boiling.

**6) Is there a continuity of decoration or production techniques across the project area, possibly reflecting simultaneous occupation of all areas of the project area at the same time by people sharing ideas and designs?**

Incising appears to have been a Late Woodland decorative technique and it is found across the project area, averaging approximately 23% of the decorative techniques used. It had its lowest occurrence in L2H, where Rocker, Fabric, and Dentate stamping were more common. Cord-wrapped stick decoration was another common decorative technique, being especially prevalent in the southern lots (Lots 4-6, L7SN) but also being present in L2H. Decorative motifs identified in lined forms (cord-wrapped stick

and incising) appear similar across the project area- horizontal and oblique lines and triangles being common, possibly indicating shared ideas between people and over time. The incised beveled cobble abrader recovered also bore an incised horizontal line and triangle motif.

## **Faunal Analysis**

### **1) Can any temporal differences in the use of faunal remains be identified from absolutely (radiocarbon) or relatively (association with temporally identifiable artifacts) dated features?**

Unfortunately no radiocarbon dates have been obtained yet so this question can not be completely answered. Late Woodland Alewife and bear use is apparent with the scattering of other species being less temporally evident. People across the site used deer, probably during all time periods and beaver appears associated with the Late Woodland as well.

### **2) What is the nature of the shellfish resources that were utilized by the inhabitants?**

Excavation found the evidence for shellfish use limited. This does not mean that the actual use of shellfish was limited though. European visitors and settlers noted the Native practice of smoke drying shellfish and it is very probable that during the spring when they traveled to Plymouth for weeks at a time, that they collected, cooked, and smoke dried them for later consumption. The resulting smoke-dried shellfish meat, sans their shells, would leave no traces in the archaeological record. It is possible that trace element analysis of soil samples could detect high levels of chemicals associated with seafood, and archived soil samples have been retained from many contexts associated with this project. The shells brought back to the site may represent either useful tools or utensils, curiosities, or even items retained for burial at the site in a ritual or ceremonial context.

### **3) What can the faunal and shellfish remains tell us about the catchment areas utilized and subsistence patterns of the inhabitants of the site?**

One of the principle reasons that people settled at this site in the Late Woodland Period, and possibly even as early as the Late Archaic, was the seasonal spawning runs of anadromous fish up the Nemasket River. Native fishermen could have caught species such as the Alewife, Bass, goose, duck, cormorant, turtle, and even the sturgeon in the river. On land, turtles and squirrels could be caught within the immediate area of the settlement. Deer and bears were probably caught further away from the site, in more wooded areas. People collected shellfish either to the east or to the south. The total catchment area of the inhabitants may have been as much as 15 to 30 miles in diameter.

**4) Dogs retained a special place in the culture of New England's Native people. What do the canine remains recovered from Lot 6 tell us about Native use of canines?**

Excavation did not recover any additional canine remains so it was not possible to further investigate this research question.

**5) What do the faunal remains tell us about the seasonality of the occupation at the site?**

The presence of Alewife remains, present in the spring in the Nemasket River, is the best evidence for a spring (April to May) occupation of the site. Co-occurring with the Alewife remains were those of bass, present from May to August, supporting a spring to summer occupation of the site. Turtles emerge from hibernation in April and are available to October and Passenger Pigeons are available from April to September.

**Recommendations**

The Muttock-Pauwating site represents a very rare type of site in New England, one that shows a range of occupation but which also has extensive evidence of Late Woodland sedentary horticultural activity, essentially a village location or at least a part of a larger village that existed in the general Muttock (Oliver's Mills) area. The site yielded extensive evidence of house forms and associated anomalies, artifact distributions associated with refuse disposal and day-to-day activities, as well as thousands of artifacts ranging from debitage and reduction waste to projectile points, decorative artifacts, ceremonial/ religious items, and even an effigy pestle. Also evident across the site was abundant evidence of potential ceremonial/ religious ceremonies and items of potentially significant ceremonial significance (such as the effigy pestle and the incised beveled cobble abrader).

The field work conducted for this Data Recovery and the results presented here, are applicable only to those areas that were proposed for development according to the 2007 development proposal. It is recommended that if any changes are made to that original plan, further testing be conducted in areas that have not been already excavated by the Data Recovery. The field work for the present project has also not been concluded. Testing and monitoring for the proposed water and utility lines has not been finished and it is recommended that no construction should begin until this has been accomplished. It is also recommended that the areas of Lots 1-3 in the southern half of the project area be subjected to the same Data Recovery excavations that archaeologists carried out in the other lots tested for the present data Recovery program. As a result of the present study, it was found that sites of extensive architectural remains and human burials could easily be located in areas that previous testing found contained little in the way of artifactual material. This was unknown prior to this project, as archaeologists have a tendency to focus on areas where abundant artifactual evidence is recovered versus less "rich" areas. This project has shown that Late Woodland community areas are replete with empty spaces, inside of houses, burial areas, where traditional testing would fail to be able to locate the subtle clues that indicate the presence of potentially significant archaeological remains. The only way to fully understand and investigate a site such as this is through large-scale controlled stripping significant portions of the project area.