Plymouth Archaeological Rediscovery Project (PARP)
Specialist Studies
Faunal Analysis from the Agawam Prehistoric Site Wareham, MA
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February 2011

Theory

Late Archaic to Early Woodland Research Design

In order to understand the importance of the Agawam site one needs to view it in the context of the current state of research regarding the Late Archaic, Transitional Archaic and Early Woodland periods in southeastern Massachusetts. To accomplish this, a literature search was made for all the relevant sources related to these periods. After the sources were reviewed, the most important research questions were identified and the research topics that can be investigated at this site were outlined. This section begins with an outline of what is known and not known about these periods with regards to technology, foodways, settlement and current research topics. It then goes on to outline what the Agawam site has to offer to some of these topics.

Small Stemmed and Squibnocket Triangle points have often been considered to be temporally diagnostic of the Late Archaic period in New England prehistory. The earliest dates for the presence of Small Stemmed points have been pushed back into the second or third millennium before present by work in the 1980s (PAL 1982 a, 1982b, 1983). Small Stemmed points have been characterized by four varieties (Small Stemmed I-IV) which can be lumped together into two categories- squared to rectangular stems and rounded stems. The first category includes Small Stemmed I and II. These are characterized by narrow isosceles triangular blades, a steeply angled cross section with hard hammer percussion flaking, a short roughly rectangular to square stem that is wide in relation to the maximum blade width (1:1.5) and length to width ratios of 1.5:1 to 3:1 (MHC 1984: 86-91). These generally date from 6000-3000 B.P. The second category includes Small Stemmed III and IV. These are characterized by narrow isosceles triangular blades, a steeply angled cross section with hard hammer percussion flaking, a bluntly pointed to rounded base that may be thinned, ground or rubbed and length to width ratios of 2.5:1 to 4:1 (MHC 1984: 92-95). These have been roughly dated from 5000-3000 years B.P. The predominant raw material used to produce these points is locally available quartz gathered in cobble form from the coast, river edges and glacial drift. The second most common material is argillite either originating in the Taunton River drainage or from glacial drift cobbles. A wider variety of materials was utilized to the north and west of the Boston Basin where rhyolite and argillites were the predominate local materials.

Some researchers see Small Stemmed points as a backwards extension of the Orient and Susquehanna Broad spear traditions into early 5th millennium essentially making them an early intrusive element of this tradition (Hoffman 1985: 59; Ritchie 1969:214; Snow 1980:228). Ritchie sees this as "unquestionably happening" as he believed this quartz pebble-based technology move into New England from somewhere to the south, probably the Mid-Atlantic,

along coastal plains and via large river valleys. Snow states that this tradition may have been intrusive from the lower Susquehanna into southern and eastern New York, New Jersey and New England. Dincauze feels that this may have happened but favors an indigenous development in southern New England that evolved out of the Neville/ Stark/ Merrimack sequence (Dincauze 1975, 1976). The later may be likely as the Small Stemmed of the points appear to generally resemble these antecedent forms.

The earliest dates for Small Stemmed Points are from the Bear Swamp 1 site (4600-4500 BP) located on the Taunton River estuary and the Kirby Brook site (4400-4000 BP) located in middle Shepaug (Hoffman 1985:59). Many sites in southeastern Massachusetts have a higher number of these points than anywhere else in the state which has lead Dincauze to speculate that the Narragansett drainage basin was an important focus for this tradition (Dincauze 1975). These points remained very popular and widespread in the Late Archaic, eventually declining in occurrence from 3800 BP forward. The most latest dates for them are 955 +/- 155 BP from the Black Bear site (PAL 1982b) and 850 +/-205 BP from the G. B. Crane site Taunton (PAL 1983). Current research indicates that these points continued in use after the Late Archaic and well into the Early Woodland and possibly Middle Woodland (Mahlstedt 1986:9; Moffet 1957; McBride 1983; PAL 1982a, 1982b, 1983, American Antiquity Current Research 1981: 696).

Also occurring with Small Stemmed points are small cordiform triangular points generally called Small Triangles or more commonly Squibnocket Triangles. Squibnocket Triangles have bases that are usually concave but occasionally straight with and equilateral to isosceles triangle blade. Width ranges from 1.3-2.5 centimeters and length ranges from 2-4 centimeters with a length to width ratio of 1:1 to 2.5:1 (MHC 1984: 98-99). The temporal range for these points is generally the same as the second category of Small Stemmed points, 5000-3000 years B.P. The most common materials for these points is the same as for Small Stemmed, quartz and argillite with some quartzite and volcanics being used.

Other tools utilized by this culture were rough and ground stone choppers, plummets, unpitted hammerstones, plano-convex adzes, shallow-groove adzes, polished splinter awls, barbed antler harpoon heads and graphite and hematite paint stones but apparently not many scrapers, drills or knives (Ritchie 1969:215). Pestles and weirs also appear in the tool kits for the first time. These tools indicate that the Small Stemmed (or Mast Forest tradition as Snow (1980) identified them) utilized a wide variety of resources. In fact, sites associated with the Small Stemmed Tradition occur in micro-environments that show great diversity in their hunting and gathering strategies. Coastal shell middens, estuarine fish weirs, estuarine shore sites, and sites on lakes, ponds, springs, streams, brooks, river shores and quarries all show how wide their procurement strategies reached. Fishing was accomplished by hand with hooks, lines and stone plummets as well as weirs such as the Boylston Street Fish weir(s) which has been directly associated with the Small Stemmed Tradition (Dincauze 1974: 48). It has been found that the inhabitants of southern New England at this time utilized more of the lower links on the food chain at this time as well such as shellfish, seeds, nuts, and small game, all resources that were not used to the same extent by their predecessors (Dincauze 1974: 48). This may have been a response to an increased population in the area at this time. As a way of coping with a higher population, a wider variety of more

marginal resources had to be exploited to feed the greater number of people. This led to a well-balanced adaptation by a people who were very familiar with their surroundings.

Possibly, at this time, people were living in small open communities of only a few families on or near the sea coast in the spring to fall, moving to more permanent lakeside communities which formed the core of their territorial identity in the fall and winter (Ritchie 1969:219; Dincauze 1974: 48.) They may have had a river basin territoriality with a focus that thus would have constrained their communication and trade networks by being so watershed focused. This interpretation is similar to Snow's and Pagoulatos' who see the Small Stemmed traditions resource utilization system as a central based wandering one with winter camps in the back country or uplands and summer camps on the coast. Sites in this sort of system would not be large but they would be numerous and occurring in a wide variety of settings with a broad range of fish, mammals, birds, plants and mast producing trees being exploited (Snow 1980:230; Pagoulatos 1988). Pagoulatos sees the Small Stemmed Tradition, called the Tinkam Phase in Connecticut, as having a resource systems like the Micmac that was essentially mobile. He sees them as always moving to specific resource zones at specific times of year. This results in a high number of residential camps and locations and few task camps. Residential camps are found away from the Connecticut River in areas of high wetland potential such as the interior swamps, marshes and lakes (Pagoulatos 1988: 85). This interpretation appears somewhat different than that for southeastern Massachusetts where Small Stemmed populations appear to have exploited the coast and inlands. It is also interesting to note that it was at this time that shellfish were first exploited in much of the northeast. Ritchie viewed the initial exploitation of quahog and oysters over soft shell clams in the Late Archaic as evidence of immigrants moving into an area, being unfamiliar with shellfishing and basically collecting what they could see, the oysters and quahogs, and not what lay below the mud, the clams (Snow 1980:229).

It appears that by 3700 B.P. the cultural system of the people who were using Small Stemmed points in southern New England had begun to change. This period, from 3700-2700 B.P, has variously been called the Transitional or Transitional Archaic. During this time there appears to have been an immigration into southern New England of people using tools of the Broad spear or Susquehanna tradition. Projectile points of the Susquehanna style characterize the early part of this period while those of the Orient Fishtail style, a possible merging of indigenous Small Stemmed and Susquehanna styles, dominate the latter half (Snow 1980:237; Dincauze 1975: 27). The Orient point tradition appears to have remained in New England and eventually evolved into the Rossville and Lagoon points of the Early Woodland Period.

Points of the Susquehanna/ Broad spear style include the Susquehanna Broad, Wayland Notched and Atlantic points. Susquehanna Broad points are a corner notched point that has diamond-shaped blade and shoulders with obtuse shoulder angles and generally straight or concave bases with a basal width less than the maximum blade width. The bases often show basal grinding or rubbing and the cross section is flat with soft hammer percussion flaking evident. These points can range from 2.5 to 20 centimeters long, making them a generally large point with a length to width ratio of 2:1 to 3:1 (MHC 1984:108-109). These points were produced from 4000-3500 years B.P. Unlike the Small Stemmed points, these are often made of exotic cherts and local volcanics with quartz, quartzite and argillite rarely used.

Atlantic points are triangular bladed stemmed points with strait-bottomed parallel-sided squared bases whose basal width is greater than or equal to 1.5 cm. The shoulders are well defined and approach a 90-degree angle with the stem the junction of which is formed by indirect percussion with a punch. These points can range from 5 to 15 centimeters long, making them another large point with a length to width ratio of 1.5:1 to 2:1 (MHC 1984:106-107). These points were produced from 4100-3600 years B.P. Local volcanics are common as raw materials with quartzites, argillites and cherts also used. Quartz is a raw material for Atlantic points, again, like the Susquehanna Broad, showing a sharp break in technology from the Small Stemmed Tradition.

Wayland Notched points are a side-notched point that has a triangular shaped blade with a straight to slightly concave base that is often less than the maximum blade width. The bases often show basal grinding or rubbing and the cross section is flat with soft hammer percussion flaking evident. These points can range from 3.5 to 11 centimeters long, making them a medium-sized point with a length to width ratio of 2:1 to 3:1 (MHC 1984:110-111). These points were produced from 3600-3000 years B.P. Local volcanics are common with chert and argillite also used.

Orient Fishtail points are a side-notched point with a narrow lanceolate blade shape reminiscent of Small Stemmed points. The stem is expanding and the base is usually straight to concave and occasionally angled with a basal width less than or equal to the maximum blade width. The shoulders are rounded and often poorly defined with an obtuse shoulder angle. In cross-section these points range from flat to steeply angled and evidence of soft to hard hammer percussion is present. These points range from 2.5 to 10 centimeters long with a length to width ratio of 2.5:1 to 4:1 (MHC 1984: 112-113). These points were produced from 3000-2000 years B.P. Common raw materials include local volcanics quartz and quartzite. The blade shape, poorly defined shoulders and raw material choice hints that these points are a blending of Susquehanna and Small Stemmed traditions.

The Susquehanna Tradition created a sharp change in the archaeological continuity of the Small Stemmed Tradition as far north as Maine (Dincauze 1975:27). This is probably the result of an infiltration or migration of peoples from the southwest. There appears to be a distinct difference in cultural and industrial traditions from the indigenous populations but no evidence of assimilation of populations. Various researchers have attempted to determine if there was a large migration of people associated with the Susquehanna Tradition or if it was merely a small influx with a new specialized tool, the Broad spear, that was adapted as an adaptation by local populations to exploit marine fish resources (Turnbaugh 1975: 57).

David Sanger used six criteria to examine the Susquehanna Tradition and determine if it met these criteria for migration. The criteria were 1) identify the migrating people as an intrusive unit in the region it has penetrated, 2) trace this unit back to a homeland, 3) determine that all occurrences of this unit are contemporaneous, 4) establish the existence of favorable conditions for migration, 5) demonstrate that some other hypothesis, such as independent invention or diffusion of traits, does not better fit the facts of the situation, 6) establish the presence of all cultural subsystems and not an isolated one such as the mortuary subsystem (Sanger 1975). Sanger concluded that all of these criteria were met in Northern New England, thus lending support to an immigration hypothesis. Work by Pagoulatos (1988) reached much the same conclusion about the Susquehanna in the Connecticut River Valley. He looked at the

chronological setting, site types and settlement patterns and determined that the users of the Susquehanna tools represented a complete cultural system focused on the riverine areas that displaced the local Small Stemmed populations (Pagoulatos 1988: 85). Small Stemmed populations practiced different subsistence and procurement strategies than the Susquehanna users and thus allowed two different cultural systems to coexist.

Susquehanna populations in the Connecticut River Valley had relatively stable residences that allowed the exploitation of specific resource zones throughout much of the year. Organized task groups left a central base camp to establish temporary fishing and hunting camps, thus they moved less frequently, had a lower number of large residential camps and a high number of field camps (Pagoulatos 1988:86-89). Susquehanna populations appear to have practiced a resource procurement strategy similar to what Binford found for stable hunter-gatherer groups. In Binford's work he found that communities were situated along the river courses for much of the year with the organized task groups leaving the camp to procure and process mammal resources by setting up temporary field camps. In this case aggregation would be expected on the riverine and terrace locations with smaller field camps in the uplands. The few larger residential camps found within a territory would show high intrasite and low intersite variability (Binford 1980:18) Basically many of the tasks, stone knapping, skin processing, cooking, plant processing, etc., would be done at this central residential base camp and the structure and evidence of activities would not vary much between different residential camps.

The later half of the Transitional Archaic was dominated by people who used the Orient Fishtail Point Tradition. This appears to have been a time of great change in New England with new technologies appearing and by 3000 years B.P. an interrelated series of climatic, environmental, cultural and social changes that is seen as dismantling the "finely balanced Archaic adaptive systems" (Dincauze 1974). Environmental changes included climate cooling with a possible regression of marine shorelines, a cessation of marine transgression, a change in the forest composition from oak and hickory to chestnut and by 2000 years B.P. a breakdown of reliable trade networks (Ritchie 1969:164; Dincauze 1974: 49). Work on the I-495 corridor in the by the Public Archaeology Laboratory, Inc. in the 1980s suggests that favorable habitats were reduced at this time due to a lower availability of open water. As a result, the margins of the largest and deepest wetlands were extensively used as well as an intensification of the use of riparian locations (PAL 1982, 1982a). Orient Tradition sites are thus often found near the seashore or on major rivers, an occurrence that Dincauze attributes partially at least to the dissolution of trade networks, usually in locations that are protected from the prevailing winds possibly with a move to interior camps in the winter, although again, Dincauze sees year round coastal settlement by Orient Tradition peoples (Dincauze 1974:49). Interior sites along major wetland margins, such as those identified by the I-495 work may represent these winter quarters or were the locations of special purpose resource procurement locations. Funk (1976) proposed that camps located on bluffs were occupied in the winter while riverside sites probably represent spring to fall fishing sites where anadromous species such as alewife, herring and shad were collected through the use of weirs. There appears to be a clear separation of activities by season and site location, possibly a result of a change in settlement and procurement strategies similar to what Pagoulatos (1988) found in the Connecticut River Valley. By the end of the Orient phase, the elaborate burial ceremonialism that characterized the Susquehanna phase also appears to have come to an end (Dincauze 1974:49). The ultimate cause of all these changes and the general Transitional Archaic

cultural readaptation are unknown or unrecognized but it may be related to the climatic deterioration and the changing forest composition that could have led to a lessening of the reliance on inland sites (Dincauze 1974: 49).

The Orient Tradition is characterized by resurgence in the acquisition and use of non-local cherts and jaspers from New York and Pennsylvania (Ritchie and Leveilee 1982) as well as the use of steatite for bowls. The pattern of long-distance exchange suggests a reestablishment of expanded exchange system that contrasts with the earlier Late Archaic system (MHC 1982: 25). The Orient Tradition was first identified by Ritchie on Long Island close to Orient New York and was initially characterized by the burial of dead upon high knolls. This led some to speculate that the Orient Tradition was nothing but a mortuary cult for from New England (Ritchie 1963: 196). This was later proved to not be the case as habitation sites were identified.

Foods used by Orient Tradition users appear to possibly include an appreciable amount of shellfish and fish as well as deer, turtle, turkey and duck species, and small mammals such as woodchuck, gray fox, and mink. Features associated with the processing of these resources include earth ovens where foods were baked, stone platforms for roasting and the use of boiling stones. The tool kit of the Orient Tradition is characterized by the Orient Fishtail point, which make up about 88% of the point type used, and many of the same tools used earlier in the period such as atl atl weights, full-grooved axes, rectangular celts, plano-convex and grooved back adzes, small gouges, ovate and triangular knives, strait, stemmed and fishtail point drills of quartz and chert with few scrapers and anvil stones (Ritchie 1969:170). Also included in this inventory are ellipsoidal and rectanguloid stone gorgets, lots of graphite and hematite paint stones and steatite bowls and some of the earliest occurrences of locally made pottery.

Steatite (a.k.a. soapstone) vessels have come to be one of the hallmarks of the later half of the Transitional Archaic in New England. These vessels are oval, rectangular or nearly circular or trough-like, generally with rounded corners, rims and bases with slightly out sloping to vertical walls and squarish lobate lugs on the exterior. The range in size from 14 to 46 centimeters long and 5 to 8 centimeters high and are sometimes found smoke stained and soot encrusted, possibly indicating direct use on fires for cooking. Their general shape suggests that they were originally modeled on wooden bowl prototypes. This technology does not seem to represent an independent invention in New England, but appears to have spread north from the as far south as the Virginia to North Carolina Piedmont area, eventually splitting with one northern production center being in Pennsylvania (possibly associated with the Broadpoint/ Susquehanna Tradition) and another in New England (possibly associated with the Small Stemmed Tradition)(Ritchie 1963: 170). Few sources appear to have been exploited for soapstone bowls in New England with the known ones being in Rhode Island, Connecticut and central Massachusetts. Soapstone bowls are generally found at camp sites along major streams and not in remote inland sites where the lack of canoe transport made moving the heavy objects more difficult (Snow 1980:240). Alternately, Funk (1976) sees the presence of steatite more often on the coast as a result of seasonality.

Steatite vessels represent the first imperishable vessel form in the northeast. It does not appear in New England before 4000 years B.P. with earliest date reported by Hoffman being 3655 +/- 85 years B.P. (Hoffman 1998:48). Steatite may have been found at the Wapanucket 6 site in association with Squibnocket Triangles and radiocarbon dated at 4355+/- 185 years B.P. possibly

making this the earliest occurrence in New England (Fiedel 2001:104). Steatite achieved its chief popularity between 3000-2500 years B.P. and disappeared after 2500 years B.P. There does not seem to have been a clear transgression from steatite to clay pottery and their occurrences appear to overlap at some sites. This may indicate separate but complimentary uses for these vessels.

The original reason why any sort of imperishable vessel was made or used in New England may lay in the social changes occurring in the Transitional Archaic. These reasons include an indigenous response to the increasing population densities in floodplain environs with durable vessels being a way to process resources more efficiently (Pagoulatos 1988: 85-91). These resources may have included chenopodium and wetland grass seeds. The environmental changes that were occurring at the time that may have changed the available resources and led to an increase in reliance on anadromous fish (Turnbaugh 1975). Finally a diffusion or migration of peoples or ideas from the southeast (Snow 1980: 242; Tuck 1978).

Steatite may have had a more ceremonial place in Transitional Archaic culture as well. The makers of the steatite vessels are assumed to have been men, possibly ones who were engaged in ceremonial exchange with the steatite being the exchanged item (Snow 1980: 250). This may account for more centralized distribution of steatite and the mortuary associations of it. Sites where steatite occur may be central ceremonial sites where males gathered for inter and intra regional trade or to participate in mortuary ceremonies (Hoffman 1998: 52). This may be related to the use recorded ethnographically from the southeast of large vessels by males for the consumption of ritual "black drink" (Sassaman 1993:170, Klein 1997: 146). This ceremony may have been similar to that recorded in southeastern Massachusetts where young men undergoing ritual purification in preparation to become pneiseuk consumed a drink of white hellabore. Edward Winslow, prominent Plymouth Colony settler, described the pnieseuk as

"men of great courage and wisdom, and to these also the Devil appeareth more familiarly then to others, and as we conceive maketh covenant with them to preserve them from death, by wounds, with arrows, knives, hatchets, etc. or at least both themselves and especially the people think themselves to be freed from the same. And though against their batters all of them by painting disfigure themselves, yet they are known by their cottage and boldness, by reason whereof one of them will chase almost an hundred men, for they account it death for whomsoever stand in their way. These are highly esteemed of all sorts of people, and are of the Sachems Council, without whom they will not war or undertake any weighty business. In war their Sachems for their more safety go in the midst of them. They are commonly men of the greatest stature and strength, and such as will endure most hardness, and yet are more discreet, courteous, and humane in their carriages then any amongst them scorning theft, lying, and the like base dealings, and stand as much upon their reputation as any men.

And to the end they may have store of these, they train up the most forward and likeliest boys from their childhood in great hardness, and make them abstain from dainty meat, observing divers orders prescribed, to the end that when they are of age the Devil may appear to them, causing to drink the juice of Sentry and other bitter herbs till they cast, which they must disgorge into the platter, and drink again, and again, till at length through extraordinary oppressing of nature it will seem to be all blood, and this the boys will do with eagerness at the first, and so continue till by reason of faintness they can scarce stand on their legs, and then must go forth into the cold: also

they beat their shins with sticks, and cause them to run through bushes, stumps, and brambles, to make them hardy and acceptable to the Devil, that in time he may appear unto them. " (Italics mine) (Young 1974: 340)

This ceremony that helped to create the pniese may be a descended from an earlier one in the Transitional Archaic that utilized the steatite vessels. The rise of the elite fighting class of the pniese may have been a response to increased population pressure in the area and a need to defend resources. If steatite bowls were associated with males and male ceremonies, one would expect to find them in male graves as opposed to female ones. Unfortunately, the majority of the graves of he Transitional Archaic consist of cremation burials that have produced bone that was in such a fragmented and calcined state that assignment of sex was impossible. One Transitional Archaic burial and two possible burial caches from Jamestown, Rhode Island again could not be assigned to sex, but the items included may point towards male having been interred in the grave that contained steatite bowls and the other internments being assignable to male tool kits. In the single grave that contained calcined bone as well as steatite, other objects interred with the individual included a small grooved axe blade, a perforated black pebble, a clutch of graphite pebbles, a slate drill blade, a chert flake, six projectile points including one of Pennsylvania Jasper, lumps of red ocher a red pigment stone and a 35.5 cm long pestle, a perforated and incised steatite pendant, a flat incised stone "tablet" and an incised quahog shell fragment (Simmons 1970: 17-27). The caches containing steatite also had graphite pebbles, a rhyolite drill, two side-notched points of slate, a chert Orient Fishtail point, two "crude" pebble choppers a side-notched rhyolite point and two small quartz pebbles (Simmons 1970:27-32). Unfortunately it is difficult to assign sex of a burial based on grave goods alone due to the fact that grave contents may not reflect items actually used by the person interred there. They may be items placed in the grave by friends and relatives of either sex as gifts to them and thus a mixture of male items may be in a female grave or female items in a male grave. This could be a topic that needs to be researched more in the future.

After steatite bowls ceased to be present in the archaeological record, other vessels such as wood may have taken the place of the stone vessels. The use of a wooden vessel as opposed to a pottery one may have continued the association of a male created vessel used for a strictly male ceremony. Steatite bowls exclusively used by males may also have been replaced by chlorite and later steatite and pottery smoking pipes and pipe ceremony that went along with them. This too seemed to have been an almost exclusively male pursuit with some ritual significance. Pipes first make their appearence after steatite bowls ceased to be found archaeologically in New England. Like the association of steatite with male graves, the decline of the steatite bowl industry and rise of the smoking pipe and smoking ceremony is another avenue of future research.

Other research questions related to steatite were proposed by Sassaman (1999). These include the following: Did soapstone vessel production and exchange in southern New England emerge in the context of the expanding broadpoint cultural front as one of several means of alliance building with central New York groups? Did successful ties with such groups efficiently preclude or thwart assimilation between indigenous and immigrant populations in southern New England? Was the burial ceremonialism of southern New England a context of mediating ethnic distinctions between indigenous and immigrant populations as suggested by Dincauze (1975b:31)? Did the growing technological contrasts in the third millennium B.P.-notably the exclusive use of Vinette I by

Meadowood groups of New York and the coexistence of both soapstone and pottery in Orient contexts of southern New England and Long Island-signify an end to traditional alliances?

Most researchers see the use of steatite as being antecedent to the use of clay pottery, although Hoffman has attempted to make the case for pottery having been used prior to the introduction of steatite (Hoffman 1998). The shift from steatite to pottery probably occurred gradually over time with both technologies being in use for at the same time. Funk (1976) sees the coeval existence of pottery and steatite and their relative occurrence in inland and coastal sites as being a result of seasonality. In this situation, steatite was used on the coast in the spring to early fall and pottery was used at inland winter sites. Pottery dates as far back as 3600 years B.P. in southeastern New England and 3300 to 3100 years B.P. in southern New Hampshire (Sassaman 1999: 75). The eventual usurping of pottery over steatite may be related to a decreasing need in the Transitional Archaic for far-flung alliances (Fiedel 2001:106). Early pottery has been termed Vinette I and it is generally believed that at least the gross technological ideas of pottery production spread to the north from the south, possibly from the same general areas as steatite bowl production. This pottery type has been recovered in Connecticut in association with Susquehanna points (Levin 1984:15; McBride 1984:123; Pfeiffer 1984;79). The earliest pots were straight sided with pointed, concoidal bases and some archaeologists believe that these resemble basket styles common in these earlier periods (Braun 1994:63). This type was first identified in New York State but it is not confined to there. Vinette I pottery has been recovered from all of New England, New York and New Jersey. This type of pottery can be identified by its thick, straight wall and the use of abundant grit and grit as a tempering medium. Walls of Vinette I pottery range from .6-1.1 cm (Luedtke 240). The exterior and interior of Transitional Archaic to Early Woodland ceramics were commonly cord marked, a possible decorative technique resulting from the patting of the vessel with a cord wrapped paddle to help bond the coils together. Some smooth surfaces may also occur in some vessels either intentionally or accidentally.

Barbera Luedtke, in her work on the ceramics from the Shattuck Farm site, found that the Early Woodland vessels that have been recovered from Eastern Massachusetts have the characteristics (Luedtke 227):

Table 1. Early Woodland vessels characteristics

Vessel	Height	Max Diameter	Mouth Diameter	Max d/ht
1	22.9 cm	25.4 cm	25.4 cm	1.11 cm
2	26.7 cm	22.9 cm	22.9 cm	.86 cm

Vinette I pottery has been found to be heavily tempered with grit composed of coarse, poorly-sorted crushed-rock and sands with a general decrease in the size of the grit over time (Bunker 208; Luedtke 229). Native pottery may also be shell tempered and although this is generally believed to be a temper used in the Middle Woodland to Contact periods, Lavin, in her work on Cape Cod ceramics postulates that the type of temper may not be temporally related but may be more closely linked to where the vessel was made. Temper type on coastal sites may more often be shell tempered while those on inland sites may be more often grit tempered. This has to do with the temper resources available to Native potters. Rim shapes for Vinette I ceramics are

round, with some decoration consisting of incised lines possibly being present (Luedtke 244). Decoration of the vessel itself takes the form of the cord marking, which was applied in a horizontal direction on interior and multiple directions on exterior and some incised lines (Bunker 208). The similarity of Vinette I pottery throughout the Northeast suggests a local center of invention or adoption from which the technology spread out. Ozker sees this similarity in form and structure as reflecting a similarity in function. He sees these vessels as only being used in a fall context and were not in daily use (Ozker 1982: 210).

The adoption of ceramics as well as soapstone is suggestive of changing cultural conditions at the time of their introduction. Pottery is difficult to transport without breaking, and while some mobile cultures that carry their pottery with them do exist, it is more common for pottery to be associated with an increase in sedentism. The use of sturdy vessels also may be indicative of an increase in the need to boil foods. Pottery is useful for simmering and slow boiling of nuts, tubers, seeds, gastropods, fat and marrow, and bones to either release their oils or to make them softer and more palatable (Fiedel 2001: 103). Ozker postulated that pottery was initially produced on site for the boiling of nutmeats to release their oils and subsequently for storing that oil (Ozker 1982). This technique may have been similar to that noted among the Micmac in the seventeenth century. It was noted that when a moose was killed " they collected all the bones of the moose, pounded them with rocks upon another of larger size, reduced them to a powder; then they placed them in their kettle, and made them boil well. This brought out a grease that rose to the top of the water, and they collected it with a wooden spoon. They kept the bones boiling until they yielded nothing more, and with such success that from the bones of one moose, without counting the marrow, they obtained 5-6 pounds of grease as white as snow, and firm as wax. It was this they used as their entire provision for living when they went hunting. We call it Moose butter..." (Denys 1969:118). Pottery could also be used to boil foods to feed to infants, thus decreasing the age of weaning and possibly leading to population growth (Fiedel 2001: 103).

Unlike steatite Vinette I pottery is generally not recovered from mortuary contexts in New England. The exception to this is at Boucher site in Vermont where seven ceramic vessels were recovered from six burials (Heckenberger et al 1990: 120). One of these vessels is decorated with a incised triangular motif near the rim. Similarly decorated vessels are known from Maine , New Brunswick (Trumbull 1986) and Vermont (Loring 1985). The burials from this site are associated with Adena related artifacts and appear to represent somewhat anomalous event in New England prehistory.

As women are assumed to have been the producers of pottery, their role as producer may have been enhanced in Transitional Archaic due to the increased use of wild plants and shellfish and pottery production (Feidel 2001: 103). The shift to pottery production may also reflect a societal shift in gender roles in the Transitional Archaic. Wood and soapstone carving are assumed to have been men's roles whereas pottery production and gathering were women's. Fiedel postulated that due to an increased reliance on shellfish and wild plants and perhaps the production of ritual feasts women were held in higher esteem (Fiedel 2001:106). The production of pottery may have indirectly fostered some of the population growth seen in the Transitional Archaic through the causative pathways of being a more efficient food processing technology, enhancing the status of women, and being an adjunct to sedentism (Fiedel 2001:106).

Following the Transitional Archaic is an ill-defined time labeled the Early Woodland by New England archaeologists. In the face of the date for the start of pottery production being back into the Late to Transitional Archaic and the absence of horticulture possibly until after 1000 A.D, some archaeologists, like Snow, do not view the designation of Early Woodland as a valid one (1980). They see no real change occurring that could be used to differentiate the Transitional Archaic and the next 1000 years. They merely see a continuation of tumultuous times that began after 3000 to 4000 years ago. In the words of Filios "... the chronological picture (for the Early Woodland) is more murky than previously suspected. ...the horizon markers (of this period) need to be reevaluated." (Filios 1989:87). Traditional horizon markers for the Early Woodland have included Vinette I pottery, which has been shown to have been produced before the Early Woodland, an absence of Small Stemmed points, which have been shown to have continued in use into the Early Woodland, and increased sedentism, which appears to have begun before the Early Woodland, and horticulture, which in New England was not intensively practiced until after 1000 A.D.

What we are left with are a few new projectile point styles, the Adena, Meadowood, Lagoon and Rossville and a number of trends that began in the Transitional Archaic such as a possible drop in New England population, increasing shoreline stabilization, possible cultural fragmentation, and environmental change. Adena points may have been antecedent to the slightly later Rossville and Lagoon points commonly found in coastal areas of New England and New York. These points are defined as lanceolate to triangular bladed stemmed points with lobate or rounded stems and a convex base whose basal width is greater than or equal to 1:1.5. The shoulders are well defined and approach a 90-degree angle. These points can range from 4.5 to 12.5 centimeters long, making them a moderately large point with a length to width ratio of 2:1 to 3:1 (MHC 1984:118-119). These points were produced from 2800-1200 years B.P. Exotic cherts were commonly used and these are considered extremely rare in eastern Massachusetts. They are part of a culture complex often associated with mortuary ritual containing chlorite tubular pipes, copper and exotic lithics. They probably represent either an immigration of people from the southeast or a large-scale import of materials and ideas.

Rossville points are diamond-shaped bladed contracting stem points with a convex to often pointed base. The shoulders are weakly defined or nonexistent. These points can range from 3 to 6.5 centimeters long, making them a smallish point with a length to width ratio of 1.5:1 to 2.5:1 (MHC 1984:116-117). These points were produced from 2450 to 1600 years B.P. (Fiedel 2001:108). Quartz and quartzite are common raw materials, but local volcanics were also used. These points are not considered common in eastern Massachusetts. Cape Cod examples are finer made than those of other areas, possibly showing a reliance on this technology in this area. They also tend to be longer and thinner than other examples with quartzite being the raw material most frequently used (MHC 1984:117). The under-representation of these point types in collections may be the result of examples being identified as other projectile point styles such as Starks and possibly Small Stemmed IV. They can be distinguished from Starks on the basis of their steeply angled cross-section and maximum blade width being located at the midpoint and from the Small Stemmed by their weak shoulders.

Lagoon points were identified by Ritchie in his work on Martha's Vineyard (1969) and they became part of what he identified as a Lagoon complex. These points are a narrow, thick, and

rather crudely made lobate stemmed points of medium to large size. they range in length from 4.8 to 7.6 centimeters and have an average thickness of .95 cm. The length to width proportion of Lagoon points is 2.5:1 to 3:1. The blade shape is trianguloid in outline, biconvex in cross section with straight or slightly excurvate edges. the shoulders are weak, rarely moderately well defined, merging into contracting medium long to long lobate in outline stem that has a convex to slightly squarish base. No basal or stem grinding is seen (Ritchie 1969: 245). These points have approximately the same date range as Rossville points, 2450 to 1600 years B.P. (Fiedel 2001:108). Ritchie stated that they are fairly common and widely distributed over southern New England, but before his Martha's Vineyard work, had not previously been described or culturally attributed. Similarly shaped points have also been recovered from eastern and southern New York where they occur in Early Woodland contexts on sites in the Hudson Valley and Long Island. The common raw materials used were volcanics and quartzites on Martha's Vineyard, but quartz and chert were also used further west. This point type is not widely identified in Eastern Massachusetts perhaps due to its similarity in shape to Stark points. Based on the available information it is difficult to easily distinguish the two.

Meadowood points are isosceles triangular bladed expanding stem side-notched points with a straight to convex base whose width is greater than or equal to the maximum blade width. The shoulders are well defined and approach a 90-degree angle with the stem the junction of which is formed by indirect percussion with a punch. These points can range from 4.5 to 9 centimeters long, making them a moderate sized point with a length to width ratio of 2.5:1 to 3:1 (MHC 1984:114-115). These points were produced from 3000-2500 years B.P. Exotic cherts were most commonly used and local volcanics are less common. These points are considered rare but widely distributed in eastern Massachusetts and are more common in New York, Pennsylvania and Ontario.

Some of the trends identified above, the decreased population and fragmentation, are based on the small number of Early Woodland sites that have been identified. This may be more a product of the criteria used to identify the sites, such as the presence of pottery and absence of Small Stemmed points, and number of Early Woodland sites may not be as small as thought. If one includes sites yielding Small Stemmed points but no pottery, as these may represent special purpose floral or faunal resource procurement task camps and not residential locations, the number of sites possibly attributable to the Early Woodland increases. Due to the increasingly long temporal use range for Small Stemmed points, their presence or absence can no longer be used as valid "datable" criteria to assign the site to one period or another. What is needed is more radiocarbon dates associated with specific materials. Until this occurs the Early Woodland will remain obscure and ill defined.

A dramatic population collapse has traditionally been one of the defining characteristics of the Early Woodland and while Hoffman (1985) does not see evidence of any break. Filios (1989) came to a similar conclusion although her data shows a break in radiocarbon dates from 2700-2400 years B.P. possibly showing a population decline after 3800 years B.P. and a greater decline after 2800 years B.P. (Fiedel 2001: 117). If there was in fact a population collapse, reasons for it have included climatic and environmental change, epidemics, the effects of plant and animal die-offs and socio-cultural factors (Fiedel 2001: 118). One of the main causes may have been if nut bearing trees, already in decline in the Transitional Archaic, were hit hard by plant disease or

environmental change, then this may have caused a population reliant on this resource to die off. This would account for the drop in inland sites in the period. Alternately the populations living on the coast that focused their procurement strategies on river valley, estuarine and inshore resources may have remained relatively unscathed. These would be the Rossville and Lagoon point users, point styles that show a high concentration in coastal areas especially Cape Cod.

The Late Archaic to Early Woodland Periods provide one of the most fascinating and controversial research areas of New England prehistory. Some of the research questions that need to be investigated concerning this time have been outlined by the MHC (1984:30). These include the following:

-The examination of Late Archaic adaptations to severe environmental conditions, including detailed understanding of the relationships between Laurentian, Susquehanna and Small Stemmed Traditions.
-The analysis of the southeast Massachusetts quartz industry. Collections in this area generally include a larger percentage of quartz particularly Squibnocket, Small Stemmed and Levanna related materials. Definition of quartz quarrying strategies, manufacturing techniques and patterns of workshops sites across space and time. Study of Small Stemmed Tradition , its chronological range and spatial relationship
-The analysis of the Transitional Archaic/ Woodland transition. Examination of changing adaptive strategies including the establishment of swidden agriculture. Information on site seasonality and distribution critical for this.
-The current state of knowledge is strongly weighted towards interior sites. Survey is needed in the coastal zones, especially along Buzzards Bay. This would allow for comparisons between coastal and interior settlement patterns.
-Finally, to what extent does varied site size and internal composition reflect change in social organization as opposed to site function or seasonality?

From the review of the current state of research on the Late Archaic, Transitional Archaic and Early Woodland, the following areas of research can be added.

-How was the culture using Small Stemmed points affected by the appearance of the Broad spear technology?
-Was the appearance of Broad spear points the result of migration of technological diffusion?
-What was the subsistence strategy of the Small Stemmed users and how did it change or adapt in the face of the Susquehanna/ Broad spear appearance? Was there competition for resources or quiet coexistence?
-What was the settlement pattern of the users of the Small Stemmed points in southeastern Massachusetts at the beginning of the Transitional Archaic? Was it similar to what Pagoulatos found in Connecticut or was it more sedentary? Why?
-How do Orient Fishtail point fit into the chronological framework? Were they a merging of Broad spear and Small Stemmed traditions and if so what does this say about the culture at the time?
-What is the importance of long distance trade in the Transitional Archaic to Early Woodland?
-How does steatite fit into the cultural system in southeastern Massachusetts and why did this vessel form disappear? Is there a male versus female dichotomy involved in end of the

steatite bowl industry and the rise of the pottery industry?
-Why was pottery technology accepted/ practiced in southeastern Massachusetts? How did it fit in to the cultural system?
-What is the Early Woodland? Was their population collapse of have sites just been misidentified?

A fuller understanding and a possible reconstruction of the subsistence system of the occupants of the site was attempted by combining the lithic and pottery studies together along with the shellfish and faunal analysis. It is hypothesized that the subsistence system practiced by the Transitional Archaic to Early Woodland inhabitants of the site was focal, intensive and specialized to a degree. Cleland has characterized this type of system as one that focuses on a limited number of resources to the exclusion of many others. When a system such as this develops, preservation and storage technology to make this resource last for a substantial portion of the year also develops (Cleland 1976:62-63). Specialized technology is also developed to maximize the amount of return and minimize the amount of energy that needs to be expended to procure it (Barber 1982: 96). For example, the use of nets or weirs allows fishermen to catch a great number of fish by merely knowing when and where to put these devices. This type of system seems appropriate for the period in question due to the first appearence of storage pits, pottery and the use of weirs at this time. This is the type of system used by the seventeenth century Wampanoag. The ethnohistoric data available about their system was compared with that evidenced at the site as a way of helping to determine if they were similar.

This type of system contrasts with a generalized subsistence pattern that utilizes a broad range of resources with no great effort being placed on maximizing the return through technology or storing it for the winter (Cleland 1976:62-63). Diffuse or generalized systems are continually on the move to arrive at the next resource that is seasonally scheduled to be exploited. Systems such as this have no true home bases and must acquire food as they can. This appears to be the type of system practiced by the Micmac in the historic period and possibly by the users of Small Stemmed technology in the Connecticut River Valley.

The seventeenth century Wampanoag were practicing what is well known to anthropologists as a mobile economy. These people were seasonally migrational so they moved from place to place throughout the year to coordinate the resources of their territory. To these people, the resources they are using are ill-distributed so, as a result, they had developed a specialized successful economy that maintained higher population numbers than could be done if those resources were gathered in isolation by specialized groups (Higgs and Vita-Finzi 1982:28). In Frederick Dunford's view, the Cape Cod Natives practiced a unique human adaptation to the environment which he termed "conditional sedentism" (Bragdon 1996:58). This adaptation had the estuary as its primary focus with its human community "joining and splitting like quicksilver in a fluid pattern within its bounds." (Bragdon 1996:59).

A wide variety of plant and animal species could have been exploited by these people. A list of the plant and animal based on the writing of Roger Williams indicates that 10 species of birds, 8 wild plant species, 4 cultivated plants, 8 wild mammal species, 16 fish species and 5 shellfish species were exploited by the Natives in southern New England. This source gives a fairly complete inventory of the species. It does neglect many wild species that have been recovered archaeologically and some animal species that Williams did not note. All in all though it shows

that the natives had a diverse diet of wild resources which they collected. At least 14 (Alewife, herring, bass, scup, eel, lampreys, chestnuts, acorns, walnuts, strawberries, lobster, clams, oysters, quahog) of the species noted, are known to have been extensively collected and stored for the winter by the Contact Period.

The hunting and collecting of any of these species and the storage of certain ones was not a haphazard affair. People scheduled where and when they would return to various sites to make use of resources. Winslow noted this as early as 1621 when he stated that "…by reason whereof, our bay affording many lobsters, they resort every spring-tide thither; and now returned with us to Nemasket.(Young 1974:96). This springtime movement to the coast to catch lobster was supported by Morton "…savages will meet 500 to 1000 at a place where they come in with the tide to eat and have dried a store, abiding in the place for 4-6 weeks feasting and sporting together." (Morton 1972:90). According to William Wood, the drying of shellfish and fish took place in the spring and summer "In summer these Indian women, when lobsters be in their plenty and prime, they dry them to keep for winter" (Wood 1977:114).

After foods were dried out, many of the vegetable foodstuffs were placed in storage pits (Auqunnash), what the English termed "barnes". The best description of this is by Thomas Morton in 1637 "They are careful to store food for winter, they eat freely of it but put away a convenient portion to get them through the dead of winter. Their barnes are holes made in the earth, that will hold a hogshead of corn a peece in the. In these (when their corn is out of the husk and well dried) they lay their store in great baskets (which they make of sparke) with matts under, about the sides and on top; and putting it into the place made for it, they cover it with earth.. to be used in the case of necessity and not else." (Morton 1972:42). These are the type of storage pits which the colonists found in 1620 on Cape Cod wherein they found "a bottle of oil, bag of beans...2 to 3 baskets parched acorns" and several bushels of corn (Young 1974:141; 155). During the Late Archaic storage pits make their first appearances in the archaeological record in New England, possibly marking a change in subsistence patterns by these people due to increased population pressure.

The subsistence practices of the inhabitants of the site were investigated through the use of shellfish and faunal remains. These remains are discussed below.

Invertebrate Remains

Theory

The two features at the site, Feature 8 and 9, that yielded the greatest concentration of shellfish remains were examined to determine what species were collected, where they were collected from and how they may have contributed to the overall diet of the inhabitants. The analysis of the shellfish remains sought to identify the species present and their contribution to the overall faunal assemblage.

Analysis

A total of 2194 fragments of shellfish were recovered during testing. The majority (92.7%) of these fragments were recovered from Concentration 2 in association with Features 8 and 9. Six species were identified between the two concentrations (Table 2).

Table 2. Shellfish occurrence between Concentration 1 and 2 by fragment count

Species	**Concentration 1**	**Concentration 2**
Quahog	144/ 90%	1186/ 58.3%
Whelk	6/ 3.8%	28/ 3.1%
Oyster	2/ 1.3%	727/ 35.7%
Unidentified	1/ .6%	7/ .3%
Soft Shell Clam	0	85/ 4.2%
Scallop	7/ 4.4%	0
Nassa	0	1/ .05%
Totals	**160**	**2034**

The majority of fragments from Concentration 1 were identified as quahog with a much smaller occurrence of whelk, oyster, and scallop. Quahog was also the most common species identified in Concentration 2, but the difference between it and the next most commonly occurring species, oysters, was not as extreme as in Concentration 1. Two additional species were identified from Concentration 2, soft shell clam and mud nassa.

Shellfish fragments were found to be concentrated within and around Features 8 and 9 in Concentration 2 (Table 3). These two features were selected for further analysis. Minimum

Table 3. Fragment counts for Features 8 and 9 Concentration 2

Unit	**Quahog**	**Whelk**	**Oyster**	**Soft Shell**	**Nassa**	**Total**
Feature 8	57/ 20.9%	1/ .4%	215/ 78.8%	0	0	273
Feature 9	980/ 57.3%	11/ .6%	632/ 37%	85/ 5%	1/ .06%	1709
Total	1037	12	847	85	1	1980

Numbers of Individuals (MNI), meat weights, shell lengths and substrate analysis was conducted on the remains from these features as a way of investigating the subsistence patterns of the inhabitants of the site during the Middle to Late Woodland/ Contact periods at the site.

Shellfish Species Present

In the following section, the shellfish species recovered will be examined with emphasis on the biological and habitat requirements of each species. The role of shellfish will then be integrated into the world of the seventeenth century Southern New England Native's foodways. Each species was investigated with regards to any information that was recorded by various chroniclers as to

their use and position in the southeastern New England Native diet. The information collected by Frank Speck among the Wampanoag in the 1940s, was also incorporated and evaluated with regards as to how it can add to the interpretation of the shellfish remains from the site. All of the available information was compared with the archaeological remains recovered from the site with the hope of gaining a fuller understanding of the position of shellfish in the overall meat portion of the diet from the site.

A total of six shellfish were recovered from the two concentrations. Two of the shellfish species were gastropods and the remaining four were bivalves. The following discussion is divided between gastropods and bivalves, and is arranged by the order of occurrence by total meat weight from the two concentrations. The gastropod assemblage contained the following species: channeled whelk and mud whelk. The bivalve assemblage was composed of the following species: quahog, soft-shell clam, oyster, and bay scallop.

Minimum Number of Individuals

The author determined that the techniques that would provide the truest estimation of the contribution of the various species to the diet was the MNI. This were chosen because it is the most common type of quantification of shellfish data represented in the literature and as such it allows comparisons to be drawn with the other sites much more directly.

The exploitation of dense quahog beds by the inhabitants of the Agawam site is attested to by quantity of whelks recovered from the site. Because the whelks prey upon the quahogs, their presence indicates one of two things. Either there were beds which were large enough that they were not taxed by the harvesting by people and predation by the whelks, or that the Natives were actively searching out the whelks and eating them as a way of protecting the beds. Bradley and Speiss posit this as a possible explanation for the high percentage of whelks and moon snails recovered at the two Wellfleet sites they examined (Bradley and Speiss 1994:55).

This is a common practice today among quahogers and the concept of eliminating a competing species was not unknown to the Natives. Roger Williams stated that when he observed the natives setting up snares to catch deer, they would sometimes catch the wolf in the act of eating the deer and kill him, thus eliminating a competing species (Williams 1971:225). Thus, if these predatory snails were purposefully collected to protect shellfish beds then the Natives would have collected a high meat yielding species as well as being able to …"save clams for another day." (Bradley and Speiss 1994:55).

The MNIs generated for Feature 8 and 9 are shown below in Table 4. Quahogs accounted for the

Table 4. MNIs generated for Feature 8 and 9 Concentration 2

Unit	Quahog	Whelk	Oyster	Soft Shell	Nassa	Total
Feature 8	1/ 4.2%	1/ 4.2%	22/ 91.7%	0	0	**24**
Feature 9	53/ 71.6%	6/ 8.1%	9/ 12.2%	5/ 6.8%	1/ 1.4%	**74**
Total	**54**	**7**	**31**	**5**	**1**	**98**

the majority of the species from Feature 9 whereas oysters accounted for the majority in Feature 8. Feature 9 contained a wider variety of species than Feature 8, possibly indicating that Feature 9 was an area where more general refuse was disposed of or where a wider variety of activities took place while Feature 8 may have been created as a result of one or only a few people, processing oysters in a single short duration occupation during the Contact Period.

The Sandy's Point site in Yarmouth, Massachusetts is one of the only New England sites where serious analysis of the shellfish remains has been carried out. Sandy's Point was excavated in 19xx. Work was begun at the sit by the Public Archaeology Lab Inc. under a CRM contract and was finished by a University of Massachusetts, Boston field school under the direction of Dr. Stephen Mrozowski. Although a final report on the sit has not been completed at this time, Mrozowski's 19xx article in man in the Northeast outlines the basic facts relating to the site (Mrozowski 19xx). Data Recovery excavations identified evidence of an intact seventeenth century Native American cornfield as well as the post mold pattern of two Native American round houses as well as numerous subsurface features. Two features were found to contain the bulk of the shellfish remains. Feature 29 was a shell midden that was radiocarbon dated to 930 years before present whereas Feature 1 was a roasting pit that was subsequently filled with shellfish remains. This feature was dated to 360 years before present. Differences in the occurrence of species were noted between the two features. Feature 29 contained more quahog and oyster, 34.5% vs 21.8% of the total shellfish occurrence for quahog and 20.6% vs 9.7% for oyster, while Feature 1 contained more soft-shell clam and bay scallops, 41% vs 6.9% of the total shellfish occurrence for soft-shell clam and 5.2% vs .1% for scallop . These differences were interpreted as being the result either of changing environmental conditions in the cove adjacent to the site where all the species could have been harvested from, or from changing preferences and exploitation areas between the two periods when these features were created.

Comparison of the shellfish species present at the Sandy's Point site with those from the Agawam site (Table 5) shows that oyster, quahog and soft shell clam dominated the assemblages from

Table 5. Comparison of shellfish species occurrence between Feature 1 and 29 at Sandy's Point, Yarmouth, Massachusetts and Feature 8 and 9 at the Agawam Site

Sandy's Point Agawam Site

Species	Feature 29	Feature 1	Feature 8	Feature 9
Knobbed Whelk	9.6%	3.1%		
Channeled Whelk	3.5%	2.1%	4.2%	8.1%
Whelk sp.	7.5%	1.8%		
Moon Snail	0	.2%		
Crepidula f.	3.7%	14.7%		
Crepidula p.	0	.2%		
Mud Whelk	3.1%	0		1.4%
Oyster Drill	.1%	0		
Quahog	34.5%	21.8%	4.2%	71.6%
Soft-shell Clam	6.9%	41.0%		6.8%
Oyster	20.6%	9.7%	91.7%	12.2%
Bay Scallop	.1%	5.2%		
Ribbed Mussel	.1%	0		
Jingle Shell	.1%	.3%		
Blue Crab	0	.1%		
Totals	**100%%**	**100%**	**100%**	**100%**

Sandy's Point while quahog and oyster were the most common species present at the Agawam Site. The features from both sites show a drop in the occurrence of oysters between them. At Sandy's Point the difference may have been the result of a specialized focus on soft-shell clam collection when Feature 1 was created as opposed to more general collection when Feature 29 was created. At the Agawam Site, Feature 8 may represent a Late Woodland/ Contact period specialized focus on the small scale consumption of oysters by a small number of people, possibly as few as one person. Feature 9 may have been created as a feast or ceremonial deposit associated with the infant burial (Feature 10) located adjacent to the southern side of Feature 9 during the Middle Woodland.

Size Comparisons

One thing that did not seem to change a great deal between the two features was either that the inhabitants had a size preference for certain size specimens of each shellfish type, or that the particular sizes were the most abundant. The average sizes of the quahog, soft-shell clam and oyster shells are shown below in Table 6. The overall shell sizes

Table 6. Shell sizes from Sandy's Point and Agawam Site

		Sandy's Point	Agawam
Quahogs	hinge beak widths	1.1-1.3 centimeters	.9-1.6cm
	total shell length	7.1-8.3 centimeters	6.2-8 cm
Clams	chondrophore width	.9-1.1 centimeters	.5-1.5 cm
	total shell length	4-4.9 centimeters	NA
Oysters	shell length/ height	7.1 - 8 centimeters	6-7.9, 2-4.9 cm

the Sandy's Point site were compared with those from Feature 8 and Feature 9 at the Agawam site (Table 7). The oysters from Sandy's Point primarily between the 7.1 to 8cm height range. At the Agawam Site, the majority of the oysters from the older feature, Feature 9, were larger, in the 6-7.9 cm range, while those from the more recent Feature 8 were generally smaller, 2-4.9 cm range (Table 7).

Table 7. Comparison of Oyster hinge sizes between Feature 8 and 9

Size	**Feature 8**	**Feature 9**
1.5-1.9cm	4/ 13.3%	
2-2.9 cm	8/ 26.7%	
3-3.9 cm	4/ 13.3%	
4-4.9 cm	7/ 23.3%	1/ 7.7%
5-5.9 cm	5/ 16.7%	2/15.4%
6-6.9 cm	2/ 6.7%	5/ 38.5%
7-7.9 cm		3/ 23.1%
8-8.9 cm		2/ 15.4%
Total	**30/ 100%**	**13/ 100%**

The total shell length of the quahogs from Sandy's Point ranged between 7.1 to 8.3 cm. Measurable quahog shells were recovered only from Feature 9 (n=6). The overall shell lengths ranged between 6.2-8 cm with the majority falling between 6.2 and 7.1 (n=4). This is close to the average from Sandy's Point, making it likely that quahogs in the size range of 6 to 8 cm were the most desired ones. Hinge length from Sandy's Point ranged from 1.1 to 1.3 cm and all of those from the Agawam Site fell into the .9 to 1.6 cm range.

None of the soft-shell clams from the Agawam site were whole enough so that the length of the shell could be measured. The length of the chondrophores ranged from .5 to 1.5 cm (5, 1, 1.1, 1.5 cm). This range compares favorably with those from Sandy's Point and may indicate a wider size range of clams were harvested than at Sandy's Point.

Oyster Substrate Analysis

In order to determine what information the oysters could provide regarding the substrate, from which they were collected, two forms of analysis were needed. It is known that historically, oysters were collected up to point on the Agawam River just below where the Agawam Site is located. The first way to investigate the substrate was the determination and comparison of the height to length ratios. This was done to determine what types of oysters were present, whether they were sand, bed, channel or reef oysters. The height was measured from the chondrophore to the edge of the lip of the left or right valve. This is typically the longest dimension of the oyster. The length is the width of the left or right valve at its widest point. The height-length ratio (HLR) is calculated by dividing the height by the length and expressing this as a ratio, e.g. 1:2. This procedure follows that outlined by Kent (1992:25). Kent states that "The HLR can vary from less than 1.0 to greater than 4.0 and is strongly affected by the environment in which the oyster grew." (Kent 1992:25). Sand oysters generally have HLRs that are less than 1.3 and come from beaches with a firm sand substrate. These are intertidal or in very shallow water (Kent 1992:25). Bed oysters have an HLR between 1.3 and 2.0 and occur in mixed muddy sand, often times alone or in small clusters. Channel oysters are large and elongated with an HLR greater than 2 and occur in the soft mud in deep channels (Kent 1992:25). Finally, reef oysters are small and elongated with an HLR greater than 2.0 and come from densely packed intertidal oyster beds (Kent 1992:25). There is overlap between the various types of oysters but HLR allows a researcher to gain a better understanding of the substrate in which the oysters grew.

The oyster HLR that was calculated for the two features at the Sandy's Point site, indicated that even though there was a significant difference in the amount of oysters harvested in each of the periods, 20.6% of the totals as opposed to 9.7%, the types of oysters remained remarkably the same. Most of the oysters yielded ratios between 1:1.3 and 1:2.0 (Feature 29 N=42; Feature 1 N=25) with only a few falling below this in both features (Feature 29 N=9; Feature 1 N=5). In Feature 1, a few fell above this (N= 7) and these were only greater than 2.0 by .1 to .3, not a significant difference.

This indicates that the oysters probably were bed oysters occurring in mixed muddy sand. None of the oysters apparently were attached to others, as one will often find in bed oysters, they all appear to have existed singly. There were notable ridges on the lower and some of the upper shells as well as purple coloration on the upper valves. This indicates that, like the reef and sand oysters, they were intertidal and being exposed to the air and sun each day.

The oysters from the Agawam Site also appear to be bed oysters (Table 8). Over 80% of

Table 8. Comparison of Oyster types between Features 8 and 9

Type	Feature 9	Feature 8
Sand	2/ 6.7%	2/ 15.4%
Bed	26/ 86.7%	11/ 84.6%
Channel	2/ 6.7%	0
Total	**30**	**13**

the measurable shells from each feature had HLRs between 1.3 and 2. The likely source of these oysters was the muddy bottom of the Agawam River.

The use of epibiont analysis as presented by Kent allows the salinity of the area where the oysters were collected to be estimated (1992:29). Epibionts are organisms that attach themselves to shellfish such as horseshoe crabs and oysters and slowly destroy their shells. They are useful in the study of oysters because they are fairly salinity specific and can help to determine the salinity range which the oysters inhabited (Kent 1992:31). Two species of sponges that were used for this analysis were Cliona trutti and Cliona celata. Both species leave boreholes in the shells of the oysters they live on. C. Trutti leaves small bore holes while C. celata leaves large ones. Kent states the salinity regimes indicated by the combination of small and large boreholes as follows:

-No boreholes salinity below 10 parts per thousand for about half the year and rarely above 20 parts per thousand;
-Valves with small boreholes but no large a salinity below 10 parts per thousand for about one quarter of the year below 15 parts per thousand for one half the year andr arely above 20 parts per thousand;
-Valves with small boreholes more common than valves with large boreholes indicates a salinity occasionally below 15 parts per thousand and above 20 parts per thousand for one quarter to half of the year;
-Valves with large boreholes as common or more common than valves with small boreholes indicates a salinity rarely below 15 parts per thousand and above 20 parts per thousand for most of the year (Kent 1992:30).

Only 14 oyster shells had any holes on them. This indicates a salinity that was below 10 parts per thousand for about half the year and rarely above 20 parts per thousand. The shells that did have holes fell closer to the final type, those with almost as many or more large bore holes than small ones. This pattern is indicative of a salinity regime of rarely below 15 parts per thousand and above 20 parts per thousand for most of the year. The combination of shells with no holes and those with large and small holes, may indicate that the oysters were collected from two different areas along the river.

Looking at the favored substrates of the six species of shellfish that were recovered can be used to help determine the location of the shellfishing activity in the past. Looking at the different types of habitats that are favored by each species, it can be seen that there is a great deal of similarity between the substrates and locations of occurrence between the various species (Table 9). As can be seen, all of these species prefer the shallow water of bays and estuaries. None of the species present are open water or deep-water species.

Table 9. Habitats of the shellfish species present

Species	Substrate	Location
Whelk species	Sand/ Mud	Shallow Bays
Oyster Drill	N/A	Estuaries
Quahog	Firm Sandy	Bays and Estuaries
Soft-shell Clam	Sandy Mud	Shallow Estuaries
Oyster	Firm/ Rocky	Estuaries
Bay Scallop	Sand/ Mud	Bays/ Estuaries

The species were likely collected towards the mouth of the Agawam River and possibly along the river at some point for the oysters. The collection at the mouth of the river as well as along the river may account for the variety of epibiont boreholes present on the shells. Another technique that can be used to examine the substrate that the species were growing on is by looking at the texturing and thickness of the soft-shell clams (Belding 1916:150). None of the clams were complete enough for this technique to be used.

Vertebrate Remains

Method

The faunal remains were analyzed in much the same way as the shellfish remains. Large samples of all features excavated were saved for flotation and as a result, most of the remains were recovered from soil samples collected. After the remains had been cleaned and initially cataloged, all remains were sorted from the entire assemblage. Then, by provenance, the remains were sorted into identifiable and unidentifiable pieces. Out of a total of 198 fragments, 36% (N=70) could not be identified beyond the level of mammal, bird, fish or turtle. The moderately low identification rate was due to the fact that most of the elements that were not identified consisted of long or flatbone fragment, ribs, gill rays and fins rays and ray spines.

The potentially identifiable pieces were then identified using the author's faunal collection. During identification, the individual pieces were identified as to species, element, side of body, and degree of fragmentation. All fragments were weighed and measurements were taken of key anatomical features for comparative purposes.

The faunal material was separated from the rest of the artifact assemblage and was then subdivided into potentially identifiable and unidentifiable fragments. The unidentifiable fragments were divided into medium and small mammal flat bone and longbone fragments. Any evidence of burning and calcification was also noted. The high percentage of fragments which could not be identified was due to the high degree of fragmentation of most of the mammalian bones.

The fragments which could be identified were compared with the author's personal comparative collection, and various zooarchaeological identification guides. Identification was made to the species level when possible. The element present, the portion of the element, the side of the body from which the element came, the degree of epiphyseal fusion and any evidence of butchery were all noted on paper catalog forms.

Each of the species identified were examined using documentary sources and modern field guides to determine what the habitat of these animals usually was, to what degree the harvesting of these species was seasonally determined, and what the seventeenth century sources state concerning their utilization by the local Native population. It was hoped that by looking at the animals from these three aspects, the season of occupation and utilization of the site and the features within the site could be determined.

The next question to be addressed concerns the relative abundance and use of the various species at the site. The remains were quantified using the Minimum Number of Individuals (MNI) present, the Number of Individual Specimens Present (NISP) which is essentially a count of all of the fragments of a species, and the weights of the bone fragments for each species. Depending on the quantification used for comparison the amount that the species contributed to the diet varies. This has been a long-standing dilemma in zooarchaeology. Taphonomic processes such as processing, disposal, scavenging, and excavation affect the NISP. This is compounded by the fact that fish bone, by its very nature, is thinner and less durable than mammal or even bird bone. This results in a lower probability of survival and recovery of fish remains. These factors also hold true for comparisons based on bone weight. The archaeological decay of bone that results in it losing much of its fresh weight will also hamper comparisons. The MNI is no better for comparisons due to the fact that one herring will not contribute the same amount to the diet as one deer.

The habitats and the sizes of the fish present in the two features were compared. This was done to determine what fishing technology was used to procure them and any differences in procurement strategies between the two features. These factors have been noted by a number of other researchers as being the main determinants to what sort of fishing techniques are used (Balme 1983; Colley 1990; Luedtke 1980; White 1988). The fishing strategy that was used by the Natives was the result of several related elements. These included the size, weight, shoaling behavior and depth range, seasonal migration of the fish as well as the potential yield, the cost the technology and the social organization needed (Colley 1990:157). It is obvious that different fishing methods will select for different size fishes. This was stated by Pory in 1622. The fishing strategy is the result of the interaction of environmental characteristics and the attributes of the fish and the goals of the society (Colley 1990:159). By combining this data with the ethnohistorical data gathered

on Native fishing the technology which was employed at this site can be determined.

The use of nets and weirs is less selective than hook and line. In the former, the nets are set out and whatever the tide drives into them is caught. With the later fishermen specifically used certain types of bait and hooks and searched for the species in locales that they favor. The nets that the Wampanoag hundreds of years ago used may have been similar to those made in the 1940s on Gay Head and in Mashpee. These nets had a two finger mesh and can be classified as gill nets. Gill nets are more selective than other nets by the fact that they are designed to trap fish by the gills. The net's weave allows fish smaller than the weave size to escape and usually does not trap larger species (Balme 1983:28). They are still less selective than hooks. Luedtke has noted that the presence of a greater variety of species of fish in the archaeological record appears to coincide with the occurrence of net weights in the Early Woodland (Luedtke 1980:66). This is probably due to the increased use of nets as opposed to hook and line and spears.

Once the fish were caught, either using a net or hooks and lines, they were processed. The processing was either for immediate consumption or for storage for winter. The drying of the fish would follow a process similar to that described above for the drying of shellfish. Ethnohistorically, Wood and Williams recorded the drying of lobster, bass and scup (Wood 1977:114; Williams 1971:181). Larger fish, such as cod, hake and shark may have been eaten soon after they were caught or they may have been cut into strips and dried as Wood stated for bass. Speck stated that herring were still smoked and dried by the Wampanoag at Mashpee in the 1940s. After they were salted, which is a modern practice, they were strung up on a stick run trough their eyes with about a dozen on one stick. These were then placed over a smoky fire of white oak, sugar maple, and sweet fern (Speck and Dexter 1948:263). Archaeological evidence of smoke drying may be represented at a site by a low occurrence of burned bones of smaller fish and possibly a majority of fish cranial bones as opposed to vertebrae. The occurrence of more cranial bones would be due to their possible removal before smoking, possibly if they were larger fish.

Fish were also commonly roasted or boiled (Young 1974:212; Morton 1972:56). Gookin, living near the Natives around Boston, gave the best description of the boiling of fish. He stated that "Their food is generally boiled maize or Indian corn, mixed with kidney-beans, or sometimes without. Also they frequently boil in this pottage fish and flesh of all sorts, either taken fresh or newly dried. These they cut in pieces, bones and all, and boil them in the aforesaid pottage. I have wondered many times they were not in danger of being choked with fish bones; but they are so dexterious to separate the bones from the fish in their eating therof, that they are in no hazard." (Gookin 1674:10).

The fish bones from the two features exhibit various types of alteration that may be the result of processing and consumption activities. These fall into two categories: burning and calcification. While neither of these types of alteration are unique to this site, taken together they allow a reconstruction of how the fish were processed and consumed.

The paucity of bird remains at the site is somewhat odd considering the time of the year that the features were occupied and the setting of the site. Possibly the focus of the occupation at the time the features were created was not on bird procurement but on fishing and shellfish. As a result the bird species which were present in the general vicinity were virtually ignored. The occupation of the site may not have occurred within the scheduling of the harvesting of migratory wild fowl as well, and for that reason they are not represented.

It was hoped that the faunal remains could corroborate some of the findings from the shellfish analysis with regards to season of capture, substrate identification, and the dietary importance of various faunal species to the inhabitants of the site. Many of the same techniques were used for the fish remains as were used for the shellfish. Modern documents were consulted that describe the habitat preferences and seasonality of the various species present. These were combined with the ethnohistorical record of the seventeenth century documents with the hope that together they could provide a full picture of the position and importance of the various fish species to the Native people as well as their methods of capture. This information was then compared with the various species present at this and other sites to see how well the documented preferences and techniques meshed with what had been found archaeologically.

Each of the species identified were examined using documentary sources and modern field guides to determine what the habitat of these animals usually was, to what degree the harvesting of these species was seasonally determined, and what the seventeenth century sources state concerning their utilization by the local Native population. It was hoped that by looking at the animals from these three aspects, the season of occupation and utilization of the site and the features within the site could be determined.

Four species of mammals have been identified, White-Footed Mouse (Peromuscus leucopus), raccoon (Procyon lotor), skunk (Mephitis mephitis), Woodchuck (Marmota monax) and White-Tailed Deer (Odocoileus virginianus). The first species was commensal while the others were hunted or trapped. One reptile species, the Painted Turtle (Chrysemys picta) was also identified. No identifiable bird species were recovered. All of the bird bone fragments found appear to have come from a medium to large species.

The relative abundance and use of the various species at the site was compared using multiple methods. The remains were quantified using the Number of Individual Specimens Present (NISP) which is essentially a count of all of the fragments of a species, the Minimum Number of Individuals (MNI) present, and the amount of meat that each species could have contributed to the diet. Depending on the quantification used for comparison the amount that the species contributed to the diet varies. This has been a long-standing dilemma in zooarchaeology. Taphonomic processes such as processing, disposal, scavenging, and excavation affect the NISP. This is compounded by the fact that fish bone, by its very nature, is thinner and less durable than mammal or even bird bone. This results in a lower probability of survival and recovery of fish remains. These factors also hold true for comparisons based on bone weight. The archaeological decay of bone that results in it losing much of its fresh weight will also hamper comparisons. The MNI is

no better for comparisons due to the fact that one herring will not contribute the same amount to the diet as one deer.

Analysis

One hundred and ninety-eight bone fragments were recovered as a result of the shovel test pitting and excavation unit testing (Table 10). Seventy of these 198 (35.4%) could not be identified beyond the general taxonomic levels of mammal, small or medium-sized mammal, medium-sized bird, small or medium-sized fish and turtle. The remaining 128 fragments were found to represent a wide range of mammal and fish species as well as one species of turtle (Table 10).

Table 10. Faunal remains recovered (NISP)

Species	Conc. 1	Feature 1	Feature 8	Feature 9	Totals
Mammal		5	4	23	32
S. Mammal	3				3
Mouse sp.				3	3
Skunk				1	1
Woodchuck				1	1
raccoon				2	2
M. Mammal	1	5	1	11	18
Deer	1	1	2	6	10
M. Bird			2	2	4
S. Fish			2	4	6
Herring			52	39	91
Sea Robin				1	1
M. Fish				4	4
Sheepshead			2	2	4
Turtle			2	1	3
Painted Turtle			2	13	15
Total	5	11	69	113	198

Only a small amount, 16 fragments or 8% of the total amount of faunal material recovered, was found in Concentration 1. Eleven of these fragments were recovered from Feature 1, the Transitional Archaic pit that also yielded under fired pottery, a chert Orient Fishtail point and a rhyolite Small Stemmed point. The fragments identified in this concentration were found to have come from deer, medium mammal, small mammal unidentified mammal. The deer bone consisted

of one left ulna fragment and one tooth fragment from Feature 1. These are the only fragments identifiable to species. The remaining fragments were identified as mammal (n=3), mammal flatbone (n=2), medium mammal flatbone (n=2), medium mammal longbone (n=4) and small mammal flatbone (n=3). The overall paucity of faunal material in this concentration indicates that processing of faunal remains does not seem to have been an important activity at this concentration during the Transitional Archaic. It is possible that the inhabitants of the site in the Transitional Archaic, and possibly the Late Woodland as three Levanna points were found in this area as well, did not process or consume faunal resources in this general area. The recovery of under fired pottery dating from the Transitional Archaic and from the Late Woodland may indicate that this area had some topographic features that made it a good place to fire pottery. Perhaps the slope or orientation either protected it from winds and drafts or it may be close to an unidentified clay deposit that was used for the pottery. Something about this area led people over three thousand years apart to make and misfire pottery here, but not to dispose of an appreciable amount of faunal material or shell.

The faunal remains from Concentration 2 were recovered primarily from Features 9 and 8 where 175 fragments, 88.4% of the total faunal assemblage was recovered. Feature 8 was first encountered in test pit B1 at a depth of 20 cmbgs when a pocket of shell was exposed. This feature was exposed at 30 cmbgs during the course of EU2's excavation. It took the form of a roughly T-shaped stain containing a central pocket of mainly oyster shell measuring approximately 15 x 15 cm which was surrounded by a roughly oval shaped area of very dark brown (10YR 2/2) sandy silt measuring approximately 50 cm north to south by 30 cm east to west. Around this dark soil was a lighter T-shaped "halo" of very dark grayish brown (10YR 3/2) sandy silt measuring 70 cm north to south by 50-70 cm east to west. A soil anomaly consisting of an amorphous area of dark olive brown (2.5Y 3/3) with a very dark brown (10YR 2/2) semicircular area in its southern half. This anomaly continued to the south of EU2. No artifacts were associated with the anomaly.

Associated with these oyster shells but not with the soil below or around them, were the faunal remains identified in Table 65. A sample of the oyster shell yielded a radiocarbon date of 440+/-40 years B.P. This date places the feature firmly within the Contact Period. Contact Period occupation of the site was previously suspected by the presence of one piece of scrap copper or brass, one piece of redware and one Cuprous triangular arrowhead recovered from the Car Tracks site by Bernard Stockley in 1963.

Feature 9 was located in EU 3 and 4 and also in test pit B2-20. The faunal remains from all of these contexts appear to have derived from Feature 9 as a result of plowing and the general disturbance of the feature over the years since its creation. Feature 9 was first encountered in test pit B-2 at 20 cmbgs where it took the form of a small pocket of quahog shell located in the south wall of the pit's profile. At 20 cmbgs in EU3 it was clear that this feature extended to the south, excavation was halted in EU3 and EU4 was opened and excavated down to 20 cmbgs so that a full view of the feature would be possible. At 20 cmbgs the feature measured approximately two meters by 1.2 meters and was oriented with the long axis running southwest to northeast. By 25 cmbgs the feature had shrunk to a dense concentration of shell and very dark grey (10YR 3/1) soil

in EU3's southwest quadrant. A radiocarbon sample obtained from quahog shell from Feature 9 yielded a date of 1540+/- 40 years B.P. placing this feature within the Middle Woodland period, a finding that correlated well with dentate stamp decorated pottery recovered from EU 3 and 4. Immediately to the south of Feature 9 was Feature 10, an infant burial. This grave contained only small pieces of oyster shell, making it likely that it was created either at the same time or before the shell-bearing Feature 9. Jordan Kerber has recently presented the idea that prehistoric shell deposits and the general use of shellfish "may have reflected more than just subsistence economies." (Kerber 2002: 13). Essentially he feels that shellfish may have had multiple meanings to native people and the recovery of shellfish remains at a site, especially one where human or animal burials are found within or associated with the shellfish deposit, may indicate a ceremonial purpose for their collection, consumption and use. Some shellfish deposits may have been parts of ritual feats associated with the burial associated with them, while in other cases shellfish were specifically collected to be placed with, on or over the dead (Kerber 2002: 24). The use of shellfish in or associated with burial contexts may be related to possible ritual significance associated with value, procreation and death (Claassen 1991: 294-295 as cited by Kerber 2002: 24). The majority of the faunal remains from both features consisted of vertebra and scales from herring (Table 11). This indicates that these features were likely created during the

Table 11. Faunal remains from Feature 8 and 9 (NISP)

Species	Feature 8	Feature 9
Mammal	4 / 6%	23/ 9.3%
Mouse sp.		3/ 2.8%
Skunk		1/ .9%
Woodchuck		1/ .9%
Raccoon		2/ 1.9%
M. Mammal	1/ 3%	11/ 23.1%
Deer	2/ 1.5%	6/ 6.5%
M. Bird	2/ 3%	2/ 1.9%
S. Fish	2/ 3%	4/ 4.6%
Herring	52/ 77.6%	39/ 35.2%
Sea Robin		1/ .9%
M. Fish		4/ 3.7%
Sheepshead		2/ 1.9%
Turtle	2/ 3%	1/ .9%
Painted Turtle	2/ 3%	13/ 12.1%
Total	69	113

spring run of herring up the Agawam River, probably in April to May. The location of the site at a place where the river narrows makes this a likely location for a fish weir. Stockley also noted features containing an abundance of fish bones during his excavations.

Overall, Feature 9 contained a wider variety of species than Feature 8. This may indicate that Feature 8 was created as a more specialized feature, possibly be a smaller group of people, or that it was created in a shorter amount of time. Both features contained the bones of deer, medium mammal, bird, herring and painted turtle but Feature 9 contained three species of small mammal (skunk, woodchuck and raccoon) and one additional species of fish (sheepshead). Table 12 shows a comparison of gross animal classes present in each feature. Small fish (herring) make up the bulk of the fragments recovered in

Table 12. Gross animal classes from Feature 8 and 9 (NISP)

Species	Feature 8	Feature 9
Mammal	4/ 6%	10/ 9.3%
Small Mammal		7/ 6.5%
Medium Mammal	3/ 4.5%	32/ 29.6%
Medium Bird	2/ 3%	2/ 1.9%
S. Fish	54/ 80.6%	44/ 40.7%
M. Fish		6/ 2.2%
Turtle	4/ 6%	14/ 13%
Total	**67**	**108**

while small fish and then medium mammal (deer) constitute 70.3% of the assemblage from Feature 9. Bird made up only a small percentage of the total fragment count from both features. This may be due tot he fact that it was reported historically that "As fowl decreases in March, so the fish increases" (Winslow 1621:294). The hunting of birds was more of a fall to spring activity with it tapering off in the spring as the migratory runs of fish begin. This would seem to be the case when both of these features were created.

The majority of these fragments exhibited some degree of alteration as a result of their deliberate or accidental deposition in a fire (Table 68 and 69). Damage caused by the fire on which the species were cooked takes two forms: burning and calcification. The distinction between the two types of alteration is basically one of degree. Burned bone ranges in color from yellow-brown to black. Calcined bone is bone that has been heated to such a degree that all of its combustible organic compounds have burned away leaving the inorganic non-combustibles. Calcined bones range in color from indigo-blue to white (completely calcined) (Stein 1992:350). The heat range that causes bones to become burned is from 130-340 degrees Celsius with the bones becoming black at 240-340 degrees Celsius. Bones begin to become calcined between 440-600+ degrees

Celsius (Stein 1992: 354). Basically bones which are burned white had to have been in a fire which was at least 600 degrees. Bones which were burned were either from a fire which was either under 600 degrees or the fire was 600+ degrees but the bones did not spend a great deal of time in the fire.

Due to the presence of the small fish remains, the majority of the faunal assemblage was unburned bone (Table 13). The faunal remains from Feature 9 showed more unburned bone as well as more calcined bone than Feature 8. This may be a result of Feature 8 representing a shorter term occupation than Feature 9. If Feature 9 was created during a longer occupation, the fire may have burned longer and resulted in more bone being calcined. The longer occupation may also be indicated by the presence of Middle Woodland pottery which could have been used to boil foods, resulting in more unburned bone from soups or stews being deposited in Feature 9 as it was filled.

Table 13. Gross comparison of heat alteration (NISP)

Condition	**Conc. 1**	**Feature 1**	**Feature 8**	**Feature 9**	**Total**
Unburned			48/ 70.6%	86/ 83.5%	132/ 68.4%
Burned		1/ 9.1%	13/ 19.1%	6/ 5.8%	20/ 10.4%
Calcined	3/ 100%	10/ 90.9%	7/ 10.3%	21/ 20.4%	41/ 21.2%

Table 14 shows a more detailed breakdown of the amount of heat alteration that was found on the

Table 14. Heat alteration to faunal remains (NISP)

Species	Conc. 1	Feature 1	**Feature 8**	Feature 9	Totals
Mammal	**1**	**5**	**4**	**23**	**32**
Unburned				17	17
Burned			**2**	1	3
Calcined	1	5	**2**	5	13
S. Mammal	**3**				**3**
Calcined	3				3
Mouse sp.				**3**	**3**
Unburned				3	3
Skunk				**1**	**1**
Calcined				1	1
Woodchuck				**1**	**1**
Calcined				1	1
raccoon				**2**	**2**

Burned				2	2
M. Mammal		**5**	**1**	**11**	**18**
Unburned				5	5
Burned			**1**	1	2
Calcined		5		5	10
Deer	**1**	**1**	**2**	**6**	**10**
Unburned				2	2
Burned		1	**1**		2
Calcined	1		**1**	4	6
M. Bird			**2**	**2**	**4**
Unburned				2	2
Burned			**1**		1
Calcined			**1**		1
S. Fish			**2**	**4**	**6**
Unburned			**1**	4	5
Calcined			**1**		1
Herring			**52**	**39**	**91**
Unburned			**43**	38	81
Burned			**9**	1	10
Sea Robin				**1**	**1**
Calcined				1	1
M. Fish				**4**	**4**
Unburned				4	4
Sheepshead			**2**	**2**	**4**
Unburned			**2**	2	4
Turtle				**1**	**3**
Unburned				1	1
Painted Turtle			4	**13**	**15**

Table 14. Heat alteration to faunal remains (NISP) (Continued)

Species	Conc. 1	Feature 1	**Feature 8**	Feature 9	Totals
Unburned				8	8
Burned			1	1	2
Calcined			3	4	7
Total	**5**	**11**	**69**	**113**	**198**

faunal remains that were recovered. More bones from a variety of classes were unburned in Feature 9 (mammal, medium mammal, deer, bird, small and medium fish, turtle, and painted turtle) than in Feature 8 where only unburned herring and sheepshead were present, possibly indicating that these species were boiled or roasted but not generally thrown in the fire. It is also possible that burned or calcined bones were from species that were roasted over the fire and subsequently had their remains thrown into the fire.

MNI

A minimum of 19 individuals were identified as having been consumed at the site (Table 15). Mammals and fish made up the majority of the species identified, with eight

Table 15. Minimum numbers of individuals identified

Species	Conc. 1	Feature 1	Feature 8	Feature 9	Totals
S. Mammal	1				1
Skunk				1	1
Woodchuck				1	1
raccoon				1	1
Deer	1	1	1	1	4
M. Bird			1	1	2
Herring			2	2	4
Sea Robin				1	1
Sheepshead			1	1	2
Painted Turtle			1	1	2
Total	2/ 10.5%	1/ 5.2%	6/ 31.6%	10/ 52.6%	19

mammals and seven fish being identified. The mammals were split between medium and small species, while herring made up the majority of the fish species. Unidentified bird and turtle accounted for only two individuals each. Between the two concentrations, deer and small mammals appear to be the commonly occurring species. In Concentration 1, both were identified while in

Feature 1 only deer was identified. The limited variety of species identified in this concentration may be indicative of differences in the use of the site. The site may have been used only as one of the stopping places in a less sedentary lifestyle during the Transitional Archaic/ Early Woodland whereas it may have been more of a community focal point, part of a more sedentary permanent community site during the Middle to Late Archaic. The differences observed in the faunal assemblages may also be the result of intersite differences with different areas of the site seeing different uses. The area closer to the river may have been more of a processing or consumption area while the Concentration 1 area may have been more of a production location, specifically for pottery during the Transitional Archaic and Late Woodland periods. The difference may also be seasonal. If Concentration 1 was occupied during the summer or early fall, perhaps deer was the only species used at that time of the year as opposed to the spring occupation that appears to have occurred in the Middle and Late Woodland periods at Concentration 2.

Species

Fish

Three species of fish, herring, sea robin and sheepshead, were recovered from the two features. Plentiful remains of the herring (Clupea harengus) were recovered from both features. Herring can achieve a maximum size of 44 centimeters and a weight of 1 kilogram. Herring move from the open ocean into fresh water rivers and streams to ponds in order to spawn. This migration begins between April and June (Bigelow 1953:103). This is the only time that herring may be caught close to shore, any other time they are out to sea. Herring feed chiefly on plankton but may also feed on fish smaller than themselves (Bigelow 1953:102). They in turn are preyed upon by sharks, bluefish, cod, and hakes (Bigelow 1953:103). This species would have been plentiful at the site. At this point the Agawam River constricts from approximately 30 meters wide to only three meters. This would have been an ideal spot to place a weir to catch herring, alewives and shad.

Many of the seventeenth century reports on their occurrences may pertain to either herring or alewives, as these names appear to have been somewhat interchangeable. These fish are best known as having been the fish of choice to manure fields of Native corn. This was due to their occurrence in great numbers. Winslow stated that when the herring and alewives travel into the Town Brook in downtown Plymouth in April and May "The inhabitants during the said two months take them up every day in hogsheads. And with those they eat not they manure the ground, burying two or three in each hill of corn- and may, when they are able, if they see cause, lade whole ships with them." (Young 1974:07). This practice was also noted by Thomas Morton who stated that "Inhabitants dung their ground with them every acre taking 1000 fish. This practice is only for Indian maize, not for English grains."(Morton 1972:89).

The settlers at Plymouth constructed a simple weir in this brook with which to catch the fish. They had it "shut in with planks, and in the middle with a little door, which slides up and down, and at the sides with treelike work, through which water has its course, but which they can also close with slides." (James 1963a:75). This would have been similar to the Native practice of shutting the river with a few stones to direct the fishes course. They then would have scooped the fish out of the water in front of the rocks with a "…net like a purse net put upon a round hooped stick with a

handle." (Lindholt 1988: 100).

Fish such as herring, alewives and menhaden were called 'munnawhatteaug', which comes from 'munnohquohteau' (Trumbull 1903:69). This means 'he who enriches the earth'.

The second species of fish identified was one cranial fragment of the Northern Searobin (Prionotus carolinus). This is a non-schooling fish that is commonly caught as a bottom feeder rarely on mud or rocky bottoms (Bigelow 1953:469). They appear to favor smooth hard sandy grounds are as comfortable in estuaries as they are on the edge of the continental shelf. The searobin feeds on shrimp, crabs, squids, bivalves, worms, herring, menhaden, flounders, annelids, seaweed, and bivalves (Bigelow 1953:469). The searobin can reach a maximum size of 406 millimeters and weigh up to 170 grams (Vt.edu 12). Most commonly specimens approximately 305 millimeters are caught. They are one of the food species of the Dusky and the Sandbar sharks (Bigelow 1953:469).

The northern searobin in a warm weather visitor primarily to the waters on the southern shore of Cape Cod. They arrive with the warming waters in May and stay in the area until October with July and August being the peak spawning months (Bigelow 1953:469). There are no ethnohistoric references to northern sea robins but they were definitely known to the Native people in southern New England, as their remains have been found at a number of sites (Ritchie 1969; Carlson 1986, 1990; Bernstein 1992).

Sheepshead (Archosargus probatocephalus) is a marine fish of the Porgy family, one of the most widely occurring fish families in the world. The attain a maximum length of 30 inches and a maximum weight of 30 pounds, although most individuals are between six and eight pounds. Inshore and near shore, sheepshead are found near oyster beds and in tidal creeks like the Agawam River. They gather in these areas especially in the spring for spawning (www.marinefisheries.org/FishID/porghee.html).

Mammal

Five species of mammals were identified in the assemblage from the site. Four of these were small mammals (mouse, skunk, woodchuck, raccoon) and one was medium-sized (deer). Deer remains were identified in both concentrations, whereas identified small mammal remains were only found in Concentration 2. Three fragments of calcined bone that appears to be from a small mammal longbone was recovered from Concentration 1, but, due to its small size and fragmentary condition, no further identification was possible. The association of small mammals with Concentration 2's Middle Woodland occupation as opposed to the Transitional Archaic to Early Woodland/ Late Woodland occupation in Concentration 1 may be indicative of either a wider variety of species being exploited by a larger population during the Middle Woodland, or may be the result of differential occupation lengths or foci between the periods. If Middle Woodland occupation occurred at a different season or was of a longer duration that in Concentration 1, this may account for the variety of species present.

Three of the four small mammal species (skunk, woodchuck, raccoon) identified likely represent

food species processed, prepared and disposed of near an undiscovered hearth located in close proximity to Feature 9. The four species, some species of mouse, either represents a commensal species accidentally included in the Feature 9 fill or possibly the remains of stomach contents from the raccoon or skunk, contents which were disposed of into the feature when it was filled. The mouse species is represented by an unburned incisor, humerus and sacral vertebra.

One fragment of a skunk left scapula was recovered from B2 in association with Feature 9. The scapula was calcined white, obviously having been accidentally or purposefully deposited into a fire for an extended period of time. Striped skunks (Mephitis mephitis), grow to an overall length of 80 cm and can weigh between 2.7 to 6.3 kilograms (Whitaker 1988: 585). They live in other animals dens and burrows or will find protected locations such as under logs or houses. Skunks are omnivores, eating everything from insects to eggs to small mammals and reptiles. They do not hibernate in the winter but will enter a state of dormancy during especially cold weather. The Native name for the skunk was squnk, the source of our work skunk. Squnk can be translated as the sprayer, obviously for their tendency to spray when threatened. Skunks were described by John Josselyn as being almost as big as a raccoon with a powerful scent (Josselyn second voyage 61). William Wood stated that skunks could be counted among the beast of great offence, placing them in the company of ferrets and foxes "...whose impudence sometimes drives them to the goodwives' hen roost to fill their paunch. Some of these be black; their fur is of much esteem." (Wood 45).

One fragment of a burned (dark grey to white) left scapula from a woodchuck (Marmota monax) was recovered from Feature 9. Woodchucks attain a maximum length of 82 cm and a weight of 2 to 6.4 kilograms (Whitaker 1988: 384). They live in burrows that can be up to one and one half meters under ground and extend for up to ten meters. They are active in the morning and evening and live in pastures, meadows and woods. Woodchucks are strict vegetarians, feeding on any green vegetation, especially cultivated crops. They hibernate during the winter and emerge in early spring, traditionally around February 2. Woodchucks were called Ockqutchaun, or the one that burrows, which, through its corruption by the English colonists, became the source of our word woodchuck. Roger Williams described the woodchuck as "A wild beast of reddish hair about the bigness of a pig, and rooting like a pig, from whence they give this name to our swine." (Williams 1971: 34)

Fragments of one raccoon mandible that was burned grey brown and a calcined grey to white humerus, were recovered from Feature 9. Raccoons reach a maximum length of 95 cm and weigh between 5.4 and 21.6 kilograms. They live along the shores of streams and ponds where they have an omnivorous diet, eating grapes, nuts, crickets, mice, squirrels, eggs, muskrats and turtles (Whitaker 1988: 560). Raccoons were called Ausup or the one who drinks or washes, by the southeastern Massachusetts and Rhode Island Natives. Josselyn stated that they live in hollow trees, are the size of a cat, feed upon moss, do infest Indian corn, and are exceedingly fat in autumn. Flesh dark but good roasted. For bruises and aches- fat good for it, fur good deep fur (Josselyn Rarities 17). Seventeenth century chroniclers said that the flesh of the raccoon was considered excellent food, as good as lamb, that they feed on clams at low tide and that the natives esteemed a raccoon coat with the tails attached, of higher esteem than a beaver coat (Morton 1972: 78; Wood 1977: 44).

The one medium-sized mammal that was identified was the white-tailed deer (Odocoileus virginianus). A calcined fragment of a deer ulna was recovered from Concentration 1, a burned deer tooth was found in Feature 1, fragments of a calcined cranium were found in Feature 8 and calcined metatarsal fragments were identified in Feature 9. White-tail deer can reach a maximum length of 206 centimeters long and a maximum weight of 135 kilograms (Whitaker 1988: 654). They prefer farmlands and brushy wooded areas. Deer were the most common animal that was hunted by Native people in the northeast and as a result their bones are fairly ubiquitous at Native occupied sites.

The deer provided the Natives with many raw materials for producing a vast array of their material culture. The meat was eaten of course, the marrow was eaten and used for grease, the hide was tanned with the hair on or off for clothing, the antlers and bone were used as a raw material for tools such as arrow heads and fishhooks, the sinews were used for sewing, the hooves were used for glue and the bladders were used to contain oil. Seventeenth century sources are replete with references to deer. This probably has to do with the fact that they were present in England so the Europeans knew of them, but they had never seen them in such great numbers as they did here.

Deer were hunted either by single hunters or by bands of hunters. When hunting singly, deer may have been stalked a by the hunter much as hunters do today. By observing their habits throughout the year, the hunters would know what locations the deer favored (Williams 1971:224). He would then either hunt the deer with his bow or would set snares and return to check them every day or two. The second way in which deer were hunted was communally. This could be done either by stalking or by setting snares. These would be large parties who went out to do this. Williams stated that 20 to 300 men might go out to pursue the deer on foot. During the trap hunting the men would bring their wives and children if they did not need to travel far and build a small impermanent house which was their hunting lodge. They would then stake out their bounds for their family that might be 2-4 miles and would set 30-50 traps and check these every few days (Williams 1971:224).

The importance of the deer to the people can be seen in the number of names that they used to describe them. The general name for deer was ‘ahtuk’ but the people further differentiated between ages and sexes. A ‘paucottauwat’ was a buck while a ‘wawunnes’ was a young buck. A ‘qunneke’ was a doe and a ‘moosqin’ was a fawn (Williams 1971:224). Distinctions were made for a number of reasons. One may have had to do with different qualities of the meat of the deer. Josselyn stated that the flesh of the fawns was considered the best (Josselyn 1672:99). It also may have had to do with the spiritual connection that the people felt they shared with the deer. Unfortunately this was not explicitly stated by any of the seventeenth century authors, merely hinted at. For example, Williams wrote that the Natives were “…very tender of their traps and where they lie, and what comes at them; for they say, the deer (whom they conceive has a divine power in them) will soon smell and be gone.” (Williams 1971:224). Deer skins were also used as tribute to the sachems of the communities. The sachems had the right to the skin of any deer that was killed either by the hunter or by wolves in water (Williams 1971:224).

Josselyn gives a good description of the hunting done by the Natives to the north of Boston. These people often hunted moose in this area, but the description of their hunting practices was probably

much the same for deer. He stated that "They go 30-40 miles up into the country and run down a moose. When he has tired, they cut his throat and skin him, the women take out the heart, cut off the left rear foot and draw the sinews out, and cut out his tongue and as much venison as will deserve to satiate them. At the same time the men pitch camp near a spring and scrape the snow to the bare earth. In the middle they make a fire near a tree and hang their kettle from one of the branches of the tree and boil the venison...They do not trouble themselves with the horns of the moose or the deer because they are weighty and cumbersome. They leave the carcass out there for the wolverines." (Josselyn 1672:99). This was probably much the same way that the Natives in southeastern Massachusetts hunted deer during the large drives in the fall. They would slay a large number of deer, take the meat and other parts they wanted and leave the rest. In fact, the Pilgrims found a deer near Plymouth in 1621 that had its horns cut off and nothing else (Heath 1963:48).

Turtle

Fragments of painted turtles (Chrysemys picta) were recovered from features 8 and 9. In Feature 8, four fragments of burned or calcined turtle carapace were recovered. In Feature 9 fourteen fragments of unburned, burned and calcined carapace were found. Painted turtles live in virtually any permanent body of water that has suitable basking sites (logs, banks, or rocks). They prefer muddy bottoms such as those found in rivers, lakes and ponds, making the Agawam River an ideal place to find them. Painted turtles reach an average adult size of 5 to 8" and would provide approximately ½ pound of meat. Other reasons for the collection of turtles may revolve around medicinal, spiritual or totemic associations as well as the widespread use of their shells as ceremonial rattles in the historic period. Painted Turtles, like all New England turtles species, hibernate in the mud from mid-fall to mid-spring, making it likely that they were collected from mid-spring to mid-fall. The presence of turtle shell at an archaeological sites does not necessarily indicate that they site was occupied during this period though, as turtle shells may have been curated for any of the above mentioned reasons.

Summary

Pottery manufacture may have begun in the Early Woodland as a response to what may have been a more focal, specialized subsistence system that may have been practiced in the Early Woodland Period. Such a system would have resulted in a need for specialized technology to collect and process seasonally available food products such as nuts, berries or anadromous fish and lobster, and then store food products for use throughout the remainder of the year. A system such as this would have been important for a population with increased sedentism and better defined territorial areas. Specialized technology may have included fish weirs and pottery. The eastern portion of Wareham from the Wareham River, across Indian and Great Neck and possibly as far as Red Brook may have been such a territory with the Agawam Site and Brandy hill serving as the base camp from which parties went out to exploit resources and return to on a regular basis. The Transitional Archaic to early Woodland periods may have been the incipient period for the establishment of the seasonally migrational patterns that were observed by European settlers in the Contact Period.

Shellfish remains were recovered from across the project area, with the majority being found in Features 8 and 9 in Concentration 2. The harvesting of shellfish on Cape Cod has been found to have changed from the Late Archaic to the Late Woodland periods (McMannamon 1984:391). Late

Archaic populations appear to have harvested shellfish more during the summer while Late Woodland populations utilized shellfish more during the Winter to Spring. The predominance of shellfish remains in Concentration 2 may be indicative of this temporal and seasonal change in shellfish harvesting. Concentration 1 was occupied during the Early and Late Woodland periods, but no shellfish remains were encountered in any of the features that were investigated. This may be the result of differences in seasonal occupation, possibly related to pottery production, in this portion of the site as opposed to Concentration 2 which was occupied in the Spring.

Six shellfish species were identified at the site with Feature 9 containing the widest variety of species. Feature 8 contained a higher occurrence of oysters than in any other part of the site. This may have been the result of Feature 8 being specifically created as the result of the springtime seasonal harvest of oysters and herring at the site by a small number of people. Feature 9 appears to have had a wider variety of species present, possibly indicating a larger group of people occupying the area for a longer period of time. Feature 9 may also have been associated with Feature 10, a human burial possibly contemporaneous with Feature 9. These remains may have been part of a ritual feast associated with the burial of the child.

The oysters that were present in Feature 8 appeared to be bed oysters, likely having been collected in the mud of the Agawam River and possibly at two different areas of the river, as evidenced by different types of sponge bore holes present on the shells. The other species of shellfish were probably collected closer to the mouth of the Agawam River in water with a higher salinity.

The vertebrate faunal remains consisted on 198 fragments of burned, calcined and unburned bone. Seventy of these 198 (35.4%) could not be identified beyond the general taxonomic levels of mammal, small or medium-sized mammal, medium-sized bird, small or medium-sized fish and turtle. The remaining 128 fragments were found to represent a wide range of mammal (skunk, woodchuck, raccoon, deer) and fish (herring, seas robin, sheepshead) species as well as one species of turtle and unidentified bird. The majority of the faunal remains were recovered from the northern half of the project area in Concentration 2, from Middle Woodland Feature 9 and Late Woodland Feature 8. Concentration 1 at the southern half of the project area, yielded evidence of deer and small mammals being exploited.

The diversity of species represented in the assemblage is clear evidence of a Middle and possibly a Late Woodland focal, intensive subsistence pattern that resulted in shellfish and herring, as well as small mammals and to a lesser degree deer, turtle and bird, being hunted trapped and collected in the spring time. The Agawam Site likely as the spring to fall destination of the inhabitants of the community of Agawam. Winter occupation was probably further inland, possibly around the ponds to the northeast of the site. The Agawam site may have become part of the people's seasonal round with the establishment of the anadromous fish runs and oyster colonies at an unknown period in the past. Oysters may have been relatively late colonizers of the river, establishing themselves sometime after the occupation that resulted in the creation of Feature 9 and before that of Feature 8. Oysters were only slightly represented in the assemblage from Feature 9, but made up the bulk of the assemblage from Feature 8. Their presence could also be the result of human selection for oysters over quahogs at he time of the feature's creation in the Contact Period.

REFERENCES CITED

American Antiquity
1981 Current research. *American Antiquity* 43 (3): 671-703.

Balme, Jane
1983 Prehistoric Fishing in the Lower Darling, Western New South Wales. In *Animals and Archaeology.* British Archaeological Reports Series 183.

Barber, Russell
1981 Quartz Technology at the Sassafras Site. In *Quartz Technology in Prehistoric New England* edited by Russell J. Barber. Institute for Conservation Archaeology Peabody Museum, Harvard University, Cambridge, Massachusetts.
1982 *The Wheeler's Site: A Specialized Shellfish Processing Station on the Merrimac River*, Peabody Museum Monographs, No. 7, Harvard University, Cambridge, Massachusetts.
1983 Diversity in Shell Middens: The View from Morrill Point. *Man in the Northeast* No. 25.

Belding, D.R.
1916 *A Report on the Clam Fishery. Annual Report of the Commission on Fisheries and Game for 1915.* Massachusetts Public Document 25.

Bernstein, David
1992 *Prehistoric Subsistence on the Southern New England Coast: The Record from Narragansett Bay.* Academic Press Inc. New York.

Binford, Loius
1980 Willow Smoke and Dogs' Tails: Hunter-gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45.

Boudreau, Jeffrey
1981 Replicating Quartz Squibnocket Small Stemmed and Triangular Projectile Points. In *Quartz Technology in Prehistoric New England* edited by Russell J. Barber. Institute for Conservation Archaeology Peabody Museum, Harvard University, Cambridge, Massachusetts.

Bradley, James W. and Arthur E. Speiss
1994 Two Shell Middens on Indian Neck, Wellfleet, Massachusetts: The Excavations of Fred A. Luce. *Bulletin of the Massachusetts Archaeological Society* Vol. 55(2).

Bragdon, Kathleen J.
1996 *Native People of Southern New England 1500-1650.* University of Oklahoma Press, Norman, Oklahoma.

Braun, David P.
1974 Explanatory models for the evolution of coastal adaptation in prehistoric New England. *American Antiquity* 39 (4).
1983 *Pots as Tools. In Archaeological Hammers and Theories*. Ed by A. Keene and J. Moore. pp. 107-134. Academic Press, New York.

Braun, Ester K. and David Braun
1994 *The First Peoples of the Northeast*. Lincoln Historical Society, Lincoln, Massachusetts.

Bronitsky, Gordon and Robert Hamer
1986 Experiments in ceramic technology: The effects of various tempering materials on impact and thermal resistance. *American Antiquity* 51 (1)

Bunker, Victoria
2002 Analysis and Interpretation of Early Woodland Ceramics from Sewalls and Amoskeag Falls, Merrimack River Valley, New Hampshire. In *A Lasting Impression: Coastal, Lithic and Ceramic Research in New England Archaeology.* Ed by Jordan Kerber. Praeger, Westport, Connecticut.

Callahan, Kevin
1981 Quartz Technology within the Narragansett Basin Region: A Challenge in Lithic Analysis. In *Quartz Technology in Prehistoric New England* edited by Russell J. Barber. Institute for Conservation Archaeology Peabody Museum, Harvard University, Cambridge, Massachusetts.

Chartier, Craig
2001 An Explanation of the Proportional Differences in Shellfish Between Two Features at the Sandy's Point Site. Unpublished Master's Thesis, University of Massachusetts, Boston. On file at the Massachusetts Historical Commission, Boston, MA.

Child, S. T.
1984 Prehistoric Ceramic Remains. In *Chapters in the Archaeology of Cape Cod, I, vol. 2*, edited by F.P. McManamon, pp. 195-275. Cultural Resources management Study 8. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston.

Chilton, Elizabeth
1999 Ceramic research in New England: Breaking the typological mold. In *The Archaeological Northeast* edited by M.A. Levine, K.E. Sassaman, and M.S. Nassaney Bergin and Garvey, Westport, Connecticut.

Claassen, Cheryl
1991 *Normative Thinking and Shell-Bearing Sites. Archaeological Method and Theory.* M.B. Schiffer ed. University of Arizona Press, Tucson.

1998 *Shells*. Cambridge University Press.

Cleland, C.E.
1966 *The Prehistoric Animal Ecology and Ethnozoology of the Upper Great Lakes Region*. Museum of Anthropology, University of Michigan, Anthropological Papers, no. 29. University of Michigan Press, Ann Arbor.

Colley, Sarah M.
1990 The Analysis and Interpretation of Archaeological Fish Remains. *Journal of Archaeological Science*, Vol 17.

Cowen, Frank L.
1999 Making Sense of Flake Scatters: Lithic Technological Strategies and Mobility. *American Antiquity* 64 (4).

Davis, Simon J. M.
1987 *The Archaeology of Animals*. Yale University Press, New Haven.

Decima, Elena, Chris Edens, Leith Smith, Jane Carolan and Michael Roberts
1993 *The Archaeology of the Wareham High School Site Wareham, Massachusetts*. On file at the Massachusetts Historical Commission, Boston.

Denys, Nicholas
1969 *Description and Natural History of the Coasts of North America*. ed by W.F. Ganong. Publications of the Champlain Society, Vol. 2.

Dincauze, Dena F.
1974 Introduction to the archaeology of the greater Boston area. *Archaeology of Eastern North America* 2.
1975a The Late Archaic in Southern New England. *Arctic Anthropology.* 12(2).
1975b Ceramic Sherds from the Charles River Basin. *Bulletin of the Archaeological Society of Connecticut* 39.
1976 *The Neville Site*. Monographs of the Peabody Museum of Archaeology and Ethnology no. 4.

Dunford, Frederick
1992 *Conditional Sedentism: the Logistical Flexibility of Estuarine Settlements in Circumscribed Environments*. Paper presented at the fifty-seventh annual meeting of the Society of American Archaeology, 8-12, April, Pittsburgh, Pennsylvania.

Fiedel, Stuart
2001 What Happened in the Early Woodland? *Archaeology of Eastern North America* 29.

Filios, Elena
1989 The End of the Beginning or the Beginning of the End: The Third Millennium B.P. in

Southern New England. *Man in the Northeast*. 38.

Fowler, William S.
1966 Ceremonial and Domestic Products of Aboriginal New England. *Bulletin of the Massachusetts Archaeological Society* 27 (3 + 4).

Funk, R. E.
1972 Early Man in the Northeast and the Late Glacial Environment. *Man in the Northeast* 4:7-39.

1976 *Recent contributions to Hudson Valley Prehistory.* New York State Museum and Science Service Memoir 22.

Goodby, Robert
1992 *Diversity as a Typological Construct: Reconstructing Late Woodland Ceramics from Narragansett Bay.* Paper presented at the 32nd meeting of the Northeastern Anthropological Association, Bridgewater, MA.

Gookin, Daniel
1806 *Historical Collections of the Indians in New England*. Collections of the Massachusetts Historical Society 1: 141-227 reprinted. Munroe and Francis, Boston.

Haggett, Peter, Andrew D. Cliff; and Allen Frey
1977 *Locational Analysis in Human Geography*, 2nd edition. Wiley, New York, NY.

Heckenberger, Michael J., James B. Peteren, Ellen R. Cowie, Arthur Speiss, Louise A. Basa, and Robert E. Stuckenrath
1990 Early Woodland Period Mortuary Ceremonialism in the Far Northeast: A View from the Boucher Cemetery. *Archaeology of Eastern North America* 18.

Higgs, E.S. and C. Vita-Finzi
1982 *Prehistoric Economies: A Territorial Approach. Papers in Economic Prehistory: Studies by Members and Associates of the British Academy Major Research Project in the Early History of Agriculture*. ed. E.S. Higgs. Cambridge University Press, Cambridge, England.

Hoffman, Curtis
1985 Revising the Late Archaic Period in Southern New England. *Archaeology of Eastern North America*. 13
1987 *North River Archaeological Project 1986-87 Field Season Preliminary Report Transect V-Pembroke*. On file at the Massachusetts Historical Commission, Boston, MA.

Horton, D.R.
1984 Minimum Numbers: a Consideration. *Journal of Archaeological Science* 11.

Howe, Henry
1949 Archaeology of the lower North River valley. *Bulletin of the Massachusetts*

Archaeological Society 10 (2): 39-43.

Josselyn, John
1672 *New England's Rarities Discovered*. Applewood Books, Distributed by the Globe Pequot Press, Chester, Connecticut.

Kenyon, Victoria B. and Patricia McDowell
1983 Environmental Setting of Merrimack River Valley Prehistoric Sites. *Man in the Northeast* 25.

Kerber, Jordan
2002 *A Lasting Impression: Coastal, Lithic and Ceramic Research in New England Archaeology.* Edited by Jordan Kerber. Praeger Press, Westport, Connecticut.
1985 Digging for Clams: Shell Midden Analysis in New England. *North American Archaeologist*, Vol. 6(2).

Kent, B.W.
1992 *Making Dead Oysters Talk*. Maryland Historical Trust, St. Mary's City, Maryland.

Kintigh, Keith
1988 The Effectiveness of Subsurface Testing: A Simulation Approach. *American Antiquity* 53:686-707.

Klein, Michael J.
1997 The Transition from Soapstone Bowls to Marcey Creek Ceramics in the Middle Atlantic Region: Vessel Technology, Ethnographic Data, and Regional Exchange. *Archaeology of Eastern North America* 25: 143-158

Lavin, Lucianne
1980 Analysis of Ceramic Vessels from the Ben Hollister Site, Glastonbury, Connecticut. *Bulletin of the Archaeological Society of Connecticut* 43.
1984 Connecticut Prehistory: A synthesis of Current Archaeological Investigations. *Bulletin of the Archaeological Society of Connecticut* 47.

Lightfoot, Kent
1986 Regional Surveys in the Eastern United States: The Strengths and Weaknesses of Implementing Subsurface Testing Programs. *American Antiquity* 51.

Loring, Stephen
1985 Boundary Maintenance, Mortuary Ceremonialism and Resource Control in the Early Woodland: Three Cemetery Sites in Vermont. *Archaeology of Eastern North America* 13.

Luedtke, Barbera
2002 The Archaeology of the Boston Harbor islands after 25 years. *A Lasting Impression: Coastal, Lithic and Ceramic Research in New England Archaeology.* Edited by Jordan Kerber. Praeger Press, Westport, Connecticut.

1998 A possible Middle Woodland tool kit from Thompson Island, Massachusetts. *Northeast Anthropology* 55:15-30.

1997 *Lithic Procurement and Use on the Boston Harbor Islands*. Paper presented at the 62nd annual meeting of the Society for American Archaeology, Nashville, TN.

1988 Where are the Late Woodland villages in Eastern Massachusetts? *Bulletin of the Massachusetts Archaeological Society* 49 (2): 58-65.

1985 *Camp at the Bend in the River.* Massachusetts Historical Commission Occasional Publications in Archaeology and History.

1980 The Calf Island Site and Late Prehistoric Period in Boston Harbor, *Man in the Northeast* 20: 25-74.

Mahlstedt, T. F.

1986 Filling in the Gaps (and Adding new ones): Collections from Cape Cod and the Islands. *Bulletin of the Massachusetts Archaeological Society*, 47(1) 5-12.

Massachusetts Historical Commission (MHC)

1984 *Guide to Prehistoric Site Files and Artifact Classification System*. Massachusetts Historical Commission Survey Team. Massachusetts Historical Commission, Office of the Secretary of State.

McBride, Kevin

1984 *Prehistory of the Lower Connecticut River Valley.* Unpublished Ph.D. dissertation. University of Connecticut, Storrs.

McManamon, Francis P.

1984 Prehistoric Cultural Adaptations and Their Evolution on Outer Cape Cod. In *Chapters in the Archaeology of Cape Cod, Vol.2*, edited by Francis P. McManamon, pp. 339-417. Cultural Resources Management Study No. 8. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston, MA.

Moffet, R.

1957 A Review of Cape Cod Archaeology. *Bulletin of the Massachusetts Archaeological Society* 19(1).

Morton, Thomas

1972 *New English Canaan*. 1972 edition Arno Press Inc. New York.

Mrozowski, Stephen A.

1994 The Discovery of a Native American Cornfield. *The Archaeology of Eastern North America*. Vol 22, pp. 47-62.

Mulholland, Mitchell T.

1984 *Patterns of Change in Prehistoric Southern New England: A Regional Approach*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst, MA.

Nicholas, George P.
1990 *The Archaeology of Early Place; Early Postglacial Land Use and Ecology at Robbins Swamp, Northwestern Connecticut*. Unpublished Ph.D. dissertation, University of Massachusetts, Amherst. University Microfilms, Ann Arbor, Mr.

Ozker, Doreen
1982 *An Early Woodland Community at the Schultz Site 20SA2 in the Saginaw Valley and the Nature of the Early Woodland Adaptation in the Great Lakes Region*. Anthropological Papers No. 70, Museum of Anthropology, University of Michigan, Ann Arbor.

Pagoulatos, Peter
1988 Terminal Archaic settlement and subsistence in the Connecticut River Valley. *Man in the Northeast* 35.

Public Archaeology Laboratory (PAL)
1982a *Interstate-495 Archaeological Data Recovery Project. Final Report*. On file at the Massachusetts Historical Commission, Boston.
1982b *Extended Phase II Testing and Analysis of 6 Prehistoric Sites in the Northern Section of the Route 146 Project, Sutton and Uxbridge, Massachusetts*. On file at the Massachusetts Historical Commission, Boston.
1983 *Archaeological Investigations at the G.B. Crane Site Norton, Massachusetts: The Data Recovery Program*. On file at the Massachusetts Historical Commission, Boston.

Paynter, Robert
1982 *Models of Spatial Inequality: Settlement Patterns in Historic Archeology.* Academic Press, New York, NY.

Pfeiffer, J.
1984 The Late and Terminal Archaic Periods of Connecticut Prehistory. *Bulletin of the Connecticut Archaeological Society* 47.

Reitz, Elizabeth and Dan Cordier
1983 Use of Allometry in Zooarchaeological Studies. In *Animals and Archaeology.* British Archaeological Reports Series 183.

Ritchie, Duncan and Alan Leveillee
1982 Multiple Strategies for the Analysis of Lithics from the I-495 Project. In *Methodological and Analytical Studies of the Prehistoric Sites in the I-495 Project*. Peter Thorbahn Editor.

Ritchie, Duncan
2002 Late Woodland lithic resource use and native group territories in Eastern Massachusetts. *A Lasting Impression: Coastal, Lithic and Ceramic Research in New England Archaeology.* Edited by Jordan Kerber. Praeger Press, Westport, Connecticut.

Ritchie, William
1965 *The Archaeology of New York State*. American Museum of Natural History, New York, New York.
1969 *The Archaeology of Martha's Vineyard*. Natural History press, New York.

Root, Dolores
1978 *Predictive Model of Prehistoric Subsistence and Settlement on the Outer Continental Shelf.* Institute for Conservation Archaeology, Peabody Museum, Harvard University, Cambridge, MA.

Rye, Owen S.
1981 *Pottery Technology and Reconstruction*. Manuals on Archaeology 4. Taraxacum, Washington.

Sanger, David
1982 Changing Views of Aboriginal Seasonality and Settlement in the Gulf of Maine. *Canadian Journal of Anthropology* 2(2): 195-203
1980 *Archaeological Salvage and Test Excavations, Fernald Point, Acadia National Park, Maine*, Report prepared for the U.S. National Park Service, Contract No. 6-0022-77-03, U.S. Department of the Interior, National Park Service, Denver, Colorado.
1975 Culture Change as an Adaptive Process. *Arctic Anthropology* 12(2):60-75.

Sassaman, Kenneth E.
1993 *Early Pottery in the Southeast: Tradition and Innovation in Cooking Technology.* University of Alabama Press, Tuscaloosa, AL and London, England.
1999 A Southeastern Perspective on Soapstone Technology in the Northeast. In *The Archaeological Northeast* edited by M.A. Levine, K.E. Sassaman, and M.S. Nassaney Bergin and Garvey, Westport, Connecticut.

Schiffer, Michael, James M. Skibo, Tamara C. Boelke, Mark A. Neuport and Meredith Aronson
1994 New perspectives on experimental Archaeology: Surface treatments and thermal response of the clay cooking pot. *American Antiquity* 59(2).

Simmons, William
1970 *Cautantowit's House: An Indian Burial Ground on the Island of Conanicut in Narragansett Bay.* Brown University Press, providence, Rhode Island.

Skehan, James
2001 *Roadside Geology of Massachusetts*. Mountain Press Publishing Company,Montana.

Snow, Dean R.
1980 *The Archaeology of New England*. Academic Press, New York.

Speck, Frank G. and Ralph W. Dexter
1948 Utilization of Marine Life by the Wampanoag Indians of Massachusetts. *Journal of the Washington Academy of Sciences*, Vol 38 (8).

Speiss, A. and M. Hedden
1983 *Kidder Point and Sears Island in Prehistory*, Occasional Publications in Maine Archaeology, No. 3, Maine Historic Preservation Commission, Augusta, Maine.

Speiss, A, B. J. Bourque and S. L. Cox
1983 Cultural Complexity in Maritime Cultures: Evidence from Penobscot Bay, Maine, in: *The Evolution of Maritime Cultures on the Northeast and Northwest Coasts of America* (R. Nash ed.) Department of Archaeology Publication, No. 11, Simon Fraser University, Burnby, British Columbia, Canada, pp. 91-108.

Stein, Julie
1992 *Deciphering a Shell Midden*. Academic Press, San Diego, California.

Stockley, Bernard
1962 The Car-Tracks Site, Wareham. *Bulletin of the Massachusetts Archaeological Society.* 23 (3 + 4).

Sullivan, Alan P. and Kenneth C. Rozen
1985 Debitage Analysis and Archaeological Interpretation. *American Antiquity* 50 (4).

Thorbahn, Peter
1984 *Survey and Planning Project Completion Report, Prehistoric Land Use Zones Along the Taunton River.* Report on file at the Massachusetts Historical Commission, Boston, MA.

Thorbahn, Peter, Leonard W. Leparto, Deborah C. Cox and Brona Simon
1980 *Prehistoric Settlement Processes in New England: A Unified Approach to Cultural Resource Management and Archaeological Research.* Report on file at the Massachusetts Historical Commission, Boston, MA.

Turnbull, Christopher J.
1986 *The McKinlay Collection: Another Middlesex Tradition Component from Red Bank, Northumberland County, New Brunswick*. New Brunswick Archaeological Services, Tourism, Recreation and Heritage, Fredericton.

Tuck , James
1978 Regional Cultural Development 3000-300 BC. In *Handbook of the North American Indians, Volume 15 Northeast*, edited by B. Trigger Smithsonian Institution, Washington, D.C.

Turnbaugh, William
1975 Toward and Explanation of the Broad point Dispersal in Eastern North American Prehistory. *Journal of Anthropological Research* 31 (1): 51-68.

Whyte, Thomas R.
1988 Fish and Shellfish Use in the Woodland Period on the Virginia Coast. *Journal of Middle Atlantic Archaeology*, Vol. 4.

Williams, Roger
1971 *A Key Into the Language of America*. 1971 edition,

Willoughby, Charles
1935 *Antiquities of the New England Indians*. Peabody Museum of American Archaeology and Ethnology, Harvard University, Cambridge, Massachusetts.

Winslow, Edward
1624 *Good News from New England.* Reprinted by Applewood Books, Bedford, Massachusetts.

Wood, William
1977 *New England's Prospect*. 1977 edition University of Massachusetts Press.

Young, Alexander
1974 *Young's Chronicles of the Pilgrim Fathers.* Genealogical Publishing co.,

Appendix A.
Artifacts from the Agawam/ Car-Tracks Site

Transect A

A-1

10-20 cm

2 quahog shell fragments .8g
5 railroad cinder .4g
1 (2 frags) possible grit-tempered pottery .3g, small

20-30 cm

1 quahog shell fragment .6g
1 whelk columnella 2.5g
5 railroad cinder .6g
1 coal fragment 1g
1 translucent very fine-grained grey green quartzite trim flake .7cm
1 translucent very fine-grained mottled grey green and maroon quartzite secondary flake 2cm
2 very dark grey rhyolite secondary flakes 1cm
1 dark brown grey rhyolite secondary flake 1.5cm
1 tan rhyolite secondary flake .5cm

30-40 cm

1 possible granite with a quartz vein FCR fragment 61.7g 6cm
1 quartz shatter probably natural from above FCR 2 cm
1 railroad cinder .1g

A-2

0-10 cm

3 light green bottle glass machine made body fragments
1 railroad cinder <.1g

20-30 cm

2 railroad cinder .3g
1 dark purple rhyolite secondary flake 2.5cm

A-3

10-20 cm

1 iron nail or wire fragment 4.5cm

20-30 cm

1 iron nail or wire fragment 3cm
1 light purple rhyolite secondary flake 1.5cm
1 green grey rhyolite secondary flake 1.5cm

A-4

0-10 cm

1 cupreous nail with "26" stamped on head telegraph pole nail 3.3cm
2 railroad cinder 19.5g
1 light aqua blue vessel glass fragment machine made
1 coal fragment 3.6g

10-20 cm

2 light aqua blue vessel glass fragment machine made, one with "-ing" embossed on

outside
1 white quartz possible shatter 3cm
1 wire nail 6cm
2 railroad cinder .3g

20-30 cm
1 light aqua blue vessel glass fragment machine made
1 railroad cinder <.1g

Transect B

B-1

0-10 cm
1 clear liquor bottleneck and shoulders machine made "FRANKFORT DISTILLERIES/ LOUISVILLE/ KY/ BALTIMORE/ MD/ INCORPORATED" embossed on top of aluminum cap

10-20 cm
73 oyster shell fragments 50.7g
15 left (in) oyster shell hinges 22.7g
7 right (out) oyster shell hinges 15.3g
3 quahog shell fragments 8.3g
1 whelk columnella 1.3g
1 light green machine made vessel glass body frag

B-2

0-10 cm
6 quahog shell fragments 2.8g
1 railroad cinder .2g
1 tan quartzite trim flake 1cm

10-20 cm
13 quahog shell fragments 1 hinge 20.9g
7 oyster shell fragments 1.9g
4 soft shell clam fragments .9g
1 white quartz decortification shatter 2.4cm
1 calcined white small mammal scapula fragment .1g

20-30 cm
32 quahog shell fragments 47.2g
17 oyster shell fragment 2.2g
1 maroon and tan banded Saugus jasper secondary flake 2cm
1 dark purple grey rhyolite secondary flake 1.5cm
1 light pink purple rhyolite secondary flake .8cm

30-40 cm
2 oyster shell fragments .1g

B-3

0-10 cm
1 quahog shell fragment .7g
1 steatite bowl body fragment .3" thick 3.5 x 2.5cm

10-20 cm

1 brick fragment 2.8g
1 whelk columnella .1g
1 granite FCR 273.3g 2.5"

20-30 cm
4 quahog shell fragments 3.6g
1 whelk shell columnella 1.1g
1 green very fine grained quartzite secondary flake 1.3cm
1 white quartz secondary flake 1.3cm
1 steatite bowl fragment .3" thick 2.5 x 2cm

30-40 cm
11 quahog shell fragments 12.1 g
1 oyster shell fragment <.1g
1 graphite fragment .1g
1 clear quartz trim flake .7cm
1 quartz secondary flake 4.2cm
1 black rhyolite secondary flake 1.5cm

40-50 cm
1 quahog shell fragment .2g
1 green grey rhyolite trim flake 1cm

B-4
10-20 cm
3 quahog shell fragments 6.2g
1 oyster shell fragment <.1g
1 Saugus jasper secondary flake 2.3cm
1 white quartz secondary shatter 1.3cm

20-30 cm
3 quahog shell frags, 1 hinge 1.9g
1 white quartz secondary shatter 1.6cm

B-5
10-20 cm
1 quahog shell fragment .6g
1 smoky quartz secondary shatter .8cm
1 white quartz secondary shatter 1.55cm

20-30 cm
1 hand wrought nail bent into ?-shape 7cm
1 quartz secondary flake 1.5cm
1 quartz secondary shatter 1.3cm

30-40 cm
1 quartzite FCR 39.2g 4.5 cm

B-6
0-10 cm
1 coal fragment .8g
1 white quartz secondary shatter 2cm

10-20 cm

1 quartz thick secondary flake 4cm

20-30 cm

1 coal fragment 4g

Transect C

C-1

0-10 cm

2 quahog shell fragments 2.2g

3 oyster shell fragments 1 left (in) hinge 3.2g

10-20 cm

4 quahog shell fragments 4.2g

2 oyster shell fragments <.1g

1 whelk columnella .9g

20-30 cm

2 quahog shell fragments 1.8g

1 white quartz secondary shatter 1cm

C-2

0-10 cm

5 quahog shell fragments 2g

1 whelk columnella 1.3g

10-20 cm

12 quahog shell fragments 9.2g

1 Hornfels with tan cortex and grey spots secondary decortification flake 3cm

1 dark maroon Saugus jasper secondary flake 2.1cm

20-30 cm

1 whelk columnella 2.3g

C-3

10-20 cm

4 quahog shell fragments 3.4g

3 railroad cinder .4g

1 grey chert secondary flake 1.4cm

1 Hornfels secondary shatter 2.4cm

1 purple grey rhyolite trim flake 1.1cm

1 granite FCR 3.5 cm 12.4 g

20-30 cm

5 quahog shell fragments 1.4g

1 whelk columnella 1.2g

1 graphite fragment .5g

1 railroad cinder <.1g

1 flat aqua glass frag

1 undecorated pearlware frag

2 granite FCR fragments 28.4g 1.4, 4 cm

1 purple rhyolite trim flake .8cm

C-4
0-10 cm
4 quahog shell fragments 2.2g
1 granite FCR 74.5g 7.3 cm
10-20 cm
1 whelk columnella 2.2g
1 grey purple rhyolite secondary flake 2.4cm
20-30 cm
1 quahog shell hinge 2.1g
1 unidentified shell fragment .1g
1 grey rhyolite secondary flake 1.4cm
C-5
20-30 cm
1 quahog shell fragment .9g
1 graphite fragment 2.1g
3 quartz shatter fragments 1, 1.5, 1.5cm
1 banded grey and dark grey rhyolite trim flake 1.3cm
1 green grey rhyolite secondary flake .7cm
30-40 cm
1 quartz secondary flake 1cm
1 quartz shatter 2cm thick

Transect D
D-1
0-10 cm
1 graphite fragment .3g
2 quahog shell fragments 1.6g
1 very dark grey rhyolite secondary shatter fragment 1.4cm
10-20 cm
1 quahog shell fragment .2g
30-40 cm
1 white quartz secondary flake 1cm
D-2
0-10 cm
5 quahog shell fragments 1.1g
1 granite FCR 9.3g 3.5 cm
1 dark grey rhyolite secondary flake 1.3cm
10-20 cm
1 quahog shell fragment .7g
1 granite FCR 1.3g 1 cm
20-30 cm
4 quahog shell fragments 2.8g
1 whelk columnella .2g
2 granite FCR 6.9g 1, 1.5cm

1 quartz secondary shatter 1.4cm
1 grey brown rhyolite trim flake 1cm

30-40 cm
3 charcoal fragments .6g
1 whelk shell fragment .2g
1 quahog shell fragment .2g
1 blocky quartz shatter 1.5cm

D-3
0-10 cm
2 quahog shell fragments 2.5g
1 dark grey rhyolite secondary cd 1.5cm

10-20 cm
6 quahog shell fragments 9.2g
1 shell-tempered pottery fragment 1cm
1 grey rhyolite decortification flake 2cm

20-30 cm
8 quahog shell fragments 3.4g
1 maroon purple rhyolite secondary cd 1.4cm
1 dark grey rhyolite secondary cd 2.3cm

30-40 cm
10 quahog shell fragments 2.6g
1 dark grey rhyolite secondary shatter 1.5cm
1 possible shell-tempered pottery fragment 1cm

40-50 cm
6 quahog shell fragments 1.6g
1 granite FCR 3g 1.5 cm
1 white quartz secondary flake, thick 4.5cm possible vein quartz

D-4
0-10 cm
2 quahog shell fragments 1.1g
1 quartz decortification shatter 1.5cm
1 dark grey rhyolite decortification shatter 1cm
1 dark grey rhyolite secondary flake 2cm
1 black Hornfels trim flake 1cm
1 shell-tempered pottery fragment 1cm

10-20 cm
10 quahog shell fragments 8.4g
1 granite FCR fragment 1cm, 1g
1 quartz secondary shatter 2.5cm
1 redware vessel fragment glaze missing

20-30 cm
1 quahog shell fragment .2g

1 granite FCR fragment 10.1g, 4.2cm
30-40 cm
1 quahog shell fragment .3g

D-5
0-10 cm
1 railroad cinder .1g
1 purple tan rhyolite secondary flake 1cm
10-20 cm
1 grey rhyolite secondary flake 2.7cm
30-40 cm
2 graphite fragment 4.7g, 3.3cm, .5cm
1 granite FCR 66.2g 5.5 cm
6 heavy grit-tempered pottery fragments 1 rim
2 grey rhyolite secondary flakes 1.5cm
1 clear quartz secondary flake 1.3cm
D-6
20-30 cm
1 green grey very fine grained quartzite secondary flake 1.5cm
D-7
10-20cm
1 undecorated pearlware vessel body frag

Transect E
E-1
0-10 cm
1 quahog shell fragment .2g
1 whelk shell columnella 1.2g
10-20 cm
3 granite FCR 61.7g, 3.7, 4.5, 4.4cm
1 unidentified shell fragment .1g
1 dark maroon purple rhyolite secondary flake 2cm
20-30 cm
1 whelk shell columnella 1g
2 granite FCR fragments 265.5g 6, 7.2cm
E-2
0-10 cm
1 white quartz secondary flake 1.8cm
1 steatite bowl rim shard .375" thick 3.5cm long
10-20 cm
2 quartzite FCR fragments 44.4g 3.5, 3.7cm
1 granite FCR fragment 4.3g 2cm

20-30 cm
1 graphite fragment 1.3g, 1.3cm
1 charcoal fragment .1g1 white quartz secondary shatter 1cm
1 grit-tempered pottery fragment with exterior paddle marks 1.8cm
1 rhyolite FCR fragment 187.7g 8.3cm
1 white quartz FCR fragment 73.3g 6.2cm

E-3
20-30 cm
1 possible quahog shell fragment .2g
1 very dark grey rhyolite secondary flake 1.3cm
30-40 cm
1 quahog shell fragment .2g
E-4
10-20 cm
1 graphite fragment with brown cortex .4g 1.1cm
1 unidentified shell fragment .1g
1 black Hornfels secondary decortification flake 1.45cm
1 dark grey rhyolite secondary flake 2.3cm
20-30 cm
1 graphite fragment .1g with brown cortex .7cm
1 quartz secondary flake .8cm
1 grey rhyolite secondary flake 1cm
30-40 cm
1 grit-tempered pottery fragment .5cm
E-5
20-30 cm
1 white quartz trim flake .6cm
30-40 cm
2 quahog shell fragments 1.7g
1 grey rhyolite secondary flake 2cm
E-6
20-30 cm
1 possible quahog shell fragment .1g
1 coal fragment 1cm .6g
1 green grey rhyolite secondary cd 1.7cm
30-40 cm
1 charcoal fragment <.1g
1 copper or brass scrap. cut triangular shaped 2.2 x 1cm
E-7
10-20 cm
1 graphite fragment 1.5g 2cm
30-40 cm

3 quahog shell fragments 1.2g
1 steatite bowl body fragment .32" thick 1.7cm
1 dark maroon purple rhyolite secondary flake 2.6cm

E-8
0-10 cm
1 dark grey and grey banded rhyolite secondary flake 1.2cm
20-30 cm
1 grey rhyolite trim flake .5cm

Transect F

F-1
0-10 cm
2 charcoal fragments .1g
1 quartz secondary flake 1g
1 very dark grey rhyolite secondary flake 1cm
10-20 cm
4 fragments FCR 15.7g
1 shell fragment unidentified .1g
20-30 cm
1 quartzite FCR 108.3g 6 cm
3 granite FCR 110.8g 1, 4.5, 5.1cm
2 unidentified shell fragments .3g
1 whelk shell columnella 1.2g
1 charcoal fragment <.1g
1 white quartz decortification shatter 1.5cm
1 steatite body fragment 1.1cm
1 dark maroon rhyolite secondary flake 1.5cm
1 grey green rhyolite decortification flake 1.3cm
30-40 cm
1 granite FCR fragment 23.2g

F-2
0-10 cm
3 quahog shell fragments .6g
1 quartz secondary flake 1cm
1 quartz secondary flake 1.7cm
1 quartz Levanna 3 cm long, 2 cm high, tip broken off, .5cm thick
10-20 cm
2 granite FCR 45.2g 1.5, 4.6cm
1 grey chert? secondary flake 1cm
1 charcoal .1g
1 green grey rhyolite secondary flake 1cm
2 quartz secondary flakes .5, .7cm
20-30 cm

1 whelk columnella 1.1g
1 grey green rhyolite cd 1cm
1 shell-tempered pottery frag

F-3
0-10 cm
1 quahog shell fragment .2g
10-20 cm
2 quahog shell fragments 3g
F-4
30-40 cm
1 quahog shell fragment .1g

F-5
0-10 cm
3 fragments clear modern vessel glass body frags

F-7
10-20 cm
2 quahog shell fragments .8g
1 grey rhyolite trim flake .7cm
20-30 cm
1 quahog shell fragment 2.8g
30-40 cm
3 quahog shell fragments 1g
1 whelk shell fragment .1g
2 unidentified shell fragments .3g

Transect G
G-1
0-10 cm
1 quahog shell fragment 1g
1 quartz secondary flake 1cm
1 mottled purple pink rhyolite secondary flake 1cm
1 very dark grey quartzite secondary flake .8cm
1 green chert secondary flake utilized on one edge, rounded 1.5cm
10-20 cm
3 whelk frags, 1 columnella 3.3g
4 quahog fragments 1.5g 1 hinge
2 unidentified shell fragments .3g
1 quartz shatter fragment 1cm
1 mottled purple and pink rhyolite trim flake .7cm
20-30 cm

1 unidentified shell fragment .2g
1 quartz shatter .5cm
1 quartz secondary flake 1cm
1 grey with very dark grey spots rhyolite secondary flake 2.1cm

30-40 cm

1 granite FCR 162.9g 7.2 cm
1 tan quartzite secondary flake 1.3cm

G-2

0-10 cm

1 charcoal fragment .1g
1 whelk columnella 2.3g
1 quahog shell fragment 1.9g
1 quartz secondary flake 2cm
1 quartz secondary shatter 1.5cm
1 dark grey rhyolite trim flake 1cm
1 grey green quartzite secondary flake 1.2cm
1 maroon brown rhyolite secondary flake 1.1cm

10-20 cm

1 possible quahog shell fragment .1g
1 dark grey possible mudstone secondary flake 1 cm
1 dark grey rhyolite trim flake .5cm
1 quartz decortification shatter 1cm

20-30 cm

1 piece granite FCR 7.5g
2 shell f rags unidentified .1g
1 grey green rhyolite secondary cd 1.3cm
1 purple rhyolite decortification cd 1.5cm
1 grey quartzite secondary cd 1 cm
1 black rhyolite trim flake 1.1cm
1 quartz secondary shatter 3.5cm
1 shell-tempered pottery interior fragment
1 grit-tempered pottery body frag

30-40 cm

5 shell-tempered pottery fragments
4 graphite fragments 1.2g 1, 1.2, 1.3, 1.4cm
3 black rhyolite secondary flakes 1, 1.5, 1.5cm
1 green grey rhyolite secondary shatter 1.6cm
1 very dark grey rhyolite secondary flake 1.6cm
1 granite FCR .9 cm
1 calcined medium mammal longbone frag

G-3

0-10 cm

4 charcoal fragments .5g
1 possible oyster shell fragment <.1g

10-20 cm

1 quartz secondary shatter 4cm
1 white quartz secondary flake .6cm
1 green grey rhyolite trim flake 1cm

G-4

0-10 cm
1 clear modern vessel glass body fragment
10-20 cm
1 quartz secondary flake/ blade struck from core 3.2cm long
1 quartz secondary flake 1.5cm
1 quartz secondary shatter 1cm
20-30 cm
1 granite FCR 23.8g 5 cm
2 fragments grit-tempered pottery rim shard
2 fragments shell-tempered pottery
1 charcoal fragment .1g
1 quartz secondary flake 1.2cm
1 purple grey rhyolite decortification flake 2.7cm
1 green grey rhyolite secondary flake 1.7cm

Transect H
H-1
10-20 cm
1 very rusted nail 5.5cm long no head
1 graphite fragment .5cm .2g
1 black possible rhyolite secondary flake 1cm no phenocrysts visible
1 dark maroon rhyolite secondary flake 1.5cm
1 light grey purple rhyolite secondary flake
1 grit-tempered pottery fragment paddle marked exterior black possible paddle marked interior 1cm thick
20-30 cm
2 quahog shell fragments 2.4g
1 graphite fragment .7g 1.5cm
1 granite FCR 2.5 cm 4.4g
1 very dark grey rhyolite secondary flake .7cm
1 quartz shatter with cortex 3cm no crushing evident
1 possible quartz FCR 1.5 cm 3.5g
1 possible quartz flake .6cm
H-2
0-10 cm
1 quahog shell fragment .5g
1 graphite fragment .9g 1.4cm
1 iron square nut 2cm
1 quartz decortification flake 3cm
1 tan siltstone secondary flake 1.3cm
1 grey rhyolite secondary flake 1.4cm
10-20 cm
5 quahog shell fragments 7.6g

1 grey quartzite secondary flake 1.5cm
1 green grey rhyolite secondary flake 1cm
1 dark purple grey rhyolite secondary flake 1.6cm
1 dark grey rhyolite secondary flake 1.2cm

20-30 cm
7 quahog shell fragments 4.9g
1 grit-tempered pottery fragment 1.1cm
1 very dark grey rhyolite secondary flake 1cm

30-40 cm
1 quahog shell fragment 2.6g
1 white quartz decortifcation flake 1.8cm
1 grey possible chert decortification flake 2.4cm
1 grey green quartzite secondary flake 1cm

H-3
0-10 cm
1 quahog shell fragment .2g

10-20 cm
1 charcoal fragment .1g

20-30 cm
1 quahog shell fragment .4g
1 graphite fragments 1.3g 1, 1.5cm
1 calcined flatbone fragment 1g
1 grey rhyolite secondary flake 4cm
1 dark grey purple very fine grained rhyolite secondary flake 1cm
1 dark grey rhyolite secondary flake 1.2cm

30-40 cm
1 shell-tempered pottery fragment 1
1 very dark grey rhyolite secondary flake 1.3cm

H-4
0-10 cm
7 charcoal fragments .5g
1 granite FCR fragment 3.4g 2.3cm
1 redware fragment with brown glaze
1 unidentified shell fragment .1g
5 grit-tempered pottery frags
1 shell-tempered pottery frag

H-5
0-10 cm
1 white quartz secondary flake 1.4cm

10-20 cm
2 quahog shell fragments .5g
1 shell-tempered pottery frag

20-30 cm
2 quahog shell fragments 3.9g
1 unidentified shell fragment .1g
30-40 cm
1 grey quartzite secondary flake 2cm
H-6
0-10 cm
3 granite FCR fragments 204g 3, 6, 8.3cm
1 calcined medium mammal bone fragment .1g
10-20 cm
1 (3 frags) calcined medium mammal flatbone fragment .1g

Transect I
I-1
0-10 cm
2 charcoal fragments .1g
4 quahog shell fragments 5.5g 1 hinge
10-20 cm
6 quahog shell fragments 5.8g
1 oyster shell fragment .2g
4 grey rhyolite secondary flakes .5, .5, .6, 1.5cm
1 granite FCR fragment 36.8g 4cm
I-2
10-20 cm
1 quahog shell fragment .2g
1 granite FCR 2.4g 2 cm
1 weathered light purple rhyolite trim flake .7cm
1 quartz trim flake .8cm
1 light grey quartzite secondary flake 1.5cm
20-30 cm
1 dark grey rhyolite secondary flake .7cm
30-40 cm
1 charcoal fragment .2g
2 graphite fragments .9g 1, 1.7g
1 dark green machine made bottle glass fragment body
1 quartz secondary shatter 1.4cm vein quartz
1 white quartz secondary flake 1.4cm
1 quartz secondary shatter 2.7cm vein quartz?
1 quartz secondary shatter 5.3cm vein quartz?
I-3
0-10 cm
8 charcoal fragments 8.5g recent
4 scallop shell fragments 1.4g recent

10-20 cm
3 charcoal fragments 1.3g
1 graphite fragment .3g 1cm
1 scallop shell fragment .1g
1 white quartz secondary flake .8cm
1 dark grey rhyolite secondary flake 2.7cm
20-30 cm
2 scallop shell fragments .4g
I-4
10-20 cm
1 brown machine made vessel glass body frag
1 dark purple grey rhyolite trim flake 1cm
1 unidentified shell fragment .1g

Transect J
J-1
0-10 cm
1 quartz Levanna 1 corner broken 1.8 x 2cm .4cm thick
2 quahog shell fragments , 1 hinge 1.8g
1 quartz biface fragment possibly Levanna corner 1.5cm long .5cm thick
10-20 cm
2 quahog shell fragments 1 hinge 1.1g
1 possible ground stone tool or pestle fragment 2.7cm rounded
J-2
0-10 cm
1 quartz secondary flake 1.5cm
10-20 cm
1 graphite fragment .4g 1.3cm
1 white crypto crystalline secondary flake with grey veins 1.55cm
1 grey rhyolite trim flake 1cm
1 light grey rhyolite secondary flake 1.4cm
20-30 cm
1 very dark grey chert drill tip 1.1cm
J-3
10-20 cm
1 quahog shell fragment 2.5g
3 dark grey rhyolite secondary flakes .5, 1, 1.4cm
J-4
0-10 cm
2 asphalt roof shingle fragments .4g
1 iron wire nail 4cm
1 graphite fragment 3.7g 2.3cm
10-20 cm

1 quartz secondary shatter 1cm
1 grey rhyolite secondary flake 1cm

20-30 cm

2 quahog shell fragments 3.3g

Excavation Units

EU 1

0-10 cm

NE

13 machine made solarized alcohol bottle glass fragments "WAR.." on one fragment (WARRANTED)

NW

1 quahog shell fragment .8g
1 graphite fragment .2g 1cm
1 grey brown rhyolite secondary flake 2.2cm
1 dark maroon purple rhyolite secondary flake 2.4cm

SW

1 quahog shell fragment hinge .8g
1 very dark grey rhyolite secondary flake 1.6cm

10-20 cm

NE

20 quahog shell fragments 10.2g
1 whelk columnella .6g
4 charcoal fragments .4g
1 graphite fragment .6g 1.8cm
2 granite FCR fragments 10.2g 2.4cm
1 aqua flat glass fragment probable window glass
3 machine made solarized alcohol bottle glass frags
1 shell-tempered pottery frag
1 white quartz decortification flake 2.7cm
1 white/ clear quartz secondary flake 1cm
1 tan mudstone decortification flake 3.5cm
1 grey argillite decortification flake 1.8cm
1 dark grey rhyolite secondary flake 1.5cm
1 very light grey rhyolite secondary flake 1.2cm

NW

11 quahog shell fragments 11.4g
1 whelk columnella .7g
1 granite FCR 450g 7 cm
2 white quartz shatter fragments 1.7, 1.8cm
1 smoky quartz core 5x5.8cm
1 black rhyolite secondary flake 1.2cm
1 blue willow pattern decorated whiteware fragment
1 grit-tempered pottery fragment

SE

5 granite FCR fragments 1.5, 1.5 ,3, 4.2, 5.8cm
1 grit-tempered pottery fragment
12 quahog shell fragments 1 hinge 15.6g

1 oyster shell fragment .2g
1 whelk columnella .7g
1 graphite fragment .3g 1.3cm
1 grey rhyolite secondary flake 1cm
1 light grey rhyolite secondary flake .9cm
SW
8 quahog shell fragments 13.2g
1 unidentified shell fragment .1g
2 charcoal fragment .2g
1 grey normanskill chert secondary flake .7cm
2 very dark grey rhyolite secondary flakes 1, 1.1cm
1 dark grey rhyolite secondary flake 1cm
1 clear quartz secondary flake .8cm
1 black normanskill chert secondary flake 1.3cm
1 shell-tempered pottery frag
30cmbs
2 granite FCR fragments 16.4g 1.9, 2.8cm
1 grey argillite secondary flake 1.3cm
4 charcoal fragments .2g
30cmbs Feature 1 NE west half
1 grey chert Orient Fishtail point unfinished 3.3cm long 1.4cm wide body, 1.2cm
wide base,
.7cm thick body
20-30 cm
NE
6 charcoal fragments .5g
5 graphite fragments 2.1g 1, 1.4, 1.4, 1.6, 1.2cm
9 quahog shell fragments 8g
1 calcined mammal longbone fragment .1g
1 granite FCR fragment 334.1g 8.2cm
1 sandstone FCR fragment 210.5g 6.3cm
1 dark grey Normanskill chert secondary flake 2.1cm
1 white quartz biface fragment 1.4cm
1 white quartz secondary flake 1cm
2 very dark grey rhyolite secondary flakes 1, 1.1cm
1 grey rhyolite secondary flake 1.1cm
3 shell-tempered pottery frags
NW
1 granite FCR fragment 76.3g 5.8cm
2 quahog shell fragments 1.6g
2 whelk columnella fragments .7g
1 graphite fragment .1g .9cm
1 grit-tempered pottery fragment

SE
7 granite FCR fragments 188.8g 1.5, 1.8, 1.2, 2, 2.3, 5.3, 5.3cm
6 charcoal fragments .5g
1 rust fragment
4 graphite fragments 8.2g 1.6, 2.1, 2.2, 2.4cm
1 grey rhyolite secondary shatter 1.9cm
1 grey rhyolite secondary flake 1.1cm
1 white quartz secondary shatter 1.1cm blocky
1 white quartz decortification shatter 2.1cm
1 shell-tempered pottery fragment
SW
5 quahog shell fragments 6.2g
1 white quartz secondary shatter 2.1cm
1 grey green argillite secondary flake 2.4cm
30-35 cm Feature 1 east half
NE
2 granite FCR fragments 18.3g 2.4, 2.8cm
2 graphite fragments 2.3g 1.3, 3.1cm
2 charcoal fragments .3g
4 calcined mammal bone fragments .1g
2 grey clear quartz secondary flakes 1, 1.4cm
1 dark grey rhyolite secondary flake 1.3cm
1 very dark grey rhyolite secondary shatter 2.3cm
1 grit-tempered pottery frag
Soil Sample 30-35 cm Feature 1 east half
NE
52 charcoal fragments .9g
1 FCR fragment granite .8g 1,5cm
2 graphite fragments .1g .7, .8cm
1 clear quartz secondary flake .5cm
1 black cert trim flake .5cm
28 grit-tempered pottery frags
30-35 cm Feature 1 west half
NE
1 graphite fragment 3.2g 2.8cm
4 charcoal fragments .7g
35cmbd Feature 1 East half
NE
1 (9frags) grit-tempered pottery low fired
35-40 cm Feature 1 East half
NE
2 charcoal fragments .2g
Soil Sample NE E ½

65 charcoal fragments 1g
20 grit-tempered pottery frags
1 graphite fragment .2g 1.4cm
2 calcined mammal flatbone fragments .1g
1 very dark purple rhyolite secondary flake 1.7cm
1 clear quartz secondary flakes .7, 1cm
SE
1 dark purple grey rhyolite Small Stemmed point point complete 4.3 cm long, 1.8cm wide body, 1.5cm wide base .9cm thick
35-40 cm Feature 1 West half
NE
2 graphite fragments .5g 1, 1.4cm
1 very dark grey rhyolite secondary flake 1.4cm
2 grit-tempered pottery fragments
1 calcined mammal flatbone fragment .1g
40-45 cm Feature 1 East half
SE
1 granite FCR 83.9g 5 cm
1 graphite fragment .2g 1cm
4 charcoal fragments .4g
3 white/ clear quartz secondary flakes 1.2, 1.5, 2cm
NE Soil Sample
18 charcoal fragments .4g
3 granite FCR fragments 16.5g 1.2, 1, 3.5cm
1 grey chert secondary flake 1.1cm
1 graphite fragment .1g 1.2cm
2 white quartz secondary flakes .5, .7cm
1 clear quartz secondary flake .7cm
3 calcined mammal bone fragments .1g
NE
1 white/ clear quartz cobble, 2 flakes removed 12.2 x 7cm
40-45 cm Feature 1 West half
SE
1 white quartz shatter 1.2cm
45-50 cm Feature 1 East half
NE
1 white quartz secondary flake 1.1cm
Soil Sample 45-50 cm Feature 1 East half
4 charcoal fragments .1g
1 calcined mammal flatbone fragment .1g
7 grit-tempered pottery frags
1 white quartz secondary flake .7cm
45-50cm Feature 1 West half
NE

1 granite FCR 113.4g 7.7 cm
1 granite possibly fire affected cobble 11cm 600g

Excavation Units

EU 1E

0-10 cm
1 cupreous wire frag
2 sandstone FCR 22.5g 1.5, 3.4cm
3 granite FCR fragments 2.9g 1.3, 1.5, 1.6cm
1 grit-tempered pottery rag
3 shell-tempered pottery frags
4 quahog shell fragments 4.7g
15 recent charcoal fragments 1.5g
1 clear machine made bottle glass frag
1 grey rhyolite secondary flake 1cm
10-20 cm
4 granite FCR fragments 195.3g 2.5, 3.8, 5.3, 8cm
1 sandstone FCR fragment 10.4g 3.5cm
21 quahog shell fragments 1 hinge 16.8g
1 aqua flat glass fragment probably window glass
5 redware fragments glaze missing
2 shell-tempered pottery frags
1 white quartz core 4.6x3cm blocky
1 white quartz shatter fragment 2.3cm
2 white quartz secondary flakes .9, 1.6cm
3 grey rhyolite secondary flakes .9, 1.3, 2cm
1 grey green rhyolite secondary flake 1.4cm
1 purple grey rhyolite secondary flake 1cm
20-30 cm
17 quahog shell fragments 23.5g
1 whelk columnella fragment .5g
4 grit-tempered pottery frags
5 granite FCR fragments 424.6g .5, 1.4, 4.1, 4.8, 7, 7.5cm
1 quartzite FCR fragment 69.1g 3.5cm
2 charcoal fragments .1g
1 graphite fragment .5g 1.8cm
1 very dark grey rhyolite secondary flake 1.7cm
Soil Sample 30-35cm Feature 5
13 charcoal fragments .3g
2 graphite fragments .4g .6, .7cm
2 grit-tempered pottery frags
Soil Sample 30-35cm Feature 5 Pottery Concentration
86 grit-tempered pottery frags
30-35cm Feature 6

1 purple grey rhyolite secondary flake 2.9cm
6 grit-tempered pottery frags

Excavation Units
EU 1N
0-10 cm
11 solarized machine made bottle glass fragments
1 graphite fragment .5g 1.7cm
1 grey green argillite secondary flake 1.7cm
10-20 cm
6 granite FCR fragments 55.4g 1.2, 1.5, 1.8, 2.3, 3, 4cm
10 quahog shell fragments 1 hinge 4.2g
2 graphite fragments .6g 1, 1.4cm
2 flat aqua glass fragments possible window glass
2 white quartz shatter fragments 1, 1.7cm
2 white quartz secondary flakes .8, 1cm
6 charcoal fragments .4g
1 shell-tempered pottery frag
1 grey green argillite secondary flake 1cm
1 dark maroon purple rhyolite secondary flake 1.3cm
1 dark maroon purple secondary shatter 1cm
1 light purple grey rhyolite trim flake .8cm
1 grey green rhyolite secondary flake 1.2cm
1 white/ clear quartz Levanna mostly complete 3.8cm long 2.5cm wide ears broken off .8cm thick
20-30 cm
2 granite FCR 84.4g 3, 5.5cm
4 quahog shell fragments 2.4g
4 charcoal fragments .3g
1 white quartz shatter fragment 1.3cm
1 graphite fragment .4g 1.9cm
1 grey rhyolite secondary flake 2.2cm
1 dark grey rhyolite secondary flake 2.2cm
2 shell-tempered pottery frags
30-40cm
1 granite FCR fragment 3.8g 2.6cm
1 quahog shell fragment .2g
30-40cm Feature 4
18 charcoal fragments 1.4g
1 grit-tempered pottery frag

Excavation Units
EU 2
0-10 cm
NE

9 olive green machine made bottle glass frags
2 clear machine made bottle glass frags
1 oyster shell fragment .8g
41 railroad cinder 7.2g

NW

5 machine made clear bottle glass fragments "forbids.../this bo../" embossed on front
33 railroad cinder 4g

SE

20 railroad cinder 3.4g
2 quahog shell fragments .3g
1 oyster shell fragment .1g

SW

10 railroad cinder 2.3g
1 brown machine made bottle glass body frag
1 machine cut nail 8.2cm
4 quahog shell fragments 1.7g
2 quartz secondary flakes 1.1, 2.1cm
10-20 cm

NE

1 clear machine made liquor bottle glass fragments houlders neck
8 railroad cinder .8g
3 quahog shell fragments .9g
1 white quartz secondary shatter 1.9cm
1 grit-tempered pottery fragment

NW

3 railroad cinder .5g
10 quahog shell fragments 5.2g
1 oyster shell fragment .1g
1 dark maroon purple rhyolite secondary flake .8cm
3 dark grey rhyolite secondary flakes 1, 1.8, 2cm
1 grey quartzite decortification flake 1.5cm
1 tan grey fine grained quartzite secondary flake 1.3cm
1 white quartz secondary shatter 1.7cm
1 white quartz secondary flake 1.1cm
1 white/ clear quartz decortification shatter 2cm
1 white/ clear quartz secondary shatter 1.1cm
3 white/ clear quartz secondary flakes .8, 1.2, 2.5cm
2 shell-tempered pottery frags

SE

7 quahog shell fragments 9.5g
28 oyster shell fragments 2.5g
9 railroad cinder .9g
1 burned medium mammal bone fragment .3g
6 white/ clear quartz secondary flakes .7, .8, 1, 1.5, 1.7cm

3 dark maroon purple rhyolite secondary flakes 1, 1.1, 1.2cm
2 grey rhyolite secondary flakes 1.5, 1.5cm
SW
1 grey quartzite Lagoon missing tip 4.8cm long, 2.5cm at shoulders 1.2cm wide base .7cm thick
1 grey rhyolite core 5.1x 3.1x 3.1cm
3 quahog shell fragments 3.3g
1 oyster shell fragment .1g
2 railroad cinder .1g
1 white quartz secondary flake .8cm
3 white/ clear quartz secondary flakes .8, 1.5, 1.5cm
2 dark maroon purple rhyolite secondary flake 1.1, 1.2cm
1 tan quartzite secondary flake 1.1cm
1 grit-tempered pottery frag
20-30 cm
NE
1 white quartz Squibnocket Triangle missing ears 1.7 cm long 1.5 cm wide .5cm thick
44 oyster shell fragments 5 left in hinges 1 right out hinge 23.6g
2 quahog shell fragments .4g
3 railroad cinder .4g
1 white quartz shatter fragment 1.5cm
1 white quartz decortification shatter 1.5cm
1 white/ clear quartz secondary flake 1cm
1 maroon tan Saugus Jasper secondary flake 1.2cm
1 grey rhyolite secondary flake 1.1cm
2 black rhyolite secondary flakes 1.4, 1.5, 1.6cm
Soil Sample 20-30cm Feature 8
NE
232 oyster shell fragments 31 in hinges 22 out hinges 184.3g
1 soft shell clam fragment .2g
52 charcoal fragments .7g
3 railroad cinder .1g
6 land snails <.1g
10 unburned small fish vertebra <.1g
3 burned black small fish vertebra
9 small fish scales (herring?)
21 small fish cranial fragments (all small fish .1g)
2 larger fish cranial fragments <.1g
1 possible burned seed
SE
28 oyster shell fragments 1 hinge 6.7g
5 quahog shell fragments 1 hinge 7.7g
2 railroad cinder .2g
1 calcined mammal longbone fragment .1g
1 graphite fragment .3g 1.1cm

1 granite FCR fragment 2g 2.5cm
1 clear/ tan very fine grained quartzite secondary flake 1.1cm
1 grey rhyolite secondary flake 1.3cm
1 very dark grey rhyolite secondary flake 2.3cm
SW
6 oyster shell fragments 1 left in hinge 1.8g
11 quahog shell fragments 8.2g
1 granite FCR fragment 16.4g 3.1cm
1 railroad cinder .1g
1 grit-tempered pottery frag
1 white quartz shatter 3.5cm
2 white quartz secondary flakes 2.2, 2.4cm
1 white/ clear quartz decortification/ secondary shatter 3.2cm
1 white/ clear quartz secondary shatter 1.8cm
4 black rhyolite secondary flakes 1.4, 1.2, 1.2, 2.1cm
30-35cm Feature 8 East half
8 oyster shell fragments 1.5g
1 charcoal fragment .1g
Soil Sample 30-35cm Feature 8 East half
22 oyster shell fragments 1 out hinge 11.4g
4 forest snails <.1g
2 railroad cinder <.1g
3 unburned small fish vertebrae <.1g
3 burned black small fish vertebrae <.1g
1 calcined small fish fin ray <.1g
1 small fish cranial fragment <.1g
2 mammal flatbone fragments <.1g
1 calcined mammal longbone fragment <.1g
1 calcined turtle carapace fragment <.1g
2 carbonized seed fragments <.1g
3 clear quartz secondary flakes .4, 6, .8cm
1 shell-tempered pottery frag
2 grit-tempered pottery frags
100+ charcoal fragments .9g
Soil Sample 35-40 cm Feature 8 East half
8 oyster shell fragments 4.8g
1 quahog shell fragment 1.8g
56 charcoal fragments .6g
1 granite FCR 22.7g 4.3 cm
1 clear quartz secondary flake .7cm
1 grit-tempered pottery frag
2 calcined Turtle carapace fragments <.1g
2 calcined mammal fragments <.1g
1 fish cranial fragment <.1g

35-40 cm Feature 8 East half
1 burned mammal bone fragment 1g possibly cranial
1 burned turtle plastron fragment .1g
5 charcoal fragments .2g
7 quahog shell fragments 1.4g
1 oyster shell fragment .6g
35-40cm Feature 8 west half
7 charcoal fragments .1g
Soil sample 40-45cm Feature 8 west half
1 quahog shell fragment .8g
1 railroad cinder .1g
15 charcoal fragments .2g
40-45cm Feature 8 west half
1 oyster shell fragment .3g
Soil Sample 45-50cm Feature 8 West half
29 charcoal fragments .2g
1 possible hazel nut shell fragment <.1g
1 possible carbonized seed <.1g
1 medium mammal flatbone fragment .1g
16 railroad cinder .2g
45-50cm Feature 8 West half
1 graphite fragment .6g 1.3cm
1 charcoal fragment .1g
50-55cm Feature 8 west half
1 charcoal fragment <.1g

Excavation Units

EU 3

0-10 cm

NE

11 railroad cinder 2.6g
2 quahog shell fragments .5g 1 hinge

NW

1 iron railroad spike 13.7cm
13 railroad cinder 1.5g
2 graphite fragments 1.4g 1.2, 1.5cm

SE

10 railroad cinder 7.6g
1 quahog shell fragment .5g
1 white/ clear quartz secondary flake 1.2cm

SW

36 railroad cinder 7g
1 slag fragment 24.3g
1 brown machine made vessel glass fragment body
1 medium mammal longbone fragment .2g
5 railroad cinder .8g
1 tan quartzite decortification flake 4.9cm
1 grey quartzite decortification shatter 3.5cm
1 grey quartzite secondary flake .8cm
1 black Hornfels secondary flake .8cm
1 tan grey rhyolite secondary flake 1.1cm
1 green grey rhyolite secondary flake 2.1cm
1 very dark grey rhyolite secondary flake 1cm
1 very dark grey rhyolite secondary flake 2cm
1 grey rhyolite decortification shatter with flake scars 4.9cm
1 clear tan vein quartz shatter 2.5cm
1 blocky white/ clear quartz shatter 2.3cm
1 white/ clear quartz decortification flake 1.4cm
1 clear quartz secondary shatter 1.2cm
1 white quartz secondary flake 1.5cm
2 quahog shell fragments .5g
1 white quartz shatter .7cm

10-20 cm

NE

40 quahog shell fragments (3 hinges) 35.7g
1 whelk shell fragment .4g
3 soft shell clam fragments .3g
2 graphite fragments 4.7g 2.1, 2.2cm
1 grit-tempered pottery fragment
3 granite FCR 455.2g 3.1, 5.5, 10.3cm

1 burned mammal longbone fragment .2g

NW

92 quahog shell fragments 10 hinges 175.7g
7 oyster shell fragments 2.8g
9 soft shell clam fragments 1g
1 whelk columnella .3g
14 railroad cinder 1.9g
4 graphite fragments 7.6g .8, 1.1, 1.1, 3cm
2 black Hornfels secondary flakes .9, 1.2cm
1 white/ clear quartz secondary flake 1.3cm
1 purple grey rhyolite secondary flake 1.2cm
1 grey rhyolite secondary flake .9
1 dark grey rhyolite secondary flake 4.2cm
1 dark purple grey rhyolite decortification shatter 4.2cm
2 dark purple grey rhyolite secondary flakes 1.1, 1.4cm
1 grit-tempered pottery fragment
1 small mammal scapula burned .2g
1 small mammal mandible burned .5g

SW

68 quahog shell fragments 9 hinges 125.1g
2 whelk columnella 2.2g
13 soft shell clam fragments 1 umbo 1 chondrophore 2.7g
89 oyster shell fragments 4 out 3 in hinges 26.3g
1 grey quartzite decortification shatter 3.4cm
1 granite FCR 1.4g 1.5 cm
5 railroad cinders .8g
4 graphite fragments 1.7g 1, 1.1, 1.8, 2cm
2 white/ clear quartz decortification shatter 5.2, 1.7cm
2 white/ clear quartz secondary shatter 1.2, 1.3cm
3 white/ clear quartz secondary flakes 1.1, 1.1, 1.2cm
1 grey quartzite secondary shatter 1.6cm
2 black Hornfels secondary flake .7, 1.2cm
1 black chert secondary flake 1cm
1 grey green quartzite secondary flake 1.3cm
1 red brown rhyolite secondary flake 1.1cm
1 grey green chert secondary flake 1.9cm
2 dark grey rhyolite trim flakes .8, 1.1cm
1 purple grey rhyolite secondary flake 1.7cm
7 dark purple grey rhyolite secondary flakes .6, 1, 1, 1.7, 1.7, 1.2, 1.5cm
3 grit-tempered pottery frags
1 shell-tempered pottery frag

SE

7 whelk shell fragments 9.4g

9 quahog shell fragments 6.6g
2 oyster shell fragments 2 out hinges .8g
7 railroad cinder .9g
1 white/ clear quartz biface 5.6cm long
3 white quartz secondary shatter 1.1, 1.3, 1.4cm
4 white quartz secondary flakes .9, 1.2, 1.3, 1.3cm
1 very dark grey rhyolite secondary flake 2.1cm
3 dark grey rhyolite secondary flakes .8, 1, 1.6cm
20-30 cm
NE
1 whelk shell fragment 1g
23 oyster shell fragments 2 out hinges 7.3g
34 quahog shell fragments 4 hinges 24.5g
4 graphite fragments 11.9g 1.4, 1.5, 2.5, 2.8cm
1 flattened lead bullet-.22 cal 1.9g
1 tan grey quartzite decortification shatter 2.7cm
1 calcined small mammal cranial fragment .1g
2 grit-tempered pottery frags
6 granite FCR fragments 182.3g 1.8, 2.7, 3.3, 3.5, 4.2, 6cm
4 white/ clear quartz secondary shatter 1.1, 1.7, 2.2, 3.5cm
3 white/ clear quartz secondary flakes .8, 1.3, 1.9cm
1 green grey quartzite trim flake 1cm
1 light purple grey rhyolite secondary flake 1.3cm
1 purple grey rhyolite secondary flake 2cm
3 very dark grey rhyolite secondary flakes 1.1, .9, 1.3cm
1 black Hornfels secondary flake 1.2cm
NW
1 whelk shell fragment .2g
14 soft shell clam fragments 2 chondrophores 3.2g
45 oyster shell fragments 3 in hinges 11.2g
115 quahog shell fragments 13 hinges 154.4g
1 graphite fragment .3g 1cm
4 railroad cinder 1g
1 granite FCR 5.1g 3.4 cm
1 light tan rhyolite secondary flake 1.2cm
1 grey rhyolite secondary flake 3.7cm
2 very dark grey rhyolite secondary flakes 1.1, 1.2cm
1 white/ clear quartz decortification shatter 4.3cm
4 clear white quartz secondary shatter 1.5, 1.7, 1.3, 2.2cm
2 white/ clear quartz secondary flakes .9, 2cm
1 grit-tempered pottery frag
1 fish vertebra
SE
3 whelk frags, 1 whorl 3.4g

16 quahog shell fragments 1 hinge 8.3g
1 calcined mammal bone fragment .2g
2 white quartz secondary shatter 1.2, 4.1cm
5 clear quartz secondary shatter .8, .9, 1.1, 1.2, 1.2cm
4 white quartz secondary flakes .5, .9, 1.5, 2.6cm
1 clear quartz secondary flake 1cm
1 dark maroon rhyolite secondary flake 3.4cm
1 tan rhyolite secondary flake .9cm
2 purple grey rhyolite secondary flakes 1.1, 1.2cm
2 very dark grey rhyolite secondary flakes 1.7, 2.2cm
20-25cm Feature 9
SW
125 quahog shell fragments 15 hinges 273.8g
19 soft shell clam fragments 1 umbo 3.8g
109 oyster shell fragments 1 out hinge 38.7g
1 burned soft shell clam fragment .1g
2 grit-tempered pottery frags
3 granite FCR fragments 51.2g 2.2, 2.9, 3.7cm
1 railroad cinder .1g
2 medium mammal bone fragments .4g
2 calcined medium mammal bone fragments .4g
2 charcoal fragments <.1g
Soil Sample 20-25cm Feature 9
SW
1 boat shell (Crepidula fornicata) <.1g
4 whelk frags, 2 collumnella 1.2g
13 soft shell clam fragments 1 chondrophore 1.6g
71 quahog shell fragments 6 hinges 76.6g
65 oyster shell fragments 1 in hinge 23.1g
1 graphite fragment .3g 1cm
1 grey green chert possible Orient Fishtail base fragment 1.2cm long
3 railroad cinder .1g
1 forest snail
1 possible burned seed fragment <.1g
1 turtle shell carapace fragment .1g
1 small fish vertebra <.1g
2 bird longbone fragments <.1g
3 mammal flatbone fragments .1g
1 possible shell-tempered pottery fragment
13 charcoal fragments .2g
Soil Sample 25-30 Feature 9
SW
31 quahog hinges 386.2g
191 quahog shell fragments 360.1g

68 soft shell clam fragments 3 chondrophore 4 umbos 18.6g
1 boat shell Crepidula fornicata .1g
5 whelk shell fragments 4 columnella 7.3g
21 oyster in hinges 141.4g
19 oyster out hinges 36.8g
918 oyster shell fragments 296.3g
1 oyster shell fragment with ribbed mussel impressions on surface
7 burned oyster shell fragments .2g
4 ribbed mussel fragments .2g
8 turtle carapace fragments .7g
1 small mammal longbone possible humerus <.1g
16 mammal longbone fragments .4g
4 calcined mammal longbone fragments .2g
2 forest snails <.1g
26 small fish vertebrae .3g
4 herring scales
1 tautog tooth <.1g
2 medium fish cranial fragments .1g
8 small fish cranial fragments <.1g
2 graphite fragments <.1g .5cm
3 granite FCR fragments 112.9g 4.1, 5.2, 4.6cm
8 grit-tempered pottery frags
17 railroad cinder .4g
1 clear quartz secondary flake .5cm
3 white quartz shatter .7, .8, 1.2cm
1 dark purple grey rhyolite secondary flake 1.5cm
56 charcoal fragments .8g
25-30 Feature 9
SW
266 quahog shell fragments 36 hinges 371.8g
18 soft shell clam fragments 3 umbo 1 chondrophore 4.2g
2 burned soft shell clam fragments .2g
1 whelk columnella .3g
1 mud nassa .2g
144 oyster shell fragments 2 out 2 in hinges 47.4g
2 grit-tempered pottery frags
1 turtle shell fragment .5g
2 calcined mammal longbone fragments .4g
1 granite FCR fragment 6.7g 2.5g
1 railroad cinder .2g
1 charcoal fragment .1g
2 white quartz secondary shatter 2, 2.4cm
2 white/ clear quartz secondary shatter 1.5, 1.8cm
1 dark maroon rhyolite secondary flake 1.6cm

1 grey rhyolite secondary flake 4cm
6 very dark grey rhyolite secondary flakes 1.3, 1.2, 1.6, 1.4, 2.4, 3cm
NW
61 quahog shell fragments 6 hinges 107.1g
2 whelk shell fragments .7g
5 soft shell clam fragments .5g
1 burned oyster shell fragment .2g
37 oyster shell fragments 6g
1 grit-tempered pottery frag
1 quartz FCR fragment 5.3g 2.2cm
1 very dark grey rhyolite secondary flake 1.3cm
NE
15 quahog shell fragments 1 hinge 7.1g
6 oyster shell fragments 1.1g
Soil Sample 30-35cm Feature 9
SW
1 possible whelk shell fragment <.1g
9 quahog shell fragments 2 hinges 16.9g
6 soft shell clam fragments 1.4g
139 oyster shell fragments 3 in hinges 2 out hinges 58.7g
2 railroad cinder <.1g
2 charcoal fragments <.1g
3 small fish vertebra .1g
1 small fish cranial frag
2 mammal flatbone fragments burned grey <.1g
1 forest snail shell
Soil Sample 35-40cm Feature 9
SW
8 quahog shell fragments 1 hinge 25.7g
1 whelk shell fragment .1g
4 soft shell clam fragments 2 chondrophores 2.3g
137 oyster shell fragments 1 out hinge 7 in hinges 51.6g
1 boat shell Crepidula fornicata <.1g
4 ribbed mussel shell fragments .1g
5 charcoal fragments <.1g
3 forest snails
3 railroad cinder .1g
2 small fish vertebra .1g
1 mammal flatbone fragment .1g
1 small mammal incisor .1g
1 small mammal sacral vertebra <.1g
1 small mammal flatbone fragment <.1g
30-40cm
NE

28 quahog shell fragments 1 hinge 15.6g
1 whelk columnella .5g
3 oyster shell fragments 1g
1 grey quartzite decortification shatter 1.6cm
4 railroad cinder .5g
1 graphite fragment .2g .8cm
3 grit-tempered pottery frags
30-35cm Feature 9
SW
10 quahog shell fragments 5.3g
18 oyster shell fragments 5.4g
1 granite FCR fragment 86.9g 5.6cm
1 graphite fragment 4.3g 2.8cm
1 Hornfels secondary shatter 1.5cm
1 grey green rhyolite secondary flake 1.4cm
12 white/ clear quartz secondary shatter 4cm
2 grit-tempered pottery frag

Excavation Units
EU 4
0-10 cm
NW
1 white quartz Squibnocket Triangle L: 1.3cm W: 1.6cm T: .35cm
1 granite FCR 44.3g 6.8 cm
5 railroad slag fragments 2.3g
1 graphite fragment 1.7g 2cm
1 white quartz shatter fragment 1cm
1 almost clear quartz secondary flake 1.35cm
1 very dark grey rhyolite secondary flake 1.2cm

SE
4 railroad slag 45.6g
1 brown machine made vessel glass probable bottle recent body frag
SW
2 railroad slag 93.9g
10-20 cm
NW
5 white vein quartz shatter blocky 2.3, 2.7, 3.4, 5.5, 6.1cm
5 white vein quartz secondary flakes .8, 1, 1.3, 1.5, 1.9cm
2 grey/ clear quartz shatter 1, 1.4cm
3 white/ clear quartz secondary flakes .7, 1, 1.5cm
1 grey rhyolite secondary flake 1.9cm
1 very dark grey rhyolite secondary flake 1.1cm
1 black rhyolite secondary flake 1.2cm

2 graphite fragments .5g, 1.1, 1.3cm
8 quahog shell fragments 7.5g 1 hinge
1 shell-tempered pottery fragment .5cm thick

SW

1 granite FCR 174.1g 6 cm
11 quahog shell fragments 6.5cm
3 graphite fragments .7g 1.3, 1, 14cm
1 grit-tempered pottery fragment
1 tan/ white fine grained quartzite secondary flake 2cm
1 white quartz shatter .8cm
1 clear quartz shatter 1.5cm
2 white quartz secondary flakes .8cm
1 clear quartz secondary flake 1.1cm
1 burned grey rhyolite secondary flake (?) with spalling 1.3cm
1 weathered purple grey rhyolite secondary flake 1.6cm
1 grey rhyolite secondary flake 1.2cm
1 grey quartzite secondary flake 1.7cm
1 black rhyolite secondary shatter 1.6cm
2 dark grey rhyolite secondary flakes 3.2, 1.4cm

SE

54 quahog shell fragments 1 hinge 35.2g
4 whelk collumnella fragments 3.8g
3 oyster shell fragments 1 in hinge .3g
2 calcined mammal longbone fragments .1g
1 calcined turtle shell carapace fragment .1g
1 calcined possible sea robin cranial fragment .1g
4 railroad cinder .3g
1 mudstone FCR fragment 3 cm 5.6g
4 graphite fragments 1.5g 1, 1, 1.2, 2cm
1 black Hornfels secondary flake 2.3cm
1 green grey rhyolite secondary flake 1.1cm
1 dark grey chert blade- tip and midsection probable Orient Fishtail
1 dark maroon Saugus jasper shatter secondary 3.5cm
1 very dark grey rhyolite secondary flake 1cm
1 dark brown purple rhyolite secondary flake 2.1cm
1 very dark grey quartzite secondary flake 1cm
1 very dark purple grey rhyolite secondary flake 1cm
5 white/ clear quartz secondary shatter 1, 1, 1.5, 1.4, 2cm
1 smoky quartz secondary shatter 2cm
1 white quartz secondary flake 1.7cm
2 white/ clear quartz secondary flakes 1.1, 1.2cm
1 light tan quartzite secondary shatter 1.7cm
1 grey quartzite secondary flake 1cm
20-30 cm

NW
3 charcoal fragments .1g
1 graphite fragment .2g .5cm
6 grey/ clear vein quartz possibly natural shatter very grainy 1.1, 1.1, 1.6, 2.2, 2.6, 3.2cm
1 white/ clear quartz shatter blocky 1.7cm
1 black rhyolite secondary flake 1.1cm
8 quahog shell fragments 1 hinge 8.6g
1 granite FCR fragment 4.7g 2cm
1 quartzite FCR fragment 66g 4.2cm
1 rhyolite FCR fragment 158g 8.8cm
SE
31 quahog shell fragments 2 hinges 21.2g
1 whelk columnella .4g
2 granite FCR fragments 240.3g 5.6, 6.3cm
2 graphite fragments 1.6g 1.4, 2.1cm
8 heavy grit-tempered pottery fragments 1 rim
1 white/ clear quartz secondary flake 1cm
4 very dark grey rhyolite secondary flakes .8, 1.2, 1.2, 1.3cm
SW
3 granite FCR fragments 188.1g 2.5, 4.5, 7.7cm
1 sandstone FCR 138.2g 5.8 cm
2 graphite fragments 1.1g 1.1, 1.6cm
7 quartz shatter fragments 1 with cortex 1.9, 1.7, 1.5, 1.1, 2.2, 1.8, 2.7cm
1 white quartz secondary flake 1cm
9 quahog shell fragments 8.7g
1 whelk columnella 1.2g
4 charcoal fragments .3g
4 medium mammal calcined longbone fragments .4g
1 grey rhyolite secondary shatter 1.4cm
2 grey rhyolite trim flakes 1, 1.1cm
1 very dark grey rhyolite secondary flake 1cm
1 black rhyolite secondary flake 1.1cm
1 grey quartzite decortification flake 2.7cm
25-30cm Feature 9
NW
28 quahog shell fragments 2 hinges 74.5g
120 oyster shell fragments 1 hinge 40.4g
1 whelk columnella 1g
2 calcined mammal longbone fragments .3g
SE
13 quahog shell fragments 1 hinge 12.2g
1 quartz FCR 5.3g 2 cm
2 granite FCR fragments 15.3g 2.4, 3.3cm
1 very dark grey rhyolite secondary flake 2cm

30-40 cm

NW

6 charcoal fragments .6g

5 oyster shell fragments .8g

SW

10 charcoal fragments 1g

2 quahog shell fragments .9g

1 grey rhyolite secondary flake

1 quartz secondary flake 1.7cm