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EDITOR'S NOTES

I hope the readers of the Bulletin will enjoy this issue as much as the editor does. In my opinion the articles represent some of the best archaeological work, scientifically, humanistically and ethically, that the Bulletin publishes. None of it quite fits neat categories, and the authors have diverse backgrounds. They include Bill Moody, an avocational archaeologist who publishes scientific, insightful and educational reports of his archaeological salvage activities, and Peter Mills, an ex-staff archaeologist of the Massachusetts Historical Commission, whose career recently has lead him to Alaska and Hawaii, and who has pulled together more data than we knew we had on unmarked prehistoric burials in the Commonwealth. John Pretola reports on a Springfield Museum-sponsored salvage excavation with substantial contextual findings. The Bulletin editor would very much welcome additional articles of this nature. And, finally, Dena Dincauze, professor of anthropology at the University of Massachusetts, has contributed an obituary memorializing Lynn Ceci, a coastal New York State archaeologist, which provides a valuable guide to Lynn's work on Long Island (NY) and will be of considerable relevance to archaeological studies in southern New England.

CONTRIBUTORS

DENA F. DINCAUZE is Professor of Anthropology at the University of Massachusetts, Amherst, a former editor of the Bulletin and a former Massachusetts Historical Commission representative for the Massachusetts Archaeological Society. She has been active in all aspects of Massachusetts archaeology since 1968.

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OUT FROM UNDER THE BULLDOZER: SALVAGING A PREHISTORIC COASTAL SITE

William E. Moody

Professional and amateur archaeologists in Massachusetts frequently encounter some of the same challenges and frustrations in their endeavors. All too often, for example, much of the archaeological fieldwork today is being forced to proceed under an almost unavoidable adversity—the ever-present rumbling of the backhoe and the bulldozer.

Unfortunately a great deal of valuable information has been lost in recent years, because the archaeological community simply can’t always be on the scene during the initial planning phases of the many fast-paced residential and commercial construction activities in southern New England. The buildings go up and the ground is paved, often before it is even realized that another archaeological resource has been irretrievably destroyed.

There are occasions, however, when following in the wake of the bulldozer is still better than nothing at all and, in fact, can be well worth the effort. This proved to be the case when a significant prehistoric site situated along the coast of southeastern Massachusetts was discovered and subsequently salvaged by the author. This site, a distinct sub-area of MAS site # M-37/S-10, has been named the Pine Point River Site, and detailed site specifics have been recorded at the Massachusetts Archaeological Society and the Massachusetts Historical Commission.

THE SITE

In April, 1988, after visiting a friend who lives in the community of Marshfield and who knew of evidence of early aboriginal occupation in the vicinity of her home, it was decided that a reconnaissance trip through the area was in order. After studying a topographic map of the region, an area was first selected where three short roads turned off of the main highway and led to several broad fingers of level land. These broad points of land each faced in a southerly direction, looking out across a large expanse of coastal marsh.

The second road investigated that first afternoon seemed promising. Not only was the land here level, well-drained, and substantially higher than the adjacent marsh, but a small tidal estuary began in a cove at the edge of the site (Figure 1). It was later learned that the head of this creek was actually a freshwater spring. The source of the spring, however, had recently been covered with dirt fill during the start-up of building activities on a residential lot. A culvert had been placed under the property to allow the spring to continue to drain into the creek.

Construction was already well underway for two new homes at the far end of the road, on the small building lots closest to the marsh. The loam and much of the subsoil from the basement and septic area of one lot had been stripped and bulldozed into several large piles. Only ten or fifteen minutes were available to investigate the disturbed soil that first afternoon, but immediately a large quartz scraper was discovered, followed by three choppers, and an unusual stone knife, made of felsite.

Subsequently, permission was obtained from the owners to surface-hunt the building lots, and there was also an opportunity to dig through a portion of two of the loam piles using a short-handled hoe. Over the next several months as construction progressed, I was able to visit the site a number of times. Also during the period of investigation, three additional small lots underwent preparation, clearing, and foundation excavation for residential structures. Artifacts were eventually
Figure 1. Map showing geography of site on private property in Marshfield, now developed as residential building lots.

Figure 2. Sketch map of site showing five building lots in sections A, B and C, and their relation to geographic features.
recovered from all five building lots (Figure 2), identified as sections "A" (consisting of two lots), "B" (two lots), and "C" (one lot).

Vegetation on the site today is sparse, although there is one small stand of fairly large, third growth pine and oak trees. During the early part of this century most of the site was planted as an apple and pear orchard, and a few pear trees can still be found on the property.

The soil is a brown forest podzol consisting of a humus layer and a very sandy subsoil with numerous glacial cobbles and pebbles. The subsoil is quite brown just below the humus but gradually becomes a yellow-orange color to a depth of about one meter, where white sand and glacial cobbles and pebbles form the base.

One area on the site, just below the original source of the spring, had an extremely black humus that was mixed with a substantial amount of shell remains (Figure 3). The shells were primarily those of quahogs (Mercenaria mercenaria), with a very few large oyster shells (Crassostrea virginica) also present. No other organic or faunal remains were identified in the soil as being of possible prehistoric origin. Typical of conditions throughout southern New England, the highly acidic nature of the local soil has made organic preservation poor.

For such a relatively small area that could be surface collected, a surprisingly large number of artifacts were recovered. Each lot measured approximately 29 m by 40 m (or a total of 1,160 square meters per lot), and only a portion (perhaps no more than 30%) of the total area was not seriously disturbed below the ground surface by construction activities. As with most such residential construction projects, the soil on each lot had been stripped by backhoe and bulldozer from those sections that would be required to make room for the building structures and septic systems. Soil was also stripped from the roadbed when the street was graded while being extended to reach the three lots. So it was essentially in the soil from the disturbed portions of the building lots (and the soil pushed onto the lots from the grading of the abutting roadbed) that the cultural materials were recovered. The disturbed surface area would have been less than one acre, and was probably closer to three quarters of an acre.

Other discrete undisturbed sections throughout the site would undoubtedly contain diagnostic artifacts if those areas were to be excavated. Also, without screening the dirt that had been stripped or disturbed, only an unknown percentage of the actual artifact assemblage could have been recovered. A reasonable assumption is that the total number of collected artifacts must, by some significant ratio, be less than the actual number present but undiscovered in the disturbed soil or elsewhere within the defined bounds of the building lots. It is also likely that other adjoining residential lots, which were developed some years ago, as well as two lots that do not yet hold residential structures, would contain additional prehistoric cultural materials. Finally, it is not known whether any artifacts may have been surface collected during earlier times when the property was under historic cultivation and
if any such collections might in some way indicate a bias in the presently recognized tool inventory.

Nevertheless, as will be demonstrated, sufficient recoveries have been made to allow for considerable information to be analyzed and for conclusions to be drawn about site use, tool assemblages, lithic procurement and preferences, and a possible chronology of prehistoric habitation based on typological indicators.

The total recovered inventory of man-made materials (see Tables I and II) consisted of some 5,363 artifacts, 4,890 of which have been classified as debitage. The flaking and chipping debris collected at this site represents all stages of implement manufacture, resharpening, or repair. This includes primary reduction flakes showing evidence of pebble or cobble cortex on many samples, as well as a large number of secondary flakes of all sizes and shapes. The various materials in the flaking and chipping debitage range in sizes from cobble remnants as large as 6 cm wide, to tiny thinning, or pressure, flakes. The total weight of all debitage collected was 22.05 kg (or 48.62 lbs.).

In addition to the 4,890 pieces of debitage, the actual tool assemblage consisted of 473 recognizable artifacts, which included projectile points of several types, knives, drills or perforators, scraping and chopping tools, a hand-axe, hammerstones, preforms and bifaces, and a number of fragments of unidentified tools. Also, it may well be that in the large amount of debitage collected there is still an additional number of utilized flake tools that have not yet been identified as such.

The largest concentration of artifacts was found in section "A," which was the area immediately adjacent to the old source of the freshwater spring. The total debitage from section "A" amounted to 3,916 flakes and chips. The total number of tools, both whole and broken, was 325. From section "B" 558 flakes and chips were collected, along with 98 tools or tool fragments. And from section "C", the debitage was 416 flakes and 50 tools.

CULTURAL SEQUENCE

Based on typological indicators, the cultural sequence for habitation at the site may have consisted of a small Middle Archaic component, followed by similarly small occupations during the Late Archaic period and during Transitional Archaic-Early Woodland times, then a somewhat larger Middle Woodland occupation, and finally an intensive use of the site during Late Woodland times.

Middle Archaic Component

A possible Middle Archaic habitation is hypothesized on the basis of two projectile points (Figure 4) considered to be typologically similar to the Stark variety (Dincauze 1976), and several bifaces (Figure 5) comparable morphologically to those that have been attributed to Early and Middle Archaic sites on the Atlantic seaboard. At the Doerschuk-Hardaway sites in the North Carolina piedmont region, such bifaces have been classified as Type I and Type II quarry blades, or biface preforms, and are considered a diagnostic Middle Archaic component associated with Stanley and Morrow Mountain points (Coe 1964). Both types of biface preforms, associated with Neville and Stark points, are also found at the Neville site in New Hampshire (Dincauze 1976:70-71).

The lithics of this small tool assemblage are characterized predominantly by felsites and argil-
land period artifacts were all recovered from the humus or dark brown subsoil that was stripped from above the yellowish subsoil. Therefore, it is assumed that this apparent Middle Archaic component rested at a somewhat deeper level than the more recent Woodland components. At the Neville site, Stark points have been placed in a temporal range of approximately 7,000 ± 300 B.P. years (Dincauze 1976).

Figure 5. Bifaces attributed to Middle Archaic component.

Figure 6. Archaic side-notched projectile points: 1, Brewerton; 2, Otter Creek-like; 3, Wayland Notched-like; 4, Milanville (?).
It is made of a black porphyritic felsite and exhibits substantial patination. This specimen is rather thick, with a width to thickness ratio of just over 2:1; and it shows heavy grinding on the base, tangs, and haft element.

The fourth Archaic side-notched point in Figure 6, although untyped, would be categorized in A Handbook of Indian Artifacts from Southern New England as side-notched type #5 (Rivard 1976). This particular specimen could possibly have some relationship with the Milanville variety, which has been recognized in other parts of the Northeast, principally in Pennsylvania (Perino 1984; Waldorf 1987; Fogelman 1988). It is made of slate that has weathered to a light grey color. The side notches have been "ground in" rather than chipped; and its dimensions are as follows: 4.4 cm projected length if unbroken; 1.9 cm width; 0.4 cm thickness. Perino describes Milanville side-notched points as normally being about "3.8 cm in length and are invariably made of grey slaty material, much weathered.... its distinguishing characteristic is the fact that the small side-notches were ground or cut into the material. Outlines do not follow a well-defined pattern..." (Perino 1984:58). One Milanville point pictured by Perino is just over 4.2 cm in length, and its side notches are "ground in" to the same depth and at exactly the same distance from the base as in the specimen recovered at the Pine Point River Site.

A fifth side-notched point (Figure 7: #4) is typed as a Wayland Notched point, Dudley Variety (Dincauze 1968) (see also Figure 6: #3). These points generally date from around 3,500-3,100 B.P. with a radiocarbon date in Massachusetts of 3,470 ± 125 B.P. (Dincauze 1968). This specimen is made of a black porphyritic felsite and exhibits a lateral snapping across the upper part of the blade. It is quite thin (0.6 cm) and very well made, with a width to thickness ratio of 6:1.

In Massachusetts, radiocarbon dates for Archaic side-notched points have been reported from as early as 5,250 ± 145 and as late as 3,470 ± 125 B.P. (Hoffman 1988).

Other possible Late Archaic implements recovered, both from section "A," were two quartz small stemmed projectile points (Figure 7: # 1,2). Point #1 could possibly be classified in the category of the Wading River points that have been dated on Martha's Vineyard from 4,140 B.P. ± 100 years (Ritchie 1971). However, since it is firmly documented (Ritchie 1969) that, throughout southeastern Massachusetts, small stemmed points often appear in Early and Middle Woodland components, the two small stemmed points could just as likely be attributed to the Woodland era as to any Late Archaic manifestation at the site. Point #2 in Figure 7 could, in fact, be typed as a Lagoon variety, which dates from 2470 B.P. ± 120 years (Ritchie 1971).

Transitional Archaic and Woodland Components

A Transitional Archaic component can only be tentatively surmised on the basis of one projectile point (Figure 7: # 3), typed as a probable Orient Fishtail. Orient points have been associated with radiocarbon dates typically as early as 2,994 ± 300 B.P. (Ritchie 1971).
40 Moody, Out from Under the Bulldozer

Two of the Fox Creek points are of the stemmed variety and one is lanceolate (Figure 8: # 3-5). The lithic material for each specimen is felsite. The first point recovered was from the surface of section "B" and is missing the upper half of the implement. Patination at the break is visibly the same as over both faces of the point, indicating an old break, probably occurring during use.

The second point was found on the surface of section "C" and it also was broken. However, both the upper and lower segments were found within three meters of each other on the surface of the disturbed soil after a huge pile of excavated dirt had been re-spread by the bulldozer. The break on this specimen also appears to be an old break, rather than the result of recent construction activities. Because of the great volume of dirt that was moved by heavy machinery, to have recovered both segments was considered fortuitous. It is possible that this implement may have been broken in the final stages of manufacture by its original toolmaker.

The third point, lanceolate in outline, was found on section "A." It was one of the last artifacts recovered, having washed to the surface after a heavy rain and after all construction activities had been completed on that particular lot.

Fox Creek points have been reliably dated in association with Greene points on Martha’s Vineyard, also at 1,550 ± 80 B.P. (Ritchie 1971; Ritchie and Funk 1973:121).

A substantial Late Woodland component at the site is assumed on the basis of some 69 triangular projectile points, classified either as classic Levanna types or as local variants thereof (Figure 9).
A majority of the points (54) were manufactured from quartz. Eleven were of felsites, two of quartzite, and one each of hornfels and a fine-grained indurated sandstone, locally known as "Showboat." The "Showboat" sandstone of this sample is a grey-brown color, with a glossiness that approaches a chert-like appearance.

Many of the triangular points show broken corners or tips and several exhibit a diagonal snapping that occurred near the mid-sections of the points (Figure 10). It appears that only two or three of the specimens were victims of recent breakage due to the earth-moving work on the building lots. Some points appear to have been broken in the actual process of manufacture or resharpening; others were most likely broken in use.

One excellent example of a projectile point that was probably broken while being resharpened is the beautifully made specimen of the indurated "Showboat" sandstone (Figure 11). Apparently the tip was first broken during use. Then, while the projectile point was still attached to its wooden shaft, the owner attempted to produce a new tip (where several resharpening flake scars can be seen). Unfortunately, during this process, a large basal section at one corner must have snapped off, rendering the tool useless, and so it was discarded by its owner. It is not too difficult to imagine the frustration the owner must have felt at the unfortunate turn of events, especially considering that this had been such a finely made implement.

Another Woodland projectile point recovered is a possible Jack’s Reef pentagonal (Fig. 12: # 1), although this point could also be a resharpened Fox Creek. The Jack’s Reef type frequently appears in assemblages in New England that contain Levanna triangles, and both point types date from the beginning of the Late Woodland era, around 1,050 years B.P. (Ritchie 1971).

Most, if not all, of the other tool forms from this site that might be identified with a Transitional or Early Woodland era clearly persisted throughout later Woodland times. Consequently, without the benefit of any stratigraphic associations it would be nearly impossible to classify individual tool forms,
except projectile points, as belonging specifically to either an Early, Middle, or Late Woodland period. Accordingly, the major portion of the tool assemblage will be discussed collectively as representing a generalized Woodland component, although there is an inherent assumption that a predominant Late Woodland occupation at the site would account for the majority of the tool forms recovered. This assumption is based on the proportionately large number of what are normally classified as Late Woodland projectile points.

DISCUSSION

The lithic materials (see Table I) of the various tool forms and of the debitage at the Pine Point River Site are all typical of prehistoric Woodland settlements along the coast of southeastern Massachusetts. An obvious preference for quartz and felsites can be seen, with quartz constituting 54.7% of the debitage by weight (52.5% by number of flakes and chips), and felsites constituting 39.7% by weight (43.3% by number). In the tool assemblage itself, quartz made up 50.9% of the total number, while felsites were 34.2%. With the exception of a small amount of chert, all lithic materials would have been readily obtainable from glacial drift cobbles, which are widespread along the coastal region. The cherts may certainly have been traded or transported into the region from out of state, even outside of New England. Also, it is quite possible that hornfels samples originally came

Figure 12. Projectile point tip segments, and Jack’s Reef pentagonal point.

Figure 13. Drills and perforators.

Figure 14. Knives of stemless and stemmed variety.
from the Blue Hills hornfels quarry in Milton, Massachusetts (Bowman and Zeoli 1977). The hornfels at the Pine Point River site is visually identical to specimens the author has inspected with William Hallaren at the Milton quarry.

In addition to the projectile points, the numerous tool forms collected at the Pine Point River site, which are listed in detail in Table II and which include the various drills or perforators, knives, scrapers, choppers, and so on (Figures 13-19), indicate that a wide range of activities were taking place. Also, the presence of shellfish remains suggest a typical coastal marine adaptation. As Ritchie and Funk have observed, "On the coast, marine shellfish were a fairly important part of the Late Woodland diet, in addition to hunting and growing corn. Late Woodland groups on Martha's Vineyard, Massachusetts, were also eating seals, whales, and various species of marine fish" (Ritchie and Funk 1973:361).

One hypothesis that could be drawn about the number of very large triangular projectile points at the Pine Point River site is that these implements may have been used for hunting marine mammals, such as seals, or for spearing some of the bigger species of coastal marine fishes. The large points easily suggest harpoonlike weapons, and the protruding barbs would certainly have been effective in holding the prey.

Ritchie and Funk have provided a general picture of day-to-day living during Late Woodland times: "The typical... artifacts reflect such activities as hunting, plant food processing; fishing, cooking, smoking, personal adornment, hideworking, etc." (Ritchie and Funk 1973:361). Many of these activities, as well as tool manufacture and
drilled hole. As is typical of such artifacts, the hole had been drilled from both sides. On the obverse side, two false starts for the drilling procedure can be observed.

It is particularly worth noting that no ceramics were found at the site, although a diligent search for such artifacts was made. This may imply either that real evidence of ceramics has simply not survived through time and disturbance, or that it has survived but has not yet been recovered, or that in fact there actually were little or no ceramics used at the site. If the latter is true, this could indicate that the site was primarily a hunting and fishing station and that the main village or camp was situated in another location.

It is hoped that the salvage work undertaken at the Pine Point River site demonstrates the value of carefully searching an area even after it has been heavily disturbed by construction activities. It is always deplorable when an archaeological resource is destroyed without the benefit of proper investigation and research before the backhoe and bulldozer do their damage. Yet whenever any material can be salvaged methodically, there is potential for adding significant and useful information to the archaeological record.

Figure 18. Preforms and bifaces.

Figure 19. Miscellaneous tool forms: 1, Knife; 2, chisel-like scraper; 3, lanceolate knife blade; 4, stemless knife; 5, large triangular point; 6-7, knife blades; 8, preform (for Fox Creek point?); 9, stemless knife; 10, preform for knife; 11, scraper.

maintenance, were no doubt carried out at the Pine Point River site. Two significant artifacts recovered, which indicate personal adornment, were a ground and polished fragment of a possible whaletail pendant and another of a gorget (Figure 20). The gorget fragment is broken in two places, with one break occurring across the midline of a

Figure 20. Ground stone objects. Right: possible whaletail pendant fragment. Left: gorget fragment.
TABLE I. DEBITAGE

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<th>Section &quot;B&quot;</th>
<th>Section &quot;C&quot;</th>
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<td>22,052.49 g (22.05 kg) (48.62 lbs.)</td>
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TABLE II. PROJECTILE POINTS AND OTHER STONE IMPLEMENTS.

PROJECTILE POINTS:

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| Felsite                | 9   | 5  | 14 |
| Rhyolite               | 2   | 2  | 2  |
| Argillite              | 11  | 4  | 16 |
| <strong>Total</strong>              | 34  |    |    |
| B. Hand-axe            |     |    |    |
| Felsite                | 1   |    | 1  |
| <strong>Total</strong>              | 1   |    |    |
| C. Hammerstones        |     |    |    |
| Felsite                | 1   | 1  | 1  |
| Quartz                 | 1   |    | 1  |
| Quartzite              | 1   |    | 1  |
| Other                  | 2   |    | 2  |
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98 50 473

REFERENCES CITED

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Rivard, J.J. (editor)

Waldorf, D.C.
In September 1988, the Massachusetts Historical Commission (MHC) investigated an Indian burial discovered off of Steam Mill Road in Deerfield. The digging of a narrow footing trench for an addition to a private residence, the Krogh house, had exposed several human ribs and portions of a humerus and femur. The site is located on a high sandy terrace overlooking the Deerfield Meadows and Deerfield River to the west (Figure 1). To the east is the foot of the Pocumtuck Range. A preliminary check of MHC’s site files revealed that the Krogh property is listed as a prehistoric or Contact Period burial site (MHC Inventory #19-FR-36), and this observation in combination with the lack of any coffin wood suggested that the burial was Native American. The MHC then contacted the Commission on Indian Affairs in compliance with the Massachusetts Unmarked Burial Law (M.G.L. Ch. 38. ss. 6B & 6C; Ch. 9, ss. 26A & 27C; Ch. 7, s. 38A; Ch. 114 s. 17; as amended by Ch. 659 of the Acts of 1983).

On September 9, Brenda Baker from UMass-Amherst, MHC staff members Leonard Loparto, the author, and the state archaeologist, Brona Simon, met on site with the property owners and John Peters who is director of the Commission on Indian Affairs. Since the proposed addition was to be a sun-room and could not be moved to another side of the house, it was agreed that the burial should be recovered and the rest of the footing trench should be examined for other burials.

Deerfield is an environmentally diverse town in the middle Connecticut River Valley. The Deerfield River meanders through the town and has formed a large fertile plain known as Deerfield Meadows. Sediments in Deerfield are largely derived from glacial deposits, lakebottom deposits from Glacial Lake Hitchcock, and alluvial deposits from the Deerfield and Mill River drainages. Hinkley sandy loams cover the Krogh property. According to a long-term resident, the property was used to grow cucumbers for making pickles (Columbo Russo, personal communication). Without irrigation, however, these soils are poorly suited for agriculture (Mott and Fuller 1967). Sandy loams from the Agawam and Hadley series in Deerfield Meadows directly to the west would...
have been more suitable for dry-farming during the prehistoric period.

Prior to this research, 111 prehistoric and Contact Period sites were listed in MHC's inventory for Deerfield. These include sites from the Paleoindian Period through the Woodland Period. Anadromous fish were a major staple at sites along the Connecticut River such as those identified in the Riverside Archaeological District just north of Deerfield on the Connecticut River (Curran and Thomas 1979; Thomas 1980). With the beginning of horticulture and increased sedentism during the Woodland Period, numerous sites appear to cluster near large, fertile floodplains. At the time of European contact, the Deerfield area was occupied by the Pocumtuck Indians, whose principal village was located in the present town of Deerfield. This community joined other Indian groups during King Philip's War in 1675 and fled to New York following defeat (Young 1969).

The present research serves to gather and synthesize additional information on burials in Deerfield so that the recent Indian burial discovery may be placed in a more meaningful context. Of the 111 inventoried sites in MHC's files, only five contained references to the discovery of human remains. All five of these sites were identified prior to the advent of the Unmarked Burial Law in 1983. Results of this research have nearly tripled the number of burial sites in the Deerfield region identified in MHC's files. Similar research would undoubtedly prove useful in many other communities.

Two site inventory forms of particular relevance describe burials on the high eastern terrace of the Deerfield River directly to the west of Steam Mill Road. The southernmost of these sites is recorded as 19-FR-20. The northernmost site is 19-FR-36, which is the Krogh property. The inventory form for 19-FR-20 states that burials were located during construction work at the "Greenough Place." This site was originally recorded in 1941 following the excavation of several graves. Attached to the inventory form is a photograph and description of one burial excavated by Amherst College which is flexed and lying on its right side with an associated stone pipe and bear tooth.

The Kroghs, however, report that the "Greenough Place" and the Krogh home are one and the same so 19-FR-20 may be plotted too far to the south. To the best knowledge of the Kroghs, the only construction to the south of the present home occurred three years ago and no burials were encountered. The Greenough place was built prior to 1842 and burned in the 1920's. This structure was replaced by the present house at the same location (Mary Krogh, personal communication). Other outbuildings associated with the house existed directly to the east of the present home (Colombo Russo, personal communication).

The MHC site form for the Krogh property states "Burials: associations may indicate Contact site." UMass/Amherst files indicate that an iron trade axe was found with the burials at this site (Magennis 1989). According to the Kroghs and other long-term residents of Deerfield, numerous burials have been found in the immediate vicinity of the house. A neighbor of the Kroghs identified a place to the northeast of the house where he found a human grave containing a stone axe and bear-claws with holes drilled through them some 15 to 20 years ago (Colombo Russo, personal communication). Another Deerfield resident reports that approximately 30 years ago he found several vertebrae and ribs on the Krogh property while using a post-hole digger to install a fence (Francis Billings Jr., personal communication).

The main source of published information on Indian burials in Deerfield is the work of a local historian, George H. Sheldon, who lived in Deerfield at the turn of the century. His main work, A History of Deerfield, identifies numerous Indian grave sites with enough detail to approximate their location (1973: 78-80). Sheldon describes two main types of Indian burials. One type placed flexed burials with their heads to the south and on their right sides. The other type placed burials in an erect, sitting position. This "sitting position" has not been confirmed by any professional work
in the region. Wilder and Whipple as early as 1917 describe this commonly reported position in western Massachusetts and attribute it to the misinterpretation of burials laid on their side in a flexed position. One Deerfield resident, however, firmly states that he has seen both sitting and flexed burials at 19-FR-296 near Stillwater Bridge (Francis Billings Jr., personal communication). Since this informant is able to differentiate between a flexed burial and a "sitting burial," one must rule out the possibility of a simple semantic misinterpretation in this particular case.

Wilder and Whipple (1917: 380-387) describe an Indian burial ground at "Cheapside" just north of the Deerfield River in Greenfield (19-FR-333) which was discovered in 1916. They describe burials in flexed positions on their right sides with the heads to the south. They further suggest that the burials were arranged in rows running along the body axis and not side by side as in Christian cemeteries.

Other Indian burials have been discovered along Lower Road on a western terrace of the Deerfield River. Most information on these burials was recorded in the 1970's by students at UMass/Amherst, mainly by Peter A. Thomas (1973). These include a flexed burial lying with its head to the south and on its left side (19-FR-35) and a secondary burial from a Late Woodland or Contact Period site in association with several primary burials (19-FR-25). Other burials with little surviving contextual information have been discovered along Lower Road during house construction, construction of I-91, Lower Road upgrading, and bank erosion (Peter Thomas, Arthur Keene, personal communications).

In brief, 14 Indian burial sites are now identified in MHC's files in the Deerfield area. All of these sites are located on terraces and floodplains adjacent to the Deerfield River. Most, if not all of these sites are assumed to date from the Woodland or Contact Periods.

1988 EXCAVATIONS AT 19-FR-36

In order to recover the burial exposed in 1988 on the Krogh property and to search for any other burials which might be impacted by the footing trench, three test units were opened (Figure 2). Test unit 1 was a 1-meter square unit placed directly to the south of the exposed bones. Test unit 2 was the remaining unexcavated portions of the footing trench, and test unit 3 was a 65 cm square unit which exposed the northernmost portion of the burial pit.

The test units were excavated in arbitrary 10 cm levels with sediments being screened through 1/4 in. mesh. Initial excavation was accomplished by skimming with flat shovels. When anomalies were encountered, excavation proceeded by troweling. Brushes and other soft tools were used to remove sediment around the bone. Plan sketches, profiles, and photographs documented feature and soil characteristics. Cultural material and sediment samples were bagged by level and soil horizon or feature.

The general soil profile (Figure 3) at the site consists of a 20-25 cm deep plow zone (A, A') containing recent historical debris in the top 13 centimeters (A). The natural soil profiles below this consist of a yellow-brown sandy B-Horizon which
gradually lightens to a gray-tan sand C-Horizon. Adjacent to the burial pit was a separate intrusion into the subsoil. At the base of this feature was a nineteenth century ceramic cistern pipe at 70 cm below the surface (Figure 2). This ran through both test units 1 and 2, narrowly missing the burial pit feature. A grit-tempered ceramic sherd was recovered from test unit 3 at 60 cm below the surface in the burial pit fill. Very little specific chronological information could be gleaned from the sherd but Barbara Luedtke (UMass/Boston) suggests that it may represent Late Woodland manufacture.

The burial was surrounded by a dark organic stain, which lined the walls of the burial pit and also covered the upper body. The position of the heavy organic staining suggests that a mat or bark lining was placed in the burial pit. The bottom of the pit was encountered at 94 cm below the surface. The body had been placed in the grave on the right side in a flexed position with both hands in front of the face (Figure 2). The head was oriented to the south, facing east.

The analysis of the remains was completed by Dr. Marc Kelley (1989) at the University of Rhode Island. It was determined that the individual represented a 22-25 year-old Indian female who was approximately 160 cm (5 ft. 4 in.) in height. No signs of arthritis or osteoporosis were identified. A cystic defect was present on the right femoral head and a subtle periostic lesion (which is an inflammation of the outermost layer of bone probably resulting from some minor infection or trauma) was visible on the right distal fibula. The individual also suffered from ante mortem loss of both second molars and had numerous caries. According to Dr. Kelley's analysis, seven of the remaining 29 teeth were carious. No cause of death, however, could be ascertained.

**DISCUSSION AND RESEARCH RECOMMENDATIONS**

While the recovery of a single burial during construction may serve only as an interesting footnote in the culture-history of a region, it is important that such occurrences be adequately documented, for it is the cumulative results of such isolated discoveries which serve to establish regional patterns. What has been lacking through most of the historical period is a system for actively collecting and documenting this information. With the establishment of the MHC's preservation planning process (MHC 1979), research priorities have been identified through regional surveys and preliminary background research. One of MHC's seven research priorities for prehistoric sites in the Connecticut River Valley is the analysis of mortuary behavior (MHC 1984). Before 1983, however, no formal process existed for responding to human burial discoveries in Massachusetts and no clear responsibilities existed regarding the excavation, analysis, and final disposition of the human remains (Talmage 1982). The Unmarked Burial Law, passed in 1983 has provided the MHC with a mechanism for obtaining and maintaining quality information on burial discoveries (see Simon and
Talmage [1989] for further discussion of the Unmarked Burial Law). Once a data base is established, meaningful and provocative research may be gleaned from each and every burial. As a result of the present investigations, five research questions have been generated which deserve attention in future investigations.

1) Flexed burials lying on their right vs. left sides.

Ethnographic data suggesting a traditional belief in an afterlife centered to the southwest of New England (Simmons 1978; Wood 1977: 111; Williams 1973: 190) are often cited to explain why many Woodland/Contact Period burials in southern New England are oriented so that the head is to the south or southwest. Preliminary data further suggest that there are much greater numbers of Woodland Period/Contact Period burials that are placed on their right sides as opposed to their left sides. A similar pattern is suggested from a cursory review of other flexed burials encountered elsewhere in the Connecticut River Valley and southeastern New England. This includes two seventeenth-century Narragansett cemeteries in Rhode Island, namely the West Ferry Site in Jamestown (Simmons 1970: 68) and RI-1000 in North Kingston (Robinson et. al. 1985).

These preliminary data suggest that purposeful and enduring cultural practices resulted in most, but not all of the flexed Indian burials in Massachusetts and southeastern New England being placed on their right side. This pattern seems to cross-cut various protohistoric cultural groups. One potential hypothesis for explaining this pattern may be that right-handed people were placed on their right side and left-handed people on their left side. This hypothesis could be pursued to some degree through physical analysis of the remains. An additional observation is that multiple burials in the known sample contain a greater ratio of flexed burials placed on their left side, opposite to the general trend for single flexed interments. This observation may assist in developing an alternative or multi-factor hypothesis to explain the pattern.

2) Flexed burials vs. disparate burial practices.

The likelihood that disparate and contemporaneous burial practices occurred during the Woodland Period and/or Contact Period is suggested by Peter Thomas’s investigations along Lower Road, with the apparent occurrence of flexed burials and a secondary inhumation associated with Late Woodland deposits. This phenomenon has been noted in eastern Massachusetts as well (Sherman 1951). Furthermore, the possibility of "sitting burials" occurring in the Deerfield region should not be ruled out. Further investigation in the area of 19-FR-296 may serve to clarify this issue. Burial practices labelled as "disparate" in this research may be placed in a meaningful context if similar examples are encountered. Additionally, the identification of Indian burials in extended positions has been associated with the assimilation of Christian practices into the Native American belief system (Carlson 1986; Tuma 1985). Although numerous burials have been identified in Deerfield in association with European grave goods, there have been no reports of extended burials.

3) The Significance of Grave Goods

While the burial recently investigated on the Krogh property contained no identifiable grave goods other than an apparent mat or bark lining, descriptions of grave goods previously found on the same site include a stone pipe, iron axe, stone ax, bear tooth, and an apparent bear claw necklace. The reference to the iron trade axe (Magennis 1989) is the only strong evidence suggesting use of this site during the Contact Period. The occur
TABLE 1
SUMMARY OF FLEXED BURIAL POSITION DATA REFERENCED IN TEXT

<table>
<thead>
<tr>
<th>Burial Site</th>
<th>Source</th>
<th>Right Side</th>
<th>Left Side</th>
<th>Back</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheldon Property, Old Deerfield</td>
<td>(Sheldon 1973)</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>John Broughton's Hill, Deerfield</td>
<td>(Sheldon 1973)</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Indian Bridge, Deerfield</td>
<td>(Sheldon 1973)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Greenough Farm, Deerfield</td>
<td>(Anonymous: n.d.; MHC)</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lower Rd., Deerfield</td>
<td>(P. Thomas: personal comm.)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Petty's Plain, Greenfield</td>
<td>(Sheldon 1973)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cheapside, Greenfield</td>
<td>(Wilder and Whipple 1917)</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Hadley</td>
<td>(Wilder 1905; Wilder and Whipple 1917)</td>
<td>2</td>
<td>3*</td>
<td>0</td>
<td>5*</td>
</tr>
<tr>
<td>Long Hill Site, Springfield</td>
<td>(Wright 1897)</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Palmer Site, Westfield</td>
<td>(Bradley and Childs 1987)</td>
<td>1</td>
<td>3*</td>
<td>1</td>
<td>5*</td>
</tr>
<tr>
<td>Treatment Plant Site, Chicopee</td>
<td>(MHC: in prep)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bark Wigwams, Northampton</td>
<td>(Keene 1989)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rockshelter, Wilbrampton</td>
<td>(Mohrman 1946)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Gosnold Rd., Nantucket</td>
<td>(MHC: in prep.)</td>
<td>0</td>
<td>2*</td>
<td>0</td>
<td>2*</td>
</tr>
<tr>
<td>Medford</td>
<td>**(Brooks 1886)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Titicut, Bridgewater</td>
<td>(Robbins 1958)</td>
<td>10*</td>
<td>1*</td>
<td>6*</td>
<td>17*</td>
</tr>
<tr>
<td>Wapanucket, Middleborough</td>
<td>(Robbins 1959)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Burr's Hill, Warren, RI</td>
<td>**(Gibson 1980)</td>
<td>10*</td>
<td>1*</td>
<td>0</td>
<td>11*</td>
</tr>
<tr>
<td>RI-1000, N. Kingstown, RI</td>
<td>(P. Robinson: personal comm.)</td>
<td>44</td>
<td>2</td>
<td>0</td>
<td>49</td>
</tr>
<tr>
<td>West Ferry Site, Jamestown, RI</td>
<td>(Simmons 1970)</td>
<td>32</td>
<td>10*</td>
<td>0</td>
<td>42*</td>
</tr>
</tbody>
</table>

TOTALS                             |                          | 145        | 25        | 7    | 177*  |

*: indicates that figures include a multiple burial
**: indicates data derived from Tuma (1985)
rence of axes, bear claws, and a bear tooth in various graves suggest some pattern in what was chosen to be buried with the dead.

What is perhaps more interesting, however, are differences noted in grave goods between different burials and between different burial grounds. Elsewhere in Deerfield, glass beads are prevalent in Contact Period burials (Sheldon 1973: 79-80). Differences in grave goods may suggest temporal changes in preference or availability of grave goods, or they may be related to a variety of other factors centered around the characteristics of the individual or group. Future evaluation of grave goods in the Connecticut River Valley during the Late Woodland/Contact Period transition will no doubt provide some of the most powerful insight into the changes in Native American beliefs, social organization, and material culture.

4) Formalized Burial Grounds vs. Isolated Burials

Many Late Woodland/Contact Period burials in Deerfield appear to occur in groups. There is little evidence of a habitation site associated with the burials on the Krogh property, suggesting that the Krogh property was used primarily to bury the dead. Wilder and Whipple (1917: 384) go so far as to suggest that flexed burials in Cheapside were buried in definite rows.

Historical documentation establishes the existence of a large Indian village somewhere near the center of Old Deerfield during the Contact Period (MHC 1984; Sheldon 1973; Thomas 1985). It has been suggested that during the Contact Period extended families lived in small hamlets surrounding main villages in the Connecticut River Valley (Thomas 1985). If it could be demonstrated that the Late Woodland/Contact Period burial sites identified on the terraces of the Deerfield River represent formal burial grounds used by separate extended family groups, the dating of burials from such cemeteries could help us understand the duration and stability of the settlement system. The resulting comparisons between various burial grounds within this working model would also be extremely useful in isolating cultural and physical differences manifested at the level of the extended family.

5) Physical Analyses

Physical analyses have been performed on several individuals from Lower Road (Gomberg 1973) as well as the individual recently recovered from 19-FR-36. Periostitis, the occurrence of dental caries, ante-mortem tooth loss, mild arthritis and limited bone resorption have all been noted for various individuals. While the database is presently too small to make meaningful statements regarding differences in health, physical characteristics and demographics through time or space, continued efforts to identify patterns in the physical remains should be a priority of future investigations. Problem-oriented approaches (e.g. Little 1985) which may require specific analytical tests would greatly assist in guiding the analyses of isolated burial discoveries and maximize the knowledge obtained during the time-frame provided for in the Unmarked Burial Law.

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Sherman, Charles F.

Simmons, William S.


Simon, Brona G., and Valerie A. Talmage

Talmage, Valerie A.

Thomas, Peter A.


Tuma, Stuart John, Jr.

Wilder, Harris H., and R.W. Whipple

Williams, Roger

Wood, William

Wright, Harry Andrew

Young, William R.
The Paquette Site represents a Snook Kill/Atlantic camp dated at 3610±90 B.P. Located in Warren, Massachusetts, in the Connecticut River drainage, the site includes a thin distribution of artifacts, stone platform features, and pits. Lithics include eastern New York cherts, eastern Massachusetts felsites, argillite and local quartz and quartzite. Comparisons with Springfield Science Museum Snook Kill assemblages demonstrate a greater reliance upon eastern Massachusetts felsites than is indicated for bottom land Connecticut Valley sites. In general, this makes Snook Kill/Atlantic along the eastern rim of the Connecticut drainage appear less parochial than current models predict, with eastern Massachusetts and eastern New York trade connections. It also indicates a lithic utilization profile similar to those reported for central Massachusetts suggesting regional differentiation that transcends drainage networks.

THE PAQUETTE SITE

One important aspect of a museum’s commitment to preservation is its ability to identify and salvage small threatened sites on private land. Properly trained museum anthropologists can provide salvage capabilities and so contribute to the archaeological database. The Paquette Site is an example for such undertakings.

In the spring of 1986, amateur Joe Craig reported artifacts from a Warren, Massachusetts farmer’s sand bank. Subsequent auger test sampling suggested a thin scatter of flakes, calcined bone, charred nutshell and fire cracked stone. Because the artifacts indicated a single Snook Kill/Atlantic component and the site was being destroyed by sand taking, an excavation was undertaken by the Springfield Science Museum.

Named for the landowner, the Paquette site may have been as large as 900 m² before gravel operations began several years ago. In 1986 approximately 380 m² of the site remained. Located on a terrace of glacial stream deposits, the site overlooks Naultuag Brook in the upper Chicopee drainage. Technically within the easternmost bounds of the Connecticut River drainage, the site is adjacent to the Sheppard site, an area well known to local collectors. The Paquette site does not appear related to the Sheppard site in terms of time periods represented, although the Massachusetts Historical Commission so included it for cultural resource management purposes (Johnson & Mahlstadt 1985).

EXCAVATION TECHNIQUES AND GENERAL SITE CHARACTERISTICS

Sixteen one meter square grid units (Figure 1) were opened parallel to the sand bank and excavated to 50 cm by troweling and shovel shav­ing in 5 cm stratigraphic units. All back dirt was sifted using a 6 mm screen. Flotation samples were saved from all features and three 20 cm square sample columns. Excavation squares were augmented using sixteen 16 cm auger soundings and a series of six 40 cm square shovel test pits to determine the area of the site. In general, the site appears as a thin scatter of artifacts over a wide area reflecting Snook Kill site characteristics reported elsewhere (Ritchie 1965:136-137; Bullen and Hofmann 1944).
Site features included three unlined hearths (Features A, B and E; Figures 2 and 3) that appeared as charcoal-rich lenses, and a probable storage pit (Feature D; Figure 4), which was determined solely on soil color change and appeared to be approximately 1 m across and 77 cm deep. There were two stone platform hearths (Features F and C; Figures 4 and 5) which consisted of charcoal-rich lenses containing a layer of fire-cracked rock. Feature C (Fig. 5, p. 31), a stone-lined hearth, proved the most interesting. Fill included large quantities of charred nutshell and calcined bone. Lithics included chert and felsite flakes in addition to a burned Snook Kill point base. Approximately 45 kg of fire-cracked stones from local igneous and metamorphic rock were removed. The feature appeared similar in form to descriptions for "roasting ovens" in the O'Neal site (Ritchie and Funk 1973:plates 34, 87) and the Vincent Site (Ritchie 1969:125-163).

A charcoal and charred nutshell sample from Feature C yielded a date of $3610 \pm 90$ C-14 years B.P. (GX-12870, C-13 corrected) [BMAS 49:11], in direct association with the burned base of a Snook Kill point (SSM#86/547). Radiocarbon dates from eastern Massachusetts (Dincauze 1973) and New York State (Funk 1976) suggest an age between 4100 and 3600 B.P. for Snook Kill/Atlantic. The Paquette Site date falls within this time period and indicates a comparable temporal pattern for this manifestation of the Susquehanna tradition in central Massachusetts.
Charred hickory nutshell predominated in the 415 floral remains from the site. Flotation samples from the features and soil columns also indicated the presence of carbonized hickory nutshell. Morphologically, these nutshell appear most similar to Shag-bark hickory \((Carya ovata)\) or Mockernut hickory \((C. tomentosa)\) (Largy 1988). A small quantity of charred acorn \((Quercus, sp.)\) was also recovered. Faunal remains were restricted to approximately 1,000 small fragments of calcined bone distributed throughout the site as well as concentrated in the hearth, Feature C (Fig. 5, p. 31). Although analysis is incomplete, four bone fragments were identified as white-tailed deer and one fragment appeared to be bird. Based on these limited data, a fall occupation of the site is suggested (Largy 1988).

CRAIG COLLECTION ANALYSIS

Craig's projectile points from the eroding sandbank indicated Snook...
Figure 4. Features D and F shown in plan view (top) and profile (bottom) view. Feature D and Feature F plan view outlines are delineated at 35 cm and 20 cm depths respectively. The fill ofFeat. D is orange-brown and light yellow sand, with pebbles at the feature margins. Heavy rodent burrowing and no artifacts throughout feature. Fill ofFeat. F is darkly stained soil containing charcoal flecks and calcined bone, much fire-cracked rock and quartz flakes.
Figure 5. Feature C at 20 cm depth and in two profiles. Fill consists of dark stained matrix with charred nutshell, charcoal flecks, and burnt bone fragments, with a radiocarbon age on charcoal and charred nutshell of 3610 ± 90 B.P. (GX-12870, C-13 corrected). This age was derived from material in direct association with the burned fragment of a Snook Kill point shown here with its reconstruction.
TABLE 1. PAQUETTE SITE ARTIFACTS (SSM Accession # 86/5; Paquette Site, Warren, MA)

<table>
<thead>
<tr>
<th>Cat #</th>
<th>Sq.</th>
<th>Level</th>
<th>Material</th>
<th>Description</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Road Surface</td>
<td>Quartz</td>
<td>Worked Cobble</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Road Surface</td>
<td>Quartzite</td>
<td>Gross Edge Tool</td>
<td>1</td>
<td>Chopper-like</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Road Surface</td>
<td>Basalt</td>
<td>Pestle Fragment</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Road Surface</td>
<td>Quartzite</td>
<td>Graver</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a</td>
<td>Road Surface</td>
<td>Quartz</td>
<td>Thumbnail Scraper</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Road Surface</td>
<td>Felsite</td>
<td>Expanding Base Pt.</td>
<td>1</td>
<td>Untyped</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>01 5-10 cm</td>
<td>Quartz</td>
<td>Artifact Fragment</td>
<td>1</td>
<td>Bifacially Chipped</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>01 15-20 cm</td>
<td>Felsite</td>
<td>Point Tip</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>01 35-40 cm</td>
<td>Gneiss</td>
<td>Hammerstone</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>01 Feat. C</td>
<td>Chert</td>
<td>Contracting Pt. Base</td>
<td>1</td>
<td>Snook Kill - Fig. 5</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>02 5-10 cm</td>
<td>Quartzite</td>
<td>Small Blade Fragment</td>
<td>1</td>
<td>Bifacially Chipped</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>02 Feat. E</td>
<td>Quartz</td>
<td>Blade Tip</td>
<td>1</td>
<td>Bifacially Chipped</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>04 15-20 cm</td>
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<td>Artifact Fragment</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>10 5-10 cm</td>
<td>Gneiss</td>
<td>Small Hammerstone</td>
<td>1</td>
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<td></td>
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<tr>
<td>96</td>
<td>20 15-20 cm</td>
<td>Felsite</td>
<td>Flake Bladelet</td>
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<td></td>
<td></td>
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<tr>
<td>100</td>
<td>20 30-35 cm</td>
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<td>Worked Cobble</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>20 0-5 cm</td>
<td>Steatite</td>
<td>Bowl Fragment?</td>
<td>1</td>
<td>Small &amp; Weathered</td>
<td></td>
</tr>
<tr>
<td>148</td>
<td>101 5-10 cm</td>
<td>Quartzite</td>
<td>Drill Tip</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>149</td>
<td>101 10-15 cm</td>
<td>Felsite</td>
<td>Point Fragment</td>
<td>1</td>
<td>Shoulder Area</td>
<td></td>
</tr>
<tr>
<td>197</td>
<td>201 15-20 cm</td>
<td>Quartz</td>
<td>Edged Tool Fragment</td>
<td>1</td>
<td>OutsideFeat. F</td>
<td></td>
</tr>
<tr>
<td>201</td>
<td>201 20-25 cm</td>
<td>Felsite</td>
<td>Artifact Fragment</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>209</td>
<td>300 10-15 cm</td>
<td>Felsite</td>
<td>Point Fragment</td>
<td>1</td>
<td>Base or Shoulder</td>
<td></td>
</tr>
<tr>
<td>234</td>
<td>301 25-30 cm</td>
<td>Quartz</td>
<td>Worked Cobble</td>
<td>1</td>
<td>OutsideFeat. F</td>
<td></td>
</tr>
<tr>
<td>239</td>
<td>200 F 10-15</td>
<td>Quartz</td>
<td>Worked Cobble</td>
<td>1</td>
<td>InFeat. F</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>200 F 10-15</td>
<td>Gneiss</td>
<td>Hammerstone</td>
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<td>Craig 6</td>
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<td>Blade Base</td>
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<td>Mansion Inn</td>
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<td>Craig 8</td>
<td>Surface</td>
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<td>Gross Edge Tool</td>
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<td>&quot;Chopper&quot;</td>
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<td>Retouched Flake</td>
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<td>Craig 11</td>
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<td>Retouched Flake</td>
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<td>Scraper</td>
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<td>Craig 14 Road</td>
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<td>Quartzite</td>
<td>Blade Fragment</td>
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Kill diagnostics along with large edge tools (John-
son et al. 1985:140). There are three broken
felsite Snook Kill points. Additionally, a felsite
Snook Kill-based piercing tool and a broken quart-
zite implement blade were also in evidence. Gross
edge tools (Ritchie 1965:138) and worked cobbles
of quartz and quartzite were also recovered from
farm road fill. That fill has yielded a number of
interesting artifacts including an implement blade,
scrapers, retouched flakes, and an untyped expand-
ing stem point.

EXCAVATED ASSEMBLAGE

Thirty additional artifacts were recovered
during the 1986 excavation. The assemblage
includes bifacial edge tool fragments, blades,
projectile points, scrapers and choppers, drill tips,
hammerstones, a pestle fragment, and a number of
worked cobbles (see Table 1 for assemblage
summary). The assemblage appears typical for
Snook Kill sites including tools for hunting and
hide working, drilling, plant food processing and
stone chipping. The number of edge tool frag-
ments of quartz and quartzite suggest attrition and
retouch of hide-working scrapers and choppers.
The flake count indicates a heavy reliance on
eastern Massachusetts felsites (79%), local quartz
and quartzites (10%) and eastern New York cherts
(8%) (see Table 2). Argillite samples include both
eastern Cambridge Argillite and several examples
of Leyden Argillite from the Connecticut Valley.
There is some indication of thermal altering as a
number of flakes exhibit pot-lid fractures and
discoloration.

Lithic analysis suggests great reliance on
local quartz and quartzite for the manufacture of
choppers, blades, scrapers and hide working tools.
Most of the large reduction flakes are of this
material. Projectile points and some blades are
made from eastern Massachusetts felsites. The
only artifact of chert is the dated Snook Kill
projectile point base. Chert and felsite flakes tend
to be the smaller "finishing" and retouch flakes.
In general, the overall pattern appears one of heavy
dependence on local quartz and quartzites for some
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than those expected in the Connecticut Valley.

In an effort to achieve a more quantitative picture of Connecticut Valley Snook Kill/Atlantic lithic preferences in contrast to central Massachusetts, a lithic frequencies study was undertaken utilizing the collections of the Springfield Science Museum. Analysis involved sorting and typing of all Susquehanna Tradition points and blades available from four local Science Museum surface collections. In this way, it was hoped that collector bias might be reduced. The collections included material from the Harry Hawes, Philip Kilroy, J. T. Bowne/Sherman purchase, and Charles W. Hull donations. A quantification of those results is presented in Tables 3 and 4. The generated profile for valley Susquehanna Tradition artifacts can be used to formulate regional point type frequencies and lithic utilization inferences.

**COLLECTIONS ANALYSIS**

A total of 320 Susquehanna Tradition projectile points, drills and blades were surveyed. Table 3 represents the findings in terms of frequency of type. Major point types are represented by Orient Fish Tail (26%), Snook Kill/Atlantic (25%), and Susquehanna Broad (23%). Lesser point types include Wayland Notched - Dudley variety (14%), Wayland - Coburn (3%), and Perkiomen (3%). Preferred lithics indicate that Hudson Valley cherts were utilized 40% of the time. Lockatong Argillites were second (21%) with eastern Massachusetts felsites a distant third (12%). Preferred lithics indicate that Hudson Valley cherts were utilized 40% of the time. Lockatong Argillites were second (21%) with eastern Massachusetts felsites a distant third (12%).

More germane to our study, however, is the percentage of lithics favored in the manufacture of Snook Kill/Atlantic points. These data (Table 4) indicate that chert was the favored Snook Kill/Atlantic lithic material (47%). Both argillites (28%) and eastern Massachusetts felsites (14%) are distant seconds. The implication is that procurement networks for the Valley at that particular time in prehistory were more strongly tied with the Hudson Valley and less with the east and south. The Paquette site to the east in contrast, was more strongly tied to eastern lithic sources than was the Connecticut Valley. Both the Valley and Paquette sites exhibit stronger distant trade networks than existing models have predicted for this time.

**SUMMARY**

A combination of museum salvage project data and curated collections have been used to generate inferences concerning Snook Kill/Atlantic
lithic utilization and trade networks in the Connecticut River Valley and drainage. These findings indicate a lithic procurement trade less parochial than previously suspected. The data further suggest regional differentiation in trade networks that transcend drainage basins.

Acknowledgements: I would like to thank Mr. Paquette who kindly gave permission to excavate and Joe Craig whose concern for salvaging the site made this study possible. Matching funds for the radiocarbon date were provided by the Massachusetts Archaeological Society through the Norwottuck Chapter and the Springfield Science Museum. The Science Museum kindly provided time and equipment in support of this project. An early version of this paper was read at the spring 1988 Northeast Anthropological Association meeting in Albany, NY. Trudy Oppenheimer kindly prepared the illustration of SSM#86/5-47.

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Ritchie, William A.


------- and Robert E. Funk
Sixteen years ago, Lynn began her career in northeastern archaeology blazing like a comet. A lead article in Science is the capstone of many distinguished careers. For Lynn it was her first publication.

That first article was not only a revelation; it was characteristic of all her subsequent work - boldly original, thoroughly researched, cleanly argued, challenging to conformity. "Fish fertilizer: A Native North American practice?" (1975) was greeted as a breath of fresh air, was reviled unjustly as a racist disparagement of American Indian horticultural practice, and has been widely cited by historians, folklorists, anthropologists and archaeologists. It will endure as a valid insight, cherished by scholars young enough to have no stake in the perpetuation of established error.

Her scholarship was always strongly multi-disciplinary, as were her contributions. Anthropological and archaeological competence was there, of course. Her second publication displayed some of her reach in its title: "Watchers of the Pleiades: Ethnoastronomy among native cultivators in northeastern North America" (1978). It appears to have been accepted by the editor of the journal Ethnohistory at first reading, or at any rate, within 18 days of its receipt. Other publications show that she acquired competence in aspects of agronomy, radiocarbon dating, mythology, critical history, economic geography and market theory, in addition to all the arcane minutiae that archaeologists typically control. Mastering the new technologies of personal computers and Bitnet well in advance of most of her archaeological colleagues, she used them well to increase her productivity and her network of technical consultants. That network, by the way, is quite dazzling - she knew whom to ask, and how to ask, to get the information she needed.

In an age that still rewards women for being followers, and chides or ignores them when they break new trails, Lynn quietly established her leadership and authority with her first publication, and confirmed it repeatedly thereafter.

Lynn's dissertation is in press (1991), and I have not read it, but it apparently set the stage for her subsequent work in prehistory and ethnohistory. She seems from the first to have had an admirable instinct for the crucial issues. Beginning with the essentially descriptive problems of settlement patterns, she quickly and confidently moved on to claim an unoccupied professional niche investigating the political economy of the seventeenth-century coastal communities. Her subject was New York's coastal people, the Algonquian-speakers who were among the first complete casualties of European colonization. They dropped out of history and history books early, eclipsed by the Iroquois survivors. Relegated to the shadows of myth, they were ignored as historical forces, their very autonomy in disrepute. Lynn's research has begun to restore to them a measure of recognition and respect. The anthropology, archaeology, and history of coastal New York's native people was revolutionized before a shovel was lifted.

Her claim that Long Island Indians were not village-dwelling horticulturalists like the Iroquois was well received in New England, but not universally in New York (1979). New England archaeologists consider Long Island part of New England by virtue of its geology and geography. Consequently, they were pleased that its late prehistory might also be interpreted so as to be familiar and congruent. Mainland Algonquian-speakers seem to have lived full and successful lives without year-round sedentism and without the heavy labor entailed by dependence on cultivated crops and
residence in fortified towns. New England archaeologists did not think that Long Island people were demeaned by claims that they could do as well.

Originally, Lynn had accepted the historical and archaeological accounts of sedentary coastal populations dependent on maize, although she interpreted the situation as the result of European pressures to extend economic and political control over the native people. She confronted the evidence for earlier maize cultivation and villages, and found it wanting. Impressed by the quantity of evidence for wampum manufacture in the large late sites, she claimed that there was no "pre-contact village life based on agriculture" in coastal New York. She posited that the wampum industry itself was the immediate cause of the population clusters. This was her "new paradigm," announced in her dissertation and articulated fully in print later (1979, 1982a).

In the course of developing this idea, her analysis of the political economy of the wampum trade in the seventeenth century grew richer. By rigorous search and disciplined interpretation of original sources in colonial New York, New England, and New Jersey, she showed how fully the colonial powers were involved in expanding the market, establishing the Indian "factories," and controlling the prices of shell beads (1980b). She placed these research results into theoretical context by adopting a "world systems" perspective, a theory developed to explain the course of post-medieval mercantilism and its development into capitalism. World systems theory in turn led her to develop the implications for the native people of their involvement in a market economy of hemispherical scale. The result exceeded the model, showing how the market forces penetrated societies beyond the visible periphery of the historical system (1980a,b, 1982b).

With that as her base, she demonstrated that understanding coastal New York's colonial experience provided invaluable keys to understanding the dynamics of the fur trade into Iroquoia. She eventually built those insights into a stunning achievement - explaining the political machinations that led to the Pequot War of 1636 (1990a). No one who has not personally grappled with the original documents of the Pequot War, and found them fundamentally and purposefully uninformative, can fully appreciate Lynn's achievement. From the novel perspective of an interest in the wampum trade, she showed just how misleading the official sources really are.

Pursuing the wampum trade to its major consumers, Lynn became involved early in her career with the archaeology and ethnohistory of the Iroquois. Her work there was championed by one of the premier scholars of Iroquoian anthropology, Elizabeth Tooker, who served as mentor and sponsor for Lynn while she was establishing her credentials. Exposure to Iroquoian prehistory showed Lynn that there was more to the story of wampum beads in upstate New York than simply European greed for furs (1982b). Recognizing a challenge, she embarked upon an ambitious research project in the prehistory of wampum and other shell beads.

That project ranged widely from a computer data-base of thousands of precisely measured shell beads to an exploration of symbolic and mythic meanings of beads among the Iroquois and many other people (1989a,b). Her interest attracted the interest of others, and her contacts expanded widely. Eventually, she inspired and helped organize the 1986 Shell Bead Conference at the Rochester Museum and Science Center. Scholars of the Iroquois, of marine molluscs, and of shell use elsewhere in prehistory convened to share and enhance their knowledge. The resulting publication, dedicated to her, raises bead studies to new levels of theoretical interest. It will be widely distributed because of its inclusion of chapters on aspects of shell use in the American Midwest, the Near East, Peru, and Guatemala.

In the course of her research on wampum among the Iroquois, she found that shell beads, even some that bore more than superficial resemblance to historical wampum, were in use long before the appearance of European traders (1989b). She was able to show that earlier shell beads were...
brought into western New York from disparate sources, and that shell-trade contacts with the New York coast had some antiquity but no large scale prior to the seventeenth century.

She returned to her initial study of coastal settlement patterns by securing a grant from the National Science Foundation to examine curated archaeological collections. She was searching for materials that could provide radiocarbon dates for some of the large sites excavated half-a-century or more ago. The research was well designed to take advantage of the strengths, and to compensate for the weaknesses, of old collections and obsolete excavation and accessioning methods. She sought organic materials that would inform about the time of site occupation, and that also could be used to evaluate the radiocarbon anomalies of the immediate New York coastal environment. Shell bead dating requires some compensation for the accumulation of old carbon dioxide in marine habitats, so Lynn selected samples of associated shell and terrestrial materials whenever they were adequately documented. She immersed herself in the demanding details of a developing research domain in radiocarbon technology, and was in contact with people who were themselves pushing forward that frontier. The result of her efforts was a massive, well-provenienced corpus of radiocarbon dates for New York coastal sites.

Interpretation of the new information came as a surprise to everyone. The large sites that had entered the regional literature and oral tradition as "village" sites were shown to have accumulated over centuries of short-term use and reuse. Not only were there no villages in prehistory, there were apparently no villages in the early historic period either.

As Lynn reported her results (1990c), she showed that neither the "old paradigm" of prehistoric horticultural villages nor her "new paradigm" of historical villages as wampum factories was congruent with the new information. The best interpretation was a new awareness of diversity among the coastal settlements and, I might add, a close approximation of coastal New England's archaeology of the period.

I cannot speak for Lynn's contributions to the archaeology of the historical period. However, her survey excavations at the Lloyd Manor confronted her with some secondarily deposited Indian shell middens, and led directly to a project exploring the extra-archaeological economic uses of middens (1984). Her article in the respected journal *World Archaeology* summarized and established in the literature what archaeologists had dimly suspected but rarely investigated. Archaeological middens have value as fertilizer, lime quarries, and road metal, so that many have been lost to demands of the market economy more direct than land development. In the course of her research of this topic, she became aware that the integrity of extant midden deposits may have been seriously compromised before archaeologists investigated them. Unflinching before the unwelcome truth, she warned her colleagues to be less trusting of the timeless stability of inert media.

When James Clifton was assembling a volume of myths distorting historical depictions of American Indians, he was referred to Lynn's publication on fish fertilizer. She prepared for his volume a new chapter on the Squanto story, emphasizing again its departure from all other reports of Indian horticultural practice—the historical archetype is shown to have been an anomaly. Lynn was delighted to be represented in the volume entitled *The Invented Indian* (1990b).

The corpus of Lynn's published work is an extraordinary gift to anthropological research on northeastern North America. With searing insight, unflinching honesty, disciplined scholarship, and more than a little poetry, she revised many of the received "truths" that were constraining progress in archaeology and ethnohistory. She showed us again that highly productive research strategies evolve from confrontation with incongruities between data and interpretation. She also showed us that honest research can be no respecter of authorities. The highest standards of scholarly discipline and ethics imbue her work with permanence.
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NOTES TO CONTRIBUTORS

The Editor solicits for publication original contributions related to the archaeology of Massachusetts. Authors of articles submitted to the Bulletin of the Massachusetts Archaeological Society are requested to follow the style guide for American Antiquity (48:429-442 [1983]). Manuscripts should be sent to the Editor for evaluation and comment.

Manuscripts, typed as originals with two copies, should have margins of 3 centimeters (1 & 1/4 inch) on all edges. Corrasable paper should NOT be used. Typing should be on one side of paper only with at least double spacing. Proper heading and bibliographic material must be included.

Authors with MAC and IBM-PC compatibles are encouraged to mail floppy disks containing their files or send them electronically in ASCII to the editor. Tables should be submitted camera-ready.

Bibliographic references should be listed alphabetically by author and presented as follows:

Gookin, Daniel

Several references by the same author should be listed chronologically by year. Reference citations in the text should include the author's name, date of publication, and the page or figure number, all enclosed in parentheses, as follows: (Bowman and Zeoli 1973:27) or (Ritchie 1965: Fig. 12).

All illustrations, called figures, should be submitted as originals. Each figure should fit within the space available on a Bulletin page, which is 17 cm by 23 cm (6 & 1/2 x 9 inches), allowing for margins. Full, half or quarter page figures should be planned carefully. Space must be allowed for captions.

Figures must be referred to in the text and are to be numbered in their order of reference, with their number placed lightly on the margins of their reverse sides. Every item in each figure and each person should be identified. All lettering must be clear and legible and have high contrast; dry transfer letters available at any stationery store are fine. No pencil drawings are acceptable. Photos must be glossy prints with high contrast. Scales with dimensions should be included with all figures for which they are appropriate. Captions, not a part of the illustrations, should be typed on a separate sheet in order and numbered to correspond to the figures.

Dimensions and distances should be given in metric units or in metric units and English units.