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SOME SHELL HEAPS IN TRURO, MASSACHUSETTS

Ross Moffett

As far as I know, the only published report giving a general view of shell heaps on any part of lower Cape Cod is one by Ethel Boissevain (1) which deals with sites in Wellfleet. In the article referred to, a general uniformity of artifact content from site to site is stressed. It might naturally be thought that this uniformity would extend also to the shell heaps of Truro, which joins Wellfleet on the south, but, according to my experience, this is not the case. Each site examined differed in more or less important respects from its neighbors. In the limited space of this paper I will mention certain Truro sites which bring out the more significant of these differences, starting with two shell heaps showing somewhat archaic traits and progressing to others, in what I think is probably a chronological order.

The Holden Site (M39/21)

The first shell heap to be noticed is the Holden site, at High Head, two miles northwest of the village of North Truro. In addition to High Head, which is a blunt point of high ground, of glacial origin, the physical features here include the marshes flanking High Head and the small lake in front, which in Indian times was a marine inlet, well stocked with shellfish. Near Salt Meadow, the marsh on the northeasterly, or ocean side of the high ground is another feature, a kettle hole containing a peat bog known as Smalls Swamp. Most of the shell heaps at High Head are grouped near this swamp, which played an important part in the Indian life of the region, since it was probably the main source of fresh water.

The Holden site is about 400 feet northwest of Smalls Swamp and lies on rather high ground in a saucer-shaped depression between spurs of a hill rising to the west. Under the site the earth is nearly level, but below, the hill slopes rapidly, so there is little protection from northeast storms sweeping across Salt Meadow. The area covered by dug-over debris is about one-eighth of an acre, and it is shaped something like a thick stubby letter L.

In the tourist season before gasoline became scarce, this shell heap was visited nearly every day by people hoping to turn up an arrowhead. In addition, many truck loads of topsoil with some of the midden were hauled away for fertilizer, so it will easily be seen that my account is based on fragmentary data. However, enough evidence was gained to permit at least a bird's-eye view of the site.

The lower refuse-bearing layer in nearly all parts of the site consisted of brown sand, which rested on yellow glacial sand. Commonly, some broken pebbles, shells etc., extended down into the clean yellow sand, and even a few implements were found there. As regards the distribution of artifacts, this brown sand was by far the most important layer of the midden.

The site had two heavy shell deposits. The largest of these was in the northern part and had an area of about twenty by fifty feet and an average thickness of ten inches. This ran largely to quahog shells packed in black dirt. Under this shell layer the brown sand was of an orange shade, and its thickness was about eight inches. The minor shell concentration was in the extreme southern part of the site and was fifteen feet across, being equidimensional.

Connecting the two important shell deposits was a stratum of black earth which, in the south, near the smaller shell area, had a thickness of from eight to ten inches over a length of fifteen feet. The black deposit here was hummocky on top, and its texture was unusually tough. A sample was dried and, under magnification, was found to consist of the following: small flakes of charcoal, sand of normal grain size, very fine gritty sand, and a non-mineral substance, thought to be exceedingly fine charcoal dust. Northward, it thinned out and merged with the narrowing edges of the larger shell deposit. Under much of the black earth the brown sand was well-marked, being blackish above and fading out below, where it met the yellow sand. In one section, however, the brown sand became increasingly impregnated with quahog shells, to form a four-inch layer of shells in dark sand.

The black earth contained two hearths, but proved nearly barren of artifacts. A section through the center of one hearth, starting from the top, shows: six inches of black earth, two inches of hearth material, two inches of burned black earth, and four inches of burned black earth, and four

(1) Bulletin of the Massachusetts Archaeological Society, October, 1943.
inches of loose shells resting on thin traces of brown sand. A flat, burned pebble and one potsherd accompanied the hearth.

The dark sand below yielded potsherds and chipped implements, the most interesting find being a group of eighteen fragments of spearpoints, representing fifteen implements all of one general type (Fig. 4, 1-2). Later, an end matching one of these pieces and fragments of several more spearpoints from the same deposit were found within a few feet and at the same level. With one exception, the fragments appear to have belonged to finished implements, and there is reason to suspect that these were intentionally broken, especially since a number were in more than two pieces. No good explanation for the presence of these broken points was discovered. That they were cached seems doubtful, and one plausible guess is that Indian children, playing about the camp, may have collected the broken implements and left them where they were found.

Several pits were found under the black earth; one may be given passing notice, since it was fairly typical of many pits below Truro shell heaps. This one appeared to originate in the brown sand layer and extended twenty-seven inches below the top of the black earth. Its sides were sloping, and it was filled, for the most part, with discolored sand, with a deposit of gray earth occupying the bottom portion. A pocket of loose quahog shells ran down through the center. There were no artifacts, although a number of implements were in the brown sand in the neighborhood of the pit.

The black deposit seems to have been a layer of occupational dirt, in spite of the fact that no identifiable post holes were discovered. Possibly the lack of artifacts was due to the circumstance that it was not easy to lose them on a hard bare surface, the converse being true of the underlying sand. From the fact that potsherds from the hearths in the black earth and from the sand below bear the same markings, there is ground to infer that the layers were culturally identical.

Pottery was scarce, and most of the sherds came from the brown sand in the black earth portion of the site. The fragments are too small to tell the exact shapes of the pots, but the vessels must have been of very simple form (Fig. 4, 32-38). There is usually a slight eversion of the lip, with often a slight thickening on the outside, achieved by hinging a strip of clay over the rim and grading it off inside. The pots appear to have had straight sides which may have been inclined outward. Shapes of bottoms could not be determined. Most sherds are of medium thickness. The largest rim diameter was about nine inches.

Decorations, which are also simple, appear on both rim and body sherds. The most common marking is the zigzag made with a curved rooker stamp (Fig. 4, 33). Other designs include: wavey marks on the side of the rim, probably made with a small scallop shell (Fig. 4, 35); parallel lines incised with a blunt point, somewhat in opposed design (Fig. 4, 36), and curving marking, in which a fine incised line ends in a deep wedge-shaped accent (Fig. 4, 32). There are two examples of indentations on the top of the rim. The familiar overall cord texture was not found. The prevailing color is gray, but a few sherds are either buff or red.

The tempering material in all sherds is grit.

Chipped implements constitute, numerically, by far the most important class of artifacts. In all, one hundred eighty-nine worked pieces were found, of which sixty are symmetrical and have been classified as points. The latter, for the most part, in their general shape, vary from the lanceolate to the elongate, and they are, usually stemmed, with the stem being often weakly indicated (Fig. 4, 1-7). Triangular points are poorly represented (Fig. 4, 16-17) making up less than seven per cent of the whole; the large, broad type of triangular point was not found. (One possible example from the top of the black earth layer is thought to have been intrusive.) Twenty-two implements were classed as knives. One is a retouched flake; another is triangular; of the remainder, mostly asymmetrical (Fig. 4, 20, 21, 23, 24) four are stemmed and sixteen are roughly leaf-shaped. Three artifacts were classed as drills (Fig. 4, 14, 15). As in most lower Cape Cod sites, there is a weakness in recognizable scrapers. One of the three objects placed in this category is of the heavy keeled variety, while the other two are small and stemmed (Fig. 4, 18). Thirty-two large unstemmed felsite blades were recovered, all of which were broken (Fig. 4, 26). Since the edges of many of these are carefully worked, they may represent knives broken in use. Unclassified implements number sixty-nine. For materials, felsite was much preferred to quartz. To a small extent, quartzite, chert, and slate were also used.

Choppers, in their relative abundance, were a feature of this site (Fig. 4, 40-42). Twelve of these were found by myself, and the midden must have contained many more. One is unusually large, but, for the most part, they are from three and one-fourth to four inches long, and the forms are varied, being triangular, rectangular, ovate, and hoe-shaped. The bottoms and lower lateral edges of all are blunted from use, but, with two possible exceptions, there is no sign of their having been hafted, nor of a polish that would indicate service in a sandy soil. The material is coarse gray slate.

Polished slate artifacts comprise: a small tubular banner stone (Fig. 4, 29); a flat symmetrical object, notched on both
side edges, which may have served as a notched banner stone (Fig. 4, 50); and another object which is thick in the center, where it is grooved all the way around, with the groove polished on one side and left roughly pecked on the other (Fig. 4, 43).

Other stone artifacts include a short broad celt (Fig. 4, 39) and fragments of a limonite paintstone.

Worked shell is represented by a scallop shell with two holes drilled near the hinge (Fig. 4, 44). This may be a gorget. Bone and antler implements appear to have been little used, a notched and broken piece of antler, three striated antler tips, and two rubbed slivers of bone being the only evidences discovered. The meagerness in this category was not due to decay.

The Rich Site (M38-6)

The other site at High Head to be included is the Rich site, which is about three hundred yards southeast of the Site (M38-5), separated from the latter by a low rise of ground. The main part of the site lies on nearly level ground, having almost no protection from winds. Some scattered shell deposits, however, lie on the sheltered hillside to the south. The top of the site was much disturbed by plowing, which perhaps entirely obliterated some of the thin outlying portions. For this reason the extent of the area originally is impossible to determine, but it was probably somewhat larger than Holden.

Most of this site was dug out by others, but it seems likely that the deposits in no place were of much depth, comprising a layer of black earth containing more or less shell and lying on discolored sand. The dark earth was of a loose consistency, and the dark sand was not such a definitely marked feature as at Holden, nor were the artifacts confined to it. Pits with sloping sides and filled either with discolored sand or dark earth were plentiful; at the eastern side of the site a trench, which may once have been a natural gully, was found filled with camp debris. This trench was excavated for a distance of twenty feet.

The artifacts from the plowed topsoil appear to differ in no way from those taken from the undisturbed portions, so it seems likely that only one cultural phase is represented at this site.

Pottery was used to about the same extent, seemingly, as at the Holden site. Unfortunately most of the sherds are small and much decayed, and rim fragments from only three pots were recovered (Fig. 4, 74, 75). From the unsatisfactory evidence at hand, it appears that the pots were grit tempered and probably similar in form to the Holden pots. There is some reason to think that a pointed bottom is indicated by fragments from one vessel. The designs comprise simple stamped indentations, an incised zigzag, and marking resembling the run-together zigzag stamping from Holden; the tool used, however, appears to have been the edge of a scallop shell applied with a rocking motion.

Of the one hundred six chipped artifacts, sixty-nine were classified as points. The percentage of triangular is fourteen and one-half, being somewhat larger than at Holden. The prevailing type of triangular is small and narrow, with a concave base and convex sides (Fig. 4, 57), but one, unique for this site, is large (Fig. 4, 58). Stemmed points make up only thirty-nine per cent of the total, but at this site the place of stemmed points is to some extent taken by a rather large proportion of points classified as lozenge-shaped (Fig. 4, 59). Two implements were classified as drills (Fig. 4, 62, 72) and five, as scrapers. Of the latter, some are true scrapers (Fig. 4, 60-70), but one which is stemmed, and similar to other specimens from High Head, may not have been used for scraping, since the upper edge is chipped from both sides and it is symmetrical in profile (Fig. 4, 69). The chipped implements on the whole show better workmanship than do those from Holden, though there are fewer large pieces. There was also much more use of quartz.

One polished slate object in the gorget category was found (Fig. 4, 82).

Heavy stone implements are perhaps the most significant artifacts from this site. They comprise two plummets and a gouge. One of the plummets came from the plowed topsoil on the edge of the debris-filled trench, while the other was taken from under black earth and shells (Fig. 4, 78-79). The gouge was washed from a roadway which crosses the edge of the site. What appears to be a similar gouge, broken in the process of pecking, was found in the undisturbed deposit. A much smaller gouge of slate (Fig. 4 80), also washed from a road, was picked up about one hundred yards from the site area. As this smaller gouge is essentially of the same shape as the large one, it seems likely that it came from this site.

Bone and antler implements consist of a fragment of a worked deer joint, probably an awl, a small bone tube (Fig. 4, 77), and an antler flaker (Fig. 4, 78).

The Railroad Site (M38-2)

To reach the next shell heap which I wish to mention it will be necessary to make a jump of four miles to the Corn Hill section of Truro. ("Journal of the Pilgrims at Plymouth", reprinted, Bulletin of the Massachusetts Archaeological Society, July, 1943 indicates that the Pilgrims found Indians still living in this region in 1620.) This site is about one hundred and seventy yards from the bay shore, and lies on the northerly and northeasterly slopes of a small but deep
Fig. 4. Artifacts from shell heaps in Truro, Massachusetts. 1-44, Holden site; 45-82, Rich site.
kettle, in which is a small pond, or water hole. The midden is crossed by the railroad and I will call this the Railroad site. In this area, this site covers somewhat less than an acre. Except for the portion under the railroad grading, it has been entirely dug out.

The artifacts that I recovered — a small part of the whole number taken from the site — came from two areas in which dark sand was overlain by black earth. Implements were found both in the discolored sand and in the dark earth, but, where packed shell layers were dug into, little was discovered. A double burial, unaccompanied by artifacts, has, however, been reported from the thick shells.

In contrast to the state of affairs at the High Head sites, pottery was plentiful throughout this shell heap (Fig. 5, 29, 30, 34, 35, 39-43). On the whole, it is somewhat less primitive, as is evidenced by a greater variety of form and more attention to decoration. The rim sherds sometimes show a distinct flaring, and many of the pots had constricted necks. The bottoms may have been rounded, since no indication of a pointed bottom was found. Two classes of pottery were used, one heavy and utilitarian, and the other more fancy, consisting of smaller vessels whose thin walls were more elaborately marked on the outside.

The designs on some sherds are certainly more striking than those on any of the High Head specimens. Overall cord marking was much used, both on the coarser pots and on the finer ware. In the latter, lines of cord impressions often extend up and down or diagonally and are relieved by wide incised grooves, or channels, running around the neck (Fig. 5, 30, 41). Many sherds show series of indentations, apparently made by alternately punching and dragging a toothed edge. The stamped zigzag is not present, although there are zigzag lines incised with a sharp point.

For tempering materials, both grit and shell were used. Many shell tempered sherds have a pronounced striation on the inside, which may have been done to smooth down any flakes of shell left sticking out. It was also noticed that cori-marked pots were nearly all shell tempered.

Chipped artifacts comprise one hundred sixty-three specimens, of which eighty-nine were classified as points. The stemmed point is still the dominant type, but the proportion of triangular points is greatly increased over that at the High Head sites, being thirty per cent of the whole. What is more important, the large broad variety of triangular definitely enters the picture (Fig. 5, 18-19). A majority of stemmed points, instead of being long and narrow as at High Head, are stubby, with a broad trianguloid blade (Fig. 5, 7-10). The corners are sharp, and the stem may be longer than the blade. This type of stemmed point is nearly always of quartz. Fourteen implements were grouped as knives and four as scrapers (Fig. 5, 13, 32). Artifacts of quartz outnumber those of all other stone materials put together.

Polished slate is represented by a fragment of a gorget, and a small, flat, ear pendant (Fig. 5, 15). Heavy stone tools reported to me include grooved axes (Fig. 5, 38) and a cylindrical pestle. This site has yielded some graphite and ocher.

One thin metal bead was brought to light (Fig. 5, 42). Presumably this is of copper, although an analysis has not yet been made.

Bone and antler implements, comprising bone awls and arrowheads, hollowed sections of bone and antler, and small bone harpoons, were rather plentiful (Fig. 5, 21-28, 33, 36, 37). Beaver teeth were also utilized (Fig. 5, 38).

The Rose Site (M38-11)

To balance this sketch of Truro archaeology two more shell heaps will be briefly noted. One is the Rose site, near a spring, one-half mile east of Corn Hill, and visible from the state highway. Very deep deposits of shells have been reported from the part of the site lying on the Rose property. This site yielded many hundreds of artifacts before it was largely exhausted. My comments on the contents, for the most part, are based on photographs of material in the hands of the Rose family. In this collection, triangular points, many of which are very large, occur with almost monotonous frequency (Fig. 5, 48-53, 54-56). They account for seventy-eight per cent of the whole number of points, stemmed points accounting for only one-half. I have not been able to study much of the pottery which was plentiful, and both grit and shell tempered (Fig. 5, 68, 70, 73, 74, 75). Other artifacts include a grooved axe; celts; notched sinkers; gorgets of Huronian slate; a full line of bone and antler implements, including antler harpoons (Fig. 5, 87); and fragments from a soapstone dish.

Since this paper was read, with the assistance of Mr. Edward H. Rogers, about forty-seven square yards of the site lying on the adjoining Link property have been excavated. This proved to be in the thin western edge of the site. Under a thick topsoil, the chief feature here was a continuous layer of black earth containing some shells. Under this was some discolored sand resting on very gravelly yellow sand. The usual site was more extensive, in places with rather heavy beds of ash, below which the sand was burned to some depth. Triangular points of quartz and felsite were rather plentiful, but confined entirely to the black layer. An unexpected feature, at least not indicated by the Rose collection,
Fig. 5. Artifacts from shell heaps in Truro, Massachusetts. 1-43, Railroad site; 44-75, Rose site; 76-83, Ryder Beach site. 15, 18-26, 38 are from the collection of Edward H. Rogers, Devon, Connecticut; 48-56, 57-58, 64-68, from the collection of the Austin Rose family, Truro, Massachusetts.
was the presence of about a dozen large lanceolate to elongate points (Fig. 5, 44-47). Most of these were of quartzite, and their mean depth was distinctly lower than that of the triangular points. In fact, all but four were in the sand below the black. This gives some reason to suspect a cultural stratification of the site. However, considering the thinness of the deposit and the comparatively small part of the site excavated, a definite conclusion regarding this is unwarranted.

The Ryder Beach Site (M42-1)

The other shell heap is the Ryder Beach site, in South Truro, near the Wellfleet line. A test at this site produced eight classifiable points, all triangular (Fig. 5, 78-81), and, in addition, two deer ulna awls (Fig. 5, 76), a celt (Fig. 5, 83), pottery, and fragments from two pipes. The latter appear to have been of the elbow type. One is of soapstone (Fig. 5, 82), while the other is of shell tempered pottery (Fig. 5, 77). Although only a few artifacts are reported, this site seems to belong in the same class as the Rose shell heap. It also appears to tie in with sites in Wellfleet reported by Miss Boissevain in the article mentioned at the beginning of this paper.

To sum up, I believe it may be said that the shell heaps of Truro tend to fall into some one of three general categories. In the first, by far the largest part of the chipped implements are stemmed; pottery is scarce, simple in form, and nearly all grit tempered; tools of bone and antler are also scarce; the plummet, gouge, and bannerstone are likely to be present. In the second, stemmed and triangular points compete for honors on a fairly equal footing; pottery is plentiful, and is both grit and shell tempered; worked bone and antler are also plentiful; a few grooved axes appear; but the plummet, gouge and bannerstone are probably absent. The third group resembles the second, except that triangular points were used almost exclusively, with stemmed points relegated to a very minor role. A few pipes are also to be ascribed to this class.

I will not attempt any conclusions, other than to point out what seems obvious; that sites in the last class belong roughly to the late prehistoric period, while those of the second probably mark a transition to the first, which in turn exhibits, in some measure at least, characteristics of the archaic. The first class, particularly, might reward further study if more factual material becomes available. Possibly what I have attributed to this class is a localized manifestation due to the isolated position of Truro. As a matter for speculation, I think it might be found, however, that sites in this category will be found to have connections farther afield, possibly on the mainland, and that such sites represent the first influx of Indians into the region. This seems to me one of the more interesting problems of Cape Cod archaeology.

Provincetown, Massachusetts
April 14, 1945

Symmetrical chipped points by types, (1) size disregarded.

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<thead>
<tr>
<th>Site</th>
<th>No.</th>
<th>Tri.%</th>
<th>Stem.%</th>
<th>Notch.%</th>
<th>Lozenge%</th>
<th>Leaf%</th>
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<td>6.6</td>
<td>67.6</td>
<td>10</td>
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<tr>
<td>Rich</td>
<td>89</td>
<td>14.5</td>
<td>39</td>
<td>8.7</td>
<td>13</td>
<td>24.6</td>
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<tr>
<td>Pilgrim Spring (2)</td>
<td>111</td>
<td>2.5</td>
<td>55</td>
<td>21</td>
<td>3.5</td>
<td>10</td>
</tr>
<tr>
<td>Railroad</td>
<td>89</td>
<td>30.3</td>
<td>48.3</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Rose</td>
<td>232</td>
<td>78</td>
<td>12</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Ryder Beach</td>
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<td>100</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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Chipped artifacts by materials

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<th>Felsite%</th>
<th>Quartzite%</th>
<th>Chert%</th>
<th>Slate%</th>
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<td>20</td>
<td>73</td>
<td>6.5</td>
<td>1.7</td>
<td>1.7</td>
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<tr>
<td>Rich</td>
<td>106</td>
<td>44.3</td>
<td>45.2</td>
<td>5.7</td>
<td>2.8</td>
<td>1</td>
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<tr>
<td>Pilgrim Spring</td>
<td>163</td>
<td>54</td>
<td>35</td>
<td>5</td>
<td>2</td>
<td>1</td>
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<td>Railroad</td>
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<td>58</td>
<td>35</td>
<td>6</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

(1) According to the Bullen system, triangular as used here includes types 1-6; stemmed, base types 21, 23-25, 29-32; notched, bases 33-37; lozenge, bases 48, 49; leaf, bases 44, 45, 47, 50. Small types 9-20 are negligible or missing. The classification corresponds also with the New Jersey system in the order 1, 2, 4, 7, and 6 and 9 combined.

(2) Site M38-3, Pilgrim Spring, on the easterly side of High Head, contained crude plummets, short broad gouge, gorget, small holed banner stone, very little bone and antler, almost no pottery. Discrepancy of eight per cent in the type table for this site is due to the presence of a number of points with parallel sides, a straight base, and a distinct flaring, or earing, at the corners.
Foster’s Cove site is located on the eastern part of a fairly level area of land twenty feet above the Shawsheen River, in Andover, Massachusetts. The site is on the land of Mr. Francis Homer Foster who very kindly gave permission for excavation. This permission is greatly appreciated. The work was done with the assistance of various students who worked afternoons during the Summer Session of Phillips Academy and others who worked in the fall on Wednesday afternoons. Mr. Arthur M. Hofmann of Ballardvale and Mr. Howard Torrey of Reading also helped excavate.

A small brook enters the river immediately to the east of the site. On the map (Fig.6), the level area is enclosed within the line of short dashes while "A" represents the excavated portion of the site.

Fig.6. The Shawsheen River in Andover with a sketch map of Foster's Cove.

The site lies above the 70-foot contour on the United States Geological Survey Map. No evidence of aboriginal occupation was found in the plowed field across the brook to the east, where the land is about ten feet lower. However, across the brook, southeast of the site, a rise of land cuts the 70-foot contour (B in Fig.6). Chips of quartz and gray patinated felsite, but no pottery, were found there. This material is typical of the lower levels of the main site. It may be significant that evidence of occupation in the immediate vicinity was found only at this place which is at approximately the same level as the site proper.

The Shawsheen River is a small stream, and near the site it is sluggish, with meanders and remnants of old cut-off channels. Its bed appears to be heavily silted While this may to a certain extent reflect the presence of dams downstream, it also reflects the terrain through which the river flows. The neighborhood, especially to the southeast, abounds in kettle holes and kames or knolls of sand and gravel. These phenomena are found along the northerly edge of an outwash plain several square miles in extent. The beginning of this phenomenon, to the south of the site, is suggested on the map of the site (Fig.6). The Shawsheen River has dissected at least a portion of these deposits. The elevation on which the site is located may possibly be a remnant of a twenty-foot terrace of the river, or the remains of a sandy knoll and kettle hole leveled off by the action of time and the effects of aboriginal occupation.

In any event the site is situated on level, fairly high, sandy land, at a bend in the river where a small brook has helped to form a cove. Not only might the brook supply drinking water, but the cove and low land at its mouth would also be of advantage to people using canoes. Without doubt numbers of fish, small animals, and waterfowl were to be found along the river. While the situation may be presumed to have been substantially the same at the date of abandonment as now, the site was occupied over a fairly long period of time by the same or different people and, at least in details, was modified during occupancy.

For purposes of survey and excavation, the site was laid out in a grid consisting of five foot squares, each designated by the number of its southeast corner stake (Fig.7). Specimens and features were referred to this grid for horizontal plotting. Vertical measurements were taken not only from the surface but also, for specimens found in the yellow-brown sand below the division between the loam and the underlying yellow-brown sand. This was done to minimize minor irregularities of the surface. Although differentiation of the soil into loam and the yellow-brown sand is the result of factors including weathering which have resulted in the development of the soil profile, and although the zone of demarcation does not divide any actual
layers, it proved to be a most satisfactory vertical reference for specimens found in the yellow-brown sand. An arbitrary datum point, consisting of a six-foot pipe driven five feet into the ground, was also installed. As the maximum variation in elevation of any two points on the surface of the 2900 square feet of excavated area was less than one foot (10½ inches), contours of the site were not taken. All the excavating was done by trowelling.

The strata, as shown on the sample profile (Fig. 8), were designated as loam, yellow-brown sand, gravel, and light-colored sand. The site exhibited a moderately well developed podzolic soil profile. Underneath the top 1½ to 2 inches of sod, the soil was dark brown and consisted predominately of sand mixed with some pebbles up to 2 inches in diameter. Towards the bottom of this dark brown dirt, gray lenses were sometimes encountered. The thickness of this loam, including the sod, varied from a minimum of 6 to a maximum of 10 inches. The usual thickness was 8½ inches. Lenses of yellow-brown sand, varying from a mere trace to as much as 1 inch in thickness, were found in the loam at a depth of about 5 inches over most of the excavated area. Based upon the premise that these lenses resulted from the digging of pits, a habitation level about half way between the bottom of the sod and the bottom of the loam may be suggested.

The nature of the underlying yellow-brown sand did not appear to be basically different from that of the loam. The difference in color seemed to be due to normal processes of weathering and the development of the soil profile. The yellow-brown sand contained more and larger pebbles than did the loam. The thickness of the yellow-brown sand varied between 4 and 15 inches with an average value of about 9 inches. As will be noticed in the profile (Fig. 8), this variation was caused chiefly by the irregularity in the thickness and vertical location of the underlying layer of gravel.

The gravel layer consisted of many tightly packed waterworn pebbles. Its thickness and relative elevation varied considerably. In some places, it thinned out to a line of individual pebbles and then disappeared entirely. The top and bottom boundaries of the gravel were hard to define. The bottom of the gravel was frequently marked by many fine pebbles and coarse sand. Beneath the gravel, fine sands of light yellow or gray color were encountered.
The excavation produced suggestions of stratigraphy definable in terms of types of projectile points and depth. Three cultural manifestations may be postulated. One is represented by medium and large triangular points of dark felsite found in the loam. Pottery was only found with these points in the loam. A second is suggested by small triangular and small stemmed points in the yellow-brown sand. The third is evidenced by medium sized corner-removed points of various patinated felsites or of gray slate, sometimes called argillite, found in the lower portion of the yellow-brown sand. In the description of the artifacts their vertical position has been included to call attention to this stratigraphy.

**POTTERY**

Three wares may be distinguished on the basis of tempering material and style of decoration: a fiber tempered ware represented by 2005 sherds, a fine mineral tempered ware with 40 sherds, and a coarse mineral tempered ware of which only 12 sherds were found. Unfortunately the small size of the sherds precludes the possibility of any restoration.

The fiber tempered ware, in fracturing, produces numerous plane surfaces and small slits. These plane surfaces are also found on the surface of the pottery as small craters with undercut edges. In seventy-two cases, examination with an eight-power glass disclosed striations on these surfaces. As these striations appear to be molds of grass it is inferred that grass was used as tempering material. Mineral matter which could be called tempering is also present in the paste, but it is of extremely minor importance. In two thousand sherds only 64 mineral inclusions over .5 mm. in size were noted. These inclusions were chiefly rounded quartz.

Fiber tempered ware has a hardness of 2 to 3 on Moh's scale, is Sayal Brown in the color scale of Robert Ridgway (Color Standards and Color Nomenclature, Washington, D.C., 1918) and varies from 4 to 8 mm. in thickness. Vessels were constructed of coils about 1 cm. wide. Due to the fragmentary condition, nothing can be said about the shape or size of vessels.

Rims are everted, 1 cm. wide, somewhat higher near the outer than the inner edge, and, except for two sherds, undecorated. The two decorated rim sherds have flat tops bearing diagonal impressions of parallel marks, 3 mm. long and 1 mm. wide.

Decoration, consisting of horizontal rows of parallel marks, starts immediately below the rim. These marks appear to be impressions of a cord-wound stick. Variations are found in these marks, caused by the use of carved tools. The tools were straight-edged, curved-edged, pointed or double-pointed. Sometimes the tool was trailed between impressions.

Fine mineral tempered ware has a hardness of 2 to 3, is Pecan Brown in color and varies from 5 to 7 mm. in thickness. The tempering material consists of angular fragments of quartz, felspar, and mica, presumably representing crushed granite. Grains of temper are small, 1 to 3 mm. in diameter, and represent only about 10% by volume, estimated. This ware contains a few slits and casts of grass but they are of minor importance. A decorated fragment (Fig.12, A) exhibits a rounded rim which is slightly thinner than the body. The side appears to be straight and the decoration consists of impressions of a cord-wrapped stick, forming diamonds and triangles.

Coarse mineral tempered ware has a hardness of 3 to 4, is Clay in color, and about 1 cm. thick. This ware is tempered with a large amount of crushed quartz, representing possibly 30% by volume. Grains of temper are large; individual pieces 5 mm. in length are common. This ware is decorated on both the inner and outer surfaces with dull impressions of textile or cord-wrapped paddles, about three imprints to the centimeter.

All the pottery, with the exception of six sherds of the coarse mineral tempered ware, was found in the loam or in pits or post holes leading down from the loam. Six sherds of coarse mineral tempered pottery were in the yellow-brown sand, 1 to 2½ inches below the base of the loam. While the small amount precludes any conclusion, the location of these sherds suggests that the coarse mineral tempered ware may be earlier than other wares at this site. A similar and equally faint suggestion was noted for the nearby Hofmann Site where this ware was also found (Bullen, R.P., and Hofmann, A.M., "The Hofmann Site," American Antiquity, Vol.X, No.2, Oct. 1944, Plate XVII, H, except for color.).

Fiber tempered ware was also found at
the Hofmann site and is illustrated in Plate XVII, A, B, D, of Bollen and Hofmann’s paper; fine mineral tempered ware was not found at that site. As the position of the latter was relatively higher in the loam, it may be the latest of the three wares locally.

### PROJECTILE POINTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Figure</th>
<th>Material</th>
<th>Number in Loam</th>
<th>Depth below Base of Loam</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Equi.</td>
<td>9A,B</td>
<td>Dark Felsite</td>
<td>9</td>
<td>0-3&quot;</td>
<td>Sides slightly incurvate or excursive</td>
</tr>
<tr>
<td>Triangular</td>
<td></td>
<td></td>
<td></td>
<td>2-5&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5-10&quot;</td>
<td></td>
</tr>
<tr>
<td>Large Isos.</td>
<td>9C</td>
<td>Dark Felsite</td>
<td>3</td>
<td>2</td>
<td>Sides excursive</td>
</tr>
<tr>
<td>Triangular</td>
<td></td>
<td></td>
<td></td>
<td>5-10&quot;</td>
<td></td>
</tr>
<tr>
<td>Tri-incurvate</td>
<td>9D</td>
<td>Dark Felsite</td>
<td>4</td>
<td>1</td>
<td>Bases relatively deeply concave</td>
</tr>
<tr>
<td>Triangular</td>
<td></td>
<td></td>
<td></td>
<td>5-10&quot;</td>
<td></td>
</tr>
<tr>
<td>Medium Isos.</td>
<td>9E</td>
<td>Dark Felsite</td>
<td>4</td>
<td>1</td>
<td>One was in pit leading down from loam</td>
</tr>
<tr>
<td>Triangular</td>
<td></td>
<td></td>
<td></td>
<td>5-10&quot;</td>
<td></td>
</tr>
<tr>
<td>Medium Equi.</td>
<td>9F,G</td>
<td>Dark Felsite</td>
<td>8</td>
<td>2</td>
<td>All 1¼ inches in length</td>
</tr>
<tr>
<td>Triangular</td>
<td></td>
<td>Gray Felsite</td>
<td>1</td>
<td>1</td>
<td>Sharp basal corners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quartz</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>9H</td>
<td>Dark Felsite</td>
<td>3</td>
<td>1</td>
<td>All ⅔ to 1&quot; long</td>
</tr>
<tr>
<td>Triangular</td>
<td></td>
<td>Gray Felsite</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Notched</td>
<td>9J-L</td>
<td>Dark Felsite</td>
<td>3</td>
<td>1</td>
<td>Not a homogeneous group</td>
</tr>
<tr>
<td></td>
<td>9M</td>
<td>Dark Felsite</td>
<td></td>
<td>1</td>
<td>At base of loam</td>
</tr>
<tr>
<td></td>
<td>9N</td>
<td>Gray Felsite</td>
<td></td>
<td>1</td>
<td>1&quot; below base of loam</td>
</tr>
<tr>
<td>Small Tri.</td>
<td>9Q,P</td>
<td>Quartz</td>
<td>1</td>
<td>16</td>
<td>Rounded basal corners, ½ to 1&quot; long, except 1-1 1/8&quot;</td>
</tr>
<tr>
<td>Stemmed</td>
<td>9R</td>
<td>Quartz</td>
<td>1</td>
<td>1</td>
<td>All 1 to 1½&quot; long</td>
</tr>
<tr>
<td></td>
<td>9S</td>
<td>Quartz</td>
<td>1</td>
<td>5</td>
<td>At base of loam</td>
</tr>
<tr>
<td>Schist</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>9T</td>
<td>Dark Felsite</td>
<td>1</td>
<td>3</td>
<td>Similar to &quot;9&quot; but larger</td>
</tr>
<tr>
<td>Stemmed</td>
<td></td>
<td>Quartz</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Corner</td>
<td>9V-</td>
<td>Dark Felsite</td>
<td>1</td>
<td>1</td>
<td>Frag., prob. a spear</td>
</tr>
<tr>
<td>Removed</td>
<td>CC</td>
<td>Dark Felsite</td>
<td></td>
<td>1</td>
<td>1&quot; below base of loam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quartz</td>
<td></td>
<td>1</td>
<td>8&quot; below base of loam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Various Pat.</td>
<td>22</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fels. &amp; Gray Slate</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>9U</td>
<td>Dark Felsite</td>
<td>1</td>
<td>1</td>
<td>Bases slightly narrower than blades</td>
</tr>
<tr>
<td>Stemmed</td>
<td>9DD</td>
<td>Red. Fels.</td>
<td></td>
<td>1</td>
<td>Elongate blades</td>
</tr>
<tr>
<td>Spear Points</td>
<td>8Y</td>
<td>Gray Felsite</td>
<td>1</td>
<td>1</td>
<td>Found 7½&quot; below loam</td>
</tr>
<tr>
<td></td>
<td>10I</td>
<td>Gray Slate</td>
<td></td>
<td>1</td>
<td>Found 4½&quot; below loam</td>
</tr>
<tr>
<td>Eared Tri.</td>
<td>12D</td>
<td>Gray Slate</td>
<td>1</td>
<td>1</td>
<td>Found 5&quot; below loam, possibly associated with Pavement 3</td>
</tr>
</tbody>
</table>
OTHER CHIPPED ARTIFACTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Figure</th>
<th>Material*</th>
<th>Quantity in Y-B sand</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drills</td>
<td>10A</td>
<td>Red Felsite</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10B</td>
<td>Quartz</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10G</td>
<td>Dark Felsite</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10D, E, F</td>
<td>Gray Felsite</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Knives</td>
<td>11A</td>
<td>Dark Felsite</td>
<td>3</td>
<td>Resharpened, differential patination</td>
</tr>
<tr>
<td></td>
<td>11B</td>
<td>Gray Felsite</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11C</td>
<td>Gray Felsite</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11D</td>
<td>Gray Felsite</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Scrapers</td>
<td>11E</td>
<td>Dark Felsite</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11F</td>
<td>Quartz</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11G</td>
<td>Dark Felsite</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11H</td>
<td>Quartz</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11I</td>
<td>Gray Felsite</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11J</td>
<td>Gray Felsite</td>
<td>1</td>
<td>Resharpened, differential patination</td>
</tr>
<tr>
<td></td>
<td>11K</td>
<td>Bl.&amp;Gray Felsite</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11L</td>
<td>Red Felsite</td>
<td>1</td>
<td>Most found in two workshop areas 10&quot; below base of loam</td>
</tr>
<tr>
<td></td>
<td>11M-P</td>
<td>Red Felsite</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Cleaver</td>
<td>10K</td>
<td>Quartz</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Choppers (?)</td>
<td>10L</td>
<td>Schist</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Knife (?)</td>
<td>12I</td>
<td>Black Felsite</td>
<td>1</td>
<td>Possibly assoc. with pavement:</td>
</tr>
<tr>
<td>Adze (?)</td>
<td>10J</td>
<td>Dark Felsite</td>
<td>1</td>
<td>Probably a scraper</td>
</tr>
<tr>
<td>Hafted Knives</td>
<td>10G, H</td>
<td>Gray Felsite &amp; Light Brown</td>
<td>4</td>
<td>All fragmentary 3/16&quot; in thickness, 1½&quot; above to 1&quot; below base of loam</td>
</tr>
</tbody>
</table>

*Appreciation is due Dr. Marlin Billings of Harvard University, Cambridge, Mass., for assistance in identifying materials.

PECKED AND POLISHED IMPLEMENTS

Hammerstones
Hammerstones include two quartz cobbles, 3 inches long, showing abrasion on one end, found 8 inches below the base of the loam, five battered balls, three of quartz, one of red and one of gray felsite, 1½ to 2½ inches in diameter, found 6 to 8 inches below the base of the loam, and three "beach pebble" hammerstones of granite, 4x3x2 inches, with abrasion around the periphery, found 5 to 6 inches below the base of the loam. Two of the latter may have also been used as mullers.

Mullers (?)
Two stones of Dracut Gabbro, about 4x3x1½ inches, found in the loam, are definitely smoother on their lower, flatter surface than elsewhere. Their use as mullers is suggested, although these surfaces show no striations. One also has abrasion marks on one end.

Chipping Hammer (?)
A roughly rectangular block of granite, 2 inches long, with marks of abrasion on one end, found in the yellow-brown sand among a very great number of quartz chips, may have been a chipping hammer.

Grooved Hammer
This specimen (Fig.12,G), found 4½' below the base of the loam in Square -SIII, may be associated with the scattered rocks and pavements of the southwestern portion of the excavated area (Fig.7).

Gouges
Fragments of four gouges were found in the yellow-brown sand 3½ to 6 inches below the base of the loam. Although two are merely fragments of polished stone their form permits a tentative identification as parts of gouges. The granite specimen shown in Figure 12,F, suggests by its general shape a slight affinity with forms found in Maine "Red Paint" graves. Only
THE FOSTER'S COVE SITE

Fig. 9. Projectile points from Foster's Cove: A-M, dark felsite; O-T, quartz; Z, quartzite; CC, slate; N, U-Y, AA, BB, DD, light felsite.

Fig. 10. Drills, hafted knives, and chipped implements from Foster's Cove.

Fig. 11. Knives and scrapers from Foster's Cove: A-E, dark felsite; B-D, G, I, J, gray felsite; K, black felsite; F, H, quartz; L-P, red felsite.

Fig. 12. Foster's Cove: A, sherd from loam; B-I, artifacts from yellow-brown sand.
the inside of the groove, near the cutting edge, is polished. The fourth, shown in Figure 12, H, of porphyritic diabase, is partly polished all over.

Another similar tool is represented by a fragment, one inch long and 1/2 of an inch thick, found in the loam. The bottom is convex and chipped. The top is concave and bears some striations partially obliterated by polish. These two surfaces form a curved cutting edge similar to that of a gouge.

Semi-lunar Knives

Fragments of three semi-lunar knives, two of schist and one of slaty schist, were found from 6 to 7 inches below the base of the loam. The specimen shown in Figure 12, E, is pronouncedly thicker near the back. It was found just to the west of, and three inches lower than, the top of Pavement 3. The specimen shown in Figure 12, G, has some scratches on one side about 1/2 of an inch from the back edge but no suggestion of a groove or hole. A third knife is represented by two matching fragments of the cutting edge. Its sides meet at an angle at least twice as great as is the case with the other two semi-lunar knives.

Celt

One partially pecked celt of green porphyritic diabase, 5x2.5x1.1/2 inches, was found in Square SF4, 10 inches from and slightly lower than the top of Pavement 1.

Graphite

Two much scored fragments of soft graphite, about 1/2 an inch in length, came from the loam. Two other pieces, 1 and 2 inches long respectively, much harder and containing impurities, came from the yellow-brown sand. They are faceted from rubbing, but show no striations.

Incised Stone

One chip, 2 inches long, found 8 inches below the base of the loam, has eight, more or less parallel lines, about 1/100 inch wide, incised on one surface.

Amorphous Pecked Stone

A fragment of stone, which may have broken off the butt of an ax, was found in the loam. It is pecked on one side and measures 2 inches in length.

English Flint (?)

Two small chips of brown flint were found 7 inches deep in the loam. While positive identification is not available, they appear to be English flint and could have come from a gun flint.

Decayed Green Stone

A badly disintegrated specimen of green schistose rock, 5 by 1/2 inches, was found 7 inches below the base of the loam. One or two small areas of the surface suggest that it was once polished. This disintegrated rock is indistinguishable from similar finds reported from Maine "Red Paint" graves.

FOOD REMAINS

Fragments of calcined bone were found in fair quantities in both the loam and the yellow-brown sand but in only a few cases is identification possible. Barbara Lawrence, Associate Curator of Mammals, Museum of Comparative Zoology, Cambridge, Massachusetts, has kindly identified these as bones of the deer, beaver, muskrat, turtle, and snake. There is also one unidentified bird bone. A charred acorn and two fragments of fresh water clam shells complete the inventory.

FEATURES

The various features discovered have been plotted against the reference grid in Figure 7. The distribution suggests that the living area proper was away from the river and that a workshop area was on the intervening ground.

Hearth

This structure consisted of a saucer shaped hearth, of cobbles 4 to 5 inches in diameter, lining a shallow pit. The tops of the stones were in the yellow-brown sand 5 inches below the base of the loam. They rested just above the gravel. Charcoal was lying on top of fragmentary rocks in the hearth. A little to the west was a pile of broken and blackened stones, also in the yellow-brown sand, 4 inches higher than the stones of the hearth.

Pavements

A great deal of the southern portion of the excavated area contained scattered broken rocks in the yellow-brown sand at a depth of about 5 inches below the base of the loam. This has been suggested in Figure 7 by the letter "R" where the concentration was particularly marked. When these broken rocks were so concentrated that they touched each other, they were considered as pavements. Three such pavements are shown in Figure 7.

Pavement 1 was composed of cobbles, 2 to 6 inches in diameter, plus a few broken fragments of rocks while the other two pavements were predominately of broken rocks with a few cobbles. The tops of these pavements were from 4" to 6 inches below the base of the loam, while there was about 5 inches of yellow-brown sand between them and the gravel layer.

Pavement 1 presented no suggestion as to its use. Many of the rocks of Pavement 2 were reddened, but no ash or charcoal was found. Over the northwest corner of Pavement 3, 2 to 4 inches higher and just under the base of the loam, was a large deposit of ash, roughly circled by seven rocks. In the ash was a small quartz triangular point. This deposit would seem to post-date
the construction of Pavement 3.

One quartz chip was in the yellow-brown sand above Pavement 2, three were among its rocks, and five chips of red felsite were under it. Eight quartz chips were above, five in, and six under Pavement 3. Two post holes went through Pavement 2. That they post-date this pavement is evident from the fact that one of them ended on fragments of decayed granite rock obviously forced downward when its end was driven through the pavement.

Ten inches to the southeast of Pavement 1 and slightly lower than its top was a partly pecked celt. At the northwest edge of Pavement 3, 3 inches below its top, was part of a semi-lunar knife (Fig.12,E) while 4 inches further to the west and 2 inches lower than the top of this pavement was an eared triangular point (Fig.12,D).

As it seems impossible for the quartz chips to get below these pavements after their construction, it seems reasonable to date them as of the period when quartz was predominant material. The lack of gray patinated felsite and of corner-removed points in this area supports this hypothesis. Whether the semi-lunar knife, eared triangular point, pecked celt, and grooved hammer (from Square -SII) should also be put into this manifestation is debatable but it seems probable.

Caches

Two caches of material for the manufacture of chipped implements were found. One, in Square -SH8, consisted of 19 small flakes of a dark, only slightly patinated, felsite, lying flat, one on top of another, in a circle 7 inches in diameter, in the yellow-brown sand 6 inches below the base of the loam. These flakes were all about 1½ inches long and 1/8 of an inch thick. There was a very slight suggestion of a pit around the cache but it was not noticeable higher up. Presumably these flakes had been cached in the bottom of a pit which had been dug down from about the base of the loam but there is no proof.

The other cache, in Square A1, consisted of sixty-six large flakes of gray patinated felsite, each about 2½x1½x1 inch, surrounding two worked pieces of gray slate. These flakes were tightly packed together, lying on edge, and occupying a space 7½x4 inches horizontally and 7 inches vertically. They must have been placed in a pit or they would not have kept this arrangement.

There was not the slightest trace of a pit over this cache but one was readily discernible beneath it. This pit was 11 inches across and continued 7½ inches below the cache, cutting through the gravel layer. Under the cache the pit contained dark brown sand and charcoal. Part of this pit is shown in the profile (Fig.8). The top of the cache was 6 inches below the base of the loam. It seems proper to correlate this pit and its cache with the earlier period of the site when corner-removed points were popular.

Pits

Thirty-two pits were found. These have been plotted on Figure 7. Of them eleven, 3, 6, 10, 12, 16, 17, 18, 21, 22, 24, and 32, were shallow basin-shaped pits, from 8 to 30 inches in diameter, leading down from the loam; the majority extended about 3½ inches below the base of the loam. Portions of two pits had been dug through the lower 3 inches of loam as evidenced by charcoal or ash. Two contained nothing but charcoal, while the others contained brown sand and charcoal and an occasional sherd, chip, or piece of bone.

Seventeen others, 1, 2, 4, 7, 8, 9, 11, 13, 14, 15, 16, 20, 23, 27, 28, 30, 31, and 32, also led down from the loam but went much deeper. They varied in shape from circular, 7 inches in diameter, to oval, 12½x27 inches, and extended from 6 to 11 inches below the base of the loam. In two cases they cut into the gravel. They contained brown sand with a little charcoal, occasionally a chip, and rarely a sherd, near the top. Pit 9 contained a lens of yellow-brown sand at the top. The upper 3½ inches of Pit 11 was filled with tann colored sand while the lower portion was filled with black. All of the above pits may be associated with a former land surface in the loam or near its present base, as their tops were no more than 2 inches below the base of the loam.

Pits 25 and 29, the two cache pits, have been described earlier. Pit 26 was 10x27 inches at its top, which was found in the yellow-brown sand, 4½ inches below the base of the loam. Its bottom was 5 inches lower. It contained several quartz chips. From its vertical position, it may be ascribed to the intermediate or predominantly quartz-using manifestation.

Pit 5 consisted of a deposit of charcoal, 18 inches in diameter, extending 14 inches vertically. The top of this pit could not be found above a depth of 16 inches, or 8½ inches below the base of the loam. There was no gravel layer here, but the bottom of the pit extended downwards 9 inches below the top of coarse sand representing the gravel layer. The charcoal consisted of branches, ½ inch in diameter The top of this pit and that of the second cache pit were 18 and 20 inches respectively below the surface (6 and 8 inches below the base of the loam) and presumably correlate with the older manifestation producing corner-removed points.

Post Holes

Fifty-eight post holes have been plotted on the excavation plan (Fig.7). This number includes many, the identity of which is somewhat dubious. The post holes
varied from 1½ to 3 inches in diameter and from 1 to 9 inches in length. Upper limits of some were found at the base of the loam but those of others were only found 2 or 3 inches lower. Seven contained charcoal, chips or sherds. It will be noticed from the plan (Fig. 7) that these post holes form straight and curved lines but do not seem to enclose anything. One suspects they are all related to the occupation in the loam and have no connection with the stone pavements.

**STRATIGRAPHY**

As has been mentioned, the strata at Foster's Cove consisted of an upper layer of loam, about 84 inches thick, lying on top of a layer of yellow-brown sand whose thickness averaged about 9 inches. From the tabulation of projectile points (see earlier) it is evident that the trianguloid points of dark felsite were found in the loam. Only 15% of these points were found below the base of the loam. Twenty-six of the twenty-eight small triangular and small stemmed points of quartz were found in the upper 5 inches of the yellow-brown sand. Twenty-four of the twenty-five corner-removed points were found in the yellow-brown sand. Seventeen of these points were 5 or more inches below the base of the loam. The horizontal distribution of these points (Fig. 13) indicates that a fairly large area is involved. Stratigraphic superposition is strongly suggested.

**Fig. 13.** Horizontal distribution of certain classes of artifacts.

As the implications of this stratigraphy, if true, are of extreme importance, it seems necessary to go into a reasonable amount of detail in further explanation. The lack of definite sterile layers separating these zones also makes more information desirable.

The following table gives the mean depths of the quartz and corner-removed points found in the yellow-brown sand. Mean depth below the base of the loam of corner removed points is twice the average of the depths of stemmed and triangular quartz points below the base of the loam.

<table>
<thead>
<tr>
<th>Mean Depths in inches</th>
<th>From the surface</th>
<th>base of loam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz stemmed points</td>
<td>10.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Quartz triangular points</td>
<td>12.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Corner-removed points</td>
<td>15.0</td>
<td>6.5</td>
</tr>
</tbody>
</table>

It is evident from the tabulation of projectile points that both quartz points and corner-removed points were found in the upper 5 inches of the yellow-brown sand. Within this zone were twenty-six quartz points and seven corner-removed points. Seventeen of the quartz points were in the upper 3 inches and nine in the lower 2 inches of this zone. Two of the corner-removed points were in the upper 3 inches and five in the lower 2 inches of this zone. From the horizontal distribution of these points (Fig. 13) it will be noticed that in only three squares were both quartz and corner-removed points found. In Square A1, the quartz trianguloid was 4½, the corner removed, 8⅔ inches below the base of the loam. In B3, the quartz trianguloid was 2½, the corner removed 9⅓ inches below the base of the loam. In C2, the quartz stemmed point was 1¾, the corner-removed, 4 inches below the base of the loam. The association between the quartz points and the corner-removed points is not very close.

In respect to any association between the trianguloid points of dark felsite and the quartz points, the situation is similar. It will be remembered that only 15% of six of the dark felsite trianguloid points were below the base of the loam. In no case were any of them below a quartz point. However, the slight typological differences prevent any definite conclusion. The lack of any pottery, except for six sherds of coarse mineral-tempered ware, below the base of the loam argues against any association between the dark felsite trianguloid points and those of quartz.

Another argument, which may be presented to support stratigraphy, is that of superimposed workshops or areas with extremely heavy concentrations of chips. Refuse from workshops and many chips were found in the northern portion of the excavated area (Fig. 7). Chips in the loam were predominantly of dark felsite. In the yellow-brown sand the number of quartz chips decreased while that of chips of patinated felsite increased as depth grew greater. There was not a sudden change. However, to the south, where the workshop debris was less confused, superimposed workshops can be demonstrated.
Horizontal distribution of thumb nail scrapers of deeply patinated red felsite has been plotted in the lower right hand block of Figure 13. These scrapers were concentrated in two areas, Squares -SF8 and -SE1, and mixed with a great many chips of the same material. The modal depth of these scrapers was 10 inches below the base of the loam. The red felsite workshop of Square -SF8 was directly below part of a quartz workshop of Squares -SF7 and -SF8, which in turn was under part of a larger workshop of dark felsite found in the loam of Square -SG9 and its surrounding squares. Some abstracts from the field notes may be of interest.

Square -SF8

<table>
<thead>
<tr>
<th>Depths</th>
<th>Shards</th>
<th>Fels.</th>
<th>Quartz</th>
<th>Fels.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loam</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>0-10&quot;</td>
<td>25</td>
<td>50</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Yellow-brown sand</td>
<td>-</td>
<td>-</td>
<td>727</td>
<td>3</td>
</tr>
<tr>
<td>10-15&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>15-20&quot;</td>
<td>Many red felsite chips and 4 red felsite scrapers</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>20-22&quot;</td>
<td>Gravel</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Square -SG8 (south half only)

<table>
<thead>
<tr>
<th>Depths</th>
<th>Shards</th>
<th>Fels.</th>
<th>Quartz</th>
<th>Fels.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loam</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>0-10&quot;</td>
<td>80</td>
<td>155</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Yellow-brown sand</td>
<td>-</td>
<td>-</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>10-15&quot;</td>
<td>9</td>
<td>4</td>
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<td>2</td>
</tr>
<tr>
<td>15-20&quot;</td>
<td>2</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>22&quot;</td>
<td>Gravel</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

The other red felsite workshop was in Square -SE1. The quartz workshop was not directly over it but to one side in Square -SF2. The following table gives the chip count for these two squares. Five red felsite scrapers were found in Square -SE1 between depths of 17 and 20 inches below the surface.

Square -SF2

<table>
<thead>
<tr>
<th>Depths</th>
<th>Shards</th>
<th>Dark</th>
<th>Gray</th>
<th>Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-8&quot;</td>
<td>80</td>
<td>35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Yellow-brown sand</td>
<td>-</td>
<td>-</td>
<td>110</td>
<td>2</td>
</tr>
<tr>
<td>8-12&quot;</td>
<td>-</td>
<td>2</td>
<td>230</td>
<td>2</td>
</tr>
<tr>
<td>12-16&quot;</td>
<td>-</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>16-20&quot;</td>
<td>Gravel</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20-23&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above squares meet at their corners. The quartz workshop, 11 and 14 inches below the surface, would seem to be stratigraphically removed from the red felsite one, 17-20 inches deep. The broken rocks in Square -SE1, which equates with the quartz workshop of Square -SF2, would seem to form a cap, clinching the stratigraphy.

Various types of points have been plotted according to their depths in inches below the surface of the loam (Fig. 14). As there seems to be such a high correlation between the type of point and the material used for its manufacture, worked fragments have been similarly plotted in the same figure. A distribution curve for the total number of specimens, both complete and fragmentary, will also be found in Figure 14.

Within the upper 9 inches were 63 of the 73 specimens of dark felsite, counting both points and worked fragments. To this should be added the 2000 sherd s found only in the loam. Within an 8-inch zone, 60 of the 65 quartz items occurred, while 50, or 76%, were found in a zone only five inches thick. Some corner-removed points and specimens of gray patinated felsite were found at about the same level as those of quartz but most were found at greater depths. Thumb-nail scrapers of red felsite have the deepest provenience.

In considering this presentation, it must be borne in mind that if artifacts are to be plotted from the surface of the loam some compensation should be made for differences in elevation of the surface and differences in the thickness of the loam. The base of the loam more nearly approximates a proper plane of reference than does its surface. However, no such level plane was established. Nevertheless vertical measurements were taken from the base of the loam down to specimens.

The sixteen small quartz triangular points were found within a 3-inch zone when measured from the base of the loam. Measurements taken from the variable surface of the loam place these points within a zone 5 inches wide rather than in the narrower 3-inch zone resulting from measurement from the more even base of the loam.
The vertical distributions in Figure 14 have been plotted from the surface without any compensation for surface irregularities.

It is significant that even without such compensation the curve of vertical distribution in Figure 14 shows differences in value at various depths. Four peaks are discernible, those at 3½, 5½, 11½, and 14½ inches. Frequencies increase markedly in the loam, or upper 8½ inches, then decrease as depth increases except for a sharp break at 4½ inches. As mentioned earlier, lenses of yellow-brown sand, probably from the digging of pits, were found in the loam at depths of about 5 inches. Most of the quartz and gray patinated felsite - materials typical of the lower levels - found in the loam appear just below this break in the curve. This is where such material should be if it got into the loam as the result of the digging of pits from this level. It seems proper to consider the peaks in the vertical distribution curve at 3½ and 5½ inches as representing one peak. The resulting three peaks, and the dips between them correspond closely to the three cultural zones postulated earlier. The skewing of the curve towards the bottom reflects the deep provenience of the red felsite scrapers.

The width of the dip in the frequency curve at about 8½ inches, or the bottom of the loam is suggestive of an hiatus. The width of the dip at 13½ inches is not suggestive of a break. Apparently, at this point the curve for gray patinated felsite is decreasing while that for quartz is increasing. The association between the quartz and corner-removed points has been discussed earlier.

If the three-fold division may be granted, it becomes of interest to ascertain the associations of heavier artifacts in terms of the suggested sequence of types of arrow points. Felsite triangularoids in the loam are definitely associated only with two fragments of scored graphite and two possible mullers.

The situation in the yellow-brown sand is not clear, largely because of the low
frequency of larger artifacts. An examination of the vertical distribution of specimens in each square permits of only one generalization. Round battered hammerstones go with the corner-removed points, and "beach pebble" hammerstones with the small quartz points. The gorget (?), choppers, impure graphite, semi-lunar knives, gouges, partly pecked ax, and hafted hammer were at levels intermediate between the corner-removed and quartz points. If the partly pecked ax, hafted hammer, eared triangular point, and one of the semi-lunar knives may be interpreted as being associated with the pavements, they may be considered as going with the small quartz points. No corner-removed points were found near them. However, to be conservative, one must state that all these artifacts occupy an intermediate position.

At Foster's Cove there is difficulty in determining the source of the sand in which the results of man's handicraft were buried. Dr. Kirk Bryan, of Harvard University, very kindly consented to visit the site and examine the evidence. I am deeply appreciative of his interest, and of the stimulating discussions which resulted. The following does not necessarily reflect his interpretation of the events which resulted in the burial of the artifacts.

The Shawsheen River has a very small drainage area and does not rise sufficiently in times of flood to overflow the site. No suggestion of water deposition was found above the gravel layer. An examination of the contours of the sketch map (Fig.6) does not suggest the addition of material by slope wash or surface creep, in recent times at least. The sand contains too many pebbles 2 inches in diameter for deposition by wind. By no readily discernible method could there have been any substantial addition of material to the site during Indian times.

It seems probable that man was the chief factor in burying his tools. The vicinity abounds in sand and gravel knolls. Possibly this situation was, at least to some extent, true at the site when the first Indians arrived. They may have lived in one or more convenient hollows. During the passage of time, local slope wash, abetted by killing off the natural cover and the physical fact of walking and children playing on the slopes may have gradually leveled the whole area and buried the artifacts. Such a process would preserve the stratigraphy well in some places and not so well in others. This seems to be the situation here.

In support of the above hypothesis several suggestions may be made. The deep workshop yielding red felsite and found in Square -SE1 covered a fairly large area, over 10 feet in diameter. Chips and specimens were found 2 inches below what was taken as the top of the gravel. There may have been a substantial increment of soil above the surface of the gravel at this point since red felsite was chipped there. Around Squares -SA6 and -SD6, where the top of the gravel is near the present surface, evidence of occupation in the yellow-brown sand was practically nil. In the southern part of the excavated area uncovered layers thick, were sometimes found just below the base of the loam. The horizontal distribution of quartz points is slightly greater than that of corner-removed points and red felsite scrapers (Fig.13). Test pits to the south of the excavated area uncovered dark felsite chips and pottery in the loam but no evidence of occupation in the yellow brown sand. This may reflect the size of the population but it may also reflect increased living area.

CONCLUSIONS

With the excavation of the Foster's Cove site we have two sites in the Shawsheen Valley, about two miles apart, available for comparison, Foster's Cove and the Hofmann site (Fig.6, M-12/43, Bullen and Hofmann, op. cit.). In both cases, triangular points and pottery were found in the loam or in association with the base of the loam, while corner-removed points were found in the underlying sand. However, at the Hofmann site, there was not the slightest trace of an intermediate quartz industry.

Unquestionably, the evidence of occupation in the loam was greater at Foster's Cove than at the Hofmann site. On the average, triangular points found in the loam at Foster's Cove are larger than those from the Hofmann site; proportionally more mineral-tempered pottery was found at the Hofmann site. At both sites, there was the same tenuous suggestion that this coarse, mineral-tempered ware bearing impressions of textiles or a cord-wrapped paddle was older, i.e. deeper, than the fiber tempered ware. From the above, one can guess that while the two sites were co-existent, occupation at Foster's Cove lasted later in time. The fragment of probable English flint, from Foster's Cove, also supports this view.

With the deposit under the loam, very close similarity between these two sites ends. Not only was there not a trace of a quartz industry at the Hofmann site but major artifacts, such as semi-lunar knives and gouges, were not found. While corner removed points are common to both, those from Foster's Cove are smaller in size and lighter in weight.

This suggests as a tentative chronology for the Shawsheen River Valley in Andover, an early period when large and heavy corner-removed projectile points were used, possibly with atlatls or spear throwers, followed by a period when similar but smaller points were used. This may reflect the introduction of the bow and arrow. In both periods, felsite, not native to the
immediate neighborhood, was the popular material. Subsequently, very small triangular and stemmed points, predominantly of quartz, were utilized. About this time the gouge and semi-lunar knife are found. They may have been known earlier but we have no proof. Later, pottery was introduced, manufacture of all forms of stemmed points was neglected, triangular points became larger, a few side-notched points appear, and the favorite material is again felsite.

This does not imply that everything everywhere progressed in just this way. Pottery may appear earlier at some sites than at others. Possibly all the people in the neighborhood did not take up the fad of utilizing quartz. Until more sites have been excavated, and the geographical distribution of any similar sequence discovered, the matter must be left as a suggestion only. However, a general sequence, in which large triangular points are later than corner-removed points, seems established on a fairly firm basis. Much material bearing on this point remains unpublished.

While felsite is not available near Foster's Cove, quartz is very abundant as cobbles in the glacial drift. Many fragments indicate that the quartz industry was based on cobbles. The use of quartz does not necessitate visit to or trade with the felsite quarries near the coast.

The decoration of the pottery from Foster's Cove and the Hofmann site appears to be very close to that which Carlyle S. Smith, in his study of coastal New York pottery, called "Grantville" and postulated as early (Smith, Carlyle S., Clues to the Chronology of Coastal New York, American Antiquity, Vol. X, No. 1, Plate IX, Fig.14, July, 1944). The medium and large triangular points from both sites are similar to those of the "Owasco" of New York State (Ritchie, W.A., The Pre-Iroquoian Occupation of New York State, Rochester Museum of Arts and Sciences, Rochester, N.Y., Pl. 33, 37, 38), particularly those of eastern New York State (Miller, P. Schuyler, Schenectady, N.Y., personal communication), except that the sides tend to be more excursive. Decorative elements used on pottery, while within the range of Owasco variation, do not appear to agree very closely with those shown in illustrations of Owasco vessels.

Either the same or different people lived at Foster's Cove over a sufficiently long period of time for their types of tools to change considerably and for pottery to appear. We have no way of estimating whether these changes took place over a long or a relatively short period of time. That Andover was not isolated in aboriginal times is evident. A glance at the map (Fig.6) will indicate that three water routes for outside influences are available.

The excavation at Foster's Cove presents stratigraphic suggestions that need checking by the excavation of similar sites. Taken with the nearby Hofmann site, a complicated picture of culture dynamics is suggested. It would be very easy to make up theories relative to the apparent culture history. It seems best to delay such postulations until results from a much larger area are available. With the information so far gained, we merely know what we think we should look for. It is also suggested that small undisturbed sites may be more important stratigraphically than larger "metropolitan" centers.

Andover, Massachusetts
March, 1945
AN INDIAN SITE IN ANDOVER, MASSACHUSETTS

Ripley P. Bulen

At two Indian sites in Andover, Massachusetts, the Hofmann and Foster's Cove sites there were suggestions that coarse mineral tempered pottery represented a relatively early ware, locally. (Bullen and Hofmann, "The Hofmann Site," American Antiquity, Vol. 10, No. 2, 1944. Bulen, preceding article, this issue of this journal). Only a few sherds of this pottery were found at Foster's Cove but at the nearby Maud Eaton Girls Scout Camp it was known to be fairly abundant. This paper reports the results of tests made at Camp Maud Eaton during the spring of 1945 to discover the type of projectile point associated with coarse mineral tempered pottery. Stratigraphic suggestions were also found supporting those at Foster's Cove which are described in the preceding article. While these two sites are on different bodies of water, Pom's Pond and the Shawheen River, they are only 1000 feet apart by land. For the location of Pom's Pond and its relation to the Foster's Cove site see Figure 6, page 24, this Bulletin.

The author wishes to thank Mr. Francis Homer Foster of Andover for permission to excavate and Mr. Edward Henry Cass of Port Washington, N.Y., a student at Phillips Academy, for assistance in excavating.

Camp Maud Eaton is located on the north shore of Pom's Pond (Fig. 15). The region abounds in glacial kames and kettle holes. Ice contact slopes on the easterly shores suggest that Pom's Pond itself is probably in a large kettle hole. The site is on undulating land which, in general, slopes downward towards the northwest. Various surface elevations, above the level of Pom's Pond, are given on the sketch map (Fig. 15) in an endeavor to show the variation in the terrain. Part of a kame is also shown to the northeast. Just to the east of this kame is a kettle hole in which water stands most of the year. Between this kame and Pom's Pond is a smaller one supporting a good growth of sod. About 300 feet further to the east is the top of another kame rising over 75 feet above the pond. Sherds of coarse mineral tempered pottery have been found on the bare gravel surface near the top of this higher kame. Grass and small trees grow on the sides of these kames.

As the excavations indicated that slope wash was an important factor at this site, a hole was dug in the small dry kettle hole mentioned above. A vertical section from this kettle hole is given in Figure 18. No evidence of occupation was found.

The layer of cobblesstones, just under

---

The sod of this kettle hole, was extremely compact. Presence of this layer is of interest, as similar, but less compact, layers in the excavations both contained and overlay cultural material. The black, greasy deposit included what appeared to be charcoal in the form of small branches, bark, and larger fragments. This deposit, together with the overlying sandy clay, suggests that at some time water stood in this kettle hole. This deduction must remain tentative in view of the small area dug. The lack of cultural material suggests this may have been the case during Indian times. Apparently slope wash has substantially modified the topography of this region.

Excavations at Camp Maud Eaton consisted of a series of ten-foot test squares, placed with reference to a base line (Fig. 16). Some squares were not completely dug while others were extended into small excavations. An arbitrary datum was established by driving a nail into a tree. Local datums, referred to the datum for the site, were established at each test square. The profiles (Figs. 18 and 21) are plotted from these local datums. The elevation of Pom's Pond was also taken with reference to the datum for the site. The surface elevations (Fig. 15) were calculated from these data.

---

SECTION DEPTH LAYERS

<table>
<thead>
<tr>
<th>DEPTH</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0&quot;</td>
<td>SOD</td>
</tr>
<tr>
<td>2 1/2&quot;</td>
<td>COBBLESTONES</td>
</tr>
<tr>
<td>4 1/2&quot;</td>
<td>COARSE YELLOW SAND</td>
</tr>
<tr>
<td>9&quot;</td>
<td>BROWN CLAY</td>
</tr>
<tr>
<td>12&quot;</td>
<td>BLACK GREASY</td>
</tr>
<tr>
<td>14 1/4&quot;</td>
<td>RED SAND</td>
</tr>
<tr>
<td>16&quot;</td>
<td>DARK BROWN SAND</td>
</tr>
<tr>
<td>39&quot;</td>
<td>LIGHT BROWN SAND</td>
</tr>
</tbody>
</table>

Fig. 18. Cross section of wall of pit in kettle hole, Camp Maud Eaton.

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POTTERY WARES

Coarse mineral tempered wares
Crushed quartz is the usual tempering material but crushed granite is sometimes used. A great many of these angular fragments are 3 mm. or more in length. Temper represents 20 to 30% of the paste. Sherds are usually 8 mm. thick. With the exception of the "wiped-surface" pottery, to be mentioned shortly, surface hardness is between 3 and 4 on Mohs' scale.

Of some 260 sherds, 120 are undecorated and tan (Tawny-Olive) in color according to Robert Ridgeway's Color Standards and Color Nomenclature (Washington, D.C., 1912), while 140 are reddish-brown (Wood Brown) and decorated by means of a cord or textile wrapped paddle. This decoration is sometimes applied to both outer and inner surfaces, sometimes only to the outer. Rims are rounded, undecorated, and 5 mm. thick. Decoration, when present, starts just below the edge of the rim. One large rim sherd shows a slightly everted mouth. The wall of this vessel is 10 mm. thick, which is exceptional.

Variations in surface treatment, represented only by individual sherds, include faint fine squarish impressions; parallel rows of impressions, 1x3 mm. in size, possibly made by means of a cord-wound stick; craters "picked" out of the surface by means of a curved stick or hollow reed; and "rocker" marks. One "rocker" marked sherd shows a square rim with small indentations at both its outer and inner edge. Another rim sherd is decorated in a complicated manner by "jabbing" with a blunt tool when the paste was soft.

The "wiped-surface" variation represented by 113 sherds from the upper yellow brown sand of Square VI, is tan (Tawny-Olive) and tempered with crushed granite. The surface hardness is 2-3 on Mohs' scale. It is undecorated, but the outer surface has been especially treated by wiping with a damp cloth or skin. This surface is very "sandy" shows fine striations, and has patches where additional material has adhered.

Fiber tempered ware

This ware, found only sparingly at this site, exhibits many small slits and plane surfaces presumably the result of using grass as tempering material. Only rarely can any mineral temper be seen with an eight-power glass. It is Wood Brown in color, has a hardness of 2-3 on Mohs' scale, and is about 6 mm. thick. Two sherds are decorated with parallel rows of marks, 2 mm. wide, made by a tool which was "dragged" when either approaching or leaving the surface. One sherd has an undecorated, slightly rounded, rim. Another has a square rim which is lapped over on the outside. The flat top of the rim of this sherd is incised with straight lines to form crude triangles.

Fine mineral tempered wares

These wares include the incised and the typically Iroquoian collared sherds illustrated in Figure 21. They are Buffy Brown in color, 4 to 7 mm. thick, and tempered with crushed granite. The grains seldom exceed 1 mm. in length. Some mica may be seen.

Fragments of two vessels with the Iroquoian collar were found. Judging from some sherds with concave outer surfaces, one of these vessels was decorated on the neck with a fine textile imprint. Only a few sherds with fine mineral tempering, all undecorated, were found outside of Square VII.

EXCAVATIONS

Test Squares I, II, and III were practically sterile. Only one specimen, one sherd, and a few chips were found. The specimen was the base of a "corner-removed" stemmed point found in yellow-brown sand at a depth of 15 inches.

Test Square IV

The loam of Square IV was 7 inches thick. It contained many pebbles and a few cobblestones, some as large as 5 inches in diameter. In the underlying yellow-brown sand these rocks increased in quantity with greater depth. At a depth of about 18 inches it was estimated that they represented 40% by volume of the deposit.

In this square, thirty-four plain and twenty-five cord or textile impressed coarse mineral tempered sherds were found in the lower part of the loam while fifty-nine plain sherds and one decorated sherd were in the upper 1½ inches of the yellow-brown sand. In the loam, were three pieces of worked dark felsite including a flake knife. In the yellow-brown sand, at a depth of 8 inches and associated with the pottery was a thumb-nail scraper made of quartz. The tip of a large point, made of gray patinated felsite, was found 1½ inches below the surface.

Test Square V

The loam of Square V varied from 5 to 7 inches in thickness. It contained pebbles up to 3 inches in diameter. The underlying yellow-brown sand contained a great many pebbles and cobblestones as large as 7 inches in greatest dimension. These cobblestones were found from the base of the loam downward. At a depth varying from 10 to 14 inches, they were estimated to represent 30% by volume of the deposit. Chips, including 180 of gray patinated felsite, twenty-six of quartz, and twenty-four of gray slate, were found intermixed with this sand and gravel down to the depth of 10 to 14 inches mentioned above. The inclusion of these chips seems to indicate that this sand and gravel represents re-worked material. As only thirty-nine chips, chiefly of dark felsite, were found in the loam, it does not seem likely that the chips in the sand and gravel worked down from higher up.

Specimens from this square are

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illustrated in Figure 17. It will be noticed that triangular points of quartz occupy an intermediate position. Twelve sherds, eight coarse, three fine mineral tempered and one fiber tempered, all undecorated, were found in the loam. No sherds were lower than the base of the loam.

Test Square VI

Square VI was enlarged into a small excavation. A plan of this excavated area and various profiles have been plotted in Figure 18, and the specimens found are illustrated in Figures 19 and 20. This test was situated in a slight dip in the surface of the land as suggested by the elevations given on the map (Fig.15). From the profiles (Fig.18) it will be noticed that three superimposed hearths were found in the southeastern part of the excavation. The profiles also show the tongue of loose sand and gravel found to the northeast. This sand and gravel included many pebbles and cobblestones up to 7 inches in greatest dimension. Chips, specimens, and calcined bone were found in this sand and gravel, as well as below it. As the Indians did not dig pits into this layer, which would have permitted the entrance of cultural material, it must have accumulated during occupancy of the site. Patches of compact sand and gravel, generally at lower depths, will also be seen in the profiles (Fig.18). All of this suggests to the writer that Indians settled in a depression of the surface of the ground, possibly a small kettle hole, and that, during occupancy, slope wash accelerated by the occupation filled in the depression at a sufficiently rapid rate to preserve suggestions of stratigraphy.

In the southern part of this excavation four hearths were found at various elevations. These hearths were all similar in construction, shaped like saucers, and completely paved with cobblestones, 3 to 6 inches in size. Charcoal was found inside the hearths and below the cobblestones. Hearth 1 was unique in having a cap of gravel consisting of pebbles, 1 to 1 inch in diameter. A large quartz core was built into Hearth 3. The charcoal from Hearth 4 extended to the north, beyond the hearth proper and was mixed with gravel. Here, at a depth of 12 inches, two remnants of charred logs were found. They were 9 and 7 inches in length and 3 and 2 inches in diameter, respectively. One appeared to be oak. At first they were thought to be roots from a burned-out stump, but, when further excavation uncovered Hearth 4, it appeared that they probably represented logs pulled out of the fire. The excavated portion of Hearth 4 contained four sherds of coarse mineral tempered pottery.

From the vertical distribution of points from Square VI (Fig.19), it will be noticed that side- and corner-notched points were found in the loam. Quartz
points having "ill-defined" stem bases predominate in the upper portion of the yellow brown sand. Points with "corner-removed" stem bases were found in the loose sand and gravel or, to the south, in the lower portion of the yellow-brown sand.

The somewhat triangular-shaped point (Fig. 19, O) from the loam should be classified as a knife. I have observed that this type of knife, easily mistaken for a large isosceles arrow point, has been found at other sites at levels lower than those of "true" large triangular arrow points. The large "corner-removed" point (Fig. 19, W) found in the upper yellow-brown sand, is a knife and not a spear point. Antero-posteriorly its base is at about a 30° angle from the plane of the blade.

The percussion-flaked tool and semi-lunar knife (Fig. 20) were also found in the layer of loose sand and gravel. This semi-lunar knife was found in ten pieces in a space about 10 inches across. All the pieces were 3½ inches below the top of the sand and gravel or at a depth of 15½ inches below the surface of the ground. As there was no suggestion of a pit and rocks were directly over fragments of the knife, it must be presumed to be associated with the "corner-removed" points.

Fig. 20. Semi-lunar knife and percussion flaked tool from sand and gravel, Test Square VI, Camp Maud Eaton.

Associated with the notched points in the loam were forty-six sherds of coarse mineral tempered pottery, ten sherds with fine mineral temper, and eleven sherds of fiber tempered pottery. All of the latter were in the area above Hearth 2 where they could not, presumably, be relatively early. In the top 4 inches of the yellow-brown sand of the central portion of the excavated area, sixty-seven sherds with impressions of cords or textiles, and one hundred thirteen sherds of "wiped-surface" pottery were found. These sherds were stratigraphically between two side-notched points (Fig. 19, E and H). Otherwise only fourteen sherds were found in the top 4 inches of the yellow-brown sand. No sherds were deeper than 4 inches below the base of the loam.

Test Square VII

Two profiles and illustrations of specimens from Square VII are shown in Figure 21. Specimens from a small test, made in 1944 about 10 feet to the north of Square VII, have been included.
The three large triangular arrow points of dark red felsite (Fig. 21, G-I) were apparently made here as 455 chips of this material, chiefly small triangular and some medium-sized triangular as well as a few side- and corner-notched points both of dark felsite were found in the loam. Of twelve sherds of coarse mineral tempered pottery found in the loam a large amount of fiber tempered pottery and twelve "hunks" or cores of felsite were found in the yellow-brown sand. Twelve "hunks" or cores of red felsite were found in the upper part of the yellow-brown sand. These chips were all heavily patinated and light instead of dark red in color. No chips accompanied them. They do not appear to have any connection with the dark red felsite points and finishing chips of the loam found at the nearby site at Foster's Cove, Andover. 

At Foster's Cove, the same general stratigraphic situation was found. In Square VI the points in the loam were notched, in Square VII they were large triangular arrow points and fragments of English (?) flint. There is no question about the association, as the mixture was complete down to the base of the loam. No sherd of coarse mineral tempered pottery was found. In the upper part of the yellow-brown sand was found what appears to be a fragment of a brass arrow point. The identification is tentative.

At Camp Maud Eaton, the same general stratigraphic situation was found. In Square VI the points in the loam were notched, in Square VII they were large triangular arrow points and fragments of English (?) flint. There is no question about the association, as the mixture was complete down to the base of the loam. No sherd of coarse mineral tempered pottery was found. In the upper part of the yellow-brown sand was found what appears to be a fragment of a brass arrow point. The identification is tentative.

The three large triangular arrow points of dark red felsite (Fig. 21, G-I) were apparently made here as 455 chips of this material, chiefly small triangular and some medium-sized triangular arrow points, were found in the loam. Only four of these chips were in the underlying yellow-brown sand. Twelve "hunks" or cores of red felsite were found in the upper part of the yellow-brown sand. These chips were all heavily patinated and light instead of dark red in color. No chips accompanied them. They do not appear to have any connection with the dark red felsite points and finishing chips of the loam found at the nearby site at Foster's Cove, Andover. 

While the inventory from the lower levels is not large (Fig. 21), similarities to Square VI (Figs. 19 and 20) will be noticed. The fragment of polished slate (Fig. 21, a) was found in the same relative position as the semi-lunar knife, in Square VI. This fragment could be part of a similar semi-lunar knife.

COMPARISONS AND CONCLUSIONS

Test excavations at Camp Maud Eaton substantiate stratigraphic suggestions found at the nearby site at Foster's Cove. At the latter site "corner-removed" stemmed points made chiefly of gray patinated felsite were found deep in yellow-brown sand. Small triangular and small "ill-defined" stemmed points, predominately of quartz, occupied an intermediate position near the top of the yellow-brown sand. Medium and large-sized triangular as well as a few side- and corner-notched points both of dark felsite were found in the loam. Associated with these points in the loam was a large amount of fiber tempered pottery and twelve sherds of fine mineral tempered pottery. Of twelve sherds of coarse mineral tempered ware with cord or textile impressions which were found, six were in the top few inches of the yellow-brown sand (see "The Foster's Cove Site," above).
at Foster's Cove, and while it demonstrates that semi-lunar knives were co-existent with "corner-removed" points, it cannot be used to allocate the semi-lunar knives found at Foster's Cove.

The stratigraphic situation at both Foster's Cove and Camp Maud Eaton implies the passing of time. This problem may be investigated by geologists. In the meantime it may be noted that styles in projectile points appear to have changed more rapidly and radically than did the type of stone hearth.

At Camp Maud Eaton, coarse mineral tempered pottery was found deeper and, therefore, appears to be earlier, relatively, than fiber or fine mineral tempered pottery. This substantiates similar suggestions from the Hofmann and Foster's Cove sites (Bullen and Hofmann, op. cit., and preceding article). From the evidence from Square VI, this coarse mineral tempered pottery appears to be associated with side-and corner-notched arrow points. At Foster's Cove, a side-notched point, similar to "E" and "H" in Figure 19, was found at a depth of 11 inches and in the zone between the loam and the yellow-brown sand. This is comparable to the depth (10½ inches) of some of the coarse mineral tempered pottery at that site. The corner-notched points, as at Camp Maud Eaton, were higher.

Similarly tempered, cord or textile impressed pottery and side- and corner notched points are typical of the Brewerton Focus of New York State (Ritchie, W.A., Two Prehistoric Village Sites at Brewerton, New York, Research Records No.5, Rochester Museum of Arts and Sciences, Rochester, N.Y. 1940). This offers the enticing possibility that pottery and points of these forms were introduced into Andover by influences similar to the late "Archaic" of New York. If so, pottery arrived at a time when projectile points were, and for some time had been, small and predominantly made of quartz.

It was suggested at Foster's Cove that fine mineral tempered pottery was the latest relatively, of the three wares under discussion. Further evidence for this hypothesis was found at Camp Maud Eaton in Square VII where this ware was found with the typical Iroquoian collar and associated with large triangular points and fragments of English(?!) flint. The difference in the pottery and stone specimens from the loam of Square VII compared with those from the other squares sounds a note of warning regarding working from surface collections or from insufficient test excavation.

Andover, Massachusetts
June 21, 1945

IT PAYS TO BE CAREFUL
Maurice Robbins

How easily one might introduce pseudo artifacts among those recovered from an authentic Indian site is clearly demonstrated by the following incident. The Warren King Moorehead Chapter, during the 1944 season, excavated a small area of the large site on the shore of Winnecomet Lake in Norton, Massachusetts known as M-39-5 in the Society's files but locally called the Ford Site after Dr. Carlton S. Ford, owner of that portion which we have permission to excavate. Some four hundred artifacts were recovered in excavation and an additional number picked up on the surface of the entire site where the surface had been disturbed by natural erosion or by other agency. The artifact shown in Figure 22, a large, water-worn pebble with one end badly battered as if by use, was picked up on the surface beneath a small summer cottage which partly covers the area under excavation. The object weighs about four pounds and measures some thirteen by ten centimeters, is of very close-grained quartzite, and is very much like several found by excavation at the Faulkner Spring Site (see Fig.11 and following table, pp.37-38, "The Faulkner Spring Site"). It was readily accepted as a genuine artifact and duly recorded as from the Ford site. I have no doubt but that any archaeologist would have as readily accepted this object as a genuine hand hammer or large maul if he had recovered it from this actual site in association with so many artifacts of unquestionable origin.

Some time later the attention of the writer was called to a pile of some fifty similar stones, approximately five hundred feet from the area under excavation, lying near a small sand bank in the rear of another summer cottage. An examination of the stones which made up this pile showed that each was battered in a similar manner to that of our first specimen, some on both ends as well. They were of various materials, quartzite, basalt, and granite, and all had been waterworn prior to the battering. The presence of this large number of objects introduced doubts as to their genuineness as Indian artifacts, but the thought persisted that a large cache of these objects might have been removed from the small sand bank near which they lay.

Further search however revealed the presence of a second pile of these altered pebbles in an open field, quite hidden by tall grass. This pile was made up of more than a hundred stones together with a
IT PAYS TO BE CAREFUL

of the road and had been thrown aside as worthless. The cottage owner, having visions of a field stone fireplace at Winneconnet, acquired and transported several loads to the area, but, becoming discouraged by the number needed and the few that could be brought at a time, gave over the idea and again the stones were dumped in a pile as worthless. Our first pile of fifty or so stones must be accounted for as having been carried off by children at play, and the single specimen found at the excavation may have been deposited there in a similar manner.

So it seems that the battered and worn surfaces were made by the hundreds of steel shod wagon wheels and the iron shoes of the draft horses that carried the loads of a busy city for many years up and down Harrison Avenue. Had the fireplace been built however, or the stones used for some other purpose that effectively hid them from our search, our original specimen might have ended its days in a museum case as a large Indian hammerstone or maul.

Attleboro, Massachusetts
April, 1945

PITS AT THE NOOK FARM CAMP SITE

W.W. Whiting and Jesse Brewer

The Nook Farm Camp Site M41/9 located at the headwaters of Wellingsley Brook, now known as the Plymouth Rock Trout Co., Plymouth, Massachusetts, is about three-quarters of a mile from tide water, and the brook at the time of the early explorers was not navigable even for canoes.

There are six known camp sites located on this brook. At the east end of this Nook Valley, which is the brook's outlet to Plymouth Harbor, the high land projects out from both the north and the south, leaving a small gap of low land for the brook to run through. We think that at some time, probably many years before the landing of the Pilgrims, the whole Nook Valley, comprising about ten acres of meadow land, was a lake and the land gave way at the outlet in some great freshet letting the lake down into the ocean. One of our reasons for thinking this is the fact that there is so much shell at the upper camp sites. This made us believe that the shell fish must have been brought up by water as it would be too long a walk to carry such loads from the harbor.

We have even found a small shell heap located on a small swamp still another quarter mile further back.

We have also found a camp site located west of the main upper camp site. This one had a large shell heap, and one section of it had a tremendous amount of scallop shell in it. We found two occupation floors at this site. As there are no scallops in Plymouth Harbor now, and as scallops do not seem to thrive in as cold water as we have on this side of the Cape, it would seem that these scallops must have been brought here at some warm period a great many years ago when the water in Plymouth Harbor was much warmer than it is now. (Ed. note:—Scallops are taken to-day in great quantities in deep water along the Maine Coast. These, however, are sea scallops, Pecten grandis Sollander.)

We hear a great deal about the shell heap sites along the coast of New England, but not so much about the shell, storage, and refuse pits. This camp has a generous amount of these pits. They seem to be placed inside the huts, as many of them are close beside the fire pits, and there are
haps the Indians arranged a pot over them at this site. Some of them are full of whole clam shells, while others will be full of broken up shells of clams, quahoggs, sea clams, and mussels, bones of deer, small game, fish, and turtle shells. We find some pits filled entirely with scallop shell. We have dug out some which contained whole clam shells in the top and running about two thirds down, then there would be charcoal, under the charcoal gray ash, with fire stones in the bottom. It would seem as if these pits were used for steaming clams, or perhaps the Indians arranged a pot over them for cooking purposes. There was one pit in particular that was probably used for these purposes which was paved all the way up with pebbles and small stones. This pit was about fifteen inches in diameter and about two feet deep below the occupation floor, or nearly three feet deep from the surface of the ground. It contained whole clam shells and nothing else, from top nearly to bottom, then charcoal, gray ash, and a lot of very red fire dirt in the bottom. In the gray ash there was quite a large piece of a clay pot which had broken up into several pieces.

There was another pit which measured two feet three inches north to south by two feet east to west, with a depth of two feet four inches below the occupation floor. It contained broken clam shells, deer bones, jaws of deer with teeth, turtle shell, and gray ash in bottom on fire stones. Artifacts in pit comprised: one red bird vent, one and one-eighth inches by one-half inch, with notched base, made from a curved chip; one triangular red jasper arrow head one and one-eighth inches by one inch; one white quartz snubbed circular scraper one and one-sixteenth inch by one inch; and one abrading stone four and one-eighth inches by three inches, with a flake broken out of one side. This pit was probably used for cooking purposes at first, and later used as a refuse pit.

The pits vary in diameter from about nine inches to two and one-half feet, and usually are about two feet deep below the occupation floor, although we have found a few much deeper. Some of the pits are paved only on one side with pebbles or clam shell.

We found one pit at another camp site in Plymouth which was paved beautifully all the way down with sea clam shells. These paved pits were probably used for storage purposes. Most of the pits are not paved at all; the side walls of all of them run nearly straight down and they are usually round.

Over the tops of three of the pits there were flat stones just large enough to cover the opening. One of the pits which had a stone cover contained a small pendant in the bottom, and one of them had a large sea clam shell in the bottom. This shell showed signs of wear on the edge and we thought the Indian who dug the pit did it with this shell, and then left it in the bottom forgetting to take it out as there were no other sea clam shells in this pit.

We have found many artifacts in these pits such as bone awls, parts of bone needles, bone arrow heads, stone arrow heads and knives, drills, one bone flaker, stone flakers, scrapers, clay potsherds, soapstone potsherds, plumbago, broken implements, and hundreds of chips of all kinds. The bone flaker and stone flakers are illustrated in W. W. Whiting, "Digging at Indian Work Shops Near Plymouth, Mass." Bulletin of the Massachusetts Archaeological Society, Vol. IV, No. 1, October, 1945, Fig. 7, and Fig. 6, B, C. From one of the shell pits, a round object was taken; its composition looked somewhat like that of shell. It measured five eighths inch in diameter and by three eighths inch thick. We thought it was a large pearl which had been spoiled by cooking.

We seem to find most artifacts in the pits which contain animal bone. Probably the reason for this is that the Indians were using more stone artifacts in the season of the year when they were getting this kind of game. When we find mostly mussel shell in the pits, we do not find any artifacts except perhaps potsherds. We think that they ate mussel in the middle of the winter, as they would be easier to get than other kinds of shell fish, since gathering them is no more than pulling them off the stones.

We think that after the lake went down into the ocean, the Indians probably moved down and lived on some of the sites which we have found closer to the harbor. Some digging has been made on these sites and a different class of artifacts was found, which consisted of one large sinker, two bone harpoons and three bone fish hooks Also the clay potsherds were much more abundant and were decorated, while sherds at the Nook Farm are not as numerous and no tempering could be seen. They are full of little holes. The chipped specimens seem to run about the same as they did at the upper sites. Most of the artifacts taken out at this site were found by Colburn Wood, Jr.

Some of the notes taken at these diggings were lost, consequently I could not give exact measurements. Harry Hornblower did considerable digging for one season at the Nook Farm site, and he has some fine notes on it which he may publish at some future date, but as he is in the Army now, located somewhere in Europe, it probably will not be for quite a long while. At many of my diggings of pits at this camp site I was accompanied by Dr. Carl L. W. W. Whiting, and some of the conclusions arrived at were talked over between the two of us.
Discussion of Stone Artifacts

There have been many discussions by archaeologists on the subject of early and late cultures of stone artifacts in Massachusetts. Some claim one type is early culture, and others insist that it is just the opposite, and so on through quite a few other types. For instance, some claim that rough slate arrow heads are early culture because they look crude, but why should they not look crude, as they will not flake like most other kinds of stone on account of straight grain seams. Others infer that the rough looking stone artifacts were made by the later Indians, and that the art of making these chipped artifacts had gradually deteriorated after the Indians started making arrow heads of bone, wood, tails of horse-shoe crabs, and other substitutes.

In our opinion this idea is right, as in all of our diggings at different camp sites, as a rule we have found the nicest workmanship in the lower levels, but we have had no proof as yet that the early cultures were of any particular type, or that they excluded any particular type which are common to this district. We have found two beautiful triangular arrow heads on a second occupational level in the Burgess site located a little northwest of the Nook Farm site.

In a so-called large pit at the Nook Farm site, described in "Camp Sites near Plymouth" by Jesse Brewer (Bulletin of the Massachusetts Archaeological Society, Vol. VIII, No.4), we recovered fifteen perfect arrow heads, six broken points and four broken bases, all of which were triangular in shape and were found from eight inches from the surface to the extreme bottom. This pit took in about one-third of the hut floor space and was six and one-half feet across and six feet deep. The finest specimen of all was over six feet from the surface. We think this could have been a cellar to insure warmth in extreme cold weather as there was a hearth at the bottom built into the side wall, and on the opposite wall there were two large flat-surfaced stones inserted into the wall to serve as steps (Fig. 23).

![Fig.23. Cross section of Pit A.I. Nook Farm shell heap. The two large stones in the wall opposite the hearth, were staggered, not one directly over the other.](image)

We do find that at different sites the Indians seem to specialize on one particular type. For instance, at this site we have found hundreds of snubbed circular white quartz scrapers which are perfectly flat on the face, and on one section of the camp many triangular arrow heads with the thin bases were found. These were made chiefly of felsite, and were of extra fine workmanship, which leads us to believe that they were of an early culture and perhaps were shot in here by an attack of hostile Indians.

At one of the sites in Manomet, which is in the extreme south part of Plymouth, we find a different type of white quartz scraper. These scrapers are stemmed for hafting. These so-called hafting scrapers we believe to be knives of fine quality, as the technique of flaking is of a style that produces a perfect convex cutting edge with an extremely long symmetrical bevel. There is also a type of arrow head in Manomet which is very plentiful there, with a butt for hafting which concaves on sides and bottom. This arrow head is found only occasionally on other sites.

At a camp site near the mouth of the North River we find a predominance of large triangular arrow heads. Some of them have long sharp corners. Most of these heads were broken, and ran out in many pieces. They probably were taken off the arrow shafts or spears and replaced with whole ones. We think perhaps that these were used for spearing fish such as alewife herring, shad, striped bass, sturgeon, and so forth, in their proper season. We also found many of these broken triangular heads running to butts at Sunland Ranch, Green Harbor.

The second camp site on the North River, which we know of, is located at Union Bridge. There have been many plummets found here, and the third site on the river is at Henderson's Farm. There have been many implements taken from here, including axes, gouges, one butterfly banner stone which we know of, soapstone potsherds and projectile points of many types. This site has been a mecca for surface hunters. They have come here from great distances. All three of these sites are large and have southwestern exposures to the river. There is another camp site in Marshfield where a great many plummets have been found.

On the Davis Site, located on Sandwich Road, Plymouth, the material is outstanding. In its difference as to types of artifacts that are common in this locality. This was a small dig as only a garden was excavated, approximately one hundred feet square. Two hundred and ten specimens were recovered, one gorget, one bone awl, two plummets and two hammer stones with countersunk pecking on the larger surfaces. There were only four white quartz arrow heads and two white quartz scrapers, also three...
tiny notched base points. The unusual type arrow heads are widest one-third down from the point, with extremely long stems straight across the bottom. There are fifty-three points of this type running in length from one and one-fourth inches to three inches, and made mostly of felsite, one being made of black glassy flint. This was new unimproved land and all of the material was in the first foot of soil.

Charles Sanderson informs us that at a camp site in North Plymouth, where he has done considerable digging, he found a great many hoes, some of them being very expertly made for this type of tool.

At the Nook Farm Camp site where we have surface hunted for the past forty years, and also have been digging over a period of ten years or so, we have never found a hoe. This is one of the reasons which leads us to think that this is a very old site, lived on by the Indians probably before the days of agriculture. A few broken pestles have been found here, but as Harry Hornblower found carbonized native walnuts and acorns in some of the pits, it would seem that the pestles may have been used to make meal from these nuts and acorns.

There is a site on the Freeman Farm in Duxbury which consisted of about three acres of plowed land, the slope is very gradual, southwesterly to a brook. Here we found that on the extreme west end, nearly all flakes, chips, stock, and arrow heads were of white quartz, small triangular, heart shaped, and small elongate triangular points. Over the remainder of the site we found artifacts both large and small, and ceremon­ial stones. This material was made of all types and kinds of stone.

Mr. William Cunningham of Sagamore, now deceased, found in Sagamore at least thirty axes of identical type, the hafting surface straight from top of head to cutting edge and deeply grooved three-quarters of the way around. All of the axes were as near identical as to shape as it was possible to make them. At another camp site in Norwell there were many hoes found. At a camp site in Kingston there was a large predominance of small white quartz arrow heads. Also this same condition prevails at two camp sites in Plymouth, one in the north section and one in the south section.

We mention these variations to show that we think it makes a great deal of difference what the principal occupation was at the different camp sites as to what artifacts will be found there.

At all of these camp sites mentioned, with the exception of the Davis site, arrow heads of nearly all types common to these parts have been found but where one type has been numerous, this same type may be rare at some other camp site. Of course, there are some types of arrow heads which are rare on all camp sites.

Many of the fine artifacts which have been found by surface hunters were brought up near the surface by erosion of the earth; some of them probably coming from shallow graves.

Conclusions:
In our experience of surface hunting and digging we have not been able to prove that any particular type of chipped artifact is of an early culture. Neither have we been able to claim that any type is of a later culture, but we do think that most of the finest workmanship was of an early culture. We think that some of the camp sites will show, from the large percentage of one particular type, that they must have been used for some specific occupation going on at that site, either for use on some special work, or perhaps the Indians specialized in making some implement and used them in trade for other things which they did not make. We have not been able to ascertain what the use was for so many snubbed circular white quartz scrapers at the Nook Farm site, but we think it is a very old site owing to the fact that there were no hoes found there, and also for other reasons brought out above. In this discussion we have tried to give a true version of some of our observations. Perhaps it may be entirely different in some other locality.

Plymouth, Massachusetts
June, 1945
Fig. 24. Objects from sites near Plymouth.

A. B. & B⁰. Snubbed circular white quartz scrapers, surface finds from Nook Farm site.
C. D. & E. Triangular points with thin bases, surface finds from Nook Farm site.
F. Green chert-like trianguloid from bottom of hut cellar from Nook Farm site.
G. H. I. & IO. White quartz hafting scrapers or knives, surface finds from a camp site in Manomet.
J. & K. Arrow heads with concaved butts from Manomet; J, from Bartlett Pond dig, K, surface find near Bartlett Pond.
L. Yellow jasper trianguloid from second occupational level Burgess site, northwest of Nook Farm site.
M. Plummet from Union Bridge site, North River.
N. Broken felsite large trianguloid, surface find from Sunland Ranch, Green Harbor.
O. Red jasper large trianguloid, surface find from camp site near mouth of North River.
P. Rare type arrow head, surface find from Holmes Estate, near Morton Park, Plymouth.
Q. Broken gorget of banded slate, surface find from Freeman's Farm, Duxbury.
R. Corners removed arrow head or knife, surface find from Henderson's Farm, North River.
S. Unusual type arrow head from Davis dig, Sandwich Road, Plymouth.
When Dr. Delabarre died in Providence, on March 16, 1945, the study of the archaeology of southeastern Massachusetts lost one of its greatest amateurs. Although he followed archaeology as an avocation, he contributed some truly significant papers. His work at Grassy Island, while only a prelude to later work done there, occasioned great interest. He made himself the authority on Dighton Rock and its inscriptions.

It may come as a surprise to persons in the archaeological field to learn that Dr. Delabarre's primary field of interest was psychology. After studying at Amherst, Harvard, and Freiburg, he established the psychological laboratory at Brown University in 1892. He was professor, either active or emeritus, from that time until his death at the age of 82.

From the notice of his death by Dr. Robert S. Woodworth, published in Science Vol.102, No.2650, from which some of the preceding facts have been obtained, we quote the following, with permission of author and editor:

"His investigations were principally concerned with vision and with muscular movement and the sensations of such movement. An ingenious apparatus man, he designed pieces for continuous registration of respiratory and circulatory movements (as in emotion) and of automatic hand movements. He was the first, in 1898, to obtain an objective record of eye movements, and his method of mechanical registration, though soon superseded by photographic methods, gave accurate and important results. He attacked the difficult problem of explaining how the visual field can be transformed from a mere aggregate of color patches into a well-organized field of objects in space, and showed that a fairly comprehensive theory could be based on sensations of tension in the eyeball muscles. His work on this problem and others has not been fully published."