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LATE EXCAVATIONS AT THE HOLDEN SITE, TRURO, MASSACHUSETTS

Ross Moffett

Although this site, on the old Holden farm in Truro, has already been mentioned in this publication (Moffett, 1946, p. 17), some further account seems justified by recent work, which brought out stratigraphic aspects not clearly revealed by earlier data. The new excavations were made during 50 or more half-days in 1950, upwards of 900 square-feet being dug. Despite a much ransacked appearance of the site at the start, over 300 classifiable artifacts were found in undisturbed strata.

A description of the site and a note on its situation were given in the earlier paper, matter which for the most part need not be repeated. On the accompanying

FIGURE 22. Holden Site.
plan of the site (Fig. 22, No. 14), solid lines enclose two areas of fairly thick black earth and shell, and the broken line indicates the approximate limit of black earth with little or no shell, this last deposit being simply a continuation of the shell heaps proper. Underlying the black layer was a continuous stratum of blackish brown to greenish brown sand, which also in places contained quite an amount of shell. The lowest artifact bearing level normally consisted of light yellow sand, but in certain areas this gave way for reddish oxidized sand, sometimes extending to 18 inches below shell. Also encountered was one section of deoxidized or whitish sand. Five areas on the periphery of the main shell heap were staked and dug in four foot squares, while other spaces of considerable size were excavated here and there wherever undisturbed midden could be found. In one instance an area well within the main shell heap was discovered still intact under dirt thrown out by previous excavators. The Indian deposits had originally been covered with sterile top-soil to a depth of from 10 inches in the north part of the site, to perhaps two feet in the south portion where this mantle had been removed for loam about 10 years ago. Owing to the heavy over burden, the midden had not been disturbed by plowing. Perhaps a better idea of the strata is to be had from the accompanying cross sections in Fig. 22. Section A is typical of most of the ground dug in the late work. Artifacts, chippings, broken pebbles, and bone were distributed in such areas, not only in the dark layers, but also in the light sand to a maximum depth of 10 inches. Section B represents a slice in the thick portion of the main shell heap. A pit and a development of the reddish sand occur here. Section C shows two more of the several pits excavated.

**ARTIFACTS**

The artifacts have been referred to one or the other of two zones. Those attributed to an upper or ceramic zone were found in either black earth, black earth and shell, or in brown sand. Those placed in a lower or preceramic zone came from yellow sand, or from equivalent depths in reddish sand. In the listing, three degrees of felsite patination are recognized: slight or nearly fresh, moderate or somewhat grayed, and strong or very gray.

<table>
<thead>
<tr>
<th>Type</th>
<th>Fig. No. 23</th>
<th>Quantity</th>
<th>Length mm.</th>
<th>Material</th>
<th>Felsite Pat.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper Zone</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triangular, Narrow</td>
<td>1, 2</td>
<td>2</td>
<td>30-50</td>
<td>1 qts., 1 fel.</td>
<td>slight</td>
</tr>
<tr>
<td>Triangular, Broad</td>
<td>3-5</td>
<td>4</td>
<td>23-43</td>
<td>2 qts., 1 fel.</td>
<td>moderate</td>
</tr>
<tr>
<td>Corner Removed, Rounded Base</td>
<td>6, 7</td>
<td>2</td>
<td>41-57</td>
<td>1 fel., 1 qtzite</td>
<td>moderate</td>
</tr>
<tr>
<td>Corner Removed, Straight Base</td>
<td>8-10</td>
<td>8</td>
<td>45-60</td>
<td>1 qts., 5 qtzite, 1 slate</td>
<td>moderate to strong</td>
</tr>
<tr>
<td>Trianguloid, Wide Side-notches</td>
<td>11-15</td>
<td>8</td>
<td>30-53</td>
<td>6 qtz., 1 fel., 1 slate</td>
<td>strong</td>
</tr>
<tr>
<td>Trianguloid, Corner Notched</td>
<td>16</td>
<td>1</td>
<td>60</td>
<td>1 qtzite</td>
<td></td>
</tr>
<tr>
<td>Medium to Narrow, Stemmed</td>
<td>17-21</td>
<td>19</td>
<td>40-55</td>
<td>11 qtz., 7 fel., 1 qtzite</td>
<td>slight to strong</td>
</tr>
<tr>
<td>Medium to Narrow, Tapering Stem</td>
<td>22-26</td>
<td>9</td>
<td>56-70</td>
<td>1 qtz., 3 fel.</td>
<td>slight to moderate</td>
</tr>
<tr>
<td>Elongate</td>
<td>27</td>
<td>2</td>
<td>40,48</td>
<td>2 qtz.</td>
<td></td>
</tr>
<tr>
<td>Long-stemmed</td>
<td>28</td>
<td>1</td>
<td>-</td>
<td>1 fel.</td>
<td>slight</td>
</tr>
<tr>
<td>Pentagonal</td>
<td>29-30</td>
<td>2</td>
<td>37,43</td>
<td>1 qtzite., 1 chert</td>
<td></td>
</tr>
<tr>
<td>Lanceolate, Narrow Side-notches</td>
<td>31</td>
<td>1</td>
<td>62</td>
<td>1 fel.</td>
<td>strong</td>
</tr>
<tr>
<td>Lozenge Shaped</td>
<td>32</td>
<td>1</td>
<td>63</td>
<td>1 fel.</td>
<td>slight</td>
</tr>
<tr>
<td>Drills</td>
<td>33, 34</td>
<td>2</td>
<td>60</td>
<td>2 fel.</td>
<td>strong</td>
</tr>
<tr>
<td>Stemmed Knife (or Perforator)</td>
<td>35</td>
<td>1</td>
<td>60</td>
<td>1 qtzite.</td>
<td></td>
</tr>
<tr>
<td>Asymmetrical Knives</td>
<td>36-38</td>
<td>10</td>
<td>60-75</td>
<td>1 qtz., 6 fel., 2 qtzite., 1 chert</td>
<td>slight</td>
</tr>
</tbody>
</table>
LATE EXCAVATIONS AT THE HOLDEN SITE

<table>
<thead>
<tr>
<th>Type</th>
<th>Fig. No. 23</th>
<th>Quantity</th>
<th>Length mm.</th>
<th>Material</th>
<th>Felsite Pat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patinated Felsite Blades</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>4 fels.</td>
<td>strong</td>
</tr>
<tr>
<td>Oval Knife</td>
<td>39</td>
<td>2</td>
<td>37</td>
<td>2 qts.</td>
<td></td>
</tr>
<tr>
<td>Lower Zone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triangular, Eared</td>
<td>40,41</td>
<td>3</td>
<td>32-37</td>
<td>2 qts., 1 fel.</td>
<td>slight</td>
</tr>
<tr>
<td>Trianguloid, Eared and Notched</td>
<td>42-45</td>
<td>8</td>
<td>42-58</td>
<td>6 fels., 2 qtzite.</td>
<td>moderate to strong</td>
</tr>
<tr>
<td>Trianguloid, Rounded Corners</td>
<td>46,47</td>
<td>6</td>
<td>40-52</td>
<td>2 qtz., 6 fels.</td>
<td>strong</td>
</tr>
<tr>
<td>Corner Removed, Rounded Base</td>
<td>48</td>
<td>1</td>
<td>-</td>
<td>1 fel.</td>
<td>slight</td>
</tr>
<tr>
<td>Trianguloid, Wide Side-notches</td>
<td>49-51</td>
<td>3</td>
<td>20-35</td>
<td>3 qts.</td>
<td></td>
</tr>
<tr>
<td>Lanceolate, Narrow Side-notches</td>
<td>52</td>
<td>1</td>
<td>55</td>
<td>1 fel.</td>
<td>moderate</td>
</tr>
<tr>
<td>Square Base</td>
<td>53,71</td>
<td>7</td>
<td></td>
<td>2 qtz., 5 fels.</td>
<td>moderate to strong</td>
</tr>
<tr>
<td>Eared, Parallel Sides</td>
<td>54-58</td>
<td>9</td>
<td>30-40</td>
<td>8 qtz., 1 fel.</td>
<td>strong</td>
</tr>
<tr>
<td>Small Quartz, Indented Base</td>
<td>59-65</td>
<td>19</td>
<td>15-30</td>
<td>18 qtz., 1 fel.</td>
<td>slight</td>
</tr>
<tr>
<td>Long Tapering Stem</td>
<td>66</td>
<td>1</td>
<td>45</td>
<td>1 fel.</td>
<td>strong</td>
</tr>
<tr>
<td>Stemmed, Straight Base</td>
<td>67-69</td>
<td>5</td>
<td>35-52</td>
<td>3 qtz., 2 fel.</td>
<td>slight to strong</td>
</tr>
<tr>
<td>Long-stemmed</td>
<td>70</td>
<td>1</td>
<td>-</td>
<td>1 qts.</td>
<td></td>
</tr>
<tr>
<td>Retouched Flakes</td>
<td>72,74,75</td>
<td>9</td>
<td>-</td>
<td>8 fels., 1 chert</td>
<td>strong</td>
</tr>
<tr>
<td>Drill</td>
<td>73</td>
<td>1</td>
<td>-</td>
<td>1 fel.</td>
<td>strong</td>
</tr>
<tr>
<td>Elongate, Stemmed</td>
<td>76</td>
<td>1</td>
<td>75</td>
<td>1 fel.</td>
<td>strong</td>
</tr>
<tr>
<td>Elongate, Eared</td>
<td>77</td>
<td>1</td>
<td>82</td>
<td>1 fel.</td>
<td>moderate</td>
</tr>
<tr>
<td>Stemmed Knife</td>
<td>78</td>
<td>1</td>
<td>62</td>
<td>1 slate</td>
<td></td>
</tr>
<tr>
<td>Patinated Felsite Blades</td>
<td>79-85</td>
<td>84</td>
<td>55-95</td>
<td>82 fels., 2 qtzite.</td>
<td>usually strong</td>
</tr>
</tbody>
</table>

OTHER STONE IMPLEMENTS

One fully grooved, granite net-sinker was found at the top of the upper zone (Fig. 22, No. 10). A second pebble, which is of slate-like rock and partly grooved, shows pecked areas and also considerable smoothing, which suggest that the object was hafted. It came from yellow sand. Two choppers were discovered in brown sand and three in yellow sand. Of these, two are of slate (Fig. 22, No. 11) and three of schist. The one gouge known from the site came from the lower zone and appears to be of weathered diabase (Fig. 22, No. 13). In the same zone was found a fragment of a probable second gouge. Steatite was present with one very thick, bowl sherd, which was in brown sand (Fig. 22, No. 12). Notable was the absence of definitely recognizable hammerstones, although there were unearthed many roughly equi-dimensional hunks of broken quartz, which may have served that purpose.

BONE AND ANTLER

Artifacts of these materials were found more frequently than at nearby shell heaps. The collection consists of three bone awls, the end of a probable needle, a hollowed antler base, and a fragment of an unclassifiable object which seems to have been socketed and to have also had square lateral holes. The only bone implement from the lower zone is an awl.

POTTERY

Sixty-nine occurrences of pottery were recorded from the work of 1950, all of them from the two layers of the upper zone, with a majority having been in the brown sand layer. Except for three sherds, the pottery is mineral tempered, and nearly half of the vessels were decorated with some form of rocker.
stamping, which includes plain, dentate, and scallop shell. Thirteen pots are represented by rim fragments. The mineral tempered pottery is in general like that found earlier and illustrated in the 1946 report. But several specimens not identical with any previously shown are depicted herein in Fig. 22. No. 1 exemplifies a rather thick (1 cm.) heavy pot with a flattened lip and an ornamentation of scallop-shell rocker. In No. 2 we have an insloping rim (6-8mm. thick), with two added fillets, and two types of decoration—cord-wound stick above, and what is probably scallop shell below. Nos. 3, 4, 7 figure rather thin rims (5-6mm.) embellished with lines apparently made by describing a series of scallops end to end with a sharp point. No. 3 has a notched lip, and No. 7 has the top of the lip marked with oblique lines of dot-like punctates. In No. 9 is shown the only plain rim sherd found during the late excavation. Nos. 5, 6 represent plain rocker work, probably made with the edge of a clam shell. Other mineral tempered sherds found lately include one specimen with a cord-paddled exterior and a smooth interior, and two Vinette 1-like fragments, apparently cord-paddled on both sides.

Two of three shell tempered sherds known from the site are very minute. The third is the rim specimen shown in No. 8 of the figure. The exterior is carelessly marked with cord-wound stick indentations, which may have been intended as an overall surfacing, rather than a design proper. At a point 5 cm. below

FIGURE 23. Holden Site.
the lip, the normally 8mm. wall has been thickened
to 13mm. The interior is channeled, a feature not
occurring so far as known, on any mineral tempered
pottery in this area.

COMMENT ON STONE ARTIFACTS OF THE
LOWER ZONE

Since this appears to be the first attempt in print
to definitely isolate a preceramic level on Cape Cod,
it may be well to note certain artifacts more fully than
is done by the drawings. All specimens of the lower
zone, except those shown by the figure in Nos. 72,74,
75,78-85 may be understood to have the usual chipping
and retouching on both sides. Eared triangular points
are narrow and have a slight but distinct flaring at the
corners. Eared notched trianguloid points, which seem
never to have been made of quartz, have shallow or
incipient side-notches, with often a contraction of the
blade just above the notches, as in Nos. 42,45. Eared
points with parallel sides sometimes have only one
corner eared. In some cases only one side is straight,
the other being slightly notched (No. 58). From the
latter form they grade into points with wide side-
notches (No. 50). Small quartz points, nearly all of
which are under 26mm. in length, have a characteris-
tic indentation of the base, while at the same time they
show all gradations from triangular to stemmed.
Square-base points differ from triangles, in being gener­
ally smaller and in having both faces carefully chipp­
ed. Although no complete specimen was found, these
objects seem to have ended with a trianguloid tip.
Coming to rougher implements, retouched flakes have
only one or two worked edges. In No. 72 is shown a
knife with two edges retouched, while the bottom is
thick and a part of the original surface of the felsite
pebble. No. 74 has only its upper edge worked. No. 75
represents a chert flake with the top edge abruptly
beveled, one of the few examples of a true scraper
retouch found at the site.

Patinated felsite blades, accompanied by a great
many large thin flakes struck off in their making,
constituted a noticeable and ever present feature of
the yellow sand level. These objects, often asymmet­
rical, vary considerable in size and shape, but usually
they are based on either the trianguloid or the
ovate. Aspects that distinguish these artifacts from
the usual run of broken and unfinished knives and
spearheads are, a tendency to be plano-convex and
an inclination to show only a primary type of flaking,
only a few of the specimens having retouched edges.
Nearly all examples were found broken, but in several
instances the halves of a blade were found within a
short distance of each other. In one case, the material
of a broken blade matched the chippings among which
it was lying. Although it is probable that most of the
recovered specimens were fractured in the process
of chipping, many of them seem to have been given
their final general form before this happened. Of
those shown in the figure, No. 81 appears to have
been a finished implement, possibly broken in use,
and No. 85, which is complete and has thin sharp
edges would have been a serviceable knife.

REMARKS ON DISTRIBUTION

Rocker stamped sherds were found both high in
black earth and shell and low in brown sand. On this
fact is based the opinion that these two layers were
culturally identical. The Vinette 1-like sherds were
not as low as some rocker stamped specimens. On
typological grounds it might be thought that the three
examples of shell tempered pottery were relatively
late as regards the top zone. There was, however, no
definite stratigraphic evidence to this effect. It will
have been noticed that in four cases patinated felsite
blades occurred in the top zone. These instances
probably signify an intrusion from below, for, the
digging of pits by the last inhabitants could hardly
have avoided bringing up some of these objects, so
plentifully were they distributed in the yellow sand.

DISCUSSION AND COMPARISONS

According to the data on distribution, we clearly
have, as earlier premised, two cultural compart­
ments, each corresponding to one of the zonal divi­sions. (1) The outstanding feature of the latest of
these is, of course, the presence of pottery. Associ­
ated with the latter, we have four main types of
chipped implements, namely: corner-removed,
medium to narrow stemmed, medium to narrow ta­
petering stemmed, and asymmetrical knives. These
types assume numerical importance only in the
higher strata, although they are not unknown from
greater depths. Points with wide side-notches seem
to be of less diagnostic value, since they were found
in something like equal numbers in both zones. (2) In
the early compartment we have, first of all, a com­
plete absence of pottery. The significant types of
stone artifacts here comprise: eared points, of
several kinds; very small, quartz points; retouched
flakes; patinated felsite blades; and gouges.

To consider each assemblage as respects its poss­
ible extension beyond the present site, it may be said
that the material of the upper zone is typical of a
well marked horizon of this particular area. It is es­
sentially the same as that found by Torrey (1948)2 in
the lower component of the Seth's Swamp Site, by me
at the Hillside site (Moffett, 1949), and by me in the
second of three habitation levels at both the Small's
Swamp and the Rose sites. This horizon on Cape Cod
is evidently the rough equivalent of mainland levels
having similar dentate and rocker stamped vessels,
assuming that pottery is our most steady cultural
indicant.

In regard to the materials of the lower zone, a
regional correspondance is not so readily discernable.
Small quartz points and eared points with parallel sides occur, however, in a deeply buried stratum of the before mentioned Small's Swamp site, and the latter type and eared trianguloids are common at the Pilgrim Spring site. Again, at still another location are a few patinated felsite blades and narrow trianguloid points, some of the latter being definitely eared. It appears, therefore, that like the later, the earlier material of the present site ties in with that of a more general, local, preceramic manifestation. Although exact data is not at hand, I think this is probably the same level as that represented by the red paint-like material in Torrey's collection from the important, but as yet unpublished, Freeman-Paine site in Wellfleet. To venture farther afield, eared points seem to indicate some likeness to points of a Stone Bowl period as defined by Fowler (1950) from sites on the southeastern mainland of the New England area; and at the same time, small quartz points and felsite blades appear to offer a similarity to early strata reported by Bullen from northeastern Massachusetts. In regard to this last, I would suggest a comparison of the present drawings of blades with the illustrations of patinated felsite knives from Foster's Cove and nearby sites (Bullen, 1946: Fig. 11-B,C; Fig. 20, and also Bullen, 1949: Pl. 10, Nos. 15; Pl. 11, No. 9; Pl. 13, Nos. 20,22). A more significant resemblance to early Holden, however, lies perhaps with the Faulkner Spring site reported by Robbins (1944), since the following traits were found at both: an important industry in very small points; eared and notched angularoid points; plano-convex felsite implements (fleshers and blades); choppers; and gouges. Some-what negative aspects which also tend to link the two levels are: the absence of pottery, save for three sherds at Faulkner Spring; and the poor numerical development of typical corner-removed and straight stemmed projectile points at both locations.

**SUMMARY**

It may be said that the Holden site was first occupied by a preceramic hunting people who were little interested in shellfish. The bow and arrow seems to have been the main weapon, and the presence of gouges suggests the making of canoes. Projectile points tend to have eared or flaring corners, and a majority of them are unstemmed. There was an important activity in the flaking of large blades of felsite. A whale-tail problematical and an oval bannerstone known from the site probably belonged to this group. On typological grounds, one may conjecture that the plummet was known, although none was found. Traces of this occupation, which may well have been as early as any in this area, extend to nearby sites and, more tenuously, to locations on the mainland.

The second occupational stage, which represents a chronologically intermediate horizon well marked on Cape Cod, and with considerable divergence in stone types known also on the mainland, began abruptly with the arrival of Indians possessing clay pottery and having a taste for clams and quahogs. Their projectile points are predominantly stemmed, and they are on the whole larger than those of the preceding period. If this group had an agriculture, no evidence of it was discovered. The patinated condition of many of the artifacts suggests an appreciable remoteness in time for this last occupation also.

Provincetown, Mass.,
February 26, 1951

**BIBLIOGRAPHY**

THE EAGLE DAM SITE
Stephen Keighley

The Eagle Dam Site is located on the northern shore of Lake Pearl in the town of Wrentham, Massachusetts. What is now known as Lake Pearl and its surrounding shores must have been well known to the redmen.

Its wooded shores offer game of all kinds, wild berries, and nuts. The lake and streams have a good supply of fish and likewise the swamp with its fur bearing animals. In prehistoric times it must have been a rich hunting ground, without a doubt.

However, with all these natural resources, many good springs and a water route to the Atlantic Ocean, there has never been a known campsite in this area. Due to the very hilly condition of the land, together with the poor soil, this section has never been farmed, so no Indian sign has been uncovered by the plow. Another reason may be that anyone with a notion to investigate this area has been discouraged by the heavy growth of hard woods and underbrush. All likely spots are covered with a heavy growth coupled with a very rocky soil so that even test pits take a considerable

FIGURE 24. Eagle Dam Site - Keighley.
time to dig.

In spite of these conditions a lot of hard work during the past three years has been rewarded by the location of several sites that will be dug at some future date. One, the Eagle Dam site, is now being excavated by the writer. This site is located at the headwaters of Eagle Brook (see Fig. 24) some one hundred and fifty yards northeast of the dam.

The exact extent of the site has not yet been fully determined, however, it is probably about an acre in size. At the present time only about one-quarter of this area has been excavated so that a complete report cannot be made now.

It can be said that evidence of two cultures have been found and that the earlier culture seems to be by far the heavier occupation of the two.

In the upper level of the top soil, from two test pits dug in a section of the site as yet not fully excavated, three pot sherds were recovered. These sherds, which are three-eights of an inch in thickness and are coarse mineral tempered, are "neck" sherds, and appear to belong to a pot of the intermediate period. These three sherds together with two small points constitute the evidence of the later culture to date. It is felt that, as the work progresses, more evidence of this later culture will be found.

All other material recovered has come from the yellow sub-soil. In this horizon the choice of material for implements has been a dark gray felsite or slate. In the upper horizon, although few actual implements have been found, a large percentage of the chips are of white quartz, while in the lower horizon no quartz implements have been found and few quartz chips noted. In this lower horizon corner-removed points and eared points appear and in the larger spear or lance points and knives the straight base is common. Several gouges of gray slate have been recovered, and these are quite thin and of excellent workmanship.

Eighteen fire hearths have been found. These are neatly walled up with stones about the size of one's fist. Careful excavation of all of these hearths has produced only one small point, but charcoal and a few small fragments of bone and shell is present in all.

FIGURE 25. Eagle Dam Site - Keighley - Cross section of hearth.

The writer hopes that during the coming season, in which much more intensive work is planned, more scientific data will be obtained and a better understanding of the two cultures, especially of the earlier of the two, will be had.

Although this site was found in 1948, excavation was not undertaken until 1949, and, due to the difficult digging and the fact that the work has been single-handed, very little has been uncovered. In view of all this it has nevertheless rewarded me with a nice collection of good variety and if this site is any indication of what will be found on the other sites in the area, Lake Pearl and its surrounding hills were most certainly well known to prehistoric men.

Wrentham, Mass.
FIGURE 26. Eagle Dam Site - Keighley - 1 to 3 stemmed scrapers of gray felsite, all show wear; 4 gray felsite knife or spear; 5, red felsite, eared point; 6 to 8, eared points; 9, natural stone, 1/8 in. in thickness, ground edge; 10, probable knife; 11, large spear, gray felsite; 12, broad, thin, knife; 13-15-18 stemmed points; 14, drill; 16-19-21 small white quartz points; 17-20, small felsite points.
FIGURE 27. Eagle Dam Site - Keighley - 22. Small pecked and ground gouge; 25. large knife; 23 and 24. broken gouges; 26. plummet; 27. spear point; 28. corner-removed spear; 29. end of pestle, oval in cross-section, one side ground and polished the other side pecked, dark gray slate; 30. grinding stone, used on one edge.
FIGURE 28. Eagle Dam Site - Keighley - 31. semi-lunar knife; 32 and 33. grinding stones; 34 may be unfinished axe, pecked all over.
METSOO’ONK

(Experience Mayhew’s Word for Victuals)

Warner F. Gookin

The chief activity around an Indian village site to leave its traces for archaeological investigation was of course the gathering and preparation of food. To be sure, most food particles have long since disappeared, except for bones and such molecules as the microscope may reveal. But it is well for the archaeologist to be able to visualize the life that went on around the more enduring sherds, which in their time had no greater importance than the broken tea-cup we toss out with the garbage. Fortunately, a true picture of the Indians’ household economy can be gleaned from the documentary sources available for New England.

Before citing three hundred year old documents, however, some may be interested to know that at Farm Neck, Oak Bluffs, Martha’s Vineyard, there are some wigwam sites, occupied less than two hundred years ago, which tell an interesting story even to the casual eye. The placing of the wigwam itself is evident, in that a level floor space had been dug into the side of a gentle slope, in such a way that the wigwam had a protective wall of dirt, rising from the floor level at the front to a height of about three feet across the back. Shallow digging in the floor showed nothing but articles of white men’s manufacture. The striking feature of the location, however, is that alongside of a wigwam hole, there is a great circle, about twenty feet in diameter, where in the summer there grows the brightest green grass anywhere to be seen, in sharp contrast to the surrounding natural vegetation. This was of course the private “dump” of the wigwam family, on which several generations had deposited their kitchen refuse; something, I suppose the shell, has enriched the soil, so that the heightened coloring of its verdure has persisted for two centuries.

Matthew Mayhew, who was born on Martha’s Vineyard in 1648 and passed his boyhood in the midst of Indians still living in their savage state, gives the following report of a chief’s household. "Their families and attendants (were) well clothed, with skins of moos, bear, deer, beaver, and the like: the provisions for their tables, as flesh, fish, roots, fruits, berries, corn, beans, in great abundance and variety, was always brought by their neighboring subjects."

Daniel Gookin, long Commissioner of the Praying Indians in the Bay Colony, has a detailed account of the Indians’ fare. "Their food," he writes, "is generally boiled maize, or Indian corn, mixed with kidney beans, or sometimes without." (Our word succotash, borrowed from the Indian language for this mixture, seems to have meant only boiled kernels of shelled corn.) To this corn pottage, to make the daily stew, was added meat cut in small pieces, or fish, as available. The meats enumerated by Gookin are "venison, beaver, bear’s flesh, moose, otters, raccoons, or any kind that they take in hunting." The fish he mentions are shad, eel and alewives or herring, the latter sort usually dried. He fails to mention that coastal Indians, in season, would have a much wider choice of fish. The daily stew was not without vegetables; Gookin mentions Jerusalem artichokes, ground nuts and other roots, pompions (pumpkins), and squashes. (Our word ‘squash’ is the termination, plural, of the Indian name ‘askutasquash,’ used for vine-borne vegetables.) Dried and powdered nuts, -- Gookin mentions acorns, chestnuts and walnuts, -- were added for thickening. Powdered acorns, the writer has been told, must be washed in several changes of water, removing the excess tannic acid, to be edible; whether the Indians bothered to do this doesn’t appear.

The pots in which the stew was boiled, Gookin tells us, were made of clay or earth, "in the form of an egg, the top taken off." "But now," he remarks, writing in 1674, "they get kettles of brass, copper or iron. These they find more lasting than those made of clay, which were subject to be broken; and the clay or earth they were made of, was very scarce and dear." This last remark is hardly true of southern Massachusetts, certainly not of Martha’s Vineyard, the whole western end of which rests upon beds of kaolin, the best white clay in the world for fine pottery. There are also large deposits of red clay. We would like to know if the Vineyard Indians did a big business in making pots for the mainland. It is on record that early in the nineteenth century they transported quantities of white clay by canoe to Taunton, for use in the white men’s potteries there; but so little scientific digging has been done on the Vineyard, there is no evidence that the local Indians excelled in the making of cooking pots. Gookin adds that platters, plates, bowls and other such utensils were made of wood. Brereton, however, writing in 1602 of the Indians visiting the Gosnold party on Cuttyhunk, says that in addition to their numerous copper ornaments, the Indians had "large drinking cups make like sculles [bowls or wicker baskets], and other thin plates of copper." An Indian indicated the source of this copper by sign language, poking a hole in the ground with his finger and pointing to the mainland. The copper was certainly not obtained from European traders, as has been suggested, as the local Indians had no knowledge whatever of steel cutting tools, until they got them.
from the English; in fact one of their first names for Englishmen was "the knife men." The delight with which they accepted "points" or small daggers from the Gosnold party is evidence enough that they had never seen the like before, hence had had no contact with European traders.

Gookin mentions also bread making. "They beat their maize into meal, and sift it through a basket made for that purpose. With this meal they make bread, baking it in the ashes, covering the dough with leaves." To this may be added that the name of the small island of Tuckernuck, adjacent to Nantucket, originally Tuckannuck, is traditionally derived from 'petukquenneg,' the Indian word for cake, or their small round loaf of bread, like one of our breakfast rolls; one can see, therefore, how an Indian loaf was shaped, by taking a look at Tuckernuck en route to Nantucket. Roger Williams mentions a corn meal cake mixed with fresh crushed strawberries before baking, which might be tempting. Gookin mentions also the well-known 'nokake,' which he calls "a certain sort of meal, . . . so sweet, toothsome and hearty, that an Indian will travel many days with no other food." It sounds to the writer like a dried and powdered cornmush, but he may be wrong.

There is no mention anywhere of roast or baked meat or fish; they did not have ovens, and evidently had not learned the art of using a spit. Nor did they know how to fry food; grease was valued for external use only, as ointment. They did, however, regularly roast oysters, probably in a fire pit, in hot ashes. One of the names for oyster is 'apwonnah,' (Cotton) or 'opponenauhock,' plural, (Williams). This name is derived, according to Dr. Trumbull, from 'opwonau,' the Indian word for cake, or their small round loaf of bread, like one of our breakfast rolls; one can see, therefore, how an Indian loaf was shaped, by taking a look at Tuckernuck en route to Nantucket. Roger Williams mentions a corn meal cake mixed with fresh crushed strawberries before baking, which might be tempting. Gookin mentions also the well-known 'nokake,' which he calls "a certain sort of meal, . . . so sweet, toothsome and hearty, that an Indian will travel many days with no other food." It sounds to the writer like a dried and powdered cornmush, but he may be wrong.

It should be noted that nearly all of the foods in this catalogue were only available seasonally. Fish began to run in the spring, penetrating far up into the spawning streams. Fowl became plentiful in the late summer and fall. Fur-bearing animals seem not to have been hunted in the mating season. This left a gap in the early spring, which was apt to become a time of serious food shortage, if the supply of stored corn was exhausted. Winslow and Hopkins, visiting Massasoit early in July, found that the great chief could produce as a banquet for their entertainment only two large fish, reported as three times the size of a (10 inch) bream, which had to suffice for forty men. The following December when Massasoit with a retinue of ninety visited Plymouth for a feast, the chief killed and brought in five deer for his hosts.

The first food to be offered to the Gosnold party by the Indians of Martha's Vineyard late in May, 1602, was boiled fresh-water fish, quite likely served with sorrel, which Brereton mentions later as one of the herbs used as a "salad." According to the list given by Roger Williams, the coastal Indians caught all of the varieties known to present day fishermen in southern Massachusetts waters. It is an interesting fact, that although there are no sources to give us the names of these fish in the Massachusetts dialects, the survival to this day of certain of the names shows that they were about the same as those learned by Williams in the Narragansett area. Among these that found a place in our language, some of them in a badly corrupted form, are, squetague, scup (or scuppaug), porgies (or pugees), taug, and the prolific menhaden, derived from an Indian word that meant 'fertilizer'.

Fishing cordage was made of vegetable fibers from flax or hemp, and the Indians contrived not only lines, but also nets and weirs for streams and outside the outlets of ponds. Brereton in 1602 observed one of the latter off the shore of Martha's Vineyard. Champlain in Plymouth Harbor in his voyage of 1604 was shown fishhooks, each made of a small piece of wood, with a sharpened bone bound on to it with hemp in such a way as to form a barb. Heads for fishspears and harpoons were made of sharpened and notched pieces of bone or antler. Mate Coppin of the Mayflower reports that on his first visit to Plymouth Harbor (perhaps with John Smith) the Indians so admired an iron harpoon shown them by their visitors that they made off with it, hence the place was first called "Thievish Harbor."

Lobsters were plentiful in Plymouth Harbor, where the Indians feasted on them in summer. During the food shortage of March, 1621, Squanto demonstrated to the Pilgrims how he could stir eels out of their mudholes in the harbor with his feet and take them out by hand. Clams and quahogs were of course always obtainable. Williams tells of a clam cottage thickened with cornmeal, the original clam chowder. Quahogs were usually dried, as other fish were, suspended, in hot sunshine, over a fire. They were strung on a string for storage, or to be used in barter with inland Indians, who thought them a welcome addition to the daily stew. The Indian name of the bivalve was 'poquauhock' (Williams), the first part of which, poquaw, was the name long used for them on Nantucket, according to Dr. Trumbull, whereas the latter part, quauhag, used elsewhere, has now found general acceptance as the name in New England. Misguided New Yorkers in their ignorance call them Little Necks, Cherrystones, or Chowder Clams, according to size.

Roger Williams reports that when a whale, presumably a stranded one, was killed, it was cut up, and great slabs of the meat sent to the surrounding villages, for general feasting. Whale supplies a good, red meat, like beef sirloin, except for a very slight whale-oil taste, faintly reminiscent of cod liver oil.
Unhappily, there seems to have been no whale available for Massasoit and the Pilgrims in their time of need. Whales, included in the classification of everything that came ashore from the sea, became the property of the chief. The chiefs' grants of shore front land to the Mayhews on Martha's Vineyard always specify how much of future whales the Mayhews may claim, ranging from a half to "four spans round in the middle." Whether the Indians got oil out of their blubber, and if so, how, seems to have escaped notice.

To the squaws fell the heavier tasks in providing food, the men contributing only the occasional meat and fish. The women planted, hoed and harvested the corn, in the growing of which herring were used as fertilizer, three to a hill. Williams remarks that in his day, (1643), they still preferred their hoes with a shell blade to the heavier iron ones to be had from the English. The squaws also had their vegetable patches, for the growing of squashes and such, and doubtless, with the help of their children, picked the berries and gathered in nuts. The squaws also gathered the rushes and other weaving material, for the baskets which they made as containers for foods. (Gookin remarks that the men made the clay pots and the wooden dishes.) The women ground the corn in family-size mortars, and of course did all of the cooking. Williams assigns to them also the task of digging clams, while the men dove for quahogs, at least for the larger sorts with the purple spot used for making dark beads.

A mystery which the present writer may be the first to propound, is why there is no mention of scallops in the comprehensive food lists available, or any Indian name for them in Roger Williams' "Key into the Language," or elsewhere. A basic fact to be stated at the outset, is that white men did not learn of their edibility from the Indians, whose other foods they accepted and liked (except perhaps dog meat and snakes). A friend of mine has told me an authentic tale of a man on Nantucket, who about 1870 or 1880, was noticed carrying home a bucket of scallops to eat; his neighbors shuddered with disgust. "An American Farmer," in his book describing Nantucket about 1765, writes of the abundance of the soft-shelled and hard-shelled clams, and of the great sea-clams, which, together with "the variety of fish they catch constitute the principal food of the inhabitants; it was likewise that of the aborigines." He makes no mention of scallops.

Another fact which should be noted carefully by archaeologists, is that for a century or two before scallops started on the upward spiral of market values, farmers near bay scallop beds raked out huge mounds of these despised shellfish to be spread on the fields, where they were "ploughed under." It is reasonable to suppose that the rakes brought up with them, some few Indian artifacts from the bottom of the pond or bay, so that which appears to be evidence of orgies of scallop eating by Indians may not be that at all.

One more fact to be stated before theorizing begins, is that bay scallops, for some unknown reason, do not stand up well as a staple diet. Bay scallops are tasty, with a high protein content, and are usually easily digested. They are an ideal occasional delicacy for a gourmet. But I have yet to meet the man who can stand them in quantity as a steady diet over a period of time. There is something about them that quickly surfeits one. Living in a community where the scallop industry is the main source of revenue for the island during the winter, I can assure the readers of this article, that those with easy access to scallops have almost unanimously lost their taste for them. I cannot believe that Indians heaped up huge piles of shells of the scallops they had eaten. Whether they ate them at all, must be decided on better evidence that they did, than I have been able to find in the usual sources for such information. One or two mentions of scallop shells in C. C. Willoughby's "Antiquities of the New England Indians," not important enough to have found a place in the index, are much too vague to be decisive.

If I were to move backward in time to get a seafood meal at the Sowams Tavern, I could order (with a slight Narragansett accent, derived from Roger Williams), sickissuog, (the 'squirters'), poquauhock (the 'thick shelled'); opponenauhock (the 'roasters'); ashanteaug, (lobsters); and all sorts of fish; but I wouldn't know how to ask for scallops.

**HOW SHALL I MEASURE?**

Douglas S. Byers

Although many grumble about systems of measure, some being partisan to the metric system, others opposed to it, few stop to realize that most systems are based on parts of the human body. Fingers and toes have been used for counting ever since man felt the need of counting more than two or three things. We have decimal and vigesimal plans as a result. Any departure from common units such as finger-number
was usually done for purposes of mystification by a priest-hood or medicine men. Thus we have the 12-count or duodecimal system, which stems from the 12-month year or the 12-hour day of Babylonia. We inherit it indirectly in our number of inches, dozen, and gross. From the same source came the number 60, used for our minutes, and in measuring an arc, for degrees, minutes, and seconds.

Primitive people the world over have used arm spans, finger widths, or elbow lengths for the measuring of cloth, beads, or other commodities. Some people, such as certain tribes in California, tattooed marks on fingers, hands, or arms, for units of measure. That our own units spring from a similar root is not universally known.

An article entitled "Fathoms and Feet, Acres and Tons; an Appraisal," by Keith Gordon Irwin, The Scientific Monthly, LXXII, pp. 9-17, January, 1951, goes into the evolution of these units which bedevil archaeological field workers. Herewith follows a digest of part of that article, omitting the sections on weights and liquid measures.

According to Dr. Irwin, the basic unit of a very old European scheme of measurement was the arm stretch. Naturally this was not uniform for all people, varying from the Greek arm stretch of 72.90 inches to the Saxon fathom of 79.20 of our inches. Throughout Europe, there was a "decimalized" arrangement of smaller and larger units, which applied no matter what the arm stretch.

The comparable Saxon system is thus described:

<table>
<thead>
<tr>
<th>10 finger widths</th>
<th>= 1 double hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 double hands</td>
<td>= 1 Saxon fathom</td>
</tr>
<tr>
<td>10 Saxofathoms</td>
<td>= 1 chain</td>
</tr>
<tr>
<td>10 chains</td>
<td>= 1 furlong (for land measure)</td>
</tr>
<tr>
<td></td>
<td>= 1 cable length (for offshore measure)</td>
</tr>
<tr>
<td>1000 Saxofathoms</td>
<td>= 1 &quot;thousand&quot; (the old English sea-and-land mile)</td>
</tr>
</tbody>
</table>

Farm lands were laid out in the same way:

100 Saxofathoms of width by 100 Saxofathoms of length enclosed 10 acres. Thus a strip 10 Saxofathoms wide by 100 Saxofathoms long measured one acre.

Saxons, as we can judge from their span, were big men. The Normans, who came after William the Conqueror's victory over Harold at the Battle of Hastings, were somewhat shorter, for all their ability as fighters. They couldn't use a Saxofathom, for all their grunting and stretching, and so the craftsmen who built the abbeys and cathedrals, and fashioned tapestries, leather, metals and glass for them were forced to use a smaller measure. Unification of standards of measure used by the various crafts seems to have been made about 1250, and to have become almost universal, except for the more remote country districts, by about 1350. The new scheme was based on a new fathom exactly 10/11 as long as the old Saxofathom--72 inches. The new fathom was divided into two parts to become known as the cloth maker’s yard, and into six parts, which were the craftsman’s foot.

The new plan was easily adopted by landowners. However, the acre, which seems to have remained constant, was now 11 new fathoms by 110 new fathoms and had lost its decimal simplicity. The rod--a common measuring stick of 2 2/3 Saxofathoms--was not changed in length, but had new measures cut on it to mark it into 16 2/3 feet. The furlong remained intact, but the old 10-furlong mile was discarded in favor of a new 8-furlong mile. A square mile of land now contained 640 acres in place of the original 1000 acres.

Smaller units of the old plan were legally forced out of existence: the old yard gave way to the new one, 10/11 as long; the finger width gave way to the inch; the hand was increased by 1 percent to become a four-inch measure.

In 1624, Edmund Gunter, an English mathematician, proposed to revive the simplicity of the old Saxon plan of land measurement, although by-passing the Saxofathom and the doublehand. His plan worked thus:

<table>
<thead>
<tr>
<th>10 finger widths</th>
<th>= 1 link</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 links</td>
<td>= 1 chain</td>
</tr>
<tr>
<td>10 chains</td>
<td>= 1 furlong</td>
</tr>
<tr>
<td>10 square chains</td>
<td>= 1 acre</td>
</tr>
<tr>
<td>1 square furlong</td>
<td>= 10 acres</td>
</tr>
</tbody>
</table>

Gunter also devised a chain of 100 links for use by surveyors. George Washington used Gunter’s chain, and in fact it was in common use down almost to our own time. Farmers still preferred the rod as a unit of measure, and so the Gunter system was not generally adopted by those for whom it was especially designed. The farmers still counted the acre as a piece of land 4 rods by 40 rods, or its equivalent.

The old Saxon system of measurement was retained for use at sea, except that the fathom was cut to 10/11 of its Saxon value. The sea mile remained 1000 fathoms long, in place of the 8-furlong, or 800-fathom land mile. After navigators had found that the length of a minute of arc on a great circle of the earth was 1013.4 fathoms, the increase was adopted officially as the nautical mile, or the geographical mile of the mapmaker.

From this varied background has come our apparent senseless mixture of measures. The old English part is retained in units of land measure which are the acre and the statute mile of the English-speaking
world. From the Normans came the yard, foot, and inch. The circumference of the earth has made the nautical mile a unit of measure which is exceedingly practical. It appears to be a rigid system which can not be changed.

Had it not been for the French Revolution it is doubtful if we would today be bothered by the metric system. The monetary system devised for our country, based on the decimal system, startled the world with its simplicity and usefulness. Decimal fractions came into greater prominence, and scientists dreamed of extending the same simple plan to all problems of counting.

With the French Revolution all old standards were swept away. There followed a plan for decimalizing the hours of the day, for making a ten-day week, and for revamping the calendar. As we know, these were short-lived. There was even a plan for dividing a quadrant into 100 degrees instead of 90, and subdividing each degree into 100 minutes instead of 60. The scheme did leave its imprint on the metric system, however. In place of the English nautical mile, which matches the length of a minute or arc on a great circle of the earth, there was to be a "metric mile"—the equivalent of one one-hundredth of one one-hundredth of the earth's quadrant. Just as a thousandth of the English nautical mile was very close to a fathom, one thousandth of the "metric mile"—later called the kilometer—was to be the basic French unit of measure, to be called the meter. That the kilometer failed to be useful as a sea measure is due to the fact that the new degree was never adopted. Countries using the metric system use the English nautical mile—for them the awkward figure of 1852 meters.

Survival of the metric system as units of long measure rested on the chance fact that the meter was almost exactly half as long as the old north-European fathom. The average length of the Rhenish (79.08), French (78.24), and Spanish (78.98) fathoms is 78.77 inches. Double a meter and we have 78.74 inches. On this chance similarity rested the acceptance of the metric system as a unit of land measure for continental Europe.

Had the meter been exactly half as long as the Saxofathom (39.60 inches instead of 39.37 inches) the old Saxon units of measure, also figured on a decimal system, would have been matched by metric units half their size, from fingerwidths (2 cm.) to the old English mile (2 kilometers). Even the statute mile of 8 furlongs or 800 Saxofathoms would be equal to 1600 meters. A block of land measuring 100 Saxofathoms on a side would now measure 200 meters on a side. In Saxon terms that would be 10 acres, in metric, 4 hectares.

Finally, we should note that recent changes have occurred, with the aim of decimalizing the English system. The engineer's chain which supplanted Gunter's surveyor's chain was 100 feet long, with a foot divided decimally. Engineers, as we know, figure in tenths of feet. In the metal trades, the micrometer made it possible to measure in terms of hundredths or thousandths of an inch. In other fields the decimal units have not caught on, perhaps because there is no handy unit to take the place of our existing pounds, pints, and bushels.

It is evident that our system is still in course of modification, and it is quite likely that decimalization will come into even greater currency with the passage of time.

A PECULIAR IMPLEMENT FROM CONNECTICUT

Donald G. Merrill

West of the confluence of the Farmington and Requabuck Rivers, in Farmington, Connecticut, are cultivated areas which show ample evidence of Indian occupancy. At the edge of one of these areas, on the eighty foot terrace which rims the flood plain, I found the artifact shown in the accompanying illustration. Indian relics may be found all over this field which is eight to ten acres in extent. The stone is a smooth pebble of fine grained sandstone approximately 2 1/2 by 1 1/2 by 3/4 inches in size. It has a reddish mottled appearance which is due to some material firmly adhering to the surface of the stone in small "freckles". At first I supposed, because of the notch at B, that the artifact was a net sinker.

Closer examination, however, revealed that the stone had been pecked, not only at the point B, but also along edges A, C, and D. This evidence of intentional shaping and the lack of an opposing notch at D seemed to contradict the original conclusion. While puzzling over this, the discovery was made that the implement fitted perfectly in the palm of the hand in the position shown. The small pit or depression near the more pointed end, which was at first ignored, now came into prominence. A possible use became evident when the stone was so held, because a needle or skewer held between the thumb and forefinger centered precisely in the pit. Thus we have a practical variation of the sailmaker's palm which is shown for comparison.
The stone version need not be held by a strap because the third and little fingers can hold it comfortably leaving the other fingers free to pick up the needle or to perform other manipulation.

The shaping everywhere, although roughly done, is just right for the hand (right hand only) and as an experiment a wooden skewer can be pushed through a cardboard box repeatedly with ease. Presumably it would be equally satisfactory for pushing a bone needle through deer hide. Some other material than stone might perform this necessary task as well but the white man finds a metal piece necessary to take the thrust, (and so does the white lady need her metal thimble).

So the question arises did the Indian invent a stone tool for this purpose or is it I who have invented a purpose for this stone tool?
CERTAIN SMALL TRIANGULAR ARROW POINTS

Ripley P. Bullen

Recently published data permit profitable discussion of the earliest occurrence of small triangular arrow points along the Atlantic coast, the southward drift of this concept through time, and possible hypotheses regarding the origin of this trait. This discussion is limited to states draining into the Atlantic as I am not sufficiently familiar with the literature of the Mississippi drainage to permit inclusion of that area in this article.

Small triangular arrow points may be defined as approximately 3 cm. or less in length. Predominantly, they have excursive sides, concave bases, and, usually, rounded or incurving basal corners. In general they are equilateral in overall shape and, where quartz is readily available, frequently made of that material (Bullen, 1948, p. 38; 1949, PIs. III, 13-15, XIII, 1-3). By these characteristics they may be differentiated from the large, straight-sided Owasco point and the very small, but also straight-sided, late Iroquoian point as well as the long, narrow point found in Middle Mississippian complexes. They are also to be distinguished from large, trianguloid blades, knives, or atlatl points of the eastern Archaic.

Wintemberg found small triangular points at Dorset sites on the west coast of Newfoundland (Wintemberg, 1939, p. 102, particularly Fig. 2, 5) and footnotes that Wilson in 1899 illustrated specimens from Connecticut and Georgia "which are almost like some of the Eskimo specimens" (Wintemberg, 1939, p. 95).

Harp's recent survey has substantially increased our knowledge of the Strait of Belle Isle area. Two sites on the southern Labrador coast produced small triangular points and a stone industry of which about 95% of the material was white quartz (Harp, 1951, p. 211). Of Dorset-like sites on Newfoundland he writes, "Of the various arrow points found, by far the most common and distinctive form is the small trianguloid of chipped flint. ***The bases themselves show considerable variation (Fig, 87, a, 13-17), and may be either straight or have different degrees of concavity. Certain of these specimens have had well-defined longitudinal flakes removed from the base of one or both faces, and thus have a fluted appearance" (Harp, 1951, p. 214). Harp's illustration shows these points to have excursive sides and rounded basal corners. Although they are a little longer and narrower than the definition of small triangular points given above, they are remarkably similar.

Judging from Harp's illustrations there should be chronological differences among the sites he surveyed. Data, as yet, are not available in this respect. The fluting he mentions is suggestive but not necessarily indicative of relative age. While Harp did not find any sherds, Bird found one further north in Labrador and quotes Strong to the effect that Wintemberg found pottery "just south of Forteau on the north shore of Belle Isle Strait" (Bird, 1945, pp. 142-3), which is immediately adjacent to the area worked by Harp. One is sorely tempted, therefore, to consider Harp's Dorset-like sites to be preceramic in date as well as non-ceramic in content.

In northeastern Massachusetts small triangular points occur at several sites below the earliest pottery which is Vinette type 1 or Vinette Interior Cord-marked (Bullen, 1948; 1949). In southeastern New England such points appear to be both preceramic and early ceramic in date (Fowler, 1950; Robbins, 1946; Torrey, 1946).

In central New York small triangular points were found to increase in quantity as depth decreased at the Robinson site of the Laurentian aspect and to be associated with pottery in the upper half of the deposits (Ritchie, 1944, pp. 238-41). At Finch Rock House, near New York City, similar points were in the preceramic zone which was separated by sterile sand from a superior ceramic zone (Smith, 1950, p. 143). However, Smith indicates relative scarcity of such points in preceramic periods while he illustrates many for ceramic periods (Smith, 1950).

Further south, in New Jersey, McCann found small triangular points to concentrate in the upper levels of the Ware site which produced early types of pottery from all levels (McCann, 1950, pp.318-320).

Still further south, in Virginia, such points were not present at Marcey Creek, either in the preceramic or early ceramic zones (Manson, 1948). They have, however, been found in pottery producing mounds and village sites of Virginia, which are obviously later than occupation at Marcey Creek (Bullen, 1950). In North Carolina these points were found in the Peachtree Mound which also produced pottery (Setzler and Jennings, 1941). Coe, also in North Carolina, did not find them in preceramic levels near Morrow Mountain but does in the Yadkin focus or second pottery period (Coe, 1949; also exhibit at University of North Carolina).

In Georgia, Fairbanks (1950) mentions "small
triangular points" as present but not common in Lamar. For the south east as a whole he places "small triangular points" at the close of Middle Woodland or early Late Mississippian times (Fairbanks, 1949, p. 69). These are all undoubtedly early Mississippian forms and so not small triangular points under the definition used here.

Small triangular points are extremely rare in Florida. Willey (1949, p. 449) mentions them as first appearing in the Weeden Island or middle ceramic period. At the Safety Harbor site small triangular points were associated with those which were Middle Mississippian in form (Griffin and Bullen, 1950, pp. 12, 25, Pl. II, A and C). Both forms were restricted to upper zones in which Spanish sherds were also found.

The preceding brief survey strongly suggests a diffusion of the idea of making small triangular arrow points from north to south along the Atlantic coast. It should be noted that the associations of these points changed from preceramic to early ceramic and from middle to late ceramic periods from north to south. Of course the date of the first introduction of pottery into these areas is not a constant one but differences in time periods seem sufficient to indicate southward diffusion.

A major area omitted from this survey is that of Maine, Wendell Hadlock, in the past, has informed me that triangular points of any type are extremely rare in Maine and, when found, are very late and of the Owasco type. Since I received this information much additional work had been done in that state. Until the results have been reported, theories regarding this apparent lacuna are unnecessary.

If the thesis presented by this paper is acceptable, various implications come to mind. Only a few are considered here.

Giddings, for the Denbigh flint complex of Alaska, illustrates triangular harpoon blades of which some are similar to small triangular points except that they have sharp basal corners (Giddings, 1951, Fig. 54, 4, 6). He also illustrates a fluted triangular point which is remarkably similar to some illustrated by Harp (compare Giddings, Fig. 53, a, with Harp, Fig. 57, a, 13 and 14). Giddings calls attention to the similarity between these blades and those found hafted at Ipiutak (Giddings, 1951, p. 201; Larsen and Rainey, 1948, Pls. 77, 78, Fig. 20, b). No doubt similar harpoon points will be found when earlier remains of the eastern Eskimo are excavated.

A Dorset Eskimo origin for triangular arrow points has been previously suggested by de Laguna (Ritchie 1944, p. 268, fn. 1). That an early Eskimo harpoon point may be the prototype of Indian small triangular arrow points (via Dorset) cannot be documented. However, the required modification of the harpoon point would be very slight and the hypothesis would seem to be tenable, granting the introduction of the bow and arrow to people familiar with such harpoon points.

There are also implications regarding the time period represented by the Dorset culture. Small triangular points were introduced in Massachusetts and New York before the advent of pottery (other types of points were in use before this introduction). Pottery types of the northeast follow more or less parallel developments which have certain similarities with the situation in the upper Mississippi drainage. If recently published Carbon-14 dates are to be relied upon, pottery may have been introduced into the northeast at about the time of Christ (1000 B.C. if Burial 6 at Oberlander No. 2 is taken as early Point Peninsular in date. This burial with steatite sherds might, however, go with the preceramic component of the nearby village site. Arnold and Libby, 1950). If the triangular point diffused from Dorset, that culture must have been a going concern at an earlier time, say circa 500 B.C.

Since writing this article I have seen Birket-Smith's recent summation of Eskimo research. It is interesting to note that he includes among specimens of the Palaeo-Eskimo Dorset stage a broad, small triangular point with a deeply concave base (as well as the longer, apparently more common variety, illustrated by others) and dates Dorset as circa 200 to 1000 A.D. (Birket-Smith, 1951, Pl. VI; Table 1; p. 152). In line with present tendencies this dating may have to be extended backward in time.

It would appear that our knowledge of local chronologies is approaching the state where studies of various traits, along the lines followed by this article, might be profitable and give us new and stimulating ideas about the growth of Indian cultures.
Arnold, J. R., and W. F. Libby

Bird, Junius B.

Birket-Smith, Kaj

Bullen, Ripley P.

Coe, Joffre L.

de Laguna, Frederica

Fairbanks, Charles H.

Fowler, William S., and Herbert A. Luther

Giddings, J. L., Jr.

Griffin, John W., and Ripley P. Bullen

Harp, Elmer, Jr.

Larsen, Helge, and Froelick Rainey

Manson, Carl

McCann, Catherine

Ritchie, William A.

Robbins, Maurice

Setzler, Frank M., and Jesse D. Jennings

Smith, Carlyle S.

Strong, William D.

Torrey, Howard

Willey, Gordon R.

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