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CONTENTS

	Page
THE COBURN SITE: A BURIAL COMPLEX ON CAPE COD FRANK KREMP	33
CERAMIC POT FROM THE INDIAN HILL SITE WILLIAM L. GREENE	42
THE EATON SITE: A DUGOUT WORKSHOP ARTHUR PETZOLD	47
DOMESTIC EVIDENCE AT STEATITE QUARRIES WILLIAM S. FOWLER	49
A ROCK SHELTER AT THE STONY POINT BATTLE FIELD SITE EDWARD J. KAESER	56
NEW ENGLAND INDIAN AGRICULTURE HOWARD S. RUSSELL	58
MOVEMENT OF PREHISTORIC PEOPLES IN THE NORTHEAST WILLIAM S. FOWLER	62
GLEANINGS FROM THE INDIAN LANGUAGES LAURENCE K. GAHAN	65
CHIPS ARTHUR GEORGE SMITH	68
RESEARCH COUNCIL	69

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THE COBURN SITE: A BURIAL COMPLEX ON CAPE COD

33

FRANK KREMP

Barley Neck in East Orleans, Massachusetts is situated in the very heart of the area long recognized as the stronghold of the Monomoyick Indians, and their neighbors, the Nausets. The land surrounding Great Pleasant Bay abounds with myriads of small fresh water ponds and springs. Since the earliest days of colonial occupation the tilled fields in this area have yielded a wealth of Indian artifacts.

The Coburn site is ideally located on Barley Neck about thirty feet above sea level, facing east with the land sloping protectingly to the north. A swale containing a spring of fresh water lies between it and a small bay. Across the bay is Pochet Island and the Atlantic Ocean just beyond (Fig. 1).

For many years old dirt roads leading from Barley Neck Road to the water and adjacent shell piles, of which there are many, have been periodically surface hunted by the author and members of his family with occasional surface recoveries. A year or so ago a new road was bulldozed at a right angle to Barley Neck Road, and, by making a second right angle turn, paralleled the old road to the above mentioned swale.

After a heavy rain, washouts in this new road would often bring to light a few broken points of rather unusual shape and finish. Last October my son, Robert, and I decided to spend an afternoon at our favorite pastime of surface hunting. Upon checking a spot at the western extremity of the site, the unmistakable grooved portion of an ax appeared, protruding only a little above the surface of the road. Although broken in two, both halves were recovered. At the same time, we also found a $\frac{3}{4}$ grooved ax near the northeast corner, and a celt lying only 6 inches away. We also discovered three broken points. As this was a private road, which seemed to be in constant use, we decided not to do any digging. But, although we checked consistently for the next three months, nothing more was found.

Late in February, 1960, with the frost out of the ground, it seemed time to again visit the Coburn site. We found another bulldozer had been at work running back and forth over the site extending the

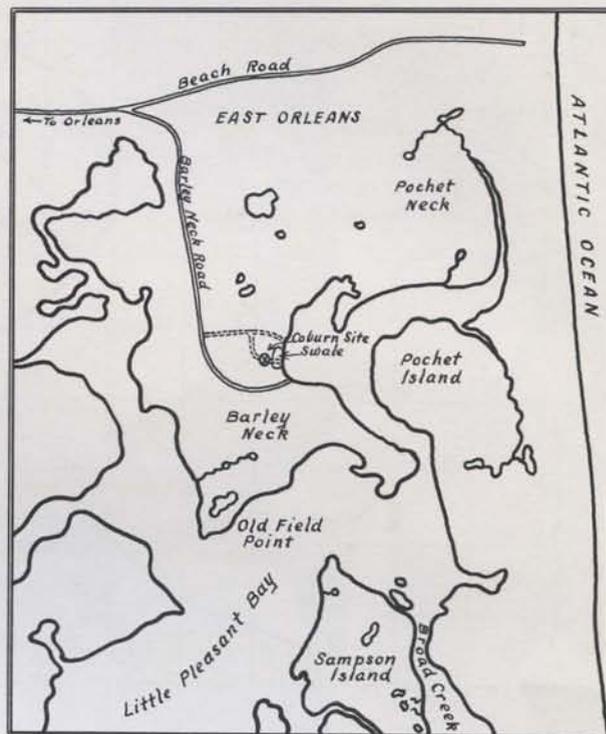


Fig. 1. MAP SHOWING LOCATION OF COBURN SITE.

road across the swale to the beach. The small area, where we had found the implements in October, was now badly churned up. We probed with sticks and found several more artifacts just below the surface. Although we had done but superficial digging, the appearance of so many artifacts seemed to indicate the possibility of burials. Therefore, without further delay, we contacted Mr. Francis Coburn, the owner, and arranged to meet him the following day. We met and received his consent to excavate the area. At this point, we would like to thank Mr. and Mrs. Coburn for their cooperation and understanding in granting us permission to dig up their roadway in our search for hidden artifacts, which might lie below.

With permission granted, we staked out a 15 square foot area with grids at 1 foot intervals. Our first move was to dig a foot wide trench across the road: grids 214-222 (C stands for 1 ft. squares or grids, Fig. 2). The depth of this trench from the top of the road to the gravel base varied from 12-24 inches. It should be noted that approximately 16 inches of overburden had been removed in the

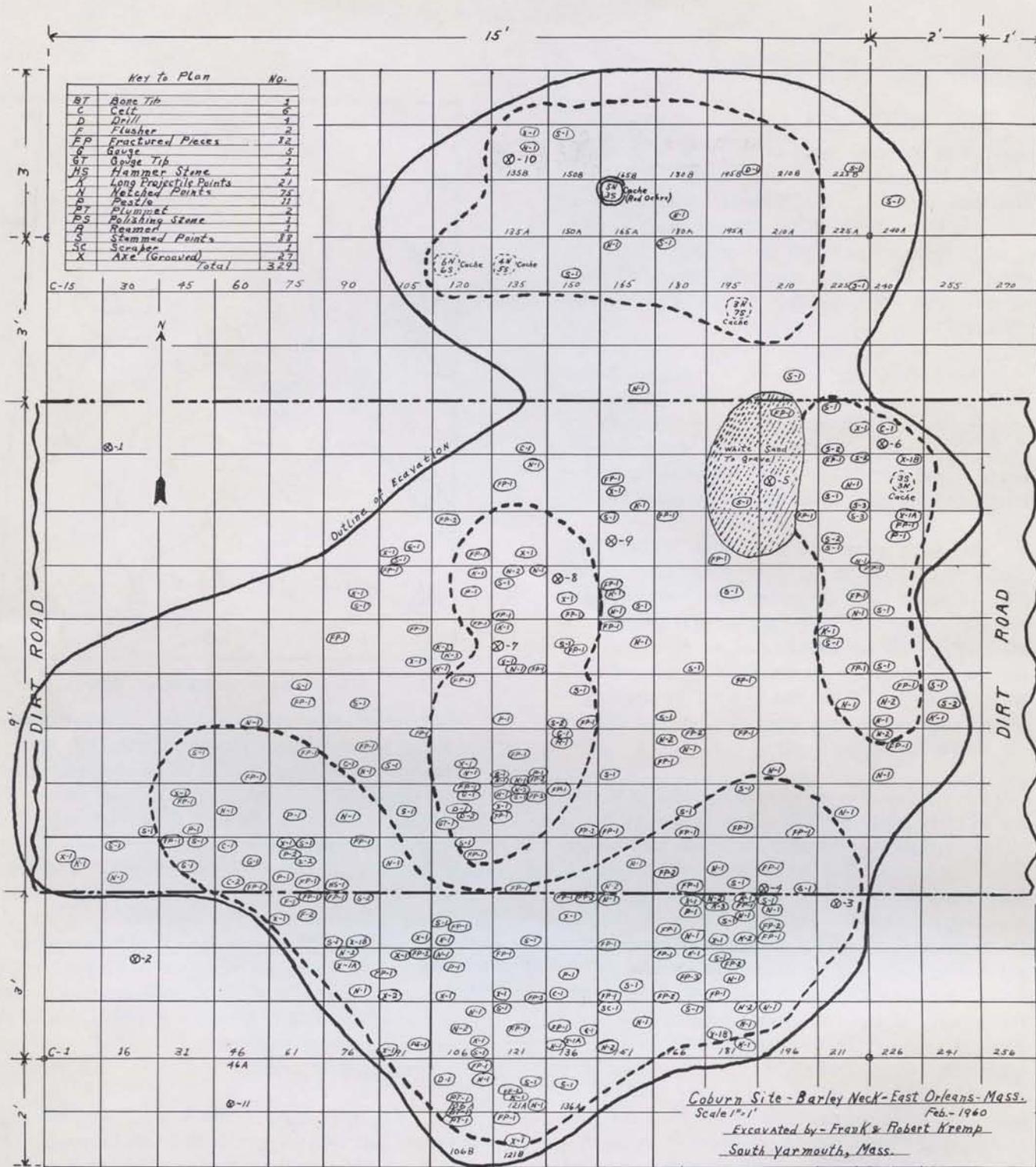


Fig. 2. COBURN SITE EXCAVATION, showing four probable secondary burial areas and location of each excavated artifact.

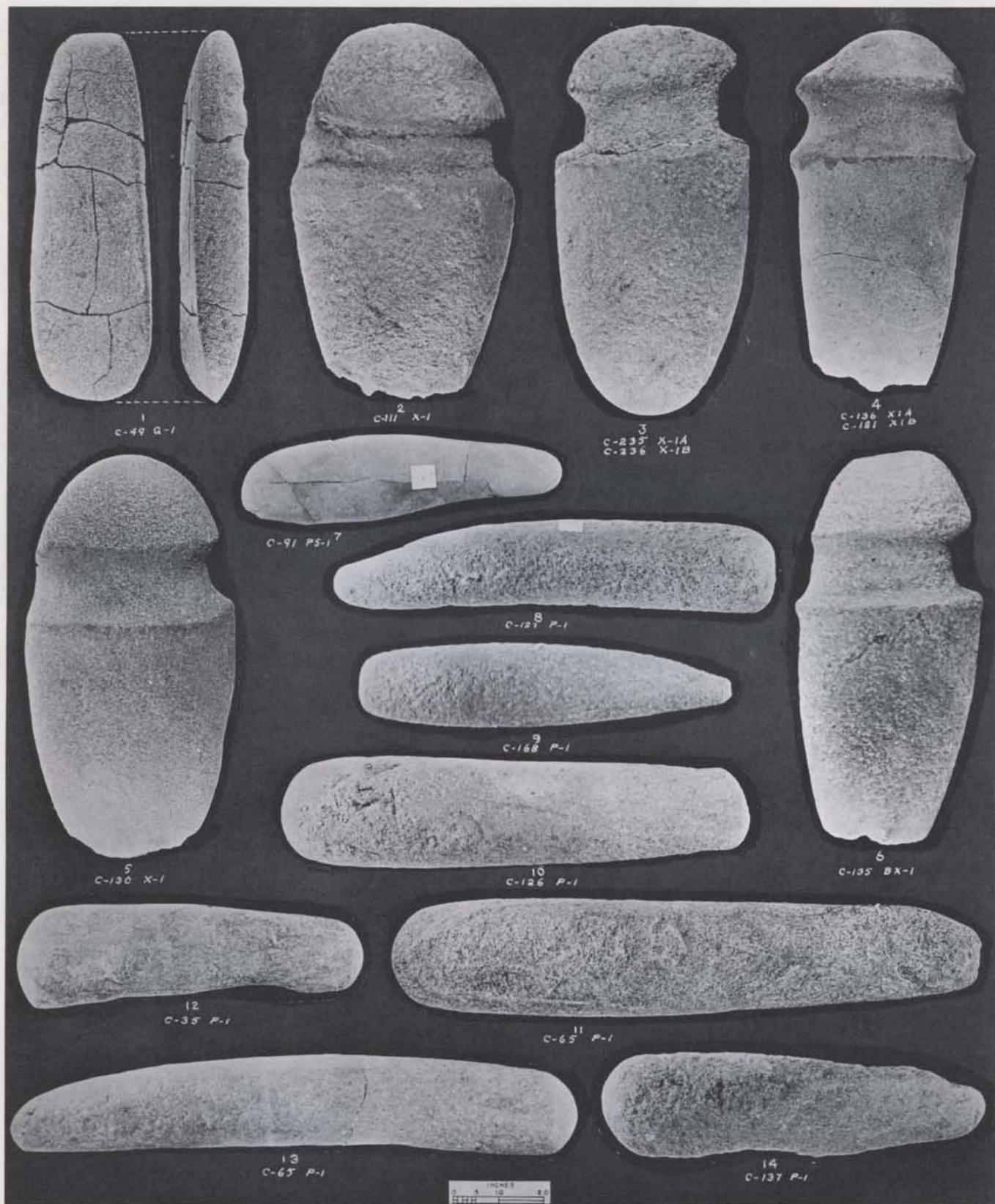


Fig. 3. LARGE ARTIFACTS FROM THE COBURN SITE. 1, Double Grooved Gouge; 2, $\frac{3}{4}$ Grooved Ax; 3-6, Full Grooved Axes; 7, Whetstone; 8-14, Pestles.

original bulldozing operations. This had exposed about 4 inches of hard packed white sand, which covered the road. Under this layer, the soil was very dark to the gravel base. Soon after we commenced our systematic careful digging with trowels or their equivalent, it became evident that we were about to uncover something unusual in the way of a dig. For, working four abreast, all of us at once began to find numerous points, axes, pestles and celts from directly below the surface down to the gravel base. Some 329 perfect and fractured artifacts were recovered, although perhaps 50 or more were only the broken tips or bases of points. We now realized that what we were excavating could not be individual graves as we knew them, since the area of black soil extended without interruption throughout the excavation and beyond the limits of the road, as shown on the master chart (Fig. 2). As indicated by the dotted lines, we noticed four locations where the deposit was much blacker and of a greasy consistency. In these blacker areas appeared occasional streaks of grayish matter, which in some cases had solidified into lumps. These concretions measured one to three inches in length and up to one inch in diameter. We speculated that they might be decomposed calcined bone matter, although throughout the dig only three small free pieces of calcined bone were recovered. (These bone fragments resemble calcined bone fragments from Wapanucket 6 secondary cremation burials, identified as human by qualified analysts—Ed.).

Although most of the implements were in the areas of black sand and greasy black deposits, some were found in the surrounding yellow and white

sand. Depths at which artifacts occurred varied greatly, as may be illustrated by the fact that one ax (X-1) in grid (C-135B) lay on the gravel floor, while another (X-1) in grid (C-222) appeared directly beneath the top surface. These two axes were separated by 8 feet with a difference in depth of 18 inches. Therefore, it is evident that the depths at which artifacts occurred has little or no significance, for, typologically, they all seem to have the same culture origin. Some of the larger points appeared in caches. These were usually near the surface, with the exception of three large caches, which were almost down to the gravel. One of these, as shown in the chart, had a heavy concentration of red ochre with which the blades were smeared. While there were traces of red ochre in other parts of the area, there was no other heavy concentration of it. In this red ochre cache, it appeared that powdered ochre had been poured into the hole when the points were placed there.

It should be noted that no traces of shell or pottery appeared, and there were no large or small triangular points recovered. All projectile points found at this site were either of stem or notched types, some of which, doubtless, were knives. Further, there occurred no stone bowls, either whole or in fragments. About 25% of the artifacts, apparently, had been subjected to fire producing cracks and burned discolorations. This was more noticeable in the case of the larger artifacts (Fig. 3).

South Yarmouth, Mass.

October 1, 1960

APPENDIX

Editor's notes: Upon receiving an invitation from Mr. Kremp, a member of the Massachusetts Archaeological Society, to view his East Orleans recoveries and excavation records toward producing a report for publication in the Bulletin, we drove down to his home in South Yarmouth. His account of this unusual discovery with our notes appended is the result. May we say here that we appreciate Mr. Kremp's cooperation in placing his records and artifacts at our disposal, so that members of this Society might have a chance to read and evaluate the evidence. Of considerable value in making this report more understandable are the excellent photographic illustrations of artifacts Mr. Kremp has made available for our use. Because of their im-

portance, we are devoting four pages to their display, so that the reader may get a better idea of the heavy concentration of artifacts at this site.

As noted in Kremp's report, archaeological stratigraphy has little significance at the Coburn site. Therefore, in order to determine the meaning of this excessive deposit of artifacts, it is necessary to study their types as compared with similar traits appearing at sites, where cultures have been found delineated stratigraphically.

The most diagnostic traits in the collection are illustrated, and consist of grooved ax; grooved, knobbed, and short plain gouges; celt; short pestle;



Fig 4. LARGE ARTIFACTS FROM THE COBURN SITE. 1-5, 10, 11, Full Grooved Axes; 6, 7, Stemless Knives; 8, 9, Plummetts; 12, $\frac{3}{4}$ Grooved Ax.

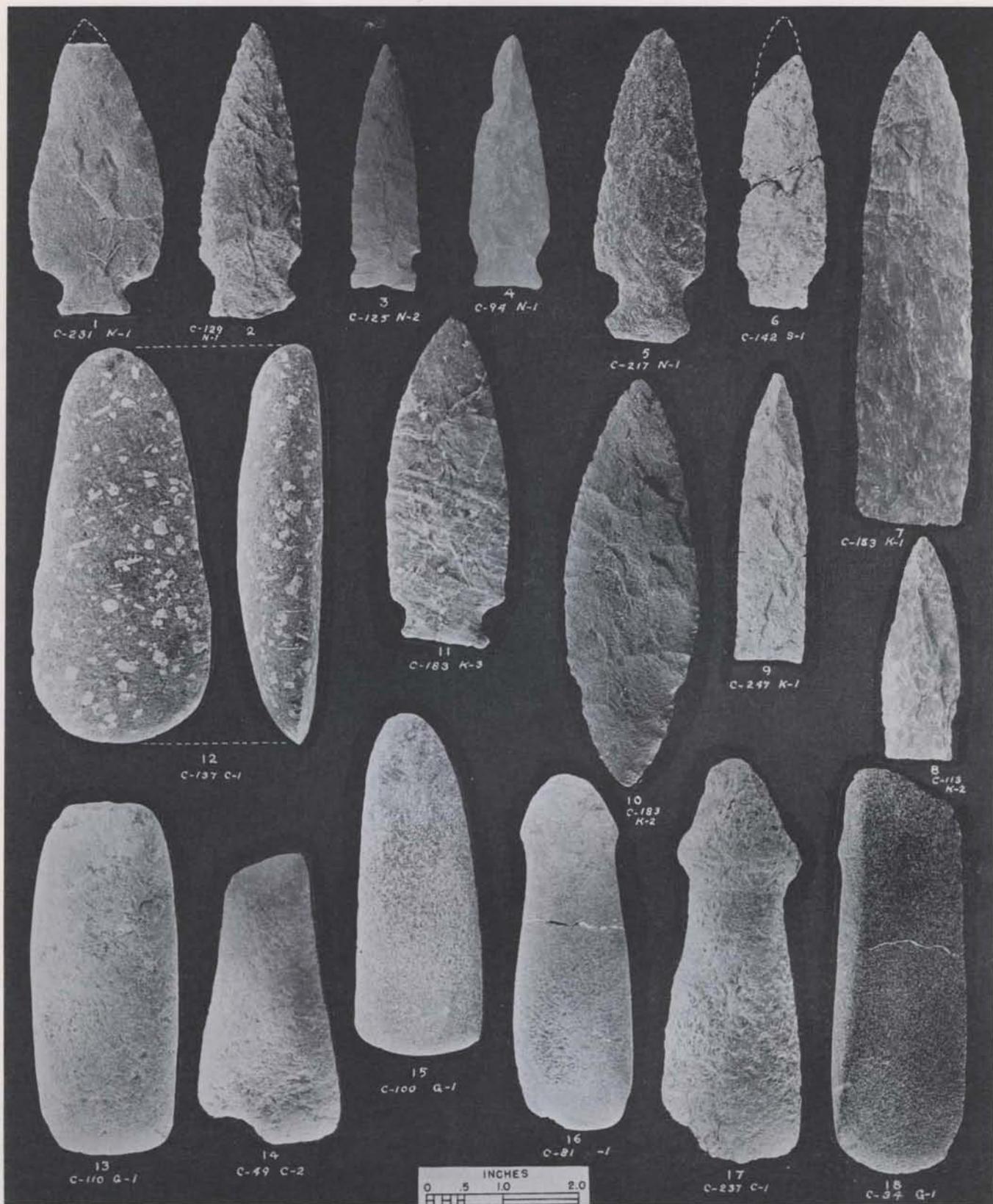


Fig. 5. LARGE ARTIFACTS FROM THE COBURN SITE. 1-5, 10, 11, Side-notched Blades; 6, Corner-removed #7 Blade; 7-9, Truncated Blades; 12, 14, 16, 17, Celts; 13, 15, Plain Gouges; 18, Knobbed Gouge.

modified plummet; stemless knife; broad spear blades; eared, side-notched, and tapered stem projectile points. A solitary corner-notched point (Fig. 6, #26), because it does not repeat, stands alone as a probable intrusive element from some outside culture area—to be discussed further along. Using classification terms, as approved by the Massachusetts Archaeological Society, the analysis of traits follows:

GROOVED AX. In this category are 27 specimens, at least four of which are $\frac{3}{4}$ grooved, while the balance are full grooved. Many are discolored and some are cracked, presumably, as a result of exposure to fire.

GOUGE. In this class of 5 implements are the following types: one double grooved, one knobbed, and three short plain specimens. Several of these, also, show damage from fire action. (This is the first occasion in which a knobbed gouge has been excavated, having close association with the Stone Bowl Age).

CELT. All 6 specimens in this group have short plain shapes, except one with a knobbed head. This is suggestive of one head style of a full grooved ax (Fig. 5, #17). Here, again, fire action has damaged one or two.

PESTLE All 11 specimens in this category are relatively short with well worn ends, showing wear caused by friction against something hard like stone. Further, the worn ends are convex shaped, presumably, as a result of use in stone concave bottomed mortars, when grinding nuts, not maize.

PLUMMET. In this group are 2 specimens with modified irregularly rounded forms, surmounted with relatively large knobs; a marked departure from the classic lemon-shaped plummet of the early Archaic with small knobbed head.

STEMLESS KNIFE. There are at least 2 blades in this group, which are especially diagnostic, as referred to later.

BROAD BLADES. In this category are several notable examples of what may be relatively large spear points (Fig. 5). Side-notched #1, corner-removed #7, and truncated types are present as illustrated. One specimen, #10 (C-183 K-2), the only one of its kind, is reminiscent of Ohio Adena

and may be intrusive. Some of these blades might fall within the stem knife classification, although their uniform symmetry would suggest spear points.

PROJECTILE POINTS. In this classification, all 184 specimens have wide bases, indicating their use as spear points. Of the eared type, 11 are illustrated (Fig. 6); of the side-notched, 14; and of the tapered stem, 25. Presence of what seems to be an intrusive corner-notched type is of interest, and will be referred to later.

Next to a study of the recovered artifacts, the manner of their interment at this site is an important feature, which has a significant bearing upon interpretation of the whole site complex. In this case, there are four concentrated areas of a black greasy substance, in which appear most of the artifacts, together with occasional solidified lumps of gray matter. Also, in one of these areas appears a cache of blades imbedded in a quantity of powdered red ochre, traces of which occur throughout the excavation. Now, all of these features are unusual; are not found at most sites. However, several similar manifestations have been reported in this part of New England, to which reference will be made in correlation of the evidence.

DISCUSSION AND CONCLUSION

In evaluating the stone artifact traits, the first features worthy of note are those of the grooved ax and grooved gouge. Both of these implements have appeared over the past fifty years in stone bowl quarries, both here and as far south as Virginia. Therefore, for many years they have been considered extremely diagnostic of the industrial steatite culture of the east, which belongs to the Late Archaic era. In more recent years, other domestic stone traits, also, have been found in New England soapstone quarry workings, which are similar to certain traits from the Coburn site: stemless knife; corner-removed #7, side-notched, and eared projectile point types.

At numerous camp site excavations in the Narragansett Bay drainage, stratigraphic identification of this same Stone Bowl Age has appeared delineated from the following Ceramic Age (Woodland). In the Stone Bowl horizon has appeared most of the other artifact traits at the Coburn site: short plain gouge; plain celt; short end-worn pestle; modified plummet; broad bladed projectile points,

and the tapered stem type. Also, use of quantities of powdered red ochre in caches of stone artifacts, in which appeared grooved axes at the Titicut, Boats, and Assowampsett Lake sites, seems significant as a ceremonial link. For, as has been mentioned, grooved axes are a sure culture determinant of Stone Bowl times.

Perhaps the site's most intriguing feature is the manner of interment of artifacts in four blackened areas. In order to get a better idea of what these probably are, attention should be called to evidence of similar remains in the report: "Wapanucket No. 6—An Archaic Village In Middleboro, Massachusetts," by Maurice Robbins. At this Assowampsett Lake site, dated by carbon-14 measures at about 2200 B.C., controlled excavation revealed three stone encircled crematories with scattered pieces of partially burned human bones still in evidence. In addition, several burials were found, nearby, all of which contained small amounts of calcined human bone fragments. Two of these interments contained stone artifacts, and one had powdered red ochre added. In every case, the fill consisted of a black greasy substance, presumably, crushed water-packed charcoal. Some of the stone artifacts were cracked and stained, as though damaged by fire action. Because of the closely associated features of crematories and graves at this site, the latter are believed to be secondary burials, in which cremated remains were redeposited. Evidence also shows that at least some of the grave goods were first burned with the body in the crematory, and then taken out and reinterred in the secondary burials. Stone artifact traits from this site are similar to many from the Coburn site.

Let us now consider two negative traits at the Coburn site, as reported by Kremp: the absence of shellfish remains, and triangular points, both large and small. Anyone who has excavated sites on the Cape or other locales bordering sea water will doubtless agree that shellfish remains are usually much in evidence. Kremp's report speaks of many artifact-bearing shell piles lying adjacent to the site. And yet, in the excavation of the site no evidence of shell appeared. Now this absence of shell does not seem strange, when consideration is given to four site excavations made by members of the Narragansett Archaeological Society of Rhode Island on Narragansett Bay. At these four stations it was established, beyond a possible doubt, that shellfish eating first occurred with the coming of

Stage 1 pottery—first of the Ceramic period. Also, that evidence of it was definitely absent from the Stone Bowl horizon, which lay directly below. Therefore, the assumption should be valid that during the stone bowl industrial period shellfish were not a part of the people's diet. If then the Coburn site artifacts agree in type with those associated with the preceramic Stone Bowl Age, as they do, this would explain, in itself, the absence of shell.

The lack of triangular points at the site is more difficult to explain, for the small type has been repeatedly found associated with the Stone Bowl horizon at all excavated camp sites. Large triangular points would not be looked for anyway, as they are never found lying in this preceramic horizon, unless a stray appears there as an intrusion from a higher level. Evidently, burial rituals of those days did not call for inclusion of small triangular points, for at Wapanucket 6 they were absent from the grave goods of all secondary burials. This, then, seems to be the most probable reason for the omission of this type of point from the Coburn site recoveries. For, it now seems certain that here we are dealing with remains of secondary burials and not those of a habitation site.

Two artifact traits seem intrusive, and their presence at the site demands an explanation. First, let us consider the corner-notched spear point of chert (Fig. 6, #26). This type of projectile point has appeared in no other dig of this area in the Late Archaic horizon of Stone Bowl times. Instead, it has first shown up in middle or late Ceramic times, hundreds of years after the close of stone bowl operations. Why, then, should it appear, represented by only one specimen, in a Stone Bowl secondary burial at the Coburn site?

The answer may lie in the fact that corner-notched points are a conspicuous element in Ritchie's Laurentian Aspect at the Oberlander site in New York, as well as in contemporaneous Pennsylvania cultures. These cultures to the west are believed to have been coeval with the Stone Bowl era of New England. Excavated evidence here of intrusive chert or flint in this horizon is traceable to the Coxsackie flint quarry of the Hudson Valley and other New York and Pennsylvania sources, indicating culture contacts. Therefore, it seems quite possible that a stray corner-notched point from western regions might have found its way into New England. The fact that it was the only one at the

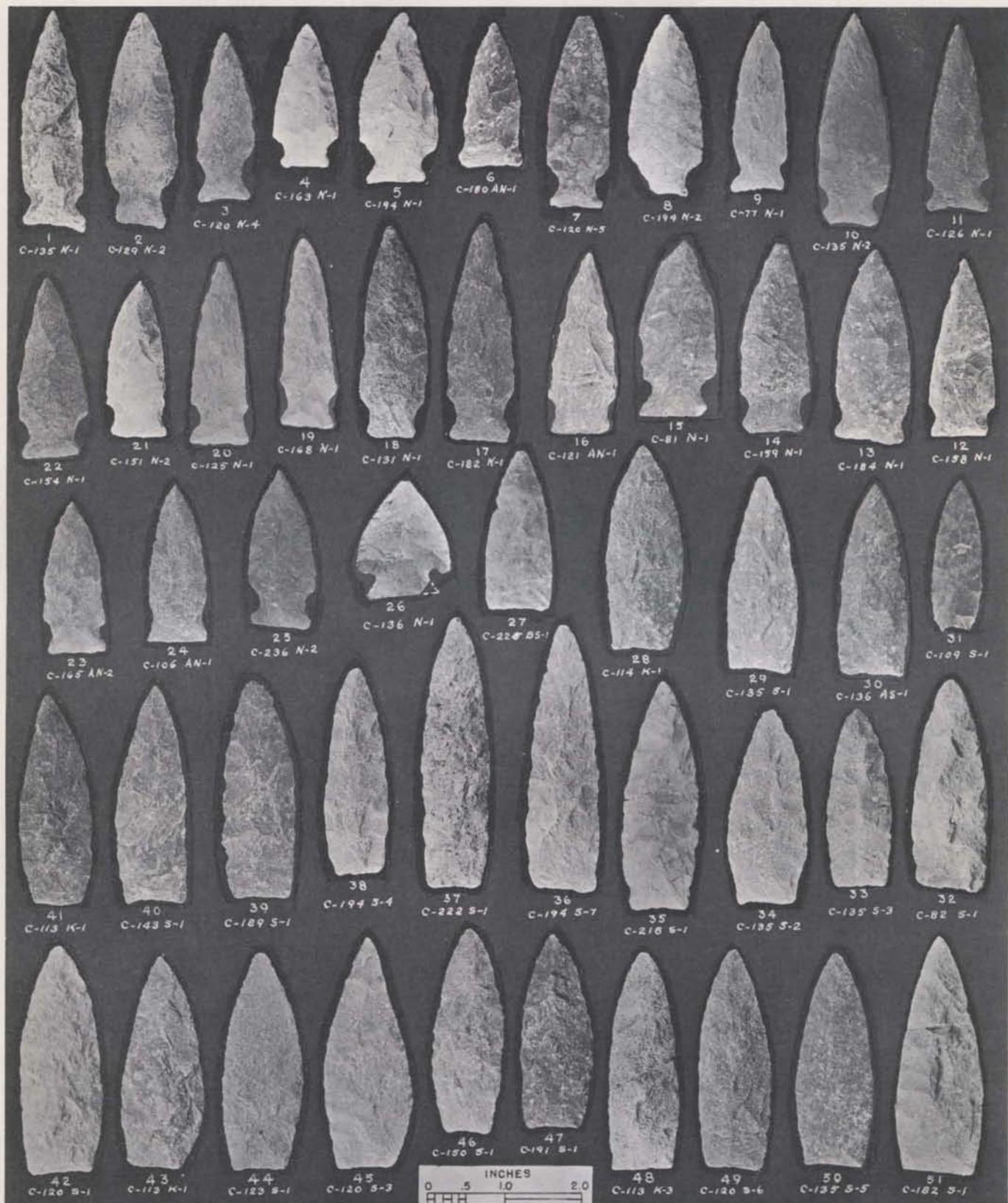


Fig. 6. PROJECTILE POINTS FROM THE COBURN SITE. 1-11, Eared; 12-25, Side-notched; 26, Corner-notched; 27, 29, 30, Truncated; 31, Leaf; 28, 41-51, Tapered Stem.

site seems to preclude it from being a manufactured product of the region.

The other artifact trait, which may be intrusive, is a wide bladed projectile point (Fig. 5, #10). This blade resembles a projectile point type of the Ohio Adena culture, contemporaneous with New England's Stone Bowl era toward its close. Therefore, it may be that an actual Ohio-made blade found its way to the Coburn site. Either this, or the style was copied by New England artisans. The latter may be the case, since a somewhat similar blade, reported by Edward Rose, appeared in his excavation at the Boats site, Dighton, Massachusetts, *Bulletin of the Massachusetts Archaeological Society*, Vol. 14, No. 4. At this site on the Taunton River, artifacts were found at the bottom of ten charcoal blackened pits, each containing quantities of red ochre, and in the case of one, fragments of human burned bone. Some artifacts were cracked and broken, as though from fire action, so that cremation action was suspected. Among the interred artifacts were grooved axes and eared points, indicating Stone Bowl relationship. Here again appears evidence to support the belief that human cremation with certain burial rites was practiced by the Stone Bowl Makers.

Finally, the question arises: if the Coburn site belongs to the Stone Bowl era, why are whole or broken stone bowls absent from its four burial interments? In considering this query, we find that at both Wapanucket 6 and the Boats site stone bowl evidence was absent from the burials, as at East Orleans. Therefore, we must conclude that either there were no stone bowls to spare at the time of burial, or else, bowls were not a part of the ritual. The former probability seems more likely, since a steatite stone bowl was recovered with similar interred remains at the Mansion Inn site near Lake Cochituate, Massachusetts, report of which has not

yet been published. Also, Ritchie reports "killed" stone bowls appearing in similar ceremonial interments near Orient, Long Island. With these facts and interpretations in mind, we are now ready to consider what may have taken place at the Coburn site.

At this East Orleans site, appearance of four confined areas with black concentrated fill containing an excessive deposit of stone artifacts seems typical, not of camp litter, but of interments with suspected ceremonial significance. We have seen how the interred artifacts, similar to diagnostic traits of the Stone Bowl Age, equate in part with those from Wapanucket 6, where evidence of cremation burial rites was clearly defined. Also, in evidence there were tapered stem points, which appear in great number at the Coburn site. Therefore, similarity of artifacts and method of deposition at both sites suggests that activities at the latter, also, had to do with cremation burial rites as at the former.

Here, then, we have in the four black concentrated areas, what may be called secondary burials of the Stone Bowl Makers, who had incorporated cremation as a part of their burial ceremonies. Nearby there should be found, upon further excavation, a stone outlined crematory or two. There the dead were burned with certain artifacts, presumably, placed about the body. Later, after the remains had cooled, it is probable that handfuls of calcined bone matter with extraneous particles of charcoal were scooped up, and together with the burned artifacts redeposited with suitable ritual in the secondary burial areas. At the same time, fresh artifacts were also cast into the grave, and at least on one occasion, powdered red ochre was thrown in. This, briefly, is an attempted reconstruction of burial activities, which, in all probability, were carried on at the Coburn site.



CERAMIC POT FROM THE INDIAN HILL SITE

WILLIAM L. GREENE

In the spring and summer of 1959 Ralph Nickerson and the writer excavated a large refuse pit disturbance at Indian Hill, Middleboro, Mass. This site lies on the eastern side of the Nemasket

River, only about an eighth of a mile from the famous "wading place" where the river was forded in colonial days for lack of a bridge. The site is on the Barden farm and is located very close to the

old Indian trail from Plymouth through Middleboro to Titicut, about 300 yards south-west of the historic Indian rock on the Madigan farm. Here, as history recounts, an Indian, who exposed himself, was shot from the fort, which stood on the other side of the river.

While excavating this site, laid out in convenient sized grids, a sand and gravel ridge was encountered. This ran from Indian rock toward the river. About 200 yards from a pond hole to the south a large refuse pit lined with much charcoal and ash was located. The disturbed area measured perhaps 7 by 18 feet at the bottom of the loam, where its outline was well defined. At a depth of about 25 inches it became more or less rounded, about 5 feet in diameter. The entire pit was filled with black greasy charcoal refuse through which were scattered fire stones, small pieces of bone, and stone chips of all kinds. In addition, there appeared several broken points and a perfect one, the broken stem of a ceramic pipe, and three small fragments from two different steatite bowls. Quite obviously these articles were intrusive from outside debris when the pit was filled, since they were found separated from each other at various depths and horizontal positions. They cannot, therefore, be considered to have diagnostic significance.

In the upper end of the pit were located three depressions on its bottom edge, each with a layer of charcoal and ash, and each containing quantities of pot sherds. Because of their close association with the large pit, these three small pits with deposits of pottery refuse were probably a part of, and contemporaneous with the formation of the large pit.

Small pit #1 contained the base of a ceramic pot, bottom side up, lying on top of a side section of what appeared to be the same pot.

Small pit #2 contained rim sections of the pot in three pieces, one lying on top of another.

Small pit #3 contained, apparently, the remainder of the pot in small sherds, which were in poor condition, and were difficult to remove without crumbling. Lying on top of this concentration was a deer's antler, but whether or not it has any significance cannot now be determined.

Upon removal of the various potsherds, it became apparent they belonged to the same pot, and

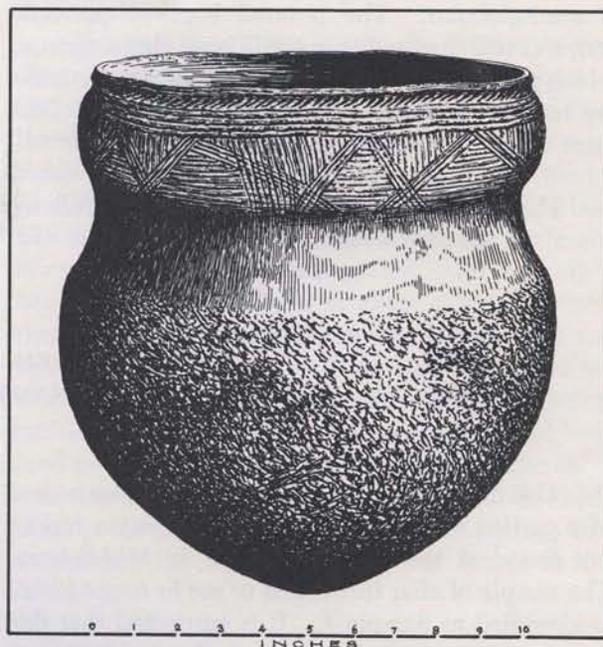


Fig. 7. CERAMIC POT (Stage 4) — Restored. Indian Hill Site, Middleboro, Mass.

great care was used to prevent breakage before they were dried. When thoroughly dry, they were sprayed with clear plastic to cement all surfaces, so as to harden and make them ready for restoration. Work of restoring the pot was then commenced, and after a long period of time, all but a few small sherds were fitted into place, so as to form a contiguous surface from rim to base. Only by piecing the pot together sherd by sherd could its original shape be discovered, and its traits studied (Fig. 7).

Middleboro, Mass.

July 1960

(Typologically, this pot appears to belong to Stage 4 with its well formed pressed-out collar, which is sharply undercut to form a highly constricted neck. However, it is without castellations, which is of rare occurrence in Stage 4 pots. This may indicate manufacture at the start of the period, before castellations were conceived or copied from Iroquois pottery. The paste has fine mineral temper, and the ware is smooth inside, as well as outside on collar and neck, while the body is cord-marked outside. Design motif consists of irregular stylus-cut chevrons around the collar, surmounted by a horizontal five line linear of line dentate technique. This is surmounted by a rim border of closely spaced oblique jabs. As is the case with most pots of this last stage of development, the base

is semi-globular. The pointed base of previous stages is still discernible, a traditional characteristic, which persisted through to the close of pottery making in New England, although greatly modified in most cases to a semi-rounded base.

The chemical analysis report that follows

speaks of a possible sugar content of some of the inside char, which was very thick and incrusting over much of the inside and outside. While only a guess is possible, it seems probable that this pot had been used in the boiling-down process of maple syrup in making maple sugar, the only sugar known to the aborigines.—Ed.).

CHEMICAL ANALYSIS OF RESIDUE FROM INDIAN HILL CERAMIC POT

J. J. CLANCY

This report is concerned with an examination of a portion of the charred remains from an Indian pot found at the Indian Hill site in Middleboro. The sample of char forwarded to me in August 1959 is identified as Sample A. It is suspected that this sample is not representative of the residue as a whole and that considerable variability exists in the char from one portion of the pot to another. Sample A, for instance, differs in appearance from another specimen removed from the pot at the Bronson Museum on January 23, 1960, and labeled Sample B. Sometime later two or three small sherds were handed me at the museum. It is upon these sherds (Sample C) that our most reliable work was done and upon which our conclusions are primarily based. The purpose of the study was to attempt to identify components of the residue as a clue to the probable contents of the pot.

EXPERIMENTAL

SAMPLE A

Sample A was a coarse, flaky, carbonaceous earthy material. It was insoluble in all common solvents, including water, and showed no positive test for sugars. The sample was examined under a low power stereoscopic microscope (15-45X) and separated on the basis of appearance into the following fractions.

FRACTION A-1 (Estimated Volume 70%)

This fraction was a dark brown to black heterogeneous carbonaceous mass of oily granular appearance. The material was brittle, but with care the point of a small pick could be made to penetrate the pieces of char without breaking them. Upon inserting a pick into their edges, some pieces showed a tendency to delaminate (flake) parallel to the surface of the pot.

Some of the fragments appeared to support combustion more readily than others, but invariably a substantial amount of ash remained after ignition which had a skeletal structure approximately the same size and shape as the original piece. Some of the ash was white to light gray. The ash from other pieces was pink or buff-colored. It was easy to affect a cleavage between the two colors when they appeared in the same fragment. The pink ash was quite strong after burning and appeared to be clay. The white ash was not strong and could be collapsed quite easily with pressure from a small pick. Both broken silica (sharp edges) and water-worn silica (rounded grains) was found in the ash. The combined evidence suggests that pieces which had spalled from the walls of the pot were responsible for the pink ash and the white ash was attributable to the residue in the pot. We were later able to confirm this by an examination of char directly on sherds (Sample C).

The elemental analysis as determined by a spectographic examination of this fraction undoubtedly represents a composite of char and pot and is, therefore, of little significance. All the spectographic examinations referred to in this letter were made through the courtesy of Mr. Emerson Newton.

FRACTION A-2 (Estimated Volume 10%)

This fraction was a jet black, high gloss material. Under the microscope and except for its color, it remained one of the matrix in peanut brittle. It was frothy and porous indicative of its having been liquid and boiling just prior to solidification. In appearance it resembled the charred overflow from an apple pie. Food technologists with whom this fraction has been discussed know of no materials other than sugars that would produce a char having this appearance.

Infrared absorption curves were made for this fraction but no discreet organic compounds or functional groups were revealed. The indications are that no organic material other than carbon is present.

Because of its insolubility, the sample was milled into mineral oil in preparation for the infrared work. This fraction was represented by a very small quantity of material, but what remained was used for a spectographic analysis. The whole spectrum was weak because of the size of the sample and many of the trace elements that were probably present did not show up.

FRACTION A-3 (Estimated Volume 5%)

The material in this fraction was medium brown color and resin-like in appearance. Under the microscope it was reminiscent of small pieces of animal hide and, therefore, was given particular attention. An infrared examination, which was inconclusive, suggested impure cellulose, but at the same time the material appeared to be highly inorganic in nature. The organic portion of this fraction probably consisted largely of fragments from rootlets.

FRACTION A-4

This fraction contained the remaining miscellaneous components including dirt, rootlets, cotton fiber and green, blue and white nylon monofilaments. The cotton fibers appeared to be contemporary and no further examination was made of this fraction.

SAMPLE B

Sample B showed a decided lack of the glossy black fraction noted in Sample A and was subjected to spectographic analysis and X-ray diffraction studies as received. The X-ray diffraction study showed strong peaks for silica (quartz) and the general background associated with clay. No further examination was made of this sample.

SAMPLE C

Extensive microscopic work was done on Sample C. This is the sample of char that was examined on the sherd, both before and after ignition. By means of this sample, we were able to clearly show that the white ash was associated with the char and the pink ash with the body of the pot.

POT SHERD

The pot sherd was extremely porous as evidenced by the rapid penetration of a drop of water into its broken edges. When viewed in cross-section, the sherd showed a large percentage of oval-shaped fissures constituting at least 10-20% of its volume. The condition suggested the possibility of ribbon-like material having been mixed with the paste and later burned off or disintegrated. Presumably a heavy foamy paste could produce a similar condition. The body of the sherd was buff-colored and upon ignition produced a light buff ash. The ash was very hard—much harder than the sherd before ignition which suggested that the pot had not been fired so as to develop maximum strength. The sherd was stained by the char for almost half of its thickness, probably helping to densify its surface and waterproof it. Broken quartz was found in the sherd.

CHAR

During ignition the char continued to glow for several minutes after the flame was removed. There was a loss in weight of 66.6% upon ignition. The ash was white, extremely voluminous, soft and easily crushed. The ash contained rounded grains of silica (quartz) which were remarkably uniform in size, suggesting water classification. There was also some broken silica in the char.

SUMMARY

Our studies on the char have disclosed no organic materials to suggest specific foods which may have been processed in the pot. The char is in a highly porous condition consistent with a residue resulting from the destructive distillation of organic materials. The char in its present form represents little more than carbon. A portion of the char consists of a jet black high gloss, frothy fraction (A-2) that was probably derived from sugar, although it may be possible to achieve the same effect with a highly hydrolyzed solution (dextrin).

Approximately one-third of the char is inorganic in nature comprising uniformly sized grains of rounded quartz which appear to be evenly distributed throughout the thickness of the char. There is a much higher calcium content in the char than in the pot sherd which might be accounted for by the high percentage of calcium found in certain foods or as a result of scale formation due to heating and/or evaporating water in the pot. The lack of

phosphorus compounds makes it unlikely that the residue is derived in any way from bone. One speculates as to the source of the quartz. It may have been accumulated over a period of many years in which case the amount added at any one time would be very small. If, on the other hand, the char was built up after a comparatively limited use of the pot it is reasonable to expect that Indian diets were very abrasive.

Undoubtedly, the spectographic analyses are influenced by the fact that the pot has been sub-

jected for many years to leaching by natural waters containing suspended minerals and by the possibility that minute fragments of the pot have spalled from its surface and become embedded in the char. The char is particularly interesting in light of your observations on residues found in some of the pits (Pits #1, 2, 4, 9, 11, 38, 42 and 48) described in the Assawompsett report. This report, you will recall, discussed a "black substance containing crystal-like grains". It will be interesting to examine a sample of this material for similarities.

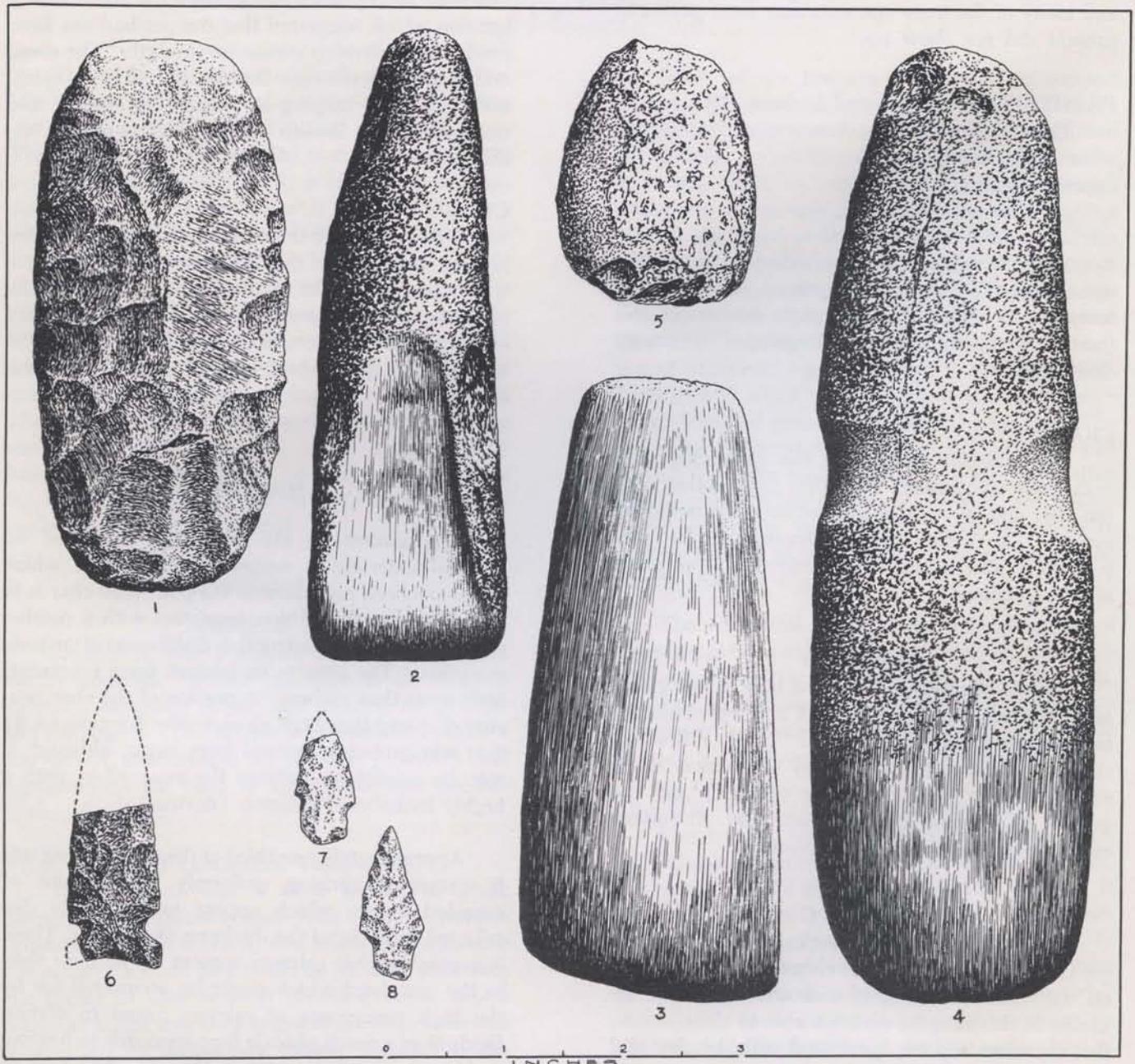


Fig. 8. ARTIFACTS FROM THE EATON SITE. 1, Hatchet; 2, Modified Gouge; 3, Celt; 4, Grooved Ax; 5, Worn-down Implement; 6, Eared Point; 7, 8, Small Stem Points.

THE EATON SITE: A DUGOUT WORKSHOP

47

ARTHUR PETZOLD

Some forty years ago, Mr. and Mrs. Eaton bought a piece of land on the shore of Martin's Pond, North Reading, Mass. This property is situated about 200 yards west of Route 28, 120 feet east of Martin's Pond, and 120 feet south of the Skug River. When clearing a section of this land preparatory to planting a garden, a very large tree was felled within the desired area, as well as many smaller trees.

Later, when the soil was turned over, it was very black in color and seemed to consist almost exclusively of charcoal. This charcoal deposit continued along the surface for several yards before feathering out where normal soil was encountered.

This patch of charcoal puzzled the Eaton family for many years. As work on the garden proceeded, they found within the charcoal deposit four heavy stone implements, which they recognized as being of Indian manufacture. They carefully stored them in a safe place.

One Saturday morning last fall, my nine year old son, Harold, and I decided to "scout" the area near the junction of the Skug River and Martin's Pond to locate, if possible, any Indian camp sites, which might be found in the area. The nearest approach to this location was along Batchelder Avenue, a gravelled road, which borders the pond at this point in a north-south direction. This road terminates at the south end of the garden mentioned above. I asked the owner, Mr. Grover Eaton, for permission to enter his garden and stated my reasons. A long conversation followed, when the above facts were mentioned, and the stone implements were shown to us.

A preliminary search of the area produced a rather ragged basal portion of a probable ax-like tool (Fig. 8, #5), and three quartz chips.

THE SITE

This site, now a garden, is located on high land, which forms a corner to both Martin's Pond and the Skug River; the former is to the west, and the latter to the north. The land slopes gently toward the river with its highest point lying about six feet above the present water level of pond and river. A narrow strip of boggy land lies between the Skug River and the site.

In the center of the site is a dense deposit of charcoal covering an area roughly 20 ft. square. A test hole was dug in the center of the deposit to determine its depth, and, if possible, the type of soil immediately underlying the deposit. As a result, the charcoal layer was found to extend from the disturbed surface of the garden plot to a depth of 11½". It was composed of charcoal with a consistency of from powder to chunks measuring 1½" in diameter. Some of the larger pieces showed a smooth surface on one side, as though produced by a cutting tool, similar in appearance to scars made by an ax. What seems worthy of special note is that these scars on the charcoal were extremely smooth, indicating probable cutting of the wood after it was charred. For it seems certain the smooth facets would have been destroyed had the wood been cut first and burnt afterwards.

The charcoal lense, subject of this report, rests on a well defined deposit of bright yellow soil just beneath. As there appears to be no leaching of charcoal into the yellow subsoil, the original horizon of the dugout workshop is well defined. The fine yellow subsoil extends 5" below the charcoal, directly beneath which appears a deposit of pebbles, apparently glacial till.

Further tests were made to determine the extent of charcoal deposition, and the stratigraphy of the area. At the lower, or northern edge of the charcoal deposit, results of our tests proved similar to those already reported. At a spot about 100 feet north from the charcoal deposit's center and some 30 feet south of the Skug River, where the land slopes to only 1½ feet above the water level, there appeared scattered charcoal chunks mixed with a peat-like soil. These, undoubtedly, had been deposited there by water erosion from the great mass of charcoal, previously described, lying above on higher ground.

By now, believing this to be the site of a former dugout workshop, a search of the area was made in an effort to locate the worker's camping place. The three quartz chips found within the charcoal area, although admittedly scanty evidence, provided encouragement for further research. After some exploring, a spot was found about 125 feet south of the site, which had the appearance of being the place where a camp had existed. On the surface appeared numerous chips of white quartz, felsite, and yellow chert. But what was more satisfying, three projectile points were recovered (Fig. 8,

#6-8). (One of these, the broken spear point, has a concave base, which emphasizes basal points, as produced by side-notching. Therefore, this point seems to fall within the classification of "eared" projectile points; the other two specimens are "small stem" points. Ed.).

Four artifacts found in the charcoal concentration by Mr. Eaton, and one by Harold Petzold have been illustrated (Fig. 8). However, further description seems desirable for purposes of clarification.

CHIPPED HATCHET. This implement, item 1, apparently is a double bitted small ax, or hatchet. (Maybe, it is one of those tools referred to by William Wood, 1634, as stone hatchets, used to trim the outside of the log in the manufacture of a dugout, Ed.). The implement measures 1½" through its center at the thickest point. Its blade at both ends shows much wear. (Since no wear occurs on either side, it is evident that the blade was hafted like an ax, confining wear to the ends. Ed.).

MODIFIED GOUGE. (As illustrated, item 2, evidently, is basically a gouge. However, the gouged out part of the blade is shallow and terminates in a rolled-over straight cutting edge, which meets a similar rolled-over surface from the back. This sort of a cutting edge is more characteristic of a celt than a gouge. Therefore, this implement seems to be a modification of a gouge, made for a hand tool to be driven with a mallet—not hafted. Ed.). The specimen is almost round in cross section, which further bears out the contention of its use as a hand tool. It displays a peck-and-grind technique in its manufacture, and exhibits much battering on the end of its poll.

CELT. This tool, item 3, is typical of cutting implements of two culture periods. It is made of hard igneous stone, and has been ground to a uniform high finish over all surfaces, so that peck marks are entirely eliminated. It has a maximum thickness of 1½", and has a flat ended poll, which shows signs of having been hammered with a driven mallet; probably was used as a hand tool without hafting.

GROOVED AX. In the case of this specimen, item 4, the pecked groove running around the implement, except for about ¾" on each face, places it in the category of a grooved ax. It is made of a fine grained stone resembling granite, and has a maximum thickness of 1½". The 1 inch pecked groove

has been ground smooth, so as to remove all signs of pecking.

WORN-DOWN IMPLEMENT. Found subsequently in the charcoal deposit, item 5 is what appears to be a cutting tool of some kind, which has been resharpened by chipping until nothing remains but about 2" of the poll. The tool has a chipped cutting edge and may still have been usable, hafted at the end of an appropriate handle.

Andover, Mass.

May, 1960

CONCLUSION

(Editorial Comment)

From the evidence presented in this paper, it seems probable that the extensive charcoal deposit at the Eaton site was deposited there as a result of dugout manufacture. It is well known from early commentators such as Samuel de Champlain and William Wood, 1604 and 1634, that dugouts were cut out of logs with the help of fire. It is of further interest to note that natives today in the interior of Venezuela, South America, still use the same methods as reported by Champlain and others. After a tree of the right proportions is felled by repeated building of fires about its base, and the removal of charred wood, formerly with stone axes, its trunk is used for the dugout. Again, fire is applied to surfaces to be removed in hollowing the log, while its sides are drenched with water to keep them from burning. Now, it has not been known what kind of tools were used in the hollowing and shaping, except as mentioned by early commentators in colonial days: for digging out the charcoal in hollowing, stone scrapers much like gun flints (Champlain), clam shells (Wood); and for trimming the outside of the dugout, stone hatchets (Wood). However, it has been generally assumed that gouges, celts, and other tools were used, also, at least in earlier prehistoric times. But until now, definite associated evidence has been lacking from reported discoveries to support such assumptions.

In the light of this present report, we may now draw several logical conclusions. First, it seems certain that this site belongs to the Stone Bowl industrial era (Late Archaic), by virtue of the presence of two diagnostic traits, the eared point and the grooved ax. Second, since all implements appearing in the charcoal deposit were in usable

condition, they had doubtless seen service, some in producing the smooth facets on charcoal chunks, as reported. Third, because of the presence of at least two of the artifacts with battered polls, it may be inferred that much of the hollowing was accomplished by mallet-driven hand tools. Fourth, the presence of a grooved ax not only suggests the site's chronology, but supports the belief that heavy axes of this kind were used with fire in felling large trees as required. Fifth, with the appearance of the chipped hatchet, as Wood's probable trimming

implement, similar recoveries made on camp sites at South Hadley Falls, Mass. and at the Locust Spring Site, Rhode Island may now be reliably classified as hatchets. It is of further interest to note that small stem points like those recovered at this site have their origin in the Stone Bowl horizon at all camp sites, so far brought to our attention. Therefore, they were probably first introduced by the people of this industrial age as arrow points, since their small proportions would exclude them for use as spear points.



DOMESTIC EVIDENCE AT STEATITE QUARRIES

WILLIAM S. FOWLER

Much has been written about the manufacture of stone bowls and pipes by the Late Archaic industrialists of New England and of the Atlantic seaboard as far south as Alabama. Outcrops of steatite (soapstone), and chlorite, a kindred stone occurring throughout many parts of the Appalachian Range were quarried by them over a long period of time, commencing about 2000 B.C. and continuing, in New England, down through the beginning of the Christian Era. They must have been creative individuals to have fashioned pipes and all manner of durable eating bowls from this soft stone, and as a result of these activities have been called the Stone Bowl Makers. To fashion their products, they first had to invent adequate stone tools with which to remove soapstone blocks from ledges, and then peck, saw, and scrape them into the various bowl products they had conceived. Undoubtedly, many hundreds of stone bowl quarries were in operation, and this industrial activity must have been an important factor in molding the customs of their times. If their culture followed that of simple food gathering peoples of today—and it is likely it did—they were peace-loving individuals with no warfare being practiced. Their industrial labors, doubtless filled many spare moments, and provided a creative outlet for their energies.

However, little had been known about the domestic pursuits of these people until a few years ago, when the Ragged Mountain quarry in the Peoples' State Forest, Connecticut, was excavated under the auspices of Yale Peabody Museum. Until

then, little evidence had appeared at quarry sites to show who the quarriers were; that is, to what culture group they belonged among those already discovered through excavation at various camp sites. Domestic implements by which they might have been identified, except in a few instances, had not appeared at the quarries, which were filled instead with industrial tools and remnants of fractured stone products. No one had been able to locate their living quarters at quarry sites, although repeated attempts had been made. Ragged Mountain site furnished the first real breakthrough in locating the quarriers' abode and in discovering important domestic living traits of the workers. Here was a quarry with its soapstone outcrops occurring in a commodious rock shelter. Men came to work bringing their families, and lived and quarried right in the shelter, where they dropped of necessity domestic implements along side of industrial tools. Outside, of what was probably a lean-to type of abode with a recessed stone ledge for sleeping accommodations, were hearths where the family cooking in stone bowls was done. Assemblage of domestic artifacts from the site's lower zone,¹ as illustrated, and referred to in the classification section, is proof of the importance attached to this unique quarry-shelter manifestation; see report: "Ragged Mountain: Culture Sequence In A Con-

1. The upper zone at this quarry site contained potsherds of five ceramic pots, providing evidence of the rock shelter's occupancy by later day ceramic peoples as a hunting lodge; no evidence of the previous Stone Bowl Age appeared in the upper zone.

necticut Quarry-Shelter," Bulletin 25, Archaeological Society of Connecticut.

Within the past two years new discoveries have been made at Oaklawn quarry, Rhode Island, revealing at least one probable habitation area. Before this was located, remains of a fire were found six feet deep in tailings resting on a worked-out vein of soapstone. Such a fire, probably, should not be

Here, just under the sod, was uncovered one hearth in situ with large cobblestones surrounding a mass of charcoal. Undoubtedly, at this spot had stood some sort of an impermanent wigwam thrown together for temporary protection by a family of quarryers. Upon excavation of the surrounding area, numerous projectile points were recovered, and it seems probable that other workmen and their families lived at suitable places just beyond. There, after the area had been cleared for pasture use, additional domestic implements appeared with occasional firestones. However, for a camp site this location had at least one disadvantage in that drinking water had to be carried a quarter of a mile up the mountain. But this, doubtless, was a necessary chore anyway to satisfy the thirst of those who labored in the quarry. So here again, we have been given a chance to study and evaluate certain domestic traits unmistakably left behind by the Stone Bowl Makers, and therefore, diagnostic of their culture.

At another quarry located at Millbury, Massachusetts, two projectile points were recovered from the tailings four or five feet deep, but so far no evidence there of an associated habitation has been established. Nevertheless, what appears to be a possible rock shelter adjacent to the workings suggests the possibility of its use for a temporary abode. However, extensive rock-falls have for the time being prevented more than superficial exploration.

The purpose of this paper is to focus attention on those domestic implement traits which have been found at Wilbraham, Westfield, Dolly Bond, Millbury, Ragged Mountain, and Oaklawn steatite quarries. For, because of their close association with quarrying, they become, perhaps, the most reliable diagnostics of the industrial Stone Bowl Age (Late Archaic). Among those traits, which are recorded in the classification section, there is one which requires an explanation as to why it is included as a domestic trait. It is what we have called a pipe bowl reamer. Actually, this tool is a drill or perforator often roughly shaped, and since it has appeared in the tailings at four quarries, of which three showed evidence of pipe making, it is believed to have been used for reaming pipe bowls. However, only a few specimens have been found at quarries as against quantities at most camp sites, on one of which semi-finished pipes partially reamed have appeared. Therefore, it seems probable that

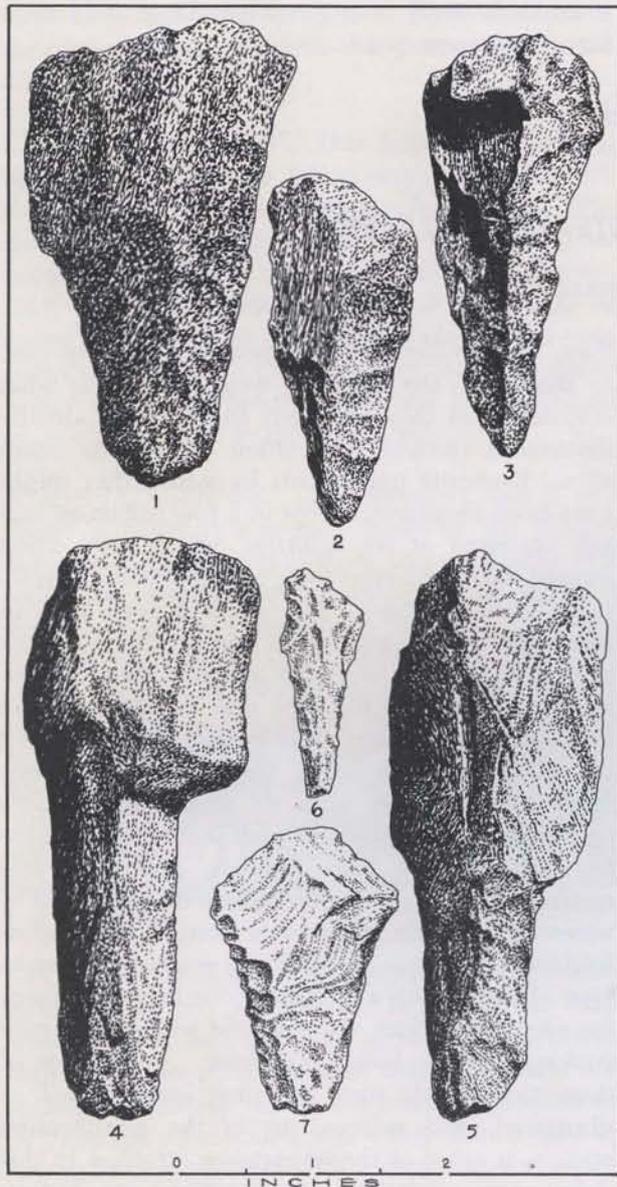


FIG. 9. PIPE BOWL REAMERS. 1-3, 5, Oaklawn; 6, 7, Westfield;

considered as the center of family living, since no stone hearth was in evidence; may have been only for warmth or superficial cooking. However, just above this spot lay a flat piece of land on top of rock formations overlooking the quarry workings.

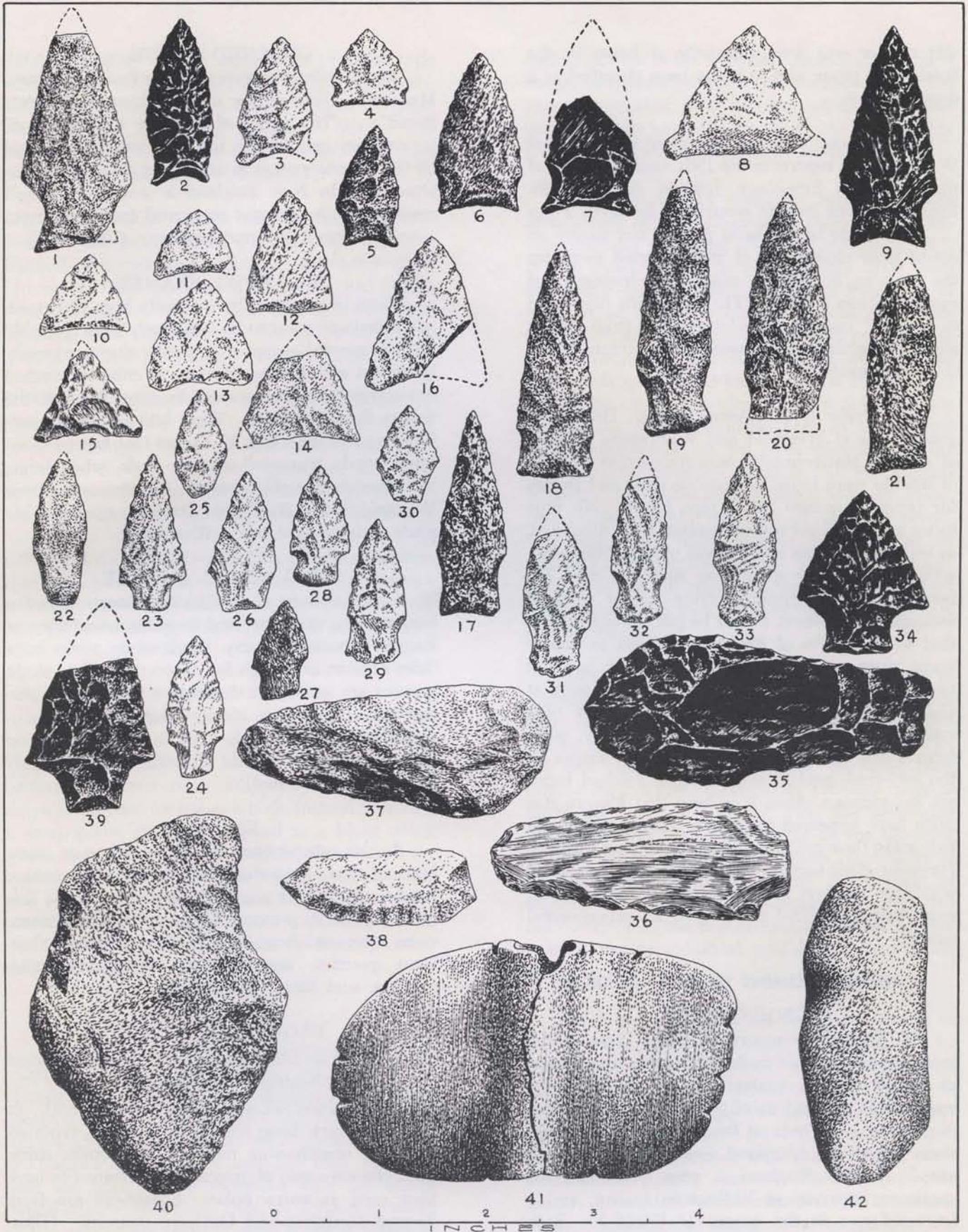


Fig. 10. DOMESTIC STONE TRAITS FROM STEATITE QUARRIES. Projectile Points: 1, Eared, (Millbury), 2-9, (Ragged Mt.); 10-13, Small Triangular, (Ragged Mt.), 14-16, (Oaklawn); 17-21, Side-notched #3, (Oaklawn); 22, Small Stem, (Millbury), 23-30, (Ragged Mt.); 31-33, Side-notched #4, (Ragged Mt.); 34, Side-notched #1, (Ragged Mt.); 39, Corner-removed #7, (Ragged Mt.) . . . 35, Stem Knife, (Ragged Mt.), 36, (Oaklawn); 37, Stemless Knife, (Oaklawn), 38, (Ragged Mt.); 40, Pronged Club, (Wilbraham); 41, Wing Atlatl Wt., (Ragged Mt.); 42, Grooved Gouge, (Ragged Mt.).

this reamer was used primarily at home in the finishing of pipes, and so it has been classified as a domestic trait.

At this point it seems important to note what W. H. Holmes reports in the 15th Annual Report of the Bureau of Ethnology, 1893-94, pp. 109, 133. Speaking about steatite quarrying, he says: "Pipes . . . were made by the same people, but mostly no doubt from choice bits of stone carried away for the purpose, or perhaps often from fragments of vessels broken in use." "The specimens illustrated in plate C" (steatite pipe-forms) "are from village sites in Virginia and represent several stages of the shaping operations—"

The writer is in agreement with Holmes in general, for at Westfield and Wilbraham quarries of western Massachusetts only roughed out blocks of steatite were found of suitable sizes and shapes for pipes, presumed to be pipe blanks. No pipe forms appeared, but several reamers were identified, as well as one from Dolly Bond quarry, Massachusetts. At Millbury quarry no such evidence has been reported by those carrying on the work of excavation. However, it may be just possible, there, that small chunks of steatite discarded as quarry waste were actually pipe blanks, which had not been removed to home sites. Be this as it may, at Oaklawn quarry well defined evidence of pipe making appears at all levels. Occasionally, pipe-forms ready for drilling are found, while shapes all the way from pecked out blanks to finished forms are in evidence. Also, it is here that four or five drills have appeared in quarry waste with shapes indicating their probable use as pipe bowl reamers. However, their number is too limited as compared with pipe product recoveries to suggest anything more than superficial reaming of an experimental nature.

DOMESTIC IMPLEMENT TRAITS AT QUARRIES

GROOVED AX

W. H. Holmes reports in 1893: "One of the most important finds made during the excavations at the Rose Hill quarry, District of Columbia was a large grooved ax of the wedge-hafted type" ($\frac{1}{2}$ grooved) — "Finds on the sites of ancient soapstone quarries in Maryland include many grooved axes." In New England a worn out rechipped specimen appeared at Wilbraham quarry, and a fractured one in the quarry at Westfield. Both were made of basalt. (Not illustrated).

GROOVED GOUGE

Again Holmes reports a quarry find near Olney, Maryland: "One of the most striking implements found" . . . "is a gouge of the New England type" (grooved gouge), "which has been roughly grooved by the steatite worker in order that a haft might be attached." In New England a well made small specimen of basalt was recovered from the lower zone at Ragged Mountain quarry. (Illustrated).

PIPE BOWL REAMER

Tools in this class have already been discussed, and remain now but to be described. They resemble drills in general except that usually they are roughly formed with ill-shaped stems of either unworked or roughly flaked stone, suitable more for use in the fingers than in a haft. Their bits are more carefully worked with $\frac{3}{8}$ to $\frac{1}{2}$ " blades that taper; sometimes nearly truncated at their ends, when large, but otherwise roughly pointed. Specimens are from Westfield, Dolly Bond, and Oaklawn quarries; are made of igneous stones. (Illustrated).

WING ATLATL WEIGHT

One specimen of this trait, formerly called a bannerstone, was recovered from the lower zone at Ragged Mountain quarry. Each of its wings have three notches as though for decoration, while slight grooves are ground at the base of wings near perforation. These seem ideally located to accommodate thongs used to help keep it from slipping on the throwing-stick. Made of sandstone, it is highly polished. (Illustrated).

KNIVES

In this category are two types of knives; stemless and stem. Both shapes are more or less similar, but for the lack of a well defined stem in the first instance, and its presence in the second. Specimens were recovered from Ragged Mountain and Oaklawn quarries; are made of quartz, quartzite, argillite, and flint. (Illustrated).

PROJECTILE POINTS

(Type names are from Massachusetts Archaeological Society's Classification)

SMALL TRIANGULAR. These points are $1\frac{1}{4}$ " or less across their base; triangular in shape, types #2, 3, and 6, usually with more or less convex sides; generally are made of quartz; are presumed to have been used as arrow points. Specimens are from Ragged Mountain and Oaklawn quarries. (Illustrated).

SMALL STEM. This is another arrow point type whose forms are less than 1½" in length; have variously shaped stems which usually follow irregular contours; are frequently made of quartz and quartzite. Specimens are from Ragged Mountain and Millbury quarries. (Illustrated).

SIDE-NOTCHED. In this category are three different styles: side-notched #1, broad bladed from Ragged Mountain and Oaklawn; side-notched #4 (formerly called spool-based), from Ragged Mountain; and side-notched #3, elongated with wide side-notching from Oaklawn. Specimens are of quartz, quartzite, felsite, and flint. (Illustrated).

EARED. This group of points includes side-notched forms with worked bases, usually somewhat concave, as though to convert basal points into ears; are made of quartz, felsite, quartzite, and flint. Specimens are from the lower zone at Ragged Mountain, and from Millbury quarry. (Illustrated).

CORNER-REMOVED #7. This type is characterized by a broad blade with removed basal corners to form a wide well defined truncated stem. Only one specimen has appeared and that is from Ragged Mountain. (Illustrated)

PRONGED CLUB

In this category one specimen of basalt was found at Wilbraham quarry buried deep in tailings. While it might rightfully be supposed to be a pick because of its association with quarrying, actually its shape is ill suited for use as a pick. Instead of having a sharp point, its bit is chipped to a blunt point, which shows no wear; its head is side-notched for hafting. These characteristics together with its thinish body appear to suit it best for a club. Recent recoveries of similar clubs from a hunting site in Rhode Island suggest its use was for hunting rather than for warfare. (Illustrated).

DISCUSSION

Recovery of projectile points from stone bowl quarries is admittedly limited, but those types already found should be diagnostic of the age, except when one of the preceding Early Archaic culture appears, such as corner-removed #8 found at Oaklawn quarry. In a case like this, when the trait has been clearly identified with the earlier period at excavated camp sites, its isolated presence at a quarry would seem to place it out of context as being intrusive. Consequently, its usefulness as a

quarry culture index becomes questionable, and it should be disqualified from consideration. With this exception omitted, those types as listed in the classification section become unquestionably diagnostic of some phase, early or late, of the Stone Bowl Age.

Today, carbon-14 measures applying within areas served by New England quarries support former estimates of a long period of quarry activity. It now seems tenable to allot possibly 2,000 years for quarry duration. In view of this long span of years, it becomes increasingly evident that those traits applying at the beginning might not be those in use toward the close of the period: more culture trait overlapping might be expected at the start and less at the close. Therefore, this possible disparity of domestic traits should be kept in mind when determining which are the more diagnostic of the age. Actually, wherever a certain trait first appears in point of age in association with a culture horizon, that position should represent its place of origin. The trait would then become diagnostic as an indicator of that culture stage. Trait overlappings, in the light of this reasoning, become unimportant markers except as they occur in the culture horizon of their origin.

An important trait is the wing atlatl weight as represented by the specimen from Ragged Mountain. It does not occur in excavations of the preceding Early Archaic horizon; is replaced there by the oval atlatl weight. Therefore, the wing trait, originating in a stone bowl quarry becomes diagnostic of that age and culture. That this perforated implement was used as a weight on the throwing stick which ejected the spear seems most likely at this mountain-side quarry, where provisioning of workers with meat was a necessity. To accept the old theory of its use as a ceremonial banner at such a small remote industrial workshop is, to say the least, unrealistic.

While negative traits are not as convincing as positive ones, any evaluation of evidence from sites being studied would be remiss without taking them into account. Several implement traits found to originate with the Early Archaic have been conspicuously absent in stone bowl quarries. These are the ulu, classic plummet, oval atlatl weight, plain and channel gouges, and the following projectile points: bifurcated, corner-removed #5, 8, and 9, (except specimen of corner-removed #8 at Oaklawn, presumed to be intrusive). The absence of

these traits, with this one exception, at steatite quarries seems to indicate that Early Archaic peoples were not represented in industrial activities of the Stone Bowl Age that followed. In fact, it may not be an over-statement to say that racial continuity did not exist between the two periods except possibly in a few isolated instances where the two

peoples were brought together because of exceptional circumstances.

Bronson Museum

Attleboro, Mass.

December 1959

APPENDIX

Domestic traits from quarry sites so far recovered, probably do not represent all available diagnostic traits of the Stone Bowl Age. For the benefit of those who may want information about other important markers, this additional data will be of interest.

In the category of projectile points, at least one more type should be included as belonging to the period: tapered stem. It has appeared at excavated camp sites in the Stone Bowl horizon with other types previously mentioned in the classification section, and may some day be found at the quarries. Other less well known artifact traits and their connection with this Late Archaic period will now be considered.

BIRDSTONE

This problematical stone effigy of a sitting bird usually with protruding eyes is perforated at both ends. Specimens have come mostly from very old graves in which skeletal matter has changed into dust except for those parts of the skeleton, which have been exposed to the leaching of salt preservatives from copper grave goods. This condition also applies to the succeeding traits taken from similar graves. At East Windsor, Connecticut, in 1840 an exhumed grave deposit included one birdstone and a soapstone bowl. One specimen found in Rhode Island is made of soapstone.

BOATSTONE

Another trait, the use of which is much debated, has the appearance of a boat and is perforated at both ends, like the birdstone. Apparently, an associate of the birdstone, specimens were recovered with two birdstones from graves at Swanton, Vermont, as reported in 1873. These burials contained red ochre. One specimen on display in the Bronson Museum is made of soapstone; was a surface find from the Narragansett Bay drainage.

PROBLEMATICAL TUBE

Sometimes called blocked-end tube, thin shell tube, or Shaman's tube, this trait is usually found in

graves. In 1869 old graves with much red ochre were uncovered at Holyoke, Massachusetts, and among the grave goods appeared two tubes and two soapstone bowls, now in the museum at Amherst, Massachusetts. These tubes are sometimes made of soapstone.

A recent report, March 1960, "The Eastern Dispersal of Adena" by W. A. Ritchie and D. W. Drago, links birdstones, boatstones, and blocked-end-tubes with Adena of Ohio, as a part of its diagnostics. It calls attention to the fact that many blocked-end-tubes of New England are made of indurated clay derived from certain clay deposits in Ohio. Therefore, it suggests that these traits together with artifacts of copper came into this area as a result of small shaman groups fleeing Hopewell domination of their Ohio homeland. If this eastern movement took place, then ultimate merging of Adena traits on a limited scale with the established Stone Bowl culture of this region is a probability. However, the influx of these people and their ideas was apparently very limited, since continuation of their stone traits into Stone Bowl times appears to be non-existent. Furthermore, knowledge of pottery making, a part of the Adena complex of Ohio, was evidently lost somewhere along the way, as introduction of ceramics into New England came at a later date: stone bowls and not ceramic vessels are associated with blocked-end-tubes in New England burial remains.

MODIFIED PLUMMET

This trait is somewhat similar to the classic symmetrical plummet of the preceding Early Archaic, and may be a less skillfully made artifact. Usually, of a clumsy asymmetrical shape with a large knob at the top, it is thought to have served as a line sinker. Its association with the industrial culture has appeared at several excavated sites, where it has occurred in the Stone Bowl horizon. One specimen made of soapstone is on display in the Bronson Museum.

GROOVED WEIGHT

Possibly, a quickly made substitute for a plummet, this trait is a large pebble with a pecked groove encircling it longitudinally. It has appeared in the Stone Bowl horizon at Potter Pond, Rhode Island, and at other sites.

Recovery of beads, nose pin or awl, and a celt, all made of copper, from old graves near Orwell, Vermont, in 1934 is significant, because these goods had been interred with thin shell tubes, one birdstone, and two boatstones with quantities of red ochre. This recovery of copper goods associated as they were with stone traits shown to belong to the Stone Bowl Makers clearly indicates use of copper by these people, although probably sparingly, only as copper stock might have trickled in, presumably, from the Lake Superior region where, in early days, it was recovered in nodule form. Most of the additional traits, as mentioned above, have ceremonial or other uses, which probably would exclude them from appearance at stone bowl quarries. Nevertheless, they evidently are just as important culture indices as those traits found at the quarries.

Stone pipe making at the Oaklawn quarry in Rhode Island was evidently an important activity at that site, and was carried on extensively. Pipe blanks and fractured pipe-forms of straight, platform, and elbow types are strewn throughout the tailings. Occasionally, perfect pipe-forms ready for drilling occur, and hundreds of specimens of this sort of evidence covering various stages of manufacture up to the point of drilling have been recovered over the past quarter of a century.

At all other New England steatite quarries with which the writer is acquainted, evidence of pipe making is sparse or non-existent. Because of this marked difference, speculation has been active in suggesting reasons for the predominance of pipe making at Oaklawn. Of course, it is self evident that the pipe industry at this Rhode Island quarry was an important feature, although not by any means the only form of quarrying activity. Every kind of stone vessel associated with this industrial era, as found at other quarries, was made here. So it cannot be said that it was a pipe factory, exclusively. What then is the answer to this intriguing question?

With the finding of many projectile points at Oaklawn quarry, a more definite picture is beginning to take shape because of the significance of certain projectile point types as culture indices. It is now possible to hazard a guess that may not be

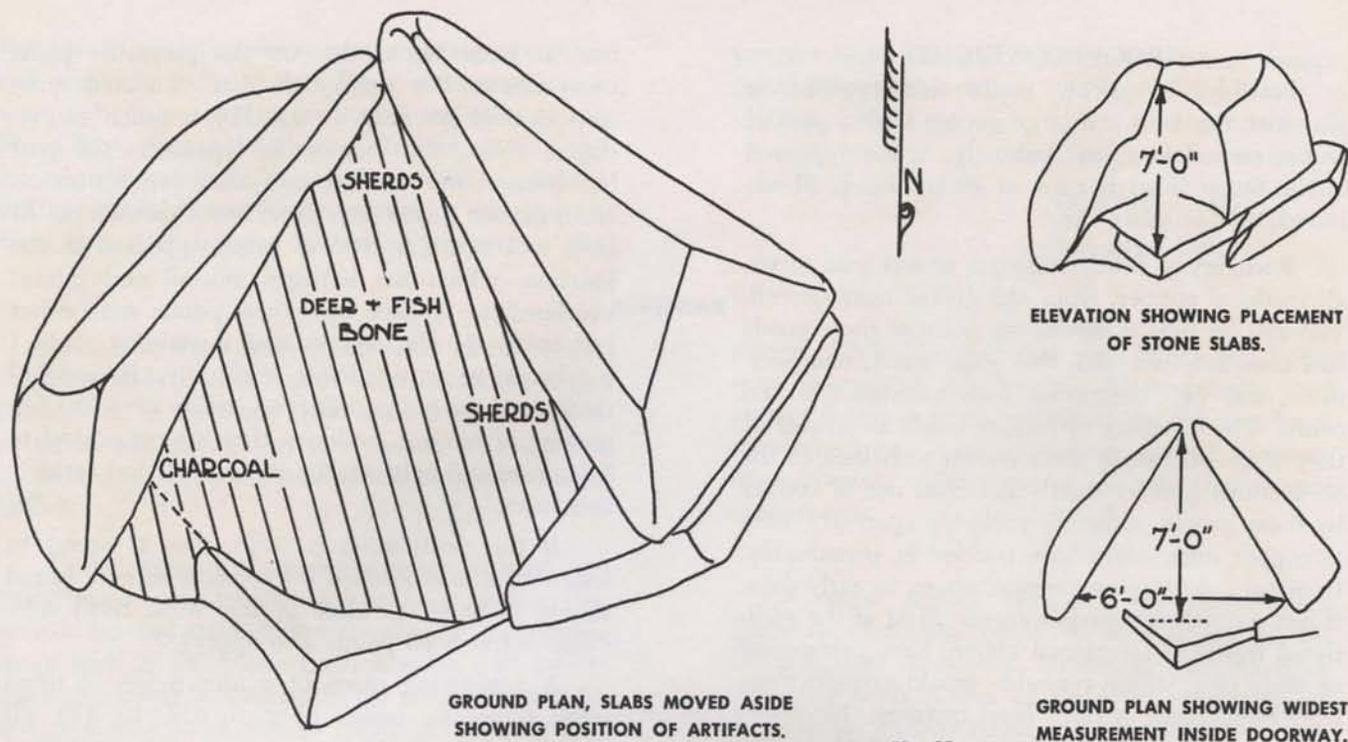
too far from the truth. Of the projectile point recoveries at this quarry site, an elongated type, side-notched #3 (Fig. 9, #17-21) is much in evidence. Now, this side-notched point in the past has been found at two excavated camp sites on Narragansett Bay: Potter Pond and Green Point. At both locations this type of point appeared at the junction, which lies between subsoil and humus overburden. In each case, these points were either just below the shell refuse zone containing Stage 1 potsherds, or intruded into it slightly. Because of their stratigraphic position just before or at the beginning of ceramic evidence, they are considered to be transitional between the stone bowl and ceramic industries.

If this postulation is valid, then it seems to follow that side-notched #3 points wherever found should indicate the close of the Stone Bowl Age. (Side-notched #6 points also apply).

A confirming piece of evidence lies in three small triangular points (Fig. 9, #14, 15, 16), all recovered from the Oaklawn quarry. Compare these points with the convex sided ones #10-13 from Ragged Mountain, and it will be seen that those from Oaklawn tend to have straighter sides. At Wapanucket No. 6, recently reported by Maurice Robbins, with an age of 4,200 years ago, small triangular points tend to resemble those from Ragged Mountain. From this the inference seems to be that those from Oaklawn do not conform to shapes appearing at Wapanucket No. 6, a site thought to represent the beginning of the Stone Bowl Age. Instead, they resemble small triangular shapes found stratigraphically at sites on later horizons.

All of this evidence seems to suggest that Oaklawn quarry activities belong to the end of stone bowl making, 500 B.C. - A.D. 300, and that stone pipe making may therefore be considered as a late, rather than an early manifestation of this long industrial period — a span of some 2,000 years. This new concept, made possible by projectile point recoveries at Oaklawn, completely reverses our former belief that stone pipe making came at the start of stone bowl quarrying.

This does not mean that pipe making came all at once toward the close of quarrying. The fact remains that at certain other quarries evidence exists indicating pipe making, but to a lesser extent. This industry, probably, had small beginnings years before the climactic results at Oaklawn. And there are, no doubt, numerous pipe-making quarries like Oaklawn still undiscovered.



A ROCK SHELTER AT THE STONY POINT BATTLE FIELD SITE

EDWARD J. KAESER

Editor's Note: The potsherds referred to in this paper are from a ceramic pot, which seems to have been stick-wiped and then stamped with a coarse dentate implement on its interior. This treatment is somewhat similar to ceramic remains of a Rhode Island pot at the Sweet-Meadow Brook site, except that in this case the interior was apparently cord-marked, then stick-wiped slightly. These potsherds were excavated at a level, which indicates the pot was transitional between Stage 1 and Stage 2 ware.

Below the ramparts of historic Stony Point, Rockland County, New York, skirting rock outcroppings and disappearing under blown down rotting hulks of once giant trees, a deeply worn deer trail winds along a narrow shelf running parallel to the shore of the Hudson River.

During the Fall of 1957, the writer, while following the path, discovered what proved to be a shelter formed by great slabs of rock dislodged from the heights above and left leaning against each other creating a crude tent like structure. With the use of a few skins or sheets of bark to cover the doorway and junction of the stones effecting the roof peak, the shelter even today would afford a snug camp site for hunter or fisherman.

The shelter is located approximately thirty feet from the west shore of the Hudson River. The entrance faces north, overlooking the deer trail and sheer rocky cliff rising fifteen feet above the Hudson at high tide.

The site of the shelter is strewn with huge weathered boulders grouped in a fifty yard area. The land surface slopes southwest uphill for about two hundred yards to the crest of a hill once occupied by a Revolutionary War period block house. On this location now stands an abandoned light house.

The shelter, because of its small interior dimensions, seven feet in length and seven feet in height at the entrance, seems to show a primary use as a hunting stand for a lone hunter. The absence of a shell midden or even scattering of shells leaching from the sloping ground within a radius of one hundred yards, testifies to the assumption that the shelter did not house more than a small family group for a very short period of time.

The face of the slab forming the interior wall at the left of the entrance shows signs of fire

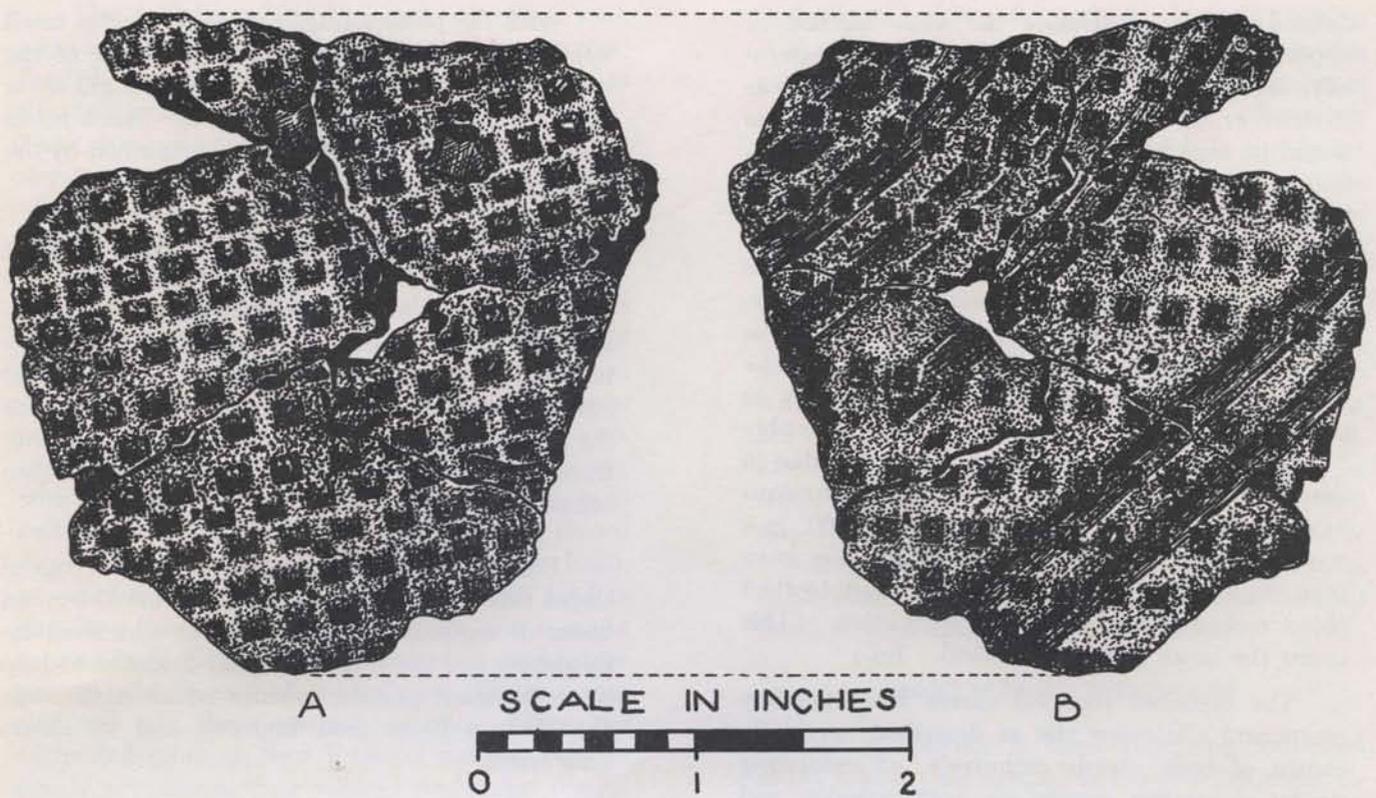


Fig. 12

action, the surface is blackened and flaked away. Due to the exposed position of this stone, it is the writer's belief that the burned area is the result of a modern brush fire and not the site of a hearth. A small deposit of charcoal was found in a cleft filled with reddened earth at the base of this wall at a depth of 5".

The floor of the shelter is formed by a flat slab of stone overlaid by fine sandy earth ranging 1" in depth at the entrance to 10" at the extreme rear of the shelter. (Fig. 11).

A total of 12 pot sherds, presumably from the body of a single vessel, were found in the soil at the rear and right side of the door. Due to the small number of sherds recovered and their badly crumbled edges, restoration was possible only to a slight degree.

Pottery fragments are of coarse texture, coiled construction, tempered with particles of what appears to be red slate some as great as $\frac{3}{8}$ " in diameter. Waterworn cobbles of this red stone have been found on the nearby beaches. Sherd thickness is from $\frac{1}{4}$ " to $\frac{5}{8}$ ". The exterior color is reddish tan, interior grey brown. Covering the exterior and

most of the interior surfaces are parallel lines of crude rectangular dentate stamped impressions $\frac{1}{8}$ " to $\frac{3}{8}$ " in diameter, spaced about $\frac{3}{8}$ " apart, forming a gridlike or honeycomb motif.

Parts of the exterior surfaces of the sherds have been badly weathered exposing the large particles of tempering material. Much of this damage might well be due to their subjection to cooking fires scaling away the ribs formed between the individual dentations.

The pressure applied to the tool in stamping the exterior of the vessel was not heavy enough to force the interior surface to protrude in bosses. No single dentation was impressed deeper than $\frac{3}{8}$ ". (Fig. 12, A).

The interior surfaces appear to have been scraped with a sharp instrument leaving broad, sharply defined, random spaced, shallow channels prior to the application of the stamping tool.

The dentate stampings on the sherd interiors are somewhat more distinctly impressed into the clay in comparison to those on the exterior. The edges of each rectangular impression is sharply

defined, clearly illustrating the same method of application and multi-pronged stamp used externally. However, the lines of stamping are not quite as parallel or as uniformly impressed in depth as would be expected due to the comparative restriction of working area and loss of visual control of the stamping tool. (Fig. 12, B).

The writer in attempting to duplicate the stamping impressions on a block of plastecine clay, discovered that an almost identical surface could be obtained by rolling a wooden disc with cog-like notchings around the periphery over the clay in parallel lines. The theory of the stamp possibly being a gear shaped disc is not conclusive due to the non-existence of 2 duplicate dentate impressions in a line denoting the rolling of the stamp 360° in a continuous line. The lines of stamping may have been made by a crescentic shaped multi-toothed object rocked in lines parallel to each other. (This seems the more probable method. Ed.)

The classified stamped sherds from the key component Clearview site as described by Smith, consist of body sherds exclusively, all exhibiting similar decorative motifs on both exterior and interior surfaces. These pot sherds and the sherds described in this paper seem to be derived from large vessels with slightly rounded sides and shoulders. Extending the interior line of curve of the sherds recovered from Stony Point, the vessel would be approximately 13" in diameter.

These sherds suggest the ceramic type Clearview stamped, Clearview focus, of the Windsor aspect, (Smith, 1950, p. 195). The Clearview focus of the Windsor aspect is placed chronologically as a possible transitional developmental stage from North Beach into the Sebonac focus ranging shortly before and up to the year A.D. 1100, (Ibid., p. 150). (Equivalent to transitional Stage 1 to Stage 2, Ed.)

With the pottery fragments was found a small weathered bone thought to be a phalanger of the White Tailed Deer. Also recovered was a gill cover bone, the species of fish unidentified. These bones possibly are the refuse of the food consumed by the shelter's ancient occupants.

The sloping area before the shelter's entrance appears never to have been excavated. The absence of a spring or stream of potable water in the immediate vicinity precludes the possibility of the shelter being part of a substantial camp site. The ceramic remains recovered, though meagre, appear to prove the presence of at least one woman since the manufacture and transportation of earthenware kitchen utensils was no doubt left to the women.

Further close investigation of these rugged slopes that once echoed the rattle of musketry and boom of cannon, should contribute additional information and possibly artifactual evidence to help trace the many ancient cultures which have made the Hudson River their highway and its shores their home.

Bronx, New York

February 1960

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NEW ENGLAND INDIAN AGRICULTURE

HOWARD S. RUSSELL

In an eager search for arrowheads, gouges, bannerstones, and pottery, archaeologists sometimes forget that the prehistoric inhabitants of New England had long been an agricultural people. The industry had been developing over hundreds of years, until by the time the first whites appeared,

hundreds of acres were under cultivation, and perhaps thousands more were cleared of forest. This was no new development, as the cultivation of maize had commenced some thirteen hundred years earlier, and had reached its more conspicuous climax from a small and uncertain beginning.

The Indians, whom the earliest settlers met, were as skilled in the cultivation of plants as their English successors, who were chiefly growers of livestock, and were apt to be slovenly at husbandry. Their crops were mostly rye, wheat, oats, and barley, requiring no cultivation after planting. On the other hand, the Indians excelled the English in producing a succession of crops in one season on the same land. The aborigines of southern New England had progressed beyond nearly all other prehistoric peoples on the continent in the use of fertilizer. Fish fertilization enabled them to grow crops successfully on the same land for as many as twenty successive years. Compare this to the supposedly superior Iroquois, Hurons, and Cherokees, who moved to new land after only short periods of cultivation. Enriching the soil with fish, also, placed New England natives in advance of many Europeans of those days, who had to allow the land to lie fallow one out of every three years, that it might recover its fertility. The Narragansetts used fallow ground farming methods according to Winthrop, but this was not their common practice. Since the cultivated plots of New England natives were so nearly permanent, their villages could also remain localized.

EVIDENCE OF AGRICULTURAL ACTIVITY

Evidence of the accomplishments of New England Indians comes not only from the writings of early explorers, but from colonial commentators and documents, and artifact evidence lies all around us. Today, you may pick up their stone farming tools on many fertile southerly slopes, or on level tillable uplands. Such areas will usually indicate a favorable village site lying near river, pond, or seashore throughout southern New England. In an Arlington market garden, the writer found his first agricultural tool fifty years ago, and, in his home garden in Wayland, he still finds what appear to be probable tilling blades. Also, in many other places, he has found these tools, such as: when attending a field day on a hilltop farm in Worcester County; while driving through a real estate development in West Brookfield; when kicking up a stone in a friend's yard in Sudbury; when scanning a newly loamed lawn in Acton; while trudging across a Bridgewater cornfield; and when making a farm call in Lenox.

Evidence of prehistoric agriculture, also, may be found in the case of mortars in which Indians ground corn, acorns, nuts, and other foods. For example, vacationing on Martha's Vineyard you will

find a hollowed boulder pushed aside in a clearing with what are believed to be the remains of Indian cornhills lying nearby; at Leominster a stone mortar resting permanently on the town green; in Rehoboth a cleverly hollowed out rock, which is now being used as a birdbath; and at Sudbury you may be directed to a boulder mortar, or corn-mill at the foot of Green Hill, well authenticated by tradition. The Indians are said to have had these corn-mills a day's journey apart along their principal routes. One corn-mill lies under a grape arbor in Sandwich, while a roadside farmer in the Brookfields cherishes a number of ingeniously shaped mortars and pestles. On his Assonet estate, the late Dr. Edmund B. Delabarre showed the writer a fine collection of stone lap mortars. Occasionally, a stone pestle will appear, like the long one which fell from a truck at a Wayland gravel pit. And at New London, Indian descendants exhibit a carved log mortar, handed down in their family from earlier times.

MAIZE STORAGE DISCOVERIES

What evidence is there regarding harvested crops, which were ground in mortars like those already described? Today, after the passage of three centuries and a half of white occupation, as great as five bushel basket remains are occasionally exposed of maize, beans, and other dried foods, buried in prehistoric underground storages. They show up, sometimes, in dry banks eroded by water, or disturbed by bulldozers. Finding of such food caches has been reported from the Connecticut Valley to the Kennebec in Maine.

Ponder all these physical evidences of agriculture; add to them the gleanings of a lifetime of delving into the narratives of early explorers and colonists; supplement this with a wide reading of local town and regional histories; and your respect deepens for the prehistoric farmers, who cultivated New England's soil before we arrived. In further support of agricultural activities, certain areas could still be found, as late as 1940, showing probable surface traces of aboriginal cultivation. Twenty years ago, Professor Delabarre showed the writer what he believed were cornhill remains in his woods at Assonet (Fig. 13). He estimated there were hundreds more of them on this neck of land, which juts into Mount Hope Bay. Local tradition says that these cornhills, among which grow large trees, today, have come down undisturbed from Indian times. Similarly, cornhill remains at Northampton are described in "Indian Cornhills in Massachu-

setts" by Delabarre and Williams, also are illustrated in Bulletin of the Massachusetts Archaeological Society, Vol. 7, No. 4, p. 68, by W. J. Howes. These remains have now been nearly destroyed, as



Fig. 13. DELABARRE CORNHILL REMAINS, Assonet, Mass.

a result of the 1938 hurricane. The writer has observed similar remains, presumed to be Indian cornhills, at New London, Holbrook, Dover, and on Martha's Vineyard. Other remains have been reported in Massachusetts at Mendon, Brimfield, Holliston, and Worcester, as well as at Thompson and Pomfret, Connecticut. Possibly, more cornhills await discovery on land never disturbed by the plow, for, it is probable that much land was farmed by the aborigines. According to early reports, the Indians at one time or another, prior to white occupation, had farmed many parts of Massachusetts, Connecticut, and Rhode Island, as well as favorable localities in the three northern states. Evidence of agriculture has been reported by Verrezano, Champlain, Smith, Bradford, Williams, Wood, and many less well known of the early writers, as well as in numerous reports by New England town historians. The inevitable conclusion is that prehistoric agriculture was on a surprisingly large scale during the early days of white occupation. For example, Capt. John Smith reports: "—the sea Coast as you passe shewes you all a long large Corn fields," and there are many such passages. When the whites arrived, they eagerly took over most of the Indian fields for houseslots or planting, since they were already cleared and fertile, and soon their prehistoric origin was forgotten. Today, we enjoy corn, beans, and squash, as a result of Indian husbandry of former years.

Contributing evidence to all of this are the cultivating stone tools now in classified collections and in the hands of individuals. For years, William S. Fowler has been hafting them experimentally. He has published his conclusions in Bulletins of the

Massachusetts Archaeological Society for April 1954, and April 1960. But, Fowler's has been a voice crying in the wilderness, as few others seem much concerned. We might ask ourselves: are quartz points more interesting than stone hoes? And, was a gouge of more value in prehistoric life than a spade? This paper aims to arouse the enthusiasm of Society members in observing every piece of agricultural evidence, and to impress upon them the importance of the Indian agricultural achievement.

DISTRIBUTION OF AGRICULTURE IN NEW ENGLAND

Just how widespread was this prehistoric agricultural way of life? From evidence of recovered artifacts, from remains of underground food storages, from early colonial documents, and histories, including traditions and place names, maize cultivation in protohistoric days was quite extensive. Such evidence supports its existence in not less than 84 towns in Massachusetts, 38 in Connecticut, 14 in Rhode Island, and a half dozen or more in each of the northern states. These maize centers pepper the map of Massachusetts from the Bay to the Berkshires. About half the present towns of southern New England, doubtless, had garden plots under cultivation in colonial times, and, at certain places along the sea coast, large planting fields. Also, it seems clear that agriculture extended into parts of Vermont, New Hampshire, and southern Maine. Old accounts tell us that plantings of maize, beans, squash, melons, and tobacco were confined to modest garden plots of an acre or less (Pring, Chaplain); to 200 acres in two plantations on Block Island, where corn was destroyed by the English in 1636 (DeForest); and to a great stretch of "stately corn" at Mt. Hope, Philip's stronghold (Hubbard). Villages often stood nearby, usually, on water courses, where fish could be taken for food and fertilizer. Sometimes, sites are marked on old maps as "Cornhill," "Indian Field," or "Fort Hill."

An agricultural plot usually slopes south, and toward the water, with good air drainage. Regions were preferred where the growing season was long, without late spring and early fall frosts. A site may be found on a rounded hilltop, affording drainage for frosty air, or on an alluvial plain. Usually, the soil is medium sandy, or a gravelly loam; never, black heavy muck. Light soil was preferred, since Indians had no plows or draft animals; depended, entirely, upon hand labor. At times, the site may be stony, but this condition was avoided if at all possible.

Cornhills may be in regular rows, as at Assonet, and according to Winthrop and Barber, or irregularly spaced, as at New London (Champlain). To learn more about the farming tools of the aborigines,



Fig. 14. MODERN CORN AND BEAN GARDEN. Probably resembles Indian gardens, except their hills were rounded and scattered, not in rows as shown.

consult the painstaking articles by Fowler, and the many specimens on display in the Bronson Museum. It seems that the Indian women, who were the farmers, to a great extent, used a stone tool shaped something like a mattock, which Fowler has named a triangular hoe. Besides this, they used a flat stone shaped like a spade, and a dibble that has been named a corn-planter. These tools were made from a variety of stones, and were generally hafted. Some handles were short to be used while sitting or kneeling (Williams, Hariot). Others were long, as shown in Lafitau's engraving. Fowler has made good guesses as to hafted styles, as exhibited in the Bronson Museum. Hoes and spades made of destructible organic material have long since disappeared. However, references in early writings indicate the existence of beautifully made bone mattocks from the femur of deer and moose (Wood, Williams); of wooden spades and hoes (Champlain, Williams); and of turtle and clamshell hoes (Williams, Wood, Sewell).

CONCLUSION

In evaluating the worth of Indian farming methods, attention should be given to the large, well fertilized permanent cornhills (Delabarre); to evidence of no deep stirring of the soil, except in the hill (Sagard); and to the fact that no plowing

was used. Attention should also be paid to the variety of cultivated crops, including maize, beans, squash, pumpkins, gourds, melons, tobacco, and Jerusalem artichokes. Strawberries, cranberries, and groundnuts were gathered wild. To the aborigines' advantage, they had few of our present worst weeds to contend with, and few of our present injurious insects. However, they, doubtless, had to battle woodchucks, coons, deer, and blackbirds, as well as bear in their berry patches. But all these marauders, when killed, helped to fill the larder.

For too long, it would seem, writers have echoed one another in slighting the so-called "crude" agriculture of the Indians. From the foregoing evidence, it is now clear, we should give women the credit for being excellent cultivators (Wood). They did a better job of planting than most of the whites, who replaced them. Apparently, their qualities were appreciated, for the whites engaged them to plant and cultivate their fields, with payment being half of the crop.

With their handmade tools, which seem inferior to those of today, they grew crops of maize and beans equal to most of those grown since then (Gookin, Williams), (Fig. 14). Even after European metal hoes were introduced, they often returned to their own implements by preference (Williams). Contrary to popular belief, Indian women farmers were provident: often kept harvested crops for several years to guard against poor seasons (Champlain). More than once, from the products of their fields, starvation was averted among early English settlers at Plymouth, Springfield, and Boston.

It seems to the writer that Indian agriculture and agricultural artifacts have been ignored long enough. Let us give them the place in our research to which their importance in prehistoric society entitles them. From this point of view, stone hoes, spades, and corn-planners should be just as fascinating for recovery and preservation, as other artifacts, such as stone knives, gouges, and clay pottery. There is still much to be learned about the agriculture of prehistoric New England.

Wayland, Mass.
October 1960



MOVEMENT OF PREHISTORIC PEOPLES IN THE NORTHEAST

WILLIAM S. FOWLER

Any discussion of this sort involving the goings and comings of aboriginal occupants of any given area cannot be more than a partial review of such movements. Even then it cannot hope to do more than make a calculated guess based on careful investigation of recovered artifacts. Nevertheless, certain evidence has recently appeared with significant implications as to the movement of peoples in the Northeast. Therefore, it seems important that it be exposed for the benefit of enlarging our archaeological perspective in western Massachusetts and other parts of the Northeast.

However, before presenting the evidence, first let us consider the geographical area to be included in this report. It is that part of the Northeast extending from Long Island Sound north through Maine, bounded by the Hudson River on the west and the Atlantic Ocean on the east. This, as will be observed, includes both the Hudson Valley east of that river, the Appalachian Mountains of the area, and what is now known as New England. Once, people had moved into these regions they became more or less subject to the natural barriers of rivers, mountains, and ocean. Much has already been learned about human travel during various culture stages of development in New England between the Appalachians and the ocean from site excavations over the past twenty years. But little has been known about the peoples who occupied the Berkshire Hills of western Massachusetts and Connecticut. That is, not until the summer of 1958, when the writer investigated nine surface collections of artifacts, two from sites in the east Hudson Valley, and seven from sites in the Housatonic Valley. This is a five mile wide flat valley extending both sides of the Housatonic River in a northerly direction. It lies east of the Taconic Range, which separates it from the larger valley on the east side of the Hudson River. Through its lush fields meanders the Housatonic River with its source in several lakes, the largest of which is Pontusic, located at the foot of Mt. Greylock near the city of Pittsfield.

Collections of stone artifacts from the Housatonic Valley have been known to exist in the past. However, no typological study of them has been made to find out where they fit into the archaeological pattern, which has been developed for other

parts of New England. When, therefore, an opportunity presented, the writer made a thorough study of hundreds of recovered artifacts in the collections previously mentioned. These, together with other pertinent kinds of evidence have formed the basis of this report.

Before such a comparative study as this could be made, however, it was first necessary to establish lists of artifacts, which have been authenticated as having chronological culture significance. Stratigraphic positions, oft repeated, of certain kinds of artifacts at several undisturbed sites has now provided what seems to be reliable proof as to their culture relations. By this method of investigation, four culture periods have been identified: Ancient (Paleo); Early Archaic; Stone Bowl (Late Archaic); and Ceramic (Woodland); listed in order of their antiquity, and covering about 9,000 years of occupation in the Northeast. Without mentioning them all, the most significant artifacts, which are believed diagnostic of these four culture periods are listed as follows:

ANCIENT—fluted point; and graver.

EARLY ARCHAIC—ulu; leaf knife; oval atlatl weight; barbed bifurcated point; corner-removed #5, 8, and 9 points.

STONE BOWL—stemless knife; grooved gouge; grooved ax; wing atlatl weight; eared, plain, and T drills; eared, and corner-removed #7 points; stone bowls, and stone pipes with bowl and stem in one piece.

CERAMIC—war club prong; effigy pestle; triangular hoe; corn-planter; corner-notched, and large triangular points; ceramic pots and pipes.

(Massachusetts Archaeological Society's classification system has been used for this list).

DISCUSSION

Ancient man first began to find his way into New England and the Northeast about 9,000 years ago, as revealed at the Bull Brook site, Ipswich, Mass. On this station's lowest horizon appeared fluted points and gravers of exotic flint, and other less well defined artifacts. Samples of charcoal from this early level furnished a carbon-14 date of about 7000 B.C. Other fluted points have been

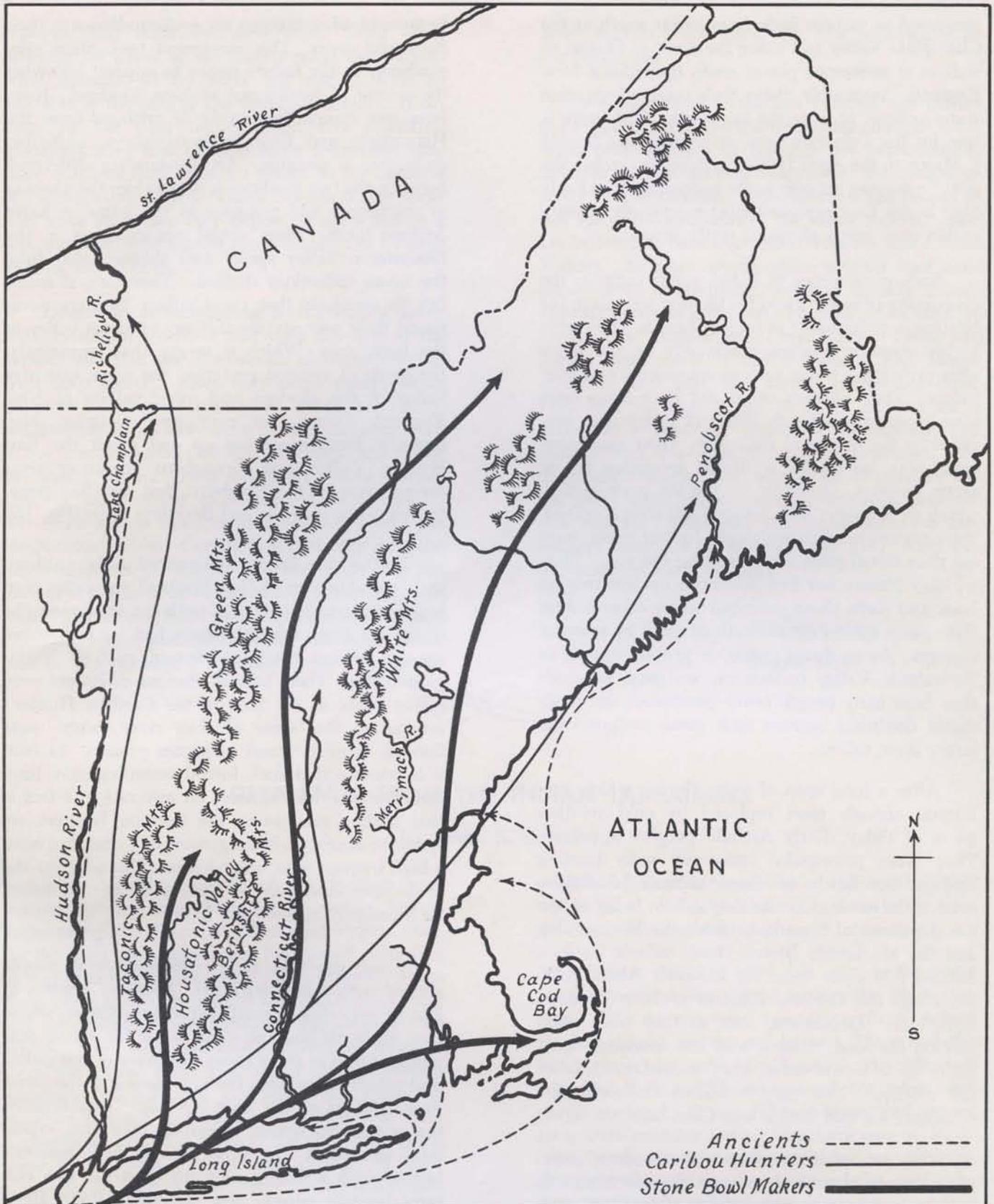


Fig. 15. PROBABLE ROUTES OF PREHISTORIC PEOPLES INTO THE NORTHEAST. Note: Other less traveled routes from the St. Lawrence Valley south-east into the area, also, may have been used by the Stone Bowl Makers.

recovered as surface finds from as far north as the Champlain Valley and along the coast of Maine, as well as at numerous places south throughout New England. Invariably, these finds occur along main water courses or near the sea coast. The same is true for the Delaware area, as reported by Ronald J. Mason in the April 1959 *Pennsylvania Archaeologist*: "—lending support to the contention that Early Man in the East exploited most extensively country within easy reach of major water courses."

Such provenience of fluted points suggests the probability of water travel for the first arrivals in the Northeast, presumably in dugout canoes. They were highly nomadic hunters, continually on the move after prehistoric game, such as mammoths and mastodons. Their shelters could not have been more than impermanent brush affairs of material as provided by the tundra of their day. Their movement north was, no doubt, restricted by either ice or arctic weather. However, as the ice pack melted, which at the start had covered all New England, these ancient nomads wandered further north, leaving their fluted point markers along the way. Thus, we may picture our first American hunters moving back and forth along principal water courses after their game, forced either north or south by seasonal changes. As no fluted points or gravers appear in Housatonic Valley collections, we must conclude that these early people never penetrated the Berkshires, doubtless because their game preferred the larger river valleys.

After a long span of years during which prehistoric animals were replaced by cold weather game of today, Early Archaic peoples appeared. They were principally concerned with hunting caribou, for herds of these animals, doubtless, roamed the tundra then, as they still do today on the Great Barrens of Canada between the Hudson Bay and the Mackenzie River. Here, today's Caribou Eskimo rely upon them for survival. About 6,500 years ago the Caribou Hunters of New England were here. Dependent, also, as they were upon caribou for food, clothes, and hut covering, eventually as it would seem, they moved north after the caribou. For they evidently followed the retreating ice and tundra into Canada.

This reasoning, together with an almost complete change of artifact traits in the following culture horizon representing a different tradition, suggests a gradual exodus of all but a few groups of Caribou Hunters. These may have remained behind

because of advantageous survival conditions in their particular areas. This movement took place very gradually as the forests began to appear, following the retreat of tundra out of New England. Now, from our comparative study of artifacts from the Housatonic and East Hudson valleys, a further deduction is possible. An outstanding difference between the two localities is noticeable: the absence in the former and presence in the latter of Early Archaic traits. Their actual non-existence in the Housatonic Valley seems well substantiated from the seven collections studied. Therefore, it seems fair to conclude that the Caribou Hunters never found their way up into this mountainous valley of the Berkshires. Which is to say that, apparently, the herds of caribou preferred the more extensive valley of the Hudson and other valleys of New England. Hence, we may now imagine these nomadic hunters moving up and down the East Hudson Valley, and throughout accessible river served areas of the Northeast, but avoiding penetration of the Taconic and Berkshire Hills (Fig. 15).

By this time, forests had arrived in the southern and central regions of New England, the rising land had become stabilized, and with the continued rise of the sea level, tidewater bays had formed where ice age streams previously flowed, such as Narragansett Bay. These natural changes doubtless were taking place at the time of the Caribou Hunter's exodus, so that some of their river camps were flooded, forcing retreat to higher ground. In fact, it is possible that such forced resettling may have contributed to the exodus. At any rate, the fact is that artifact remains of the Caribou Hunters are sparse to absent on Narragansett Bay sites, but have a high frequency on upland sites. This suggests the probability that many of their early camps, today, lie inundated in tidewater bays.

Along about this time a different sort of people arrived with a new tradition. Nomadic hunters at first, in time they opened soapstone quarries, where they made all kinds of stone bowls for eating purposes, as well as stone pipes. Because of this industrial activity they have become known as the Stone Bowl Makers of the Late Archaic. Occasionally, the newcomers settled at certain lake sites, where small groups of the earlier people had remained behind with a fishing economy, and the two cultures became mixed. One noticeable thing about the new people is that they apparently had an inventive forceful nature, which, for the most part,

replaced old traits for new ones. Their early foraging for game in the forests made them somewhat nomadic at the start, but not to such an extent as in the case of the Caribou Hunters. However, by the time they entered into industrial quarrying they had become more sedentary; confined much of their time, no doubt, to the business of making stone bowls. There is evidence to show that more and more they depended upon fish as a food staple to supplement game brought in by their hunting expeditions.

Doubtless, it was during such foraging away from mountain quarries that they discovered the inviting valley of the Housatonic, although covered with deep forests. Here they made camps along the river, which grew in size over the years. Today, soapstone quarries have been located and excavated in the nearby foothills of New Hartford, and Pleasant Valley, Conn. They could well have existed, also, in even closer proximity—undiscovered as yet—from which the quarriers wandered into the Housatonic Valley. Certain it is that they were the first occupants of this valley, for theirs are the earliest artifacts to be found in collections from this area. This Stone Bowl epoch commenced at least 5,000 years ago, authenticated by carbon-14 measures at Wapanucket 6 and elsewhere. The Stone

Bowl Makers were, then, the first inhabitants of the Berkshires.

We now come to the last cultural age before the Pilgrims, when the main industry changed from stone bowl making to ceramic pot manufacture. Because of this pottery diagnostic, the period is referred to as Ceramic (Woodland). The people of this age were occupants of the Housatonic too, and are believed to have descended from the Stone Bowl Makers. In other words, stone artifact trait continuation or overlapping, as it is usually called, appears between these last two cultures to such an extent as to suggest racial continuity. These last people were more or less sedentary; had added maize to their diet, and moved around but little. Probably, not until tribal struggles became more acute, as a result of increased populations, did hostile bands move into this mountain retreat. This doubtless brought about certain social changes not too many years before colonial expansion reached this locality. However, this paper must be terminated here, as it is concerned only with the movement of early peoples.

Attleboro, Mass.

August 1960



GLEANINGS FROM THE INDIAN LANGUAGES

LAURENCE K. GAHAN

Early historic accounts of the Indians were written by men who were by no means trained anthropologists. Therefore, their observations were, for the most part, casual and haphazard according to the interests of the individual observer. From these writings, we get hints of how the Indians lived and provided for their survival. For example, we are told there were two kinds of dogs for hunting; there were tame birds kept about their wigwams; trees were felled by fire. But, apparently, there was far more left out of their accounts than was told. Archaeology can fill in some of the gaps concerning these people, and so, also, can a study of their language. In spite of completely inadequate Indian vocabularies, we have managed to find a number of words, which give us a little information about things not generally known or recorded. On the

other hand, some of these words confirm things that we do know, and in the following remarks we have set down those which seem most interesting.

Hashab, meaning wild flax, also, is the name for nets and for tow thread among the Massachusetts. The Abnaki used two other plants, whose English names we do not know. They had the word, *rhape*, for nets. *Dogbane*, means milkweed and elm bark, which were used for ropes and rough cordage. If we did not know that spruce roots were used for sewing birchbark canoes, translation of the word, *watab*, would tell us. Sewing, of course, required needles. Bone needles, probably, were in common use, of which many are recovered today from refuse pits. The Massachusetts had two words for needles, *ahamaquesunk*, (Eliot), and

maquesoong, (Cotton). Translated, they mean, sharp feather instrument, and feather instrument, respectively. Eliot had a maddening habit of using the longest Indian words he could find. New England Indians, in the absence of suitable textile fiber, but with an abundance of leather, did not weave in the sense of cloth for garments. Nevertheless, the Abnaki word for loom, or frame, is *auturewagan*, meaning thread or string instrument, and the Massachusetts word for cloth is *monak*. This seems to be related to *manoot*, or basket. This suggests, at least, a knowledge of weaving. It is known they did weave rush mats with a fairly fine mesh, with which they covered their wigwams at times. However, apparently, no English words were utilized for cloth making processes.

It may be of interest to state here that the New England Indians introduced into their languages far more words from the English than from the French. Even in the case of the Abnaki to the north, this was true, although they were far more subject to French than to English influence. For instance, the Abnaki word for majesty is *Kinjameswogan*, and the word for queen is *Kinjamesisquaw*. Eliot's Indian Bible uses English names of animals, and, after a generation of contact with the English, these animal names became part of the Indian language. A few French words, also, found their way into the Indian languages. One of them is *phanem* (femme), which replaces *squaw*. Then, there are a few others relating to church services. But to a large extent the English influence is evident, as in *Sanedai*, meaning Sunday.

No exact words can be found to describe what must have been an important industry, that of dyeing. Yet, the Abnaki have left us the word for color, *atsisigan*, meaning coloring agent, and *olowatsigan*, meaning blue dye. It seems evident they must have used a wide range of colors, if we are to judge from translations of the many varied belongings, which gave the Indians their names.

The Indian religion and its rites were so abhorrent to the English missionaries that whatever knowledge they acquired of them they kept secret, lest airing it they should assist the devil. Roger Williams said they had thirty-seven gods, of which Manitoo and Hobomocko represented good and evil spirits, respectively. The Indian philosophy regarding the relative positions of these two super-human beings was much like our own. For example, Manitoo is derived from *anit*, it exceeds, and

this means, overall. The worship of Hobomocko seems to have been in the ascendancy during colonial times. Therefore, it is possible that easier conversions to Christianity were made of those few chiefs whose preference was for Manitoo-directed guidance.

Along with religion went witchcraft and powows. That witches were not too popular may be inferred from the Abnaki words *patabahunsun*, meaning to wish evil, and *patangelolan*, a witch. A diviner or conjuror was called a *mamontam*, or *maunetu*, derived from the verbs for seeing and smelling. Of the Abnaki equivalents, *manetwin* and *manrigu*, translator, Nudenas gives this definition: (manetwin)—"a diviner, one who stands above the common herd;" and (manrigu)—"a soothsayer, to wit, he whom others distrust," possibly, influenced by Christian prejudice. Pyromancy, or divination by fire, was called *kussigau* by the Abnaki. This seems to be the source for Eliot's word for witch, *kussiquon*. A powow was not only a shaman, but also a charm, as well as a gathering where the frenzy of members of religious groups was let loose.

Changing from religion to war and the warrior, we find that both the Abnaki and Massachusetts had words for sling. The Abnaki word is *asenepanes*, meaning stone-thrower, while the Massachusetts word is *soowampaguneheg*, meaning stretched-out-throwing-instrument. Also, the Abnaki had the phrase, *nstairre pnapskau*, meaning to be felled by a stone. Because of this revelation, it may be possible that certain small rounded stones, about 1½" to 2" in diameter, resembling well-worked hammerstones and occurring abundantly on some sites, may have been sling stones. Nudenas defines in Latin, *pskhigan*, meaning notched-stick, as catapulta, and there seems to be for us no other meaning for this than that of spear-thrower.

We know that the Iroquois used defensive armor, but there seems to be no direct mention of such military equipment among the New England Indians. However, the Abnaki have a word suggestive of defensive armor, *angwanis*, meaning a round shield. Eliot's word for target is *metuggit*, or something worn on the shoulder. The Abnaki have words for spears and darts of various kinds, and in one instance *annungantuk*, means a fish spear. Eliot uses the word, *qunutug*, or tall tree (long pole), to mean spear throughout his Bible. It almost seems as though he is referring to a fourteen foot English pike, with which the English were

armed. During the first few months of Philip's war, the militiamen poked Indians out of the bushes with these pikes. Thereafter, the Indians derisively referred to the English pikes as tall trees. From this, it would seem natural to find in Eliot's Bible the Hebrews being portrayed as using "tall trees" with which to fight their battles.

Mt. Sugarloaf and another hill bear the name *Wecoinke*, or *Weakpocoinke*, meaning house-shaped. This suggests that the wigwams of the natives, at the time the hills were named, were like them, conical or beehive in shape. Long houses were a later development, no doubt, not originating in this area. Besides descriptions of houses, we have words for wigwam mat coverings, and for the bark used in tying them on, *wickopy*. Father Aubry published his Abnaki dictionary in 1715. Some of his Indian words relating to his "cabane" follow: *wigwann* (cabane); *arestaigan* (ou-il-y-a- une cabane); *petegwigan* (ronde cabane); *maskwaigan* (d'écorce de bouleau, trans., of white birch bark); *pekwanigan* (d'écorce de grosarbres, trans., of bark of large trees); *skaktehigan* (qui est fait en quarré jusqu'au toit); *wanghenigan* (dont le toit est formé de voûte); *massakkwigamigu* (faite par le quarré de gros bois fichés en terre et serrés les uns contre les autres). Translated, this last means a log cabin, and the Abnaki word means wooden house. It is interesting to note that the Indian word, *comick*, or house, has nothing to do with *comik* or *comet*, meaning enclosed place. Instead, it means house site, *wigwamic*. There are other words for various parts of the cabin or wigwam, but none for window. A window, according to Eliot, is *kenoquag*, or something transparent. *Sketemek* is defined by Father Aubry as, "l'autre feu de la cabane." Evidently, it was the custom to keep two fires.

Words for various ornaments and items of personal decoration are common: *pagara* is anything shaped like a scale and worn as an ornament; *pasiwan* is a crest, "whether of the feathers of birds or the hair of animals, which the Abnaki place upon their heads." Tattooing was done by making "little marks with a sharp point," suggested by *psagi*, meaning "a spot on the mouth or face, painted in

the skin." The words for self-painting and beautifying are the same.

One word of interest has not been found, although it is certain that it existed, as Captain John Smith mentions the article in his writings. It is the word for bracer, or arm-guard, without which an archer would have had no skin left on the inside of his arm holding the bow. While there are many pictures and statues of Indians with bow-and-arrow, very few show this important accouterment. For that matter, there are plenty of pictures of English archers with the same omission.

Eliot uses the word, *puhpugk* for musical instrument, while the Abnaki have a word, *pipewagen* (probably European derivation), meaning flute. Therefore, it would seem they had something for making music besides drums and rattles. There is also a word for whistle. The word for dancing is related to the word for music.

Getting away from purely material things, we find that the Indians possessed words relating to many common human emotions, and used them as we do. An interesting one is *nenatetehudin*, from the Abnaki. This word means, to fight a duel, and brings up the question: does it mean single combat with an enemy, or duelling, as we understand the word?

We have mentioned Eliot's love for the long Indian word. For example, for the short English word, kiss, he uses *chippwuttoonapwau*, meaning separate lips put together (not too far from the Latin *os-culare*). Abnaki and Penobscot did not stretch a kiss that far. Their word is *uzedin*, and this word makes the Indians just as human as the rest of us.

It has been necessary, in much of the foregoing, to rely on the Abnaki and Penobscot vocabularies, since they are much more extensive than those of the Massachusetts. Justification for this lies in the close cultural and geographical relationship of the three groups.

Worcester, Mass.

October 22, 1960



ARTHUR GEORGE SMITH

The ordinary chip that is found, while surface hunting or digging on a site, is just as much a prehistoric artifact, as a grooved ax or a fine six inch point of fancy flint. It can tell just as much of the story of the past as other artifacts, and more than some. But, the average collector regards chips as mere debris, and pays little or no attention to them.

A site, which is surface hunted, at first, loses the large and more eye-catching items, including a few that may be made from gaudy colored stone. The average collector does not want "junk" as he calls it, and leaves chips alone, and if a broken point, tosses it down again. Even professional archaeologists have been guilty of this kind of selective collecting from sites.

However, on most sites, the chips, which are strewn all about, show the different stone materials used by the people, who once lived there. Sometimes, these stone materials can be traced to their sources, which fills in one more segment of the great puzzle picture of the prehistoric past.

Chips from a surface site should be picked up and saved, not just the big ones or showy ones, but all you see. Selective collecting will distort the true picture of the site. Pick them all up, big and little, and save them. If there is more than one concentration of material in the field you are hunting, the chips from each concentration should be kept separate. The best way is to carry a supply of small tough bags; coffee sacks are ideal. Put the chips in the bags and put a card in each giving the data for that site, or a separate portion of the site. When excavating by levels, chips from each level should be kept separate, just as are all other artifacts.

Once you have the bags in storage, you can work them over at your convenience. Each chip should be examined for signs of use as a knife or scraper. Some cultures used no cutting tools but chips, reworked along one or more edges, and some of these are very small (Fig. 16). If you wish you can sort them out by materials, and so get a statistical picture in percentages. At times, this may aid you in assigning a temporal sequence of a certain complex within the site. This applies, of course, if a temporal change in percentages of differing materials is found in a stratified site.

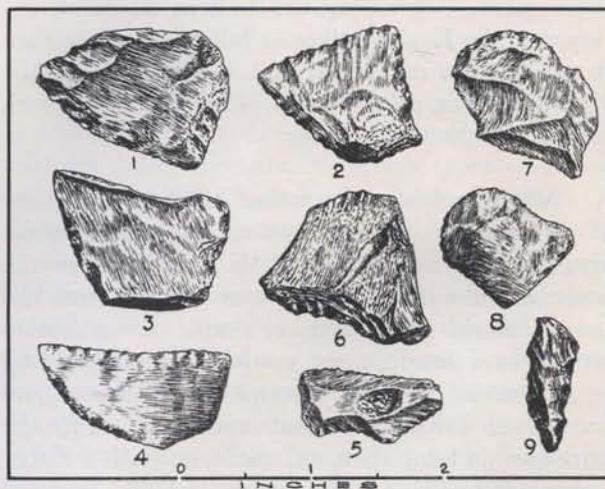


Fig. 16. REWORKED CHIPS. 1-5, Knives; 6-8, scrapers; 9 burin. (Minute serrations along edges indicate implement use).

Chips should be examined to check the flaking technique used in striking them from the core. Further, they should be checked to see if any of them are crude blades, or true three or four faceted blades. Some archaic complexes made quantities of small two faced blades. Also, chips should be checked for specimens drawn by resolved flaking. These can be easily distinguished, as they are narrow at the bulbous end and become thicker and wider away from it. Usually, such flakes are conchoidal or curved in shape, which makes them ideal for trimming into large scrapers or knives. Any site that yields many resolved flakes or true blades should be called to the attention of some competent professional, who knows about the earlier cultures of your region. If you should, by chance, find double edged knives made from such resolved flakes, with their point at the bulbous end of the flake, you do not need a fluted point to indicate that you are on a very early, if not a Paleo-American site.

Chips can tell a story, if—you know enough to read it.

Firelands Museum

Norwalk, Ohio

November 7, 1960

The present Research Council has been organized upon a new and different plan than that of past years. Originally, this Council was made up of a group of members each assigned to carry on a project such as historical research, or site survey. It will now be the endeavor of this committee to be of assistance to the various members or Chapters, rather than to initiate and carry out research projects. The Council will be composed of individuals, who are interested in special disciplines, and the Council invites you to submit your problems to it for solution.

The chairman of the Council is the first Vice President, Arthur C. Lord, 38 Worcester Street, Bridgewater, Mass. Robert E. Ashley, a professional photographer, will stand ready to assist you in problems in his field; Joseph L. Prinzo, who is interested in petrology, will take care of that science; Dr. William B. Brierly will answer questions concerning glacial geology; J. J. Clancy and Dr. W. F. Luder are specialists in chemistry and physics; Dr. Ralph S. Bates will take care of historical archaeology; and Maurice Robbins will serve as archaeological adviser. You are invited to address any questions you may have in these several fields to the chairman, and he will see that they are placed in the proper hands. The Council is organ-

ized to serve you, but it cannot function unless you ask the questions.

In addition to the above service, the Council will undertake two projects. The first is to produce a field manual, which will attempt to provide members with the necessary basic information to undertake archaeological work in Massachusetts. The second will be a survey of the various kinds of stone used by the Indians of this area.

In connection with the latter project, Joseph L. Prinzo, 36 Fairview Street, Middleboro, Mass., would appreciate your cooperation. Joe is trying to get together a collection of every kind of stone used by the local Indians. This collection will eventually be exhibited in the Bronson Museum, where you will then be able to study it. He has available, of course, the common varieties of stone such as shale, felsite, quartzite, quartz, etc., but is anxious to obtain samples of less common materials, such as flints and cherts. He does not want just pebbles or chunks of stone picked up in gravel banks. The samples you send should be spalls from known Indian sites, including flakes, cores, or broken artifacts, which are demonstrably of Indian origin. Particularly desirable are specimens of stone, which you do not recognize to be of local origin.

