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THE HAWES SITE: A BURIAL STONE BOWL COMPLEX

ARTHUR C. LORD, SR.

In the spring of 1961 the writer came into possession of a considerable number of steatite bowl fragments, which had passed through several hands before being acquired. Upon cleaning and sorting the fragments, it became obvious that a number of different vessels were represented, while many parts appeared to be missing. After tracing their source, the site from which they had come and names of the original finders, Angelo Caramaneca, Jr., and Donald Benson, were located. From them an interesting account of their discovery was obtained.

About fifty years ago gravel was removed from a deposit on Rhode Island Road in Lakeville, Massachusetts, and was used to grade Crooked Lane in the same general area. In those days gravel was excavated by hand, loaded into tip-carts, and taken away. This method of removal probably accounts for the small amount of damage to the artifacts, which later were recovered from the site. Eventually, the land from which the gravel was taken came into the possession of Benjamin Hawes of Lakeville.

Many years passed, during which the exposed bank was subjected to considerable erosion. One day in the spring of 1958, Benson and Caramaneca, then but boys, "played hooky" from school, and roaming about came upon the gravel bank just referred to. Here, they were passing the time by throwing stones at targets at the bottom of the bank. One of these targets was the protruding end of a large steatite bowl, but unbeknown to them. Attracted by the odd shape of the stone, which included a lug or handle, the boys investigated and discovered the nature of their target. Immediately, they began a search of the eroded slope for additional pieces of the stone bowl. In this search, they were successful, and the trail of fragments led them to the remains of a pit at the top of the bank, which was partially exposed. Digging at this point produced more bowl fragments and a number of unusually long, well chipped artifacts.

Later, in 1961 with the kind permission of Benjamin Hawes, and with the help of several fellow members of the Cohannet Chapter, the slope was again examined. This recent digging was rewarded by several bowl fragments and a few artifacts. The pit at the top of the bank was practically gone by this time, but Hawes did find there in situ one additional long blade to add to the several others formerly recovered by the boys (Fig. 2). Also, at this time, the presence of granular charcoal was noted in the pit area, together with bits of calcined bone apparently from the same deposit. Description of the pit given by Caramaneca together with present observations has led to the

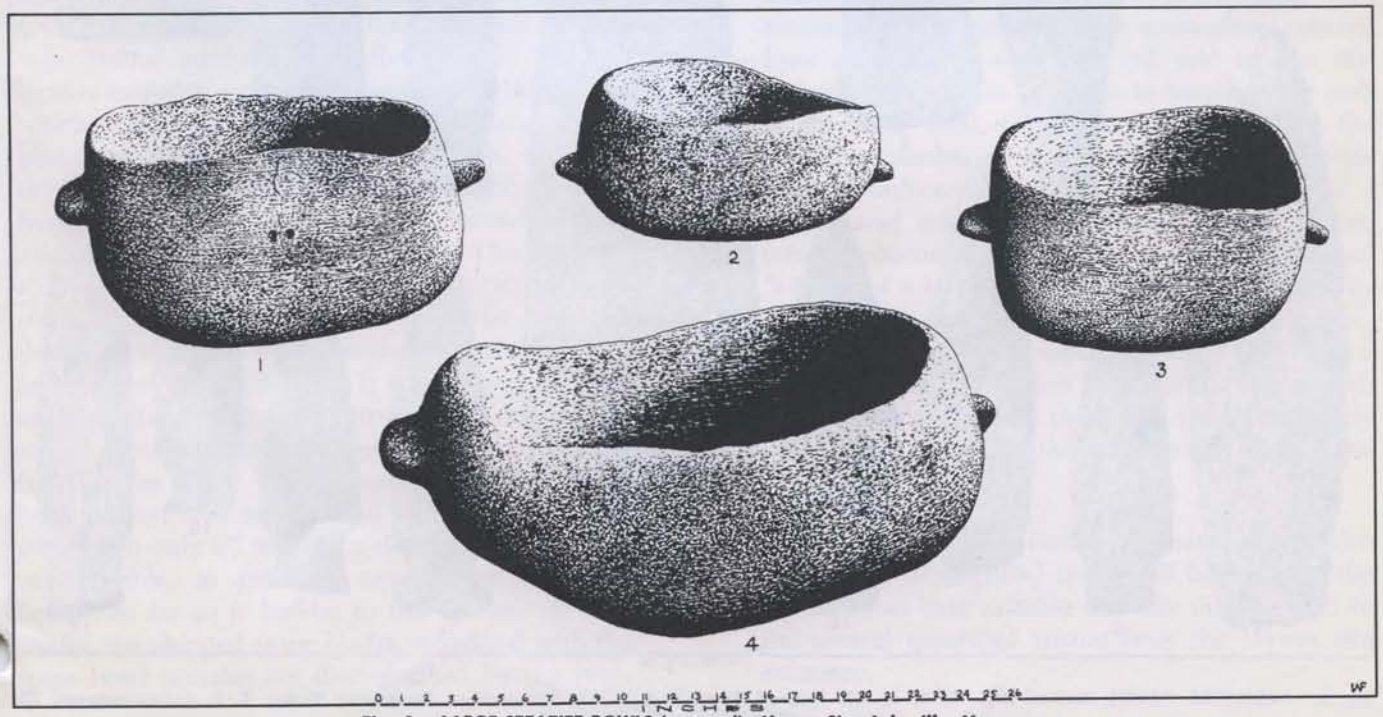


Fig. 1. LARGE STEATITE BOWLS (restored). Hawes Site, Lakeville, Mass.

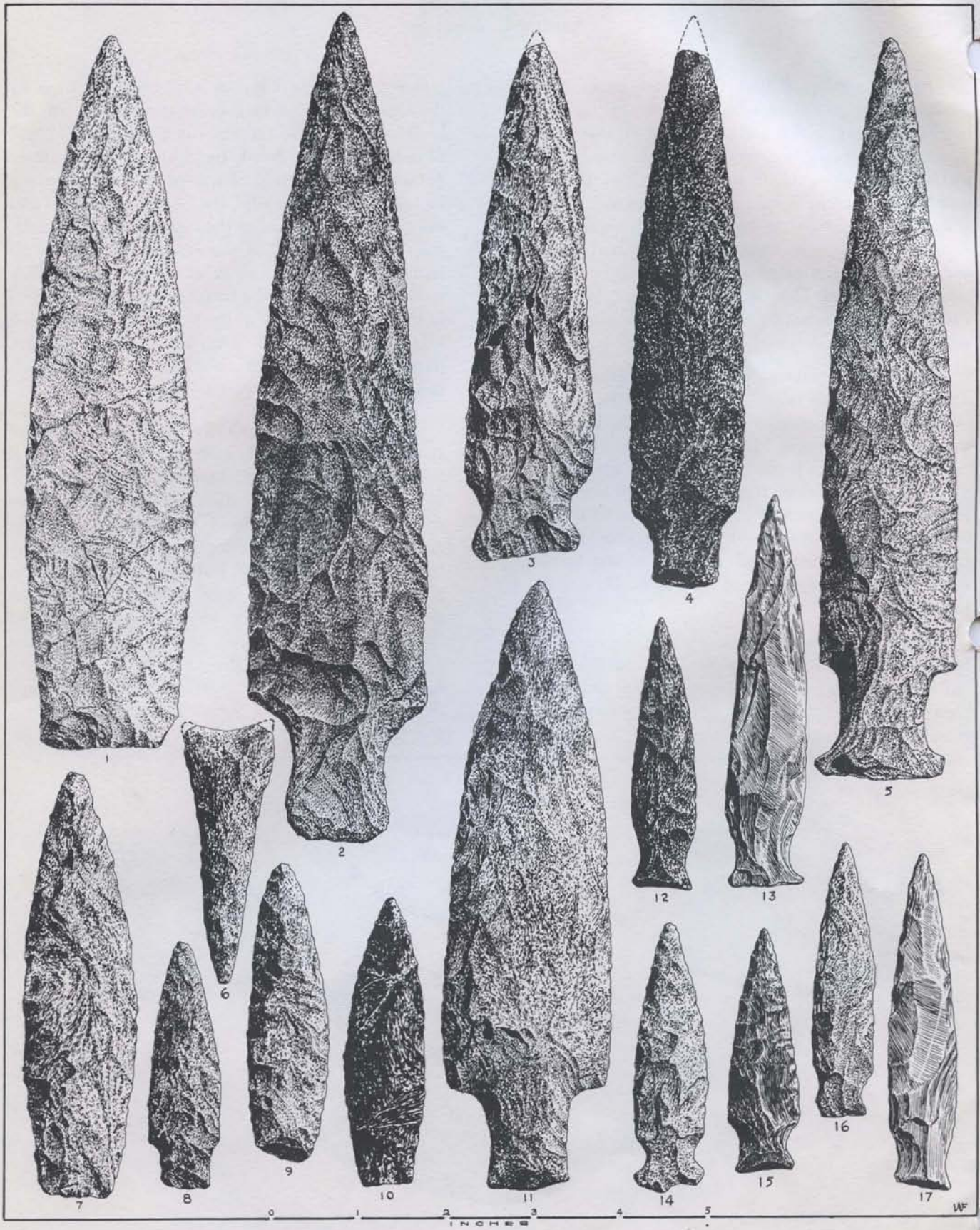


Fig. 2. PROJECTILE POINTS, Hawes Site. 1, 7, 9, 10, Tapered Stem; 2, 3, 5, 11, Side-notched Ceremonial Blades; 4, 8, Corner-removed #3; 6, Eared Drill; 12-17, Side-notched #6.

belief that this was a Late Archaic (Stone Bowl) cremated burial.

From the collection of bowl fragments, six steatite vessels have been restored by Dr. Fowler, Curator of the Bronson Museum; the four largest bowls are illustrated (Fig. 1). Bowl restorations are now on display at the museum along with one small, nearly perfect bowl loaned by Mr. Hawes. This, together with the chipped stone collection of blades from the site, loaned by Messrs. Hawes, Caramaneca, and Benson are a part of the exhibit. They have been made available for display in order that the collection of artifacts from the site might be complete.

Bridgewater, Mass.
October 1961

APPENDIX

Editor's Comment: This recovery of artifacts from Lakeville is remarkable for several reasons: 1) It involves an unusual number of broken stone bowls, estimated from those restored, perfect specimen, and fragments of incomplete ones, amounting to probably more than ten vessels. 2) Among those restored is one, which doubtless is the largest stone vessel in existence — one of those illustrated. It is 25″ long, 9″ deep, and holds 2½ pails of water. Excellent workmanship is displayed by its smooth uniform surfaces both inside and out. Decorations consist of scored marks cut into the ends of both lugs, and at intervals along the rim. 3) The collection includes among the four largest bowls, one which is without doubt an extraordinary accomplishment (Fig. 1, #1). Its vessel walls, about ½″ thick, extend uniformly with but slight variation from rim to bottom, a depth of 9″, extending from one end to the other of the bowl. This extreme uniformity is unusual, as invariably, stone bowl walls bulge abruptly outward from the rim, and then vary widely in thickness throughout the vessel. In this bowl it is different. It is as though it were made of clay with an even structure of one coil on top of another to form almost perpendicular walls from bottom to top. That a steatite bowl could have been pecked and scraped out of a solid block of stone with only ½″ walls to a depth of 9″ is almost unbelievable; in fact has never been heard of before, so far as is known to this writer. 4) And finally, the chipped stone blades recovered with the stone bowl remains are distinguished by the presence of six exceptionally long, well proportioned spear points of tapered stem, side-notched, and corner-removed types; the longest has a length of about 9¾″. Evidence is lacking to show how such long blades were used.

As may be gathered from this report, it appears probable that all artifacts came from one or more pits near the top of the sand bank; those found at the bottom evidently rattled down from erosion. That calcined bone fragments and charcoal were subsequently located in the pit area seems to associate this deposit as something more than a refuse dump. Although the bone is unidentified as to its origin, presence of charcoal, stone bowls, and Late Archaic projectile points, suggests a burial complex as at the Wayland, Coburn, Wapanucket 6, and Boats sites, all reported in Bulletins of the Massachusetts Archaeological Society. Here, then, at the Hawes site may be secondary burial remains after human cremation, similar in many respects to that at the other sites just mentioned, except for the number of stone bowls involved.

Remains of so many broken bowls, and of such high caliber work, leads to speculation for want of evidence, as to the reason for their presence. Were they deliberately smashed ("killed"), as a part of the burial ceremony to get rid of an evil spirit? This seems to be the most likely reason, since fragments belonging to entire bowls, in six cases, were recovered; of course there were some pieces missing from each due to sand removal, and erosion disturbances, as well as to failure to search every inch of the area. Still, this does not account for the excessive number of bowls represented. Had this been an ordinary refuse pit, only a few parts of a single bowl would have occurred, to judge from refuse remains at other sites. However, so called "killing" of a bowl with a hole smashed through its bottom is not clearly defined in the Lakeville collection. Only one bowl seems to have had such a puncture and that is less than clear. Instead, all bowls, except a perfect small one, were completely broken into many fragments, although some were quite large pieces.

It is hoped that further cremated burial discoveries of Stone Bowl times will help clarify the situation, so that suitable answers may be had to the several questions arising from the Hawes site evidence.

THE SEAVER FARM SITE

KARL S. DODGE

PREFACE

In the fall of 1956, William H. Taylor of North Middleboro, Mass., received permission to excavate a small triangular shaped piece of pasture land in Bridgewater on the Seaver Farm. It seemed quite probable that this area would be productive for several reasons. It had not been cultivated for many years, especially not during the tenure of its present owners. The surrounding areas had produced numerous artifacts during excavations by members of the Massachusetts Archaeological Society, and private individuals. Large quantities of relics had been gathered from the surface of the adjoining cultivated fields. This obviously explains why the Seaver Farm was known in former days as "Arrowhead Farm."

The site is located within the limits of the Indian village site known as Titicut, often referred to in early histories and documents. The following report is limited to the occupational evidence observed and recorded at the small pasture site, the subject of this paper, and is not intended to be a report on the Titicut area in general. An area of 2,600 sq. ft. was excavated in the fall of 1956 and during 1957.

Acknowledgment is made with thanks for permission granted by Mr. and Mrs. Russell Seaver, to excavate on their property. Thanks are due the Editor, William S. Fowler, for assisting with the arrangement of the text. His ability and skill in restoring two pots from sherds found in refuse pits, together with his illustrations and comments, add considerable interest to the report.

THE SITE

The area excavated lies at an elevation of forty feet above the Taunton River, at a point where the river makes a sharp bend from its east-west course to flow in a southerly direction. It is adjacent to a swampy area containing fresh water springs. Adjoining the swamp, a narrow, elevated piece of ground affords easy access to the river from the pasture site, while forming a natural canoe landing place. The river deepens here, providing a favorable place to take fish. The site has a southerly exposure, and is well protected from northeast winds in winter by a glacial gravel ridge.

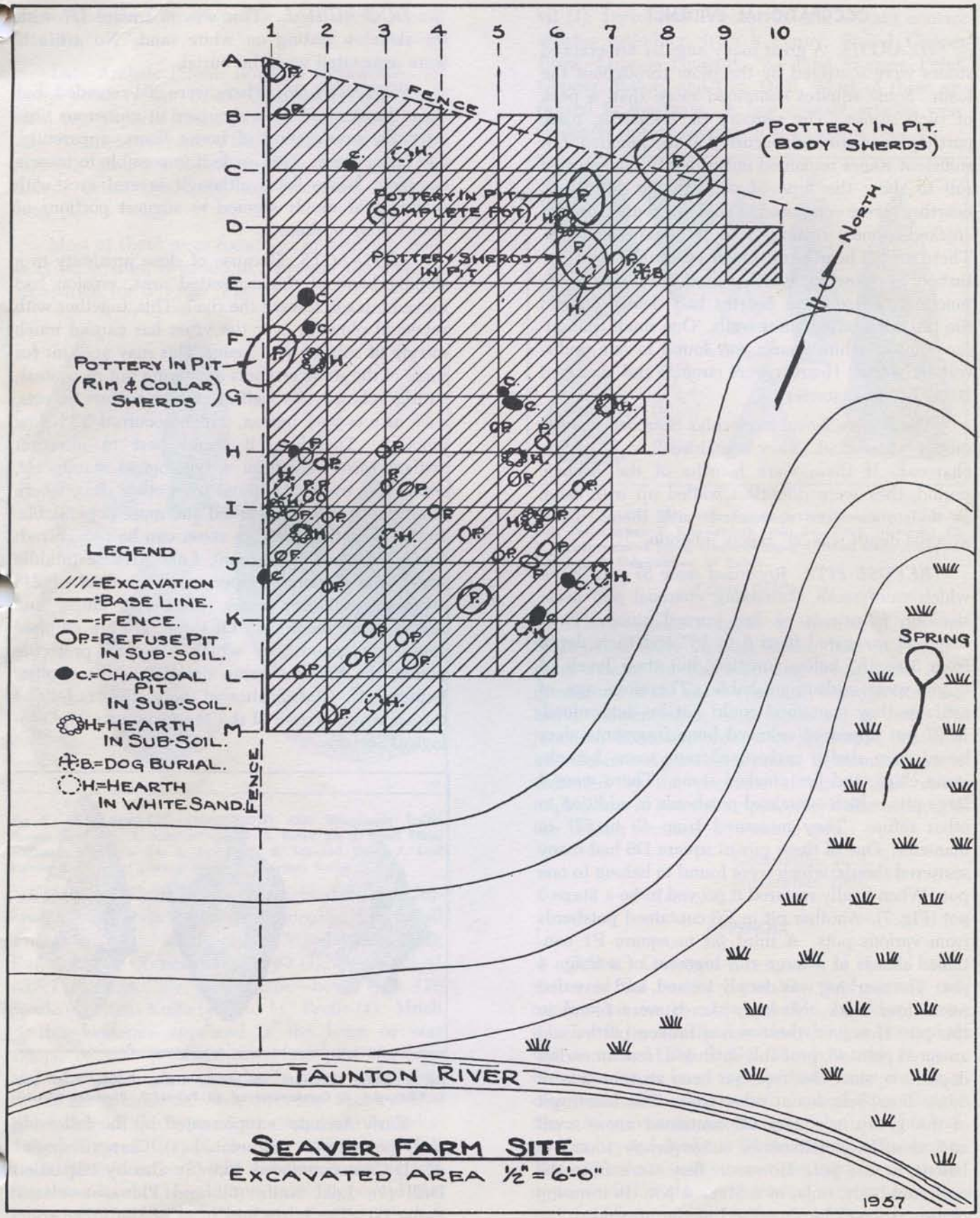
From local histories we learn that the Titicut area was extensive and well populated prior to the English settlement at Plymouth, Mass. Several important Indian trails converged at the wading place a quarter mile upstream and east of the pasture site. Above the wading place, at low water, the remains of an Indian fish weir is still visible. The site commands a view of the river, both up and downstream, and its elevation provides good drainage. The river provided a means of transportation for the natives, an important condition for a good camping place. Heavy concentration of general camp litter, together with other occupational evidence as recorded, would seem to imply that this site was a popular living area from Archaic times down to the historic era.

METHODS OF EXCAVATION

The site was tested by Mr. Taylor and his son, William B. Taylor, previous to staking the area. Two narrow test trenches revealed the presence of refuse pits, hearths and post molds. Chipped implements in the form of knives, scrapers, projectile points, drills, etc. were found frequently in both loam and subsoil during this testing. It was decided that the area would be sufficiently productive to warrant careful digging and recording of evidence.

A base line was established adjacent and parallel to a wire fence along the western boundary of the Seaver property. Then, the area was staked out in six foot grids (Fig. 3). Excavating required cutting and replacing of sod, besides keeping loam and subsoil separate. Work proceeded by horizontal scraping with trowel or similar tool. Starting at the base line, an 18 or 24″ bench the full width of a square, was gradually scraped down to the white sand, keeping the profile below the bench fully exposed. The depth varied from 1 to 4½′ with the distance from the river's bank.

Artifacts found in the loam down to 9″ below grass roots were considered disturbed by plowing, and required no measurements. Those present in undisturbed soils, along with other features, were located horizontally to the nearest inch from two or more stakes. Vertical measurements were taken from a line of demarkation where loam meets subsoil, known as "the junction." Field data were recorded on specimen cards and transferred to a master chart to scale, which showed artifact concentration and relation of features one to another.


1 2 3 4 5 6 7 8 9 10
A
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FENCE
POTTERY IN PIT. (BODY SHERDS)
POTTERY IN PIT (COMPLETE POT)
POTTERY SHERDS IN PIT
POTTERY IN PIT (RIM & COLLAR SHERDS)
NORTH
SPRING
LEGEND
////=EXCAVATION
——:BASE LINE.
---:FENCE.
OP.=REFUSE PIT IN SUB-SOIL.
C.=CHARCOAL PIT IN SUB-SOIL.
H.=HEARTH IN SUB-SOIL.
B.=DOG BURIAL.
H.=HEARTH IN WHITE SAND.
FENCE
TAUNTON RIVER
SEAVER FARM SITE
EXCAVATED AREA ½"=6'-0"
1957

Fig. 3.

OCCUPATIONAL EVIDENCE

HEARTHS. A great many angular fire-cracked stones were scattered by the plow throughout the loam. Some squares contained more than a peck of such stones. The remains of 7 hearths, some partly plow-disturbed, occurred at the junction, but sufficient stones remained imbedded in undisturbed soil to show the type of construction. Of these hearths, 4 were composed of regrouped angular fire-cracked stones, resting 3 to 5″ below junction. There were 3 hearths of similar construction, undisturbed by plowing, which rested 8 to 10″ below junction. These latter hearths had clearly defined fire pits with raised outer walls. One small triangular point of white quartz was found in one undisturbed hearth. Hearths were circular and averaged 20 to 24″ in diameter.

There were 7 oval to circular charcoal deposits on the white sand. They contained 2 to 3″ of fine charcoal. If these were hearths of the Archaic period, they were doubtless walled up with sand, as no stones were associated with them. Their average depth was 36″ below junction.

REFUSE PITS. Recorded were 57 pits, 30 of which were small, containing charcoal and occasionally, fragments of fire burned stone. Their diameter measured from 8 to 18″ and their depth from 3 to 18″ below junction, but their levels of origin were undistinguishable. Therefore age of artifacts they contained could not be determined. In 27 pits appeared calcined bone fragments, deer bone, clam shells, carbonized nuts, corn kernels, stone chips, and fire cracked stone. There were 4 large pits, which contained potsherds in addition to other refuse. They measured from 45 to 67″ in diameter. One of these pits in square D6 had many scattered sherds, which were found to belong to one pot. When finally restored it proved to be a Stage 3 pot (Fig. 7). Another pit in E6 contained potsherds from various pots. A third pit in square F1 contained sherds of a large rim segment of a Stage 4 pot. The marking was deeply incised, and revealed meticulous work. No body sherds were found in this pit. However, there was a broken pestle, and an eared point #5, probably intrusive from an earlier deposition, since this type has been associated with Stone Bowl remains at other sites. The fourth pit of this group in square C8 contained many small and some large potsherds, subsequently found to belong to one pot. However, they were from the neck and body, only, of a Stage 4 pot. Restoration of this pot will be described in the appendix.

DOG BURIAL. This was in square D7 with the skeleton resting on white sand. No artifacts were associated with the burial.

POST MOLDS. There were 204 recorded, but since the site had been occupied at numerous time intervals, overlapping of house floors, apparently, had taken place. This made it impossible to trace a complete house floor, although several arcs with double post molds seemed to suggest portions of house floor outlines.

ARTIFACTS. Because of close proximity to a sloping bank of the excavated area, erosion had moved top soil toward the river. This, together with repeated plowing over the years has caused much mixing of subsoil with loam. This may account for some of the stone artifacts appearing out of context, stratigraphically, as well as certain contact objects, such as a copper button, which occurred 3″ below junction. Therefore, it seems best to interpret artifact recoveries from a typological standpoint, comparing traits with those from other sites, where stratigraphy is less disturbed and more dependable. In this way, three culture zones can be recognized: Early Archaic (lower zone), Late Archaic (middle zone), and Ceramic (upper zone). A total of 248 artifacts, excluding cores, potsherds, chips, and rejects, were recorded. Of these, 91% are chipped stone implements, of which 70% are projectile points, the balance being divided between other implements. Classification of these artifacts follows the approved system of the Massachusetts Archaeological Society.

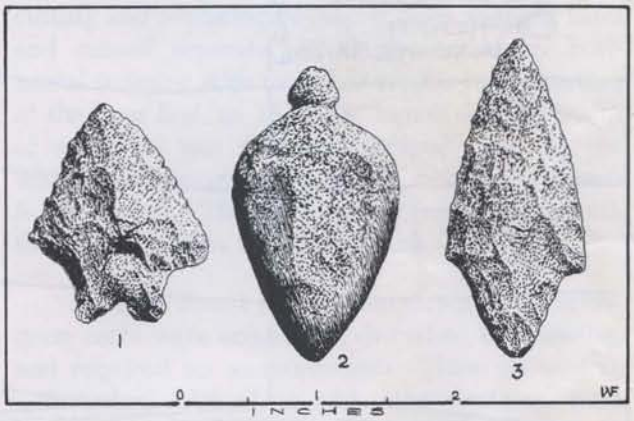

Fig. 4. EARLY ARCHAIC (Diagnostic Traits)—Seaver Farm Site. 1, Bifurcated; 3, Corner-removed #8 Points; 2, Plummet (classic).

Early Archaic is represented by the following early point types: Bifurcated (1); Corner-removed #5 (1) Corner-removed #8,9 (8); also by Expanded Drill (1); Leaf Knife (6); and Plummet—classic shape (1). The latter and most of the other traits

occurred from 3 to 5″ below junction in subsoil (Fig. 4).

Late Archaic (Stone Bowl) is represented by many point types: Small Triangular (22); Small Stem (9); Tapered Stem (6); Leaf (1); Eared #3,5 (10); Corner-removed #1,3,7 (11); Side-notched #1,4 (4); also, by Stemless Knife (10); Plain, T, Eared, Cross Drills (8); and Plummet — clumsy form (1).

Most of these were found on, or near junction, as at other sites, believed to represent the level of occupation for this age (Fig. 5).

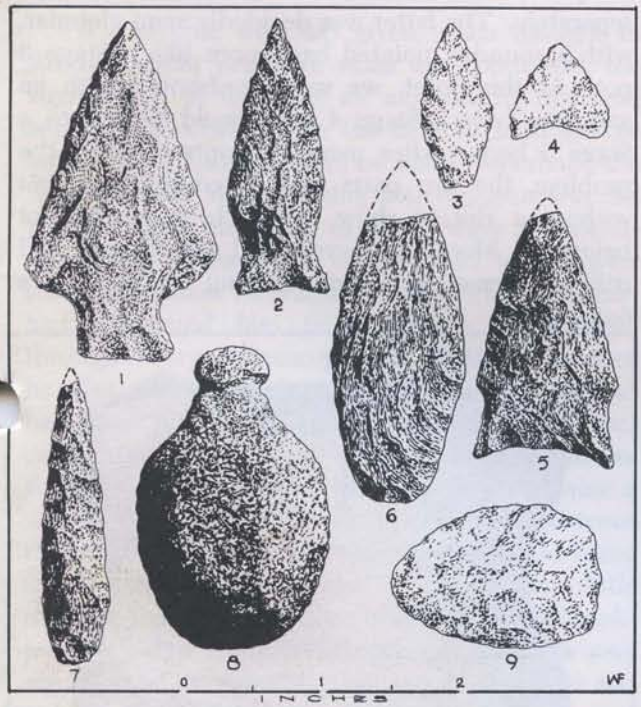

Fig. 5. LATE ARCHAIC—STONE BOWL AGE (Diagnostic Traits) Seaver Farm Site. 1, Side-notched #1; 2, Eared #3; 3, Small Stem; 4, Small Triangular #4; 5, Eared #5; 6, Tapered Stem; 7, Leaf Points; 8, Plummet (clumsy type); 9, Stemless Knife.

Ceramic (Woodland) is represented by the following point types: Large Triangular (3); Small Triangular (33); Small Stem (36); Diamond (2); Eared #2 (1); Corner-removed #3 (7); Side-notched #3,5,7 (5); also, by Stone Pipe—bowl type (1); Spade (4); Stem Knife (4); and 11″ Pestle (1). Much of this evidence appeared in the loam or was associated with potsherds in refuse pits; the pipe and a few other pieces, evidently, were out of context in the subsoil. At Sweet-Meadow Brook site in Rhode Island, this type of pipe appeared in undisturbed Stage 2 Ceramic horizon. Scrapers of all kinds, 35 in number, were distributed throughout the three levels. In addition, there appeared the following: Notcher (5); Pipe-bowl Reamer (1); Anvil (1); Perforated Pebble (1); and certain contact articles including, Irish ½ Penny, Rolled Copper Bead, Copper Pendant, "A" type Copper Point, Copper Button, and Iron Drill. Most of these appeared in the loam. A few contact articles were evidently out of context in the subsoil (Fig. 6).

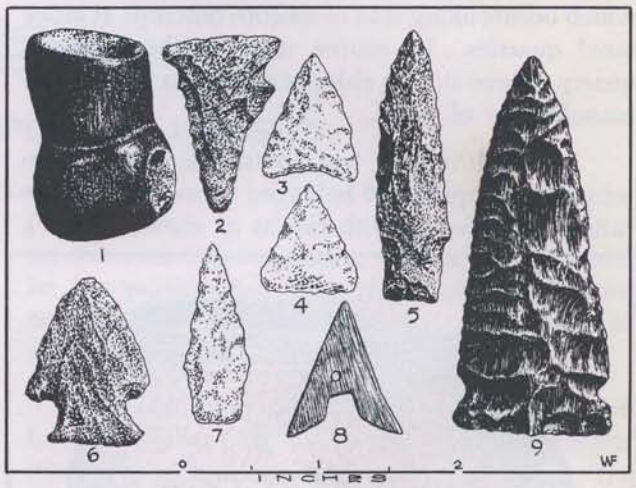

Fig. 6. CERAMIC (Diagnostic Traits)—Seaver Farm Site. 1, Stone Pipe (bowl type); 2, Side-notched Drill; 3-4, Small Triangular #5; 5, Corner-removed #3; 6, Corner-notched; 7, Small Stem; 8, Copper (contact); 9, Side-notched #5 Points.

CONCLUSION

The evidence suggests occupation of the site throughout Early Archaic times, but not to any great extent. In the following Stone Bowl Age, greater use of the site is apparent, to judge from the heavy concentration of artifacts at, or near the junction. Extensive occupation appears to continue into Ceramic-Agricultural times. Evidence of this is indicated by the presence of agricultural stone implements in two refuse pits, which also contained the broken remains of ceramic pots.

Greenville, R. I.
November 1961

APPENDIX

Editor's Comment: As a result of careful excavation of the Seaver Farm site two ceramic pot restorations were made possible. Besides these, which will be described further along, a stone pipe was recovered (Fig. 6, #1). This is worthy of mention because its bowl type without stone stem is a diagnostic of middle ceramic days of Stage 2 pottery. As previously mentioned in the text, this was proven beyond doubt at Sweet-Meadow Brook site. There, platform and elbow types with stone stems appeared below this ceramic zone, stratigraphically, and must be presumed to have preceded the bowl

type. This pipe is made with a cut-off stem close to the bowl, while in other cases there is nothing but the bowl. In either event, an enlarged perforation is made in the stem stub, or in the lower part of the bowl for insertion of a wooden reed stem. The specimen from this site is made of chlorite, a stone which occurs along side of steatite outcrops at stone bowl quarries. Its source may be the Oaklawn quarry, where similar chlorite was often used in the manufacture of pipes.

As cited in the text, potsherds taken from refuse pit in square D6 belonged to one pot. Restoration was effected with results as shown (Fig. 7).

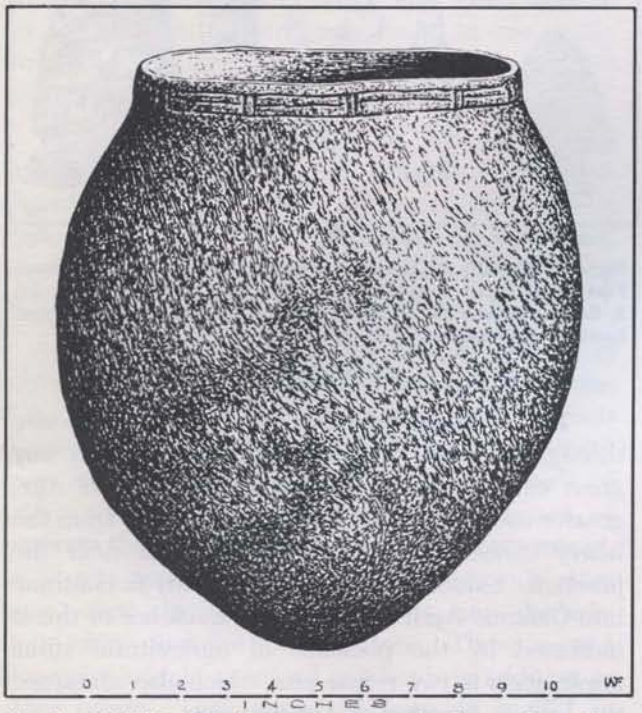

Fig. 7. CERAMIC POT (Stage 3)—Restored. Seaver Farm Site, Bridgewater, Mass.

This pot is of interest because it has several unmistakable traits that place it with Stage 3 pottery. Its base instead of being pointed like Stages 1 and 2, is slightly rounded, or semi-globular. But, what is more significant, it has a laminated collar; an innovation not found on earlier ware. Apparently, this was considered an improvement, since it provided a thicker and more durable rim. Still another Stage 3 trait is that the collar design is incised. That is, the lines are drawn separately with a one pronged stylus; a new method of marking not used in Stage 2 ceramic times.

However, the most exciting restoration came when potsherds from pits in squares C8 and F1 were separately fitted together. Since these pits were 42′ apart, their contents were not thought to be related in any way. Consequently, when the few collar sherds from F1 pit were put together, the resulting collar section was put on exhibition at the Bronson Museum. It was a rare find, because of its intricate incised design surrounding a small corn cob boss. Nothing of the sort had even been seen before, and at once it was recognized as a collar section between two castellations of a Stage 4 pot.

Months went by as the potsherds from pit C8 were laboriously fitted together one by one. Finally, a deeply constricted Stage 4 neck emerged almost complete, while the body began to take shape separately. The latter was decidedly semi-globular, with a rounded pointed base more like a Stage 3 pot. At this point, we were confronted with an anomaly, how a Stage 4 neck could belong to a Stage 3 body. After many attempts to solve the problem, the two parts were fitted together, but without a rim to show to which stage the pot belonged. More than a year had now passed, and still we seemed far from realizing our goal of a finished pot.

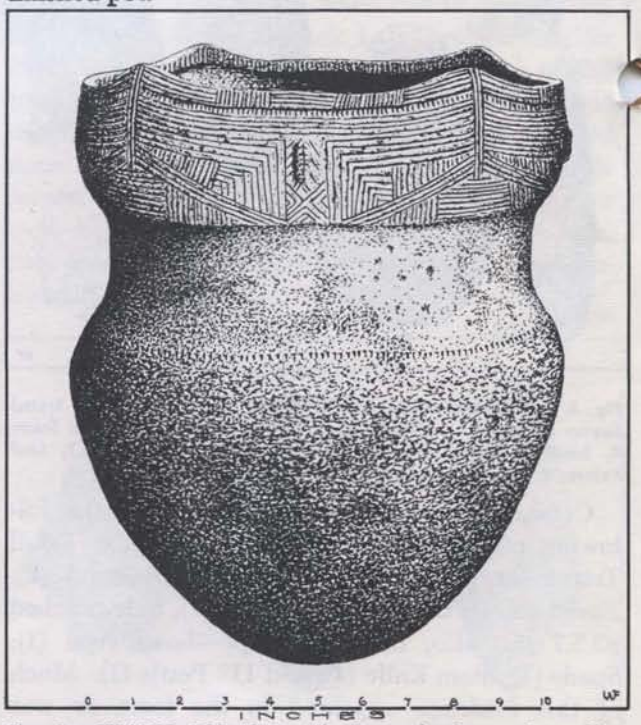

Fig. 8. CERAMIC POT (Stage 4)—Restored. Seaver Farm Site, Bridgewater, Mass.

At this impasse we suddenly remembered the unusual collar segment from pit F1, which had been put on display months before. We recalled that it had vegetable temper and a grayish-brown paste like the body just completed. Could it possibly belong to this plain finished body with a Stage 3

base? No time was lost in getting it out of the show case, and into the laboratory where the unfinished body was waiting. We tested it gingerly first to this part of the broken neck and then to that, when suddenly it slipped into place, making a contiguous unit from rim to bottom. Now, we knew it was a Stage 4 pot. It had a beautiful shape, and a repeat of the design with reconstruction of the missing remainder of the collar would, we felt sure, prove a worthwhile restoration. In due time the pot was completed (Fig. 8); has been loaned, and is now on display at the Bronson Museum.

WOODWORKING: AN IMPORTANT INDUSTRY

William S. Fowler

To anyone, who has given much thought to survival under primitive stone age conditions, the significance of wood as an aid toward that end seems quite obvious. In the field of hafting—the attaching of handles to stone blades—perhaps the most essential woodworking activity, man was dependent upon his ability to devise ways and means of cutting, shaping, and fitting sticks to whatever stone implement he wanted to use. This operation had concerned him from earliest times down through every culture period. Without wooden handles, only a very few stone implements, such as hammerstones, hand knives, some scrapers, etc., could have been used effectively. Therefore, invention of suitable tools for working wood became a necessity. Over the millenniums of human existence thousands of such tools must have come into being in all parts of the world. However, too little thought, it would seem, has been given to this subject, to judge from the absence of artifacts presumed to be woodworking tools in most private and public collections.

Perhaps one reason for this apparent omission is the fact that mere chips or spalls with only slight retouching, often on no more than one edge, become efficient scrapers or knives for cutting wood. With no further reworking they lack definition, and are without well formed shapes to facilitate recognition. Then, in cases where shapes do follow set forms, their use is not generally understood by the collector, who consequently fails to recognize them as important artifacts. In any event, most searchers are satisfied to look for stone blades having recognizable forms, without much thought as to how they were used. On the other hand, the writer has been concerned with not only the functional use of blades, but the manner in which they may have been hafted to facilitate their efficiency. Over the past twenty years or more, he has carried on this investigation during various digs in which he has participated, with the result that hafting now appears as a universal activity throughout all culture periods.

It is one thing to make discoveries of this sort, but it is another thing to determine by experimentation how such specialized tools were used. The writer claims no pre-eminence in the field of woodworking with stone tools, but he has felt it necessary to identify and actually use stone woodworking tools in order to better understand the problems of primitive wood workers. Only in this way, it seemed could he evaluate the sometimes ill-defined traits of the stone tools involved. Over the years, he has succeeded in hafting many kinds of stone implements. By trial and error he has discovered what seem to be several important methods of binding, by which different stone blades may be attached by thongs to wooden handles. This does not mean that these methods were the only ones used by early man, or for that matter, were used by him at all. Human ingenuity might well have developed other methods, which were employed by some. However, since no written prehistoric records are available to guide us, use of today's human faculties should stand a good chance of producing similar results to those of at least some early artisans. For this reason, because of repeated demands of interested Society members, the writer has attempted to describe and portray in this paper his woodworking techniques of hafting. Also included are probable methods used by early man in making certain wooden products, which have come to our attention. We will never know all the articles made from wood throughout the four culture periods of New England. Doubtless there were a great many, especially during the last two culture epochs. In those days there was much industrial activity of stone bowl and ceramic pot making,

when people were concerned with producing goods for home consumption including wooden products. Therefore, it seems important to keep in mind that woodworking was an important activity of early man, and because of it, some stone implements about which we know little, may have been used for shaping wood.

WOODWORKING STONE TOOLS

Before satisfactory experiments could be performed, it was necessary to determine what sort of tools may have been used in working wood. Some stone implements are known to have been employed from statements made by early commentators. For instance, Champlain tells how "stone hatchets" were used to fell trees with the aid of fire, in the manufacture of dugouts. And William Wood mentions "stone hatchets" being used to trim the outside of log dugouts. Beyond these two brief references and similar ones from other early writers, we are left in the dark as to other tools with one exception. Champlain says that in the Boston Harbor area he saw natives digging out charred embers from the inside of logs while making dugouts with small pieces of stone resembling "our musket flints." Could these have been the small worked stones we call steepedge and stem scrapers (Fig. 9)? In apparent confirmation of these statements, except the one about scrapers, we now have

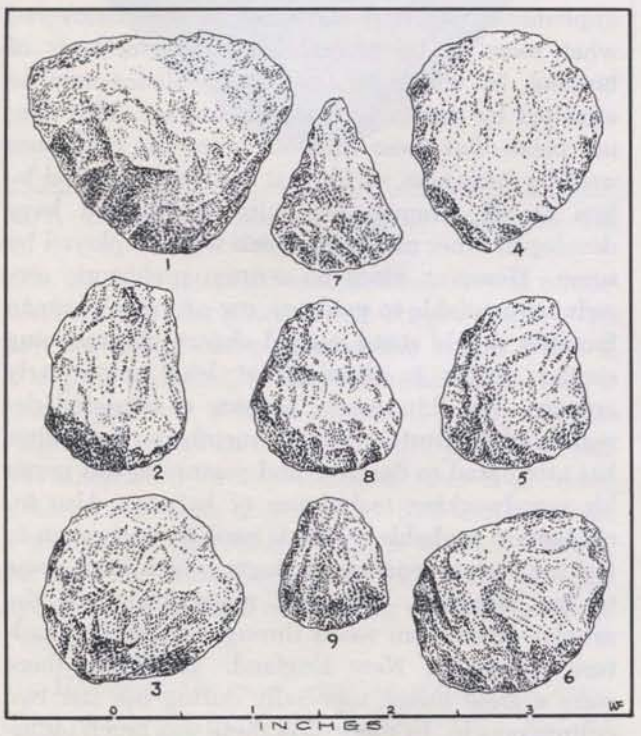

Fig. 9. STEM and STEEPEDGE SCRAPERS. 1-6, Steepedge; 7-9, Stem; Narragansett Bay Drainage of Massachusetts.

an archaeological discovery reported by Arthur Petzold: "The Eaton Site: A Dugout Workshop," Bulletin of the Massachusetts Archaeological Society, Vol. 22, Nos. 3 and 4, p. 47. At this site of a probable dugout workshop were found a grooved ax, celt, gouge, and hatchet. Therefore, it now seems likely that whether or not Champlain was speaking of grooved axes, certainly in the earlier Stone Bowl Age (Late Archaic) of the Eaton site they were used in dugout manufacture. Doubtless, Champlain's statement may refer to the later day chipped ax. As a result of Petzold's find, we can now be reasonably sure that celts and gouges were also used in hollowing out dugouts during Archaic times.

However, beyond this knowledge of dugout-making tools, no written records, early or late, are available as a guide to other smaller, less obvious woodworking tools. It became necessary, therefore, by research to locate the missing tool forms on camp sites and in collections. After years of effort the writer has identified what he believes are some, if not all, of the remaining woodworking implement types. In order to convince himself of his beliefs, he used successfully these tools in felling saplings of various thicknesses, cutting them off in suitable lengths, then roughing them out, straightening, and smoothing them into finished handles or shafts. This paper will attempt to, first, classify these tools, then describe probable methods by which they may have been used in making hafts and some wood products. However, to save time and effort in most of his experiments, the writer employed steel tools for preliminary cutting and barking of wood stock, but invariably shaped and finished each job with stone tools. By his constant use of these tools, much was learned about suitable techniques to be followed for wood cutting, abrading, and scraping with stone blades.

In the use of stone axes, it has been demonstrated that a grooved ax with its blade sharpened by modern methods on a grinding stone to a keen edge, when properly hafted, will cut through a pine tree of 4" or more in thickness. However, recovered axes never have such sharp cutting edges. Instead, they have dull, imperfectly ground ones. Therefore, it seems more likely, when large trees for dugout manufacture were cut, that fire was used as an assist, as reported by Champlain and others, who witnessed the operation. In the case of smaller trees for wigwam poles or the like, ax blades may have succeeded without fire, although to the writer

this seems improbable. The spring of a sapling, at least those measuring up to 2 to 3″ in diameter, tends to repel a dull stone ax blade because of its failure to bite into the wood, as has been proven by actual test.

NOTCHER. This implement is usually 2 to 4″ long depending upon the job in hand. It is thought to have been used for notching wooden shafts, and for felling saplings of a size suitable for such implement shafts, as will be explained further along. It may be fairly thick on one side for a handle grip, but is thinned toward the opposite side to form a more or less straight cutting edge, which is serrated. Blades are made of hard stone like quartz, quartzite, or felsite. Their shapes vary from triangular to rectangular in form. But whatever their shape, there should be one thinned working edge that is reasonably straight (Fig. 10). Often, this edge shows considerable wear, indicating extensive use. Undoubtedly, notchers were carefully preserved and used

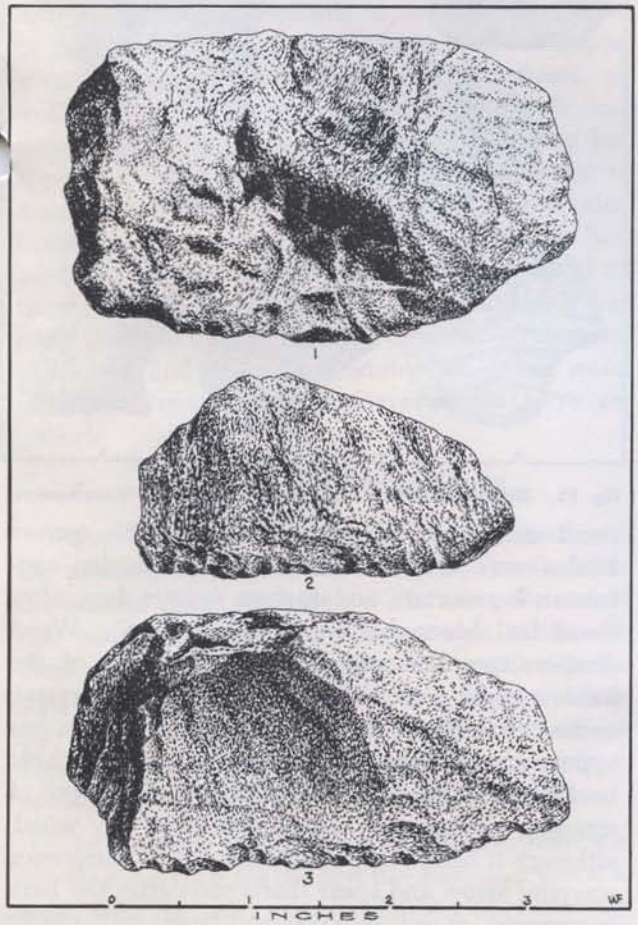

Fig. 10. NOTCHERS—for cutting notches, and for felling small trees for shafts, handles, poles, and bows, Massachusetts.

until they became worn out, which may have limited the number made. However, their scarcity in collections is probably due more to the failure of collectors to recognize and appreciate artifacts so irregularly shaped.

Actually, a notcher is a woodworking knife without a shank for hafting. It must have been held in the hand and used with a sawing motion to cut a notch wherever needed. In the hafting of such implements as projectile points, knives, and drills, it may be used effectively to cut a notch in one end of the shaft for insertion of the implement to be attached. In the case of side-hafted implements, a notcher is also useful in helping to cut away unwanted wood in forming shoulders next to the hafted stone blade. These are to anchor thongs that hold it in place. It is important to note that the wood must be green to secure satisfactory results with the notcher. Dry wood cannot be worked at all.

ROUGHING KNIFE. This tool is an irregularly shaped blade of a convenient size for use in the hand. It is always made of hard igneous stone. Usually, one side of this knife is thick with minimum reworking, while the other has several large chips removed to form coarse irregular serrations, sometimes to be found on both sides. Blades are usually made from ½″ thick spalls, although they could be somewhat thicker (Fig. 11).

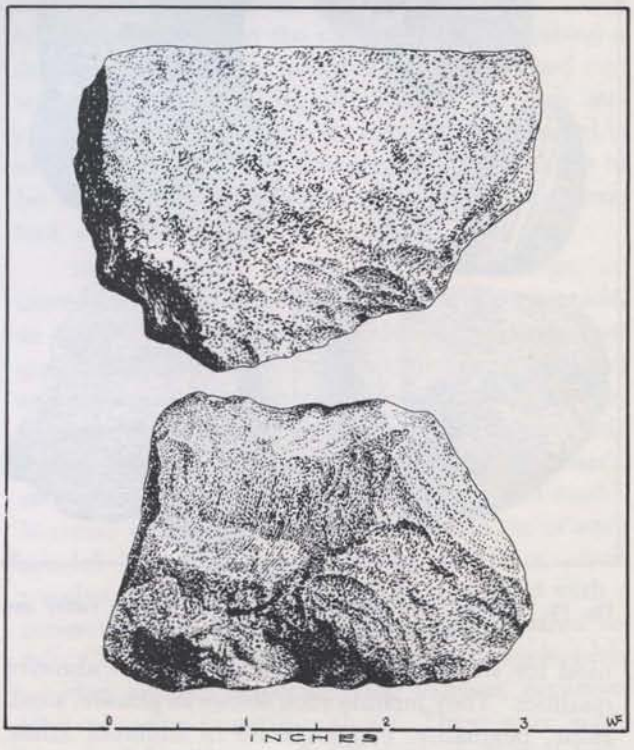

Fig. 11. ROUGHING KNIVES — for preliminary shaft shaping, Connecticut Valley of Massachusetts.

The roughing knife is believed to have been used for shearing away unwanted bulges on shafts, and for cutting shoulders together with the notcher near the hafted blade. It performs best, when drawn toward the operator with quick slicing strokes, but only while wood is green; dry wood may not be worked at all.

ABRADER. This woodworking tool performs an important function equivalent to modern filing or sandpapering. It appears in irregular shapes, sizes, and degrees of coarseness; apparently was not made to conform to any set style. It is chiefly identified by worn surfaces, which appear as wide or narrow grooves, when for use in abrading shafts or handles, otherwise, its worn facets may be flat for abrading flat surfaces. In the case of arrow shaft working, these grooves are often narrow and deep, as though they had first been pecked out and then worn smooth from use (Fig. 12). Stone materials

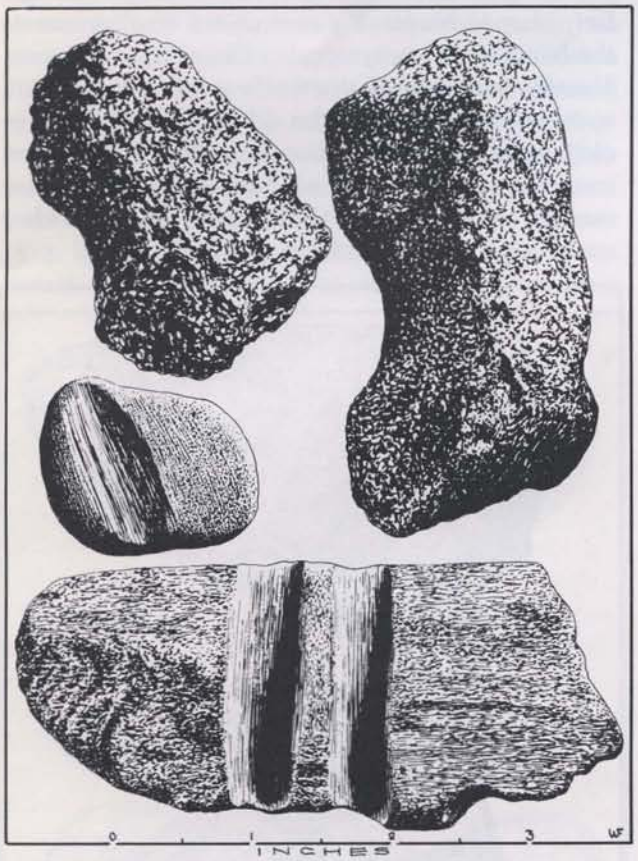

Fig. 12. HANDLE AND SHAFT ABRADERS, Connecticut Valley and Narragansett Bay Drainage of Massachusetts.

used for wood abraders have perceptible abrasive qualities. They include such stones as granite, sandstone, pegmatite, conglomerate of different kinds, and sometimes chipped chunks of white quartz and crystalline quartz. Actual use on both green and dried wood of these abraders has demonstrated that they are useful in working down knotty surfaces and bulges, also in removing splinters from shafts after scraping, when wood has become dry, in the final finishing. Experiments show that coarse grained stones work best on green wood, while fine grained ones are best suited for use on dry wood.

WOOD SCRAPER. This scraping tool differs in some respects from other scrapers. It is usually made from a small or large flake with one or more of its edges worked into a relatively straight cutting blade, which may or may not be beveled. This is often worn or chipped to form a concavity for working shafts (Fig. 13). Also, it is probable that

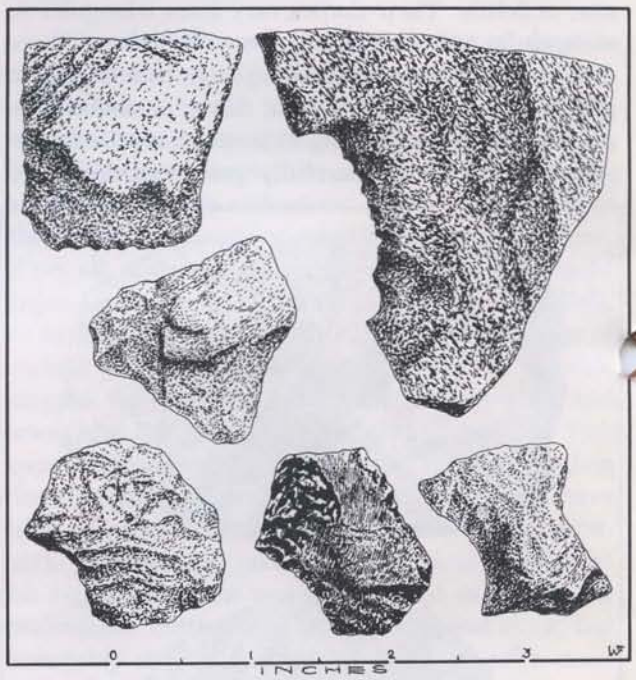

Fig. 13. SHAFT SCRAPERS, Connecticut Valley of Massachusetts.

small steepedge and stem scrapers with convex blades were used for hollowing out wooden containers, log mortars, and dugouts in later days, after wood had been charred by fire (Fig. 9). Wood scrapers must be made of igneous stone of the hardest quality, such as pure quartz, quartz crystal, or flint. Sometimes they are made of quartzite, but apparently this stone was not found as serviceable because of its infrequent occurrence. The work of scraping may best be accomplished on dry wood, although it has been found desirable to commence scraping arrow and spear shafts soon after the bark is removed, as will be explained later.

DRILL. This implement, believed to have been used as a perforator, has different basal forms belonging to different culture periods (Fig. 14).

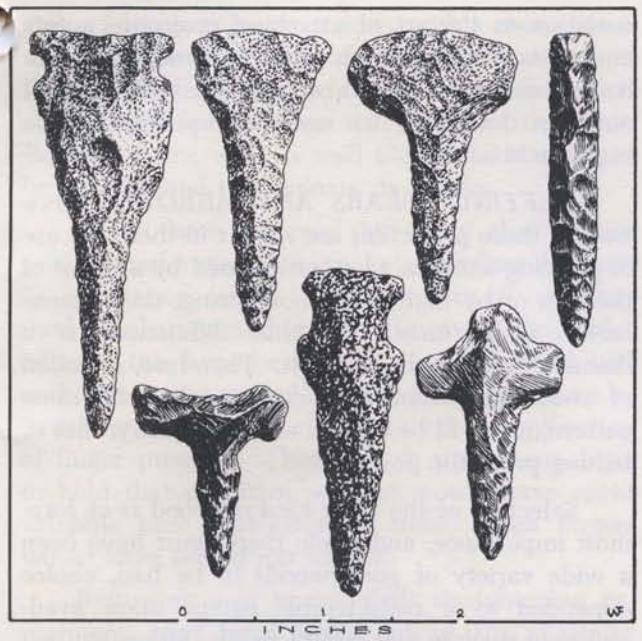

Fig. 14. DRILLS (various types), Massachusetts and Rhode Island.

Ample evidence is available to substantiate its use in drilling holes in stone products, such as pipes, gorgets, pendants, boatstones and birdstones, as well as when repairing cracked stone bowls and ceramic pots. Now, evidence of wood drilling has appeared with a recent recovery at Wapanucket 6, Assowampsett Lake, Massachusetts. Here a wooden handle was recovered through which a hole had been drilled at one end. Preserved as a result of its transformation to charcoal in a cremation, it has come down to us over a period of about 4,200 years. With this find, it seems certain that other wood products were drilled whenever holes were required.

WOODWORKING TECHNIQUES

From earliest times, man has been faced with the problem of how to attach handles or shafts to his various stone implements. He soon discovered that handle leverage was indispensable to the efficient use of stone tools. And so, at sometime in the dim ages past he began the slow upward climb in his gradual improvement of hafting techniques. Doubtless, for many millenniums he was able to accomplish no more than rough elemental hafts.

In the New World it seems probable man was chiefly concerned for the first five thousand years, at least, with the most essential hafting requirements, and attempted only a few other kinds of woodworking. One of these, certainly, must have been the making of dugout log canoes. For this important work, we know he had the channeled gouge, celt, and probably some sort of a crude chipped ax; these artifacts have appeared in excavations with his remains. And there is good reason to believe he used fire as an assist, just as man has done the world over. Even today, primitive men in the interior of Venezuela are reported to use fire with certain stone tools in making dugouts. They wet the sides of the log being worked on — reported also by Champlain and others — to prevent the fire from burning through the dugout sides.

Sometime after the entry into New England, about 5,000 years ago, of the Stone Bowl industrialists, man began to make other products of wood. Besides dugouts and paddles, he now made smaller useful articles for the home. One of these a 6″ dish, recently, was recovered from a secondary burial at Wapanucket 6. It had been preserved miraculously over the 4,200 years of its interment by virtue of its reduction to charcoal in a cremation, but without destroying its form. This, perhaps, is the oldest wood product that has come down to us from such an early age, long before iron tools had had a chance to trickle in by barter. Examination of its graining and stone tool scars, still discernible, suggest certain things concerning its manufacture. Its wood grains are straight and not wavy. This seems to indicate it was made from a slab of wood split off from a log by stone wedges, rather than from a burl. Doubtless, fire was used to facilitate hollowing, similar to the method used in making a dugout. The charred wood was then scraped out with small scrapers (Fig. 9). Finally, the dish was either scraped or rubbed smooth with suitable abrading stones. Many fine parallel striations are to be seen on its base, which is proof of such stone tool working.

In later times during the Ceramic Age, an increasing number of wooden products were made, as evidenced by articles handed down from past generations in possession of 19th century Indian and colonial descendants. Iroquoian wooden goods, as presumably made by their predecessors, include such articles as ladles, spoons, bowls, cradle boards, snow shoes, log mortars, games, drums, and masks. It seems safe to assume that in the making of such articles before the days of the explorers, stone woodworking tools, as previously described with a generous assist from fire, produced the desired results. Use of fire, today, is indicated in some early wooden remains, especially log mortars, occasionally appearing in antique shops. These were made by colonial settlers, who followed aboriginal techniques. In such goods are often found the remains of

charred areas in the hollowed out portions.

Besides such wood acomplishments during prehistoric ages, production of the bow was unquestionably of paramount importance. William Wood speaks of the bow as follows: "There bowes they make of a handsome shape, strung commonly with the sinewes of mooses." In making a bow, a strong fine grained wood like hickory was doubtless used. Obviously, this would have required a fairly straight sapling about 1" in diameter. To fell such a small tree, the writer has found an ax to be useless, as previously explained. However, with stone notcher (Fig. 10, #3) he succeeded in felling saplings and cutting off handles of the desired length; the cutting out of a single handle consumed less than an hour. This work was done by sawing against wood fibres made taught by bending of the tree trunk. As a result of these experiments, it is thought likely that such articles as bows, projectile shafts, wigwam poles, and many implement handles may have been obtained in this way.

In the shaping of bows, it was probably necessary to use all the various types of tools, as referred to in the previous classified section. According to William Wood, much effort was expended, it would seem, in order to make bows in "handsome shape." However, in no two cases were they identical, as wood stock and individuality of the artisans, probably would have seen to that. The bow's length was doubtless an important feature, governed by the length and type of arrow to be used. For a short arrow without feathers, like the 1790 Norwell specimen on display in the Bronson Museum, a 3 foot bow was used — originally handed down with the arrow in the Robinson family, but ultimately lost. For a longer arrow with feathers, a 5 or 6 foot bow would doubtless have been required. Bows are referred to by William Wood, as being used by the Aberginians (northern Indians); he says: "These Indians use no other weapons in warre than bowes and arrowes, saving their Captains have long spears, on which if they returne conquerers they carrie the heads of their chiefe enemies that they slay in the wars; as true tokens of their renowned victorie."

When it comes to arrow and spear shafts, it is probable that more were made than any other kind of wooden product. Over the past twenty years, the writer's research has revealed certain facts, which have added much to our knowledge of such woodworking. While, undoubtedly, there was much variation in the art of attaching projectile points and other implements to shafts or handles, certain basic techniques, probably, were used. These will now be described, as revealed by the writer's experiments.

HAFTING SPEARS AND ARROWS. Since both of these projectiles are similar in their end use of piercing animals, whether released by a thrust of the arm or by that of the bow string, their manufacture is the same. The chief differences lie in diameter and length of shafts. Therefore, selection of wood and method of working it follow the same pattern, and will be treated as one industry, that of hafting projectile points.

Selection of the right kind of wood is of foremost importance, and while there must have been a wide variety of good woods to be had, choice depended to a considerable extent upon availability of stock in any given locality. However, certain qualities seem important, which may have influenced the ultimate selection.

Obviously, a sapling of the correct proportions is essential. It should be as straight, and with as few branches as possible. Certain shrubs, like elder, grow straight without branches, and were used, according to William Wood. However, for a suitable shaft, one that will give long service, finished elder shafts have been found unsatisfactory, as they are subject to warping during periods of damp weather. Therefore, if elder shoots were used, they must have provided shafts of poor quality. On the other hand, harder woods are less affected by moisture; hold their shape better, and probably were preferred. The Norwell arrow, previously mentioned, is made of oak, one of the harder woods. However, oak is less likely to be found growing straight, so that young shoots of other woods might have been more sought after. The writer has found white ash to work the best, and believes that, when available, it was much desired. It has a straight tough grain, and when dry, becomes ridged with no warping. It often grows more than a foot in length each year, with superficial branch growths.

After cutting the selected sapling ot two or three year's growth with a stone notcher, and trimming it to the desired length, the bark is peeled off. Since no sapling is perfectly straight, but has numerous knots where branches have been removed, it becomes necessary to get rid of the knots and straighten the shaft. While the wood is still

green, knots may be worn down with a coarse stone abrader. Then, with a shaft scraper the process of shaping the shaft is commenced. By quick strokes of this tool, fine shavings will fall from the shaft. But before the work is well along, the shaft must be straightened to eliminate its crooks.

It has been assumed by many that certain pebbles perforated with a hole larger than the shaft — sometimes called "doughnut stones" — were used as shaft straighteners. However, the writer believes this hypothesis illogical, as he has found such stones unnecessary for the job, which may be swiftly and effectively accomplished by application of finger pressure. Therefore, it seems unrealistic to hold that primitive workers would have spent valuable time perforating a stone, when fingers would have served just as well.

Returning now to our shaft straightening experiment, next bend kinks out of the shaft by finger pressure, while the wood is green and flexible. Then, immediately scrape vigorously around the shaft in the area being straightened. Repeat this process of straightening and scraping as often as the kinks reappear. Soon, it will be noticed that the shaft does not have the same tendency to return to its original crooked shape, but instead, becomes inactive and tends to assume its new straightened shape. Continued scraping will, at this point, soon work to hold wood fibres rigid, and keep them in their straightened form. What takes place is that heat, generated from friction caused by scraping, dries the outside wood fibres. They become taut and form a hard shell around the core of the shaft, still green, which keeps it straight.

At this point, the larger end is ready for notching, to provide a groove for receiving the projectile point. This may be easily accomplished with the notcher, or woodworking knife. Holding the shaft firmly in place under one leg, cut a notch with this tool, operating it like a saw. Since the shaft's core is still green and soft, a notch may be cut to any desired depth and thickness depending upon proportions of the point to be hafted. Certain points, such as corner-removed #5, 8, and 9, first require the removal of green pith from the shaft's end before the notch is sawed. This may be accomplished with a drill of the right size. It is thought likely, from recoveries at Twin Rivers, that such a drill was of the flake type and was held by the fingers and oscillated.

From here on, the shaft is scraped down to any desired diameter, so that the fulcrum of balance will occur off center toward the point end. Finally, the shaft is rubbed smooth with a shaft abrader, while a high finish may be obtained through use of a fine grained stone polisher, a substitute for fine sandpaper. If feathers are to be added, in the case of an arrow, a turkey tail feather may be split with a sharp edged flake, and three suitable lengths bound in place with fine gut, but only after the feather end is notched slightly for the bow string. In the case of spears, it seems unlikely that they were feathered. It is more probable that a spear was fitted with a wide based point, requiring an excessive wood enlargement at that end of the shaft to seat it. This would have added enough more weight at the point end to keep it straight in flight without feathers. The lashing to the shaft of a projectile point may be readily accomplished with gut, or fine strips of rawhide. The exact turns and twists required to hold the stone point in place is a matter of skill acquired through trial and error. They vary depending upon the type of projectile point being hafted. In general, when barbs are present and also in the case of triangular points, whose basal points serve as barbs, the thong is lashed obliquely over the barbs, which will hold the point firmly in place and keep it from wobbling.

A throwing stick (atlatl) about 2 or 3 feet long was used at least during the Archaic period, with which to eject the spear or dart. Two different types of stone weights were used on the atlatl, of which the oval shaped one is believed to have come first. This was followed by the wing weight, sometimes in the shape of a whale tail, at other times in that of a butterfly. Of the two, it is the oval weight about which our work of hafting made what seems to be an important discovery. After shaping the atlatl by scraping, much the same as a shaft, a hook is cut with the notcher in the stick's end having the smaller diameter. This has to be enough smaller than the perforation through the oval weight being hafted, to permit its passage over the hook and onto the stick. Careful study of these oval weights usually with a ½ to ⅝" perforation, invariably reveals one flat or concave face, which reduces the thickness of stone between perforation and altered face. The reason for this cut-off surface has always been subject to speculation. Our experiment seems to provide the answer, as well as proving beyond a possible doubt that these perforated oval artifacts were attached to atlatls as weights. They added momentum to the thrust, and possibly served as a good luck agent as well.

As the diameter of the atlatl gradually increases above the hook, the oval weight soon reaches a point, as it approaches the handle end, where it binds and will move no farther. Here it may be lashed securely to the stick to prevent its slipping back when spear is ejected. The flat or concave grooved face of the weight is moved around before lashing, so that it faces up toward the shaft being ejected. When the atlatl is in use, it is grasped in the palm of one hand, while the thumb and first finger of the same hand grip the shaft, whose base end is engaged by the hook. Now, at this point, it will be found by trial that were it not for the removal of stone stock from the flattened face of the oval weight, the convex original bulge of the stone would have prevented the shaft from reaching the fingers. This would have made its projection impossible, as the whole operation is performed by one hand. Consequently, it is obvious that the flat or grooved face is an important trait, which makes the oval weight suitable for use on the atlatl. This seems convincing evidence to support postulation that such perforated stones were, in fact, atlatl weights.

HAFTING SCRAPERS. Many scrapers were doubtless merely held by the fingers, as in the case of steepedge, shaft, and some stem scrapers, already referred to. However, certain other specialized scrapers, falling in the category of stem blades, probably had handles affixed (Fig. 15). For instance, it is known that scrapers similar to specimens (a) are hafted as shown and used by the Sioux today, except that metal is substituted for stone. These are used for removal of hair from skins preparatory for curing. Such scrapers are relatively long with pointed or extended stems. They have one beveled convex edge at the opposite end, where wear is localized, whenever it exists.

In hafting this hair-removal scraper, it is necessary to find a sharply crooked stick, often appearing in the form of an exposed root on some uprooted tree. With the notcher a groove is made in the hollow of the crook, into which the stem end of the scraper is placed. This holds the blade firmly in its haft after being lashed to the down-tilted end of the crook, as illustrated. Often, such blades will be found with stem ends broken off. Doubtless, this indicates fracture caused by the loosening of thongs, and inability of end to free itself from its notched encasement.

Asymmetrical stem scrapers, usually small like specimens (b), must have been hafted; without a

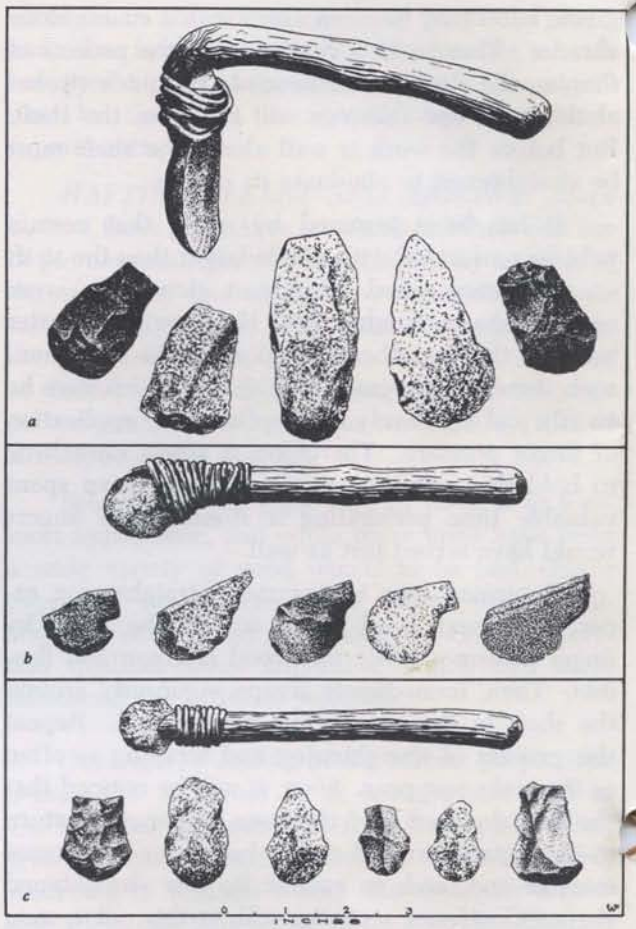

Fig. 15. HAFTING SCRAPERS, (3 probable methods), Connecticut Valley of Massachusetts.

handle their stems are too narrow for an effective finger grip. Because of one fairly straight side, with the opposing side chipped somewhat concave or notched, the stem of this blade seems to fit onto a handle best, as illustrated. Here, a suitable stick is notched longitudinally at one end for a distance equal to length of the scraper being hafted. Into this notch the straight edge of the stem is inserted, while thongs are then bound around it, to produce a tightly bound unit of blade and handle. Illustration serves to demonstrate how much more effective this scraper becomes with a handle, since its operator may now exercise his full strength with handle held in the palm of his hand.

Specimens (c), on the contrary, represent small stem scrapers, which, if hafted, must have been symmetrically placed at end of the handle somewhat as illustrated. This would have required a finger, rather than a hand grip, with the possibility of less scraping force being permitted. Undoubtedly, other methods of hafting small stone scrapers were employed, as has been suggested by certain

ingenious devices employed by the Eskimos of today. However, the three illustrated techniques, because of the significant scraper traits involved, appear to be good probabilities.

HAFTING KNIVES. Blades for cutting flesh and skins are essential to man's existence, and have always played a leading part in his survival. While it is impossible to show every type variation, as these are legion, it may suffice to illustrate representative specimens of two general types: stem and stemless (Fig. 16). For any type blade to be a knife, it should be serrated. In the first mentioned type, the stem may be corner-removed, side or corner-notched, while in the second, the stem is not set off from the blade, but is a part of the whole with no definite shape.

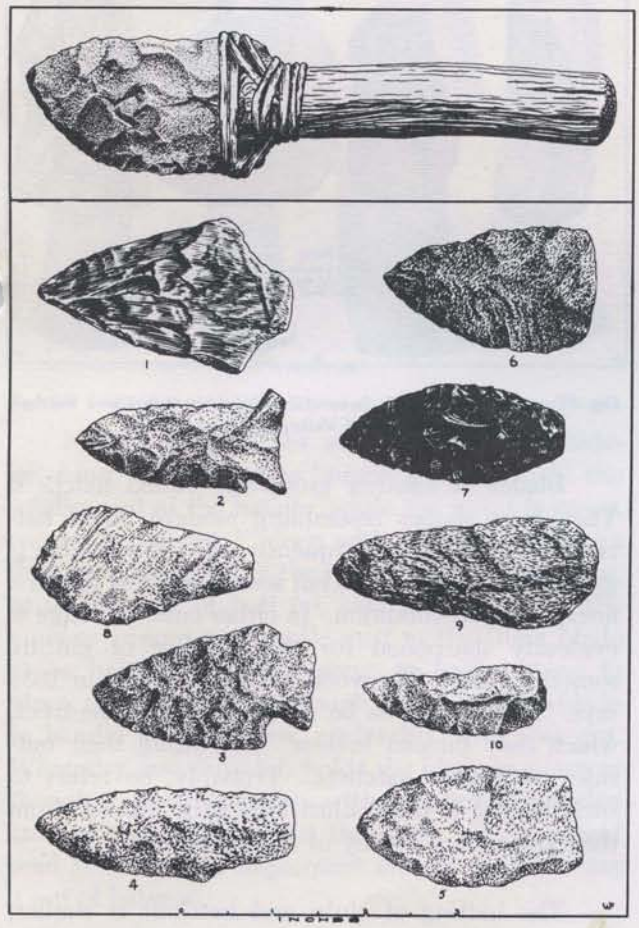

Fig. 16. HAFTING STEM AND STEMLESS KNIVES. 1-5, Stem; 6-10, Stemless, Massachusetts and Rhode Island.

In hafting, regardless of the exact shape of the shank, the method follows nearly the same pattern. Hafted illustrated example displays the result of writer's experiment, in which the haft was completed entirely with the use of stone tools. From the cutting of sapling to the lashing of stone blade to handle, no steel tool of any kind was used. This was done to prove to writer's satisfaction that blades assumed to be knives could be attached to handles by primitive methods, and provide durable long-lasting hafts. For example, this hafted blade, after more than twenty years, is as firm in the handle as though it had been hafted yesterday.

The technique of hafting a knife, while not complex, requires exacting procedure. It was arrived at only after several failures showed the way to a successful conclusion, which has since been repeated. The secret lies entirely in cutting the correct notch and grooves to receive the blade, and in the method of lashing used. First, with the notcher, while the wood is green, a notch is sawed 1″ deep or more at one end sufficient to receive the blade's shank, so that it will fit tightly. Next, with the same tool a groove is sawed around the handle at the base of the notch. This is only slightly grooved on two opposing sides, but deeper on the other two sides engaging the blade's shank. This deeper groove must penetrate just far enough to meet both edges of the shank, but no more. The handle is now allowed to dry thoroughly in the sun. Then, after inserting the blade, gut — previously soaked in warm water — is used to lash it in place. Right here is where skill is required to make the operation a success. Following the illustration, note that two turns of the gut are made around the blade in front of the handle. These are to hold the blade tightly in the notch. At the same time, several turns of gut are made around the blade at the base of the blade. These hold it from wobbling up or down in the haft. With these two kinds of lashing repeated several times, the blade is thoroughly anchored in place, provided strength is used to pull each turn of the gut taut. Finally, when the gut dries, it shrinks and doubles the tension used in lashing it in its wet state. The result is one in which the knife blade and handle become so firmly bound together, that nothing but a tremendous shock can break them apart.

The ground slate ulu (semi-lunar knife) requires a different treatment. This is on account of its odd shape, like an old fashioned meat chopper, surmounted, usually, by a thickened straight edge often called a comb-back (not illustrated). Many of these knives could have been held in the hand without handles. However, some were certainly hafted, because of the presence of two or three small perforations just under the comb-back. These suggest a haft in which a 1½″ diameter stick is split

in two. Longitudinal grooves are made to fit the comb-back on opposite lower inside edges. Then the two halves are clamped together with the comb-back firmly held between them. Next, gut is passed through the ulu holes and around the split stick, which makes a tight unit of handle and blade. Modern Alaskan Eskimos cement the ulu blade (similar to that of the Early Archaic) into a bone handle with some sort of durable glue. This suggests that ulus of the Early Archaic might, also, have used split bone instead of wood for handles, but probably depended upon gut rather than glue — doubtless nonexistent — as a binding medium.

HAFTING CLUBS AND HATCHETS. Clubs consist of blades chipped into forms with either a prong or a hatchet edge. The latter is roughly finished, apparently not intended for cutting. Culture-wise, the prong seems to have come before the hatchet shape. However, in protohistoric times, and presumably for sometime before, certain stone prongs (war club prongs) were hafted and became known as tomahawks. Rogers, an early commentator, says: "Another instrument of great esteem and importance among them is the tomahawk. This weapon is much like a hatchet, having a long stem or handle; the head is a round ball or knob of solid wood, well enough calculated to knock men's brains out, which on the other side of the stem terminates in a point where the edge would be, if made a hatchet, which point is set a little hooking or coming toward the stem; and near the center, where the stem or handle pierces the head, another point projects forward of a considerable length, which serves to thrust with like a spear or pike pole." Both William Wood and Champlain refer to such tomahawks as being merely a long wooden handle with a knot or ball of wood at one end; do not mention stone or bone prongs. Therefore, it is evident that clubs of this kind were used with or without prongs, probably, depending upon the independent desires of the user.

Archaeological research, especially at Twin Rivers, a hunting site in Rhode Island, reveals that clubs of the earlier prong and later hatchet types were used as hunting weapons with which to dispatch wounded game. However, with the advent of tribal fighting in Ceramic times, the hatchet-club along with the later pronged war club were doubtless used for warfare as well as for hunting. Probable methods of hafting the three different types of clubs are illustrated (Fig. 17).

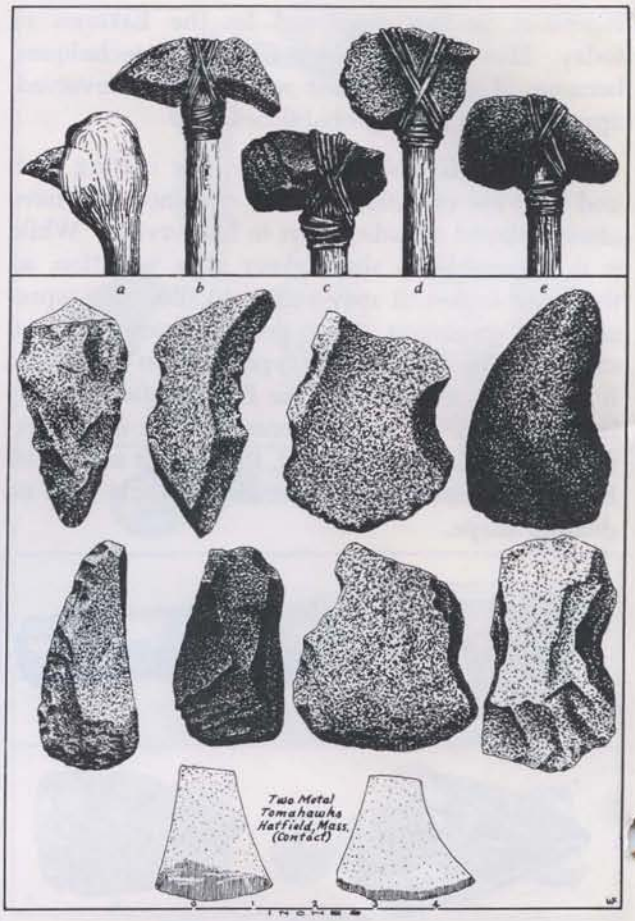

Fig. 17. HAFTING CLUBS, (war club prong, pronged and hatchet-clubs), Connecticut Valley of Massachusetts.

Blades of another group are called hatchets. They have shapes resembling modern metal hatchets or small axes. Frequently, the cutting edge is ground to a sharp edge, but sometimes it is left in a finely chipped condition. In either case, the edge is evidently sharpened for the purpose of cutting something hard like wood. William Wood in 1634 says: "Their cannows be made either of Pine-trees, which they burned hollow . . . cutting their outsides with stone-hatchets." Probably, he refers to such blades as those illustrated (Fig. 18), all from the Connecticut Valley of Massachusetts.

The hafting of clubs and hatchets is similar, except in the case of those made like hatchet (Fig. 18, a); unhafted blade is shown just below. It has a flat facet on one side, whereas all others are side-notched. In the case of this one specimen, the handle end abuts the flat side facet. After it is grooved near the end with a notcher, thongs are wound around the blade, as illustrated, to hold it in place.

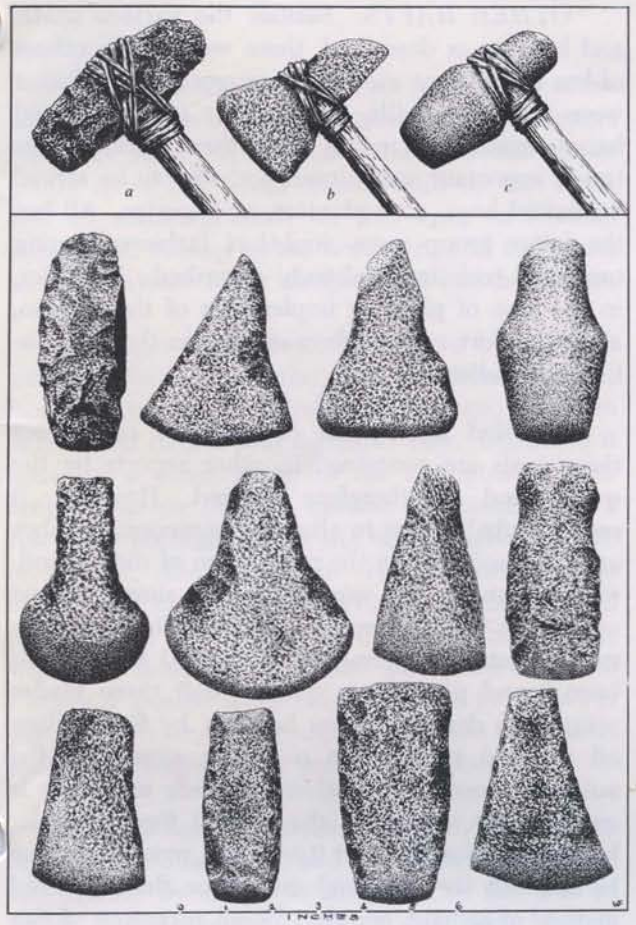

Fig. 18. HAFTING HATCHETS, Connecticut Valley of Massachusetts.

For all other clubs and hatchets with side-notching, the hafting technique is similar. At the smaller end of the handle, while the wood is green, cut a notch about 1″ deep with a notcher having a thickness equal that of the blade being hafted. Now, as in the case of haft (a), saw a groove with the notcher around the handle next to the stone blade to be hafted. This will serve to hold lashing in place. After wood is thoroughly dry, lash the blade to handle as illustrated, preferably with wet gut. When dry and shrunk it holds the blade in place as though it were in a vise, without need of wooden arms of the handle about the blade. These would tend to make the implement clumsy by throwing it out of balance.

HAFTING GROOVED AXES. These ax blades, usually with full grooves, have been closely associated with the Stone Bowl Age. Two serviceable hafts suggest themselves as illustrated (Fig. 19). The preferred method, as it seems, is shown by (a). Here, a limb or sapling is cut, which has a two branch fork at one end. While wood is green, saw out the fork to fit the ax groove with a notcher and roughing knife. Next, thin the forked arms, so as to allow them to bend about the groove, but shortened so they will only extend about half way around the ax blade. By this time the handle should have been worked down to smaller proportions near the ax head with roughing knife and abrader; all handle work follows this same procedure. Now, while the wood is still green, lash the ax blade into the forked end, whose thinned arms should bend and hug the ax blade under the thongs. If they are not flexible, bend them first by artificial means and allow wood to dry. Afterward, lash with rawhide as illustrated. A grooved blade at the Bronson Museum has an additional well defined groove extending from both faces over center of the poll. This was made, as it would seem, to hold additional thongs that stretched from both sides of the hafted blade. These acted as a tightening device, whenever the blade became loose. This is proof positive that for this ax, at least and possibly for many others without an overhead groove, a thong-lashed haft was employed similar to that illustrated.

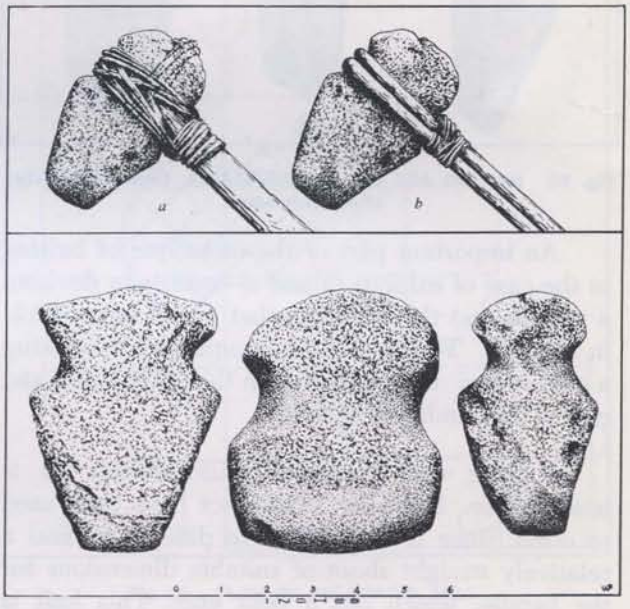

Fig. 19. HAFTING GROOVED AXES, Connecticut Valley of Massachusetts.

A second method of hafting, as shown by illustration (b), may also have been used. In this case, a flexible shoot from an elder bush, or its equivalent, is wound twice around the groove. It is then bound together with thongs next to the blade, and again several times further down the handle. Emersion of the wood in hot water will facilitate bending without splitting, which otherwise may give trouble.

HAFTING ADZ AND GOUGE BLADES. In the case of these cutting tools, two different methods of hafting are displayed (Fig. 20). These implements are believed to have been employed in digging out charred wood from logs in the manufacture of dugouts in Archaic times. They had to be hafted to be serviceable, and probably required a stick with either a crook, or a cut-off branch with a suitable oblique tilt.

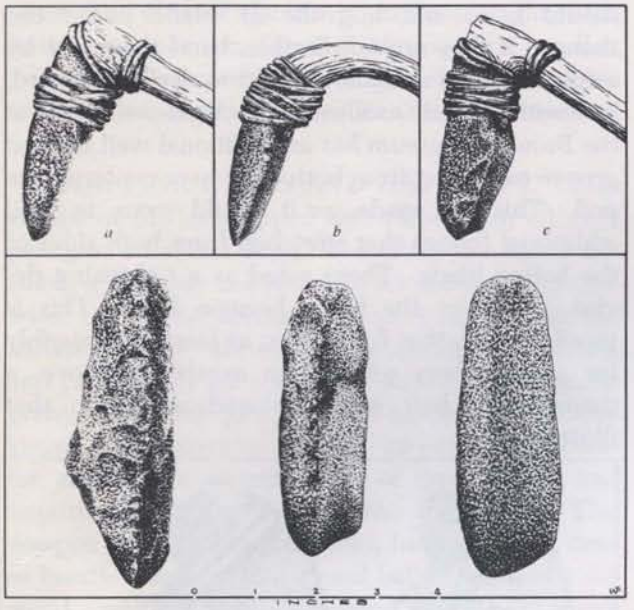

Fig. 20. HAFTING ADZ AND GOUGE BLADES, Connecticut Valley of Massachusetts.

An important part of the technique of hafting in the case of exhibits (a and c) consists in devising a way to seat the blade, so that it will not wobble in the haft. This is easily accomplished by making a turn or two of thong between the blade's poll and end of the handle, as shown.

Hafting with a crooked stick, exhibit (b), is much easier. However, it may not have been used as often, since it is much more difficult to find a relatively straight shoot of suitable dimensions for the handle, which has a bent end. This haft is accomplished by sawing out a slot with the notcher on the outer edge of the crook to accommodate the blade. After the handle becomes dry, bind on the blade with simple turns of the thong, oft repeated. This is all that is required for a rigid result in this type of haft.

OTHER HAFTS. Besides the various shafts and handles as described, there were a few others of less importance used by stone age man. Spindles were made for drills, and handles for specialized hammerstones and mauls. Then there were, in later times, important agricultural activities to be served by hafted hoes, corn-planters, and spades. All but the latter group were doubtless fashioned, using tools and techniques already described. However, in the case of planting implements of the women, as little effort as possible was used in the preparation of handles.

Detailed description of methods of hafting these tools are contained in other reports by the writer, and are therefore omitted. However, it seems probable that to eliminate unnecessary labor and time required in the production of most wood-worked handles, the women planters simply picked up broken dead branches and fitted them to their stone planting implements. By actual tests, it has been found possible to quickly haft these blades using such dead wood for handles, by first pulling off a wood splinter up to a cut sawed by the notcher at one end. Lashing of blade to handle is quite simple, except in the case of the triangular hoe blade. For this haft it took the writer one year to find out through trial and error the preferred method of lashing, one that fits all variations of this kind of hoe.

Of course, there must have been many more products made of wood, such as paddles, bone tipped fishhooks and spears, eating bowls, and doubtless countless other small and large articles, all inventions of primitive man. How they were made is open to argument. But the best way to find out, the writer has found, is to take to the woods with a pocket full of woodworking stone scrapers, notchers, abraders, and roughing knives, and let perseverance open your eyes to the lost secrets of stone age woodworking.

Bronson Museum
Attleboro, Mass.
October 23, 1961

BERNARD H. STOCKLEY

The Car-tracks Site in East Wareham, Mass. has been known to archaeologists and relic hunters for many years. It is situated on land that slopes gently downward from Brandy Hill on the south and an unnamed knoll on the west, to a small stream and swamp on the northeast, and to a bend in the Agawam River on the north and northwest.

The Agawam River at this point is brackish. It winds downstream to the west for about 2½ miles from the site before turning south into Wareham harbor and thence into Buzzards Bay. Upstream it provided a water route for the aboriginal inhabitants of the site through streams and ponds, with a few short portages to the site of the Indian village of Patuxet, now Plymouth. This stream abounds even today in alewives (herring), which supplied food as well as fertilizer for the aboriginal people, who once inhabited this site. The bend at which the site is located is the narrowest spot in the lower part of the river, which might lead to the conclusion that a fish trap or weir was located there.

The site has been much excavated, both scientifically and otherwise, and is probably the one referred to by C. C. Willoughby as the site on which the bones of a great auk were found. Whether any reports of this site have been previously published is unknown to the author, but if so, this report of one summer's work may help to round out the evidence.

The site originally was a large one covering several acres of habitation: a shellheap and a burial area. Today, disturbances of many sorts have greatly reduced it in size. These include: excavations for artifacts; construction of railroad and electric car tracks; construction of a road (Minot Avenue); stripping of topsoil by one of the owners; and installation of two sets of utility lines.

The top of the knoll on the western side of the site, which in 1957 was still heavily wooded with pitch pine and a little scrub oak, appeared to be still relatively undisturbed. After getting permission from a person, who claimed to be the owner of the land, excavation was started in the early summer of 1957. After a few squares were dug, the real owner appeared, and, as might be expected, seemed to be quite angry. He tried—and with great success—to scare the writer with threats of lawsuit, etc. Then, after worrying him and listening to his protests of innocent mistake, he developed a twinkle in his eye and said: "Go ahead, you have my permission." The writer would now like to publicly thank him at this time, as he has not been seen since, and is only known as a Mr. Laine.

Excavation was carried on within five foot grids, oriented along the main points of the compass (Fig. 21). Work of excavating was done with a short handled hoe. However, it was found advisable, after breaking two bone tools, to brush out the entire contents of pits with a whisk broom. This is a time consuming process, but well worth the effort, if bone tools are anticipated and are to be recovered in good condition.

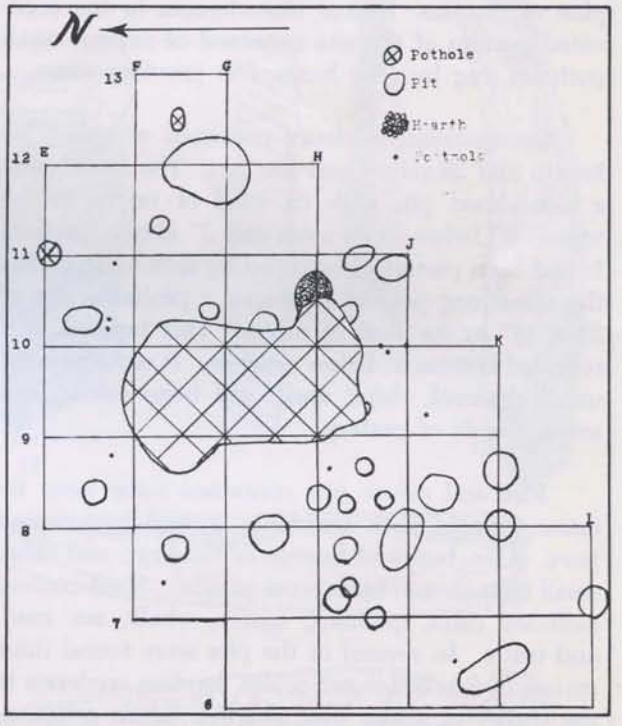

Fig. 21. PLAN OF EXCAVATED AREA.

All evidence, including artifacts, was recorded on a simplified field record instead of on separate sheets, since this was a one man dig (Fig. 22). Similar records were kept for pottery, postmolds, and profiles. Distances were measured in inches from two adjacent stakes, and the square number recorded, thus pin-pointing the horizontal location. Depths were measured to the artifact from the grass root top surface and from the junction, the line of demarkation where topsoil meets subsoil.

FIELD #	PERM. #	TOT. DEPTH	Dist. A. J.	SQ. #	STAKE #	STAKE D	STAKE #	STAKE D	ARTIFACT DESCRIPTION	MATERIAL
T 76	57-192	14"	PIT 2	K6	K6	42	K7	32	BEAVER INCISOR	BONE
T 77	57-193	20"	PIT 2	K6	K6	41	K7	38	ARROWMAKERS TOOL	ANTLER?
T 78		4½"	9"	F7	F8	28	G8	47	BROKEN KNIFE	QUARTZ
T 79		7"	6"	F7	F8	71	G8	17	TRIANGULAR PT.	QUARTZ
T 80		8"	4"	F7	F8	38	G8	59	" "	FELSITE
T 81		8"	2"	F7	F8	56	G8	40	" "	FELSITE

Fig. 22. SAMPLE OF FIELD RECORDING.

These field records naturally became soiled in the process, and were later copied in typewritten form for permanent records. All information as to horizontal locations, also, was transferred to a master plan of the site. Recent disturbances in the excavated portion of the site consisted of several small potholes dug by relic hunters in previous years.

Occupational evidence consisted of one stone hearth and 26 refuse and fire pits. The hearth was a stone-lined pit, with its level of origin in the topsoil 6″ below grass roots and 3″ above junction. It had been partially destroyed by relic hunters, but the remaining portion indicated a probable size of 21 x 45″ at its level of origin. This tapered to a rounded bottom 6″ below junction. It contained the usual charcoal, chips, shell, and bone refuse, and seven sherds of pottery.

Fire and refuse pits contained some bone remains, mostly deer, including several antlers and jaws. Also, bones of beaver or muskrat, and other small animals and birds were present. Shell content included clam, quahaug, oyster, whelk, sea snail, and turtle. In several of the pits were found thick masses of fish bones and scales, lending credence to the theory of a fish weir nearby. Seven pits contained potsherds, and six yielded stone artifacts, or fragments of such. While most of the small pits were round, several of the larger ones were oval or irregular in shape. In size they ranged from 11″ to about 69″ in diameter, and in depth from 6″ to 38″. Eleven post molds were discovered, but they formed no recognizable pattern.

The only evidence of a stone bowl culture were fragments of one steatite vessel. This bowl, split in two lengthwise, had been repaired by drilling holes to lash it together again. At some later time it had been crushed into a number of small fragments. Approximately one-third of it was later scattered by the digging of a refuse pit. Most of the recovered fragments were found just outside the pit at, and just above junction. Those comprising one side of the bowl were lying over those of the other side. Three other fragments were found at the six and seven inch level, where they had been lifted, apparently, by the digging of the pit. The bowl, as partially reconstructed, reveals an overall length of about 10″. It has dimensions of about 4½″ x 7″, while its walls vary in thickness from ¼″ to ⅜″. It is roughly scraped on the outside, and more smoothly scraped on the inside. Workmanship is not notably good, and the material is rather porous, low grade steatite. Other fragments of steatite appeared on the surface of the stripped portion of the site, but absence of other evidence and presence of Stage 1 pottery at junction level indicate that those stone bowls, which were fractured there, probably were heirlooms.

Bone tools were few in number and were found only in pits, where they had been preserved by shell. There was one antler pressure flaker, one bone arrowpoint, two antler tip points, one bone awl, and several other bone tool fragments. There was one piece of turtleshell with a hole drilled through it, indicating use as an ornament.

Metal objects, while scarce, were present and indicate a brief contact period, apparently, contemporaneous with the site's Stage 3 pottery. They consist of one well made sheet copper point, and a small fragment of the same material. A flattened lead object could be either a musket ball, or a 12 gauge shotgun slug, and must be considered intrusive. [Although no Stage 4 potsherds were recovered in the small excavated area, it could be so

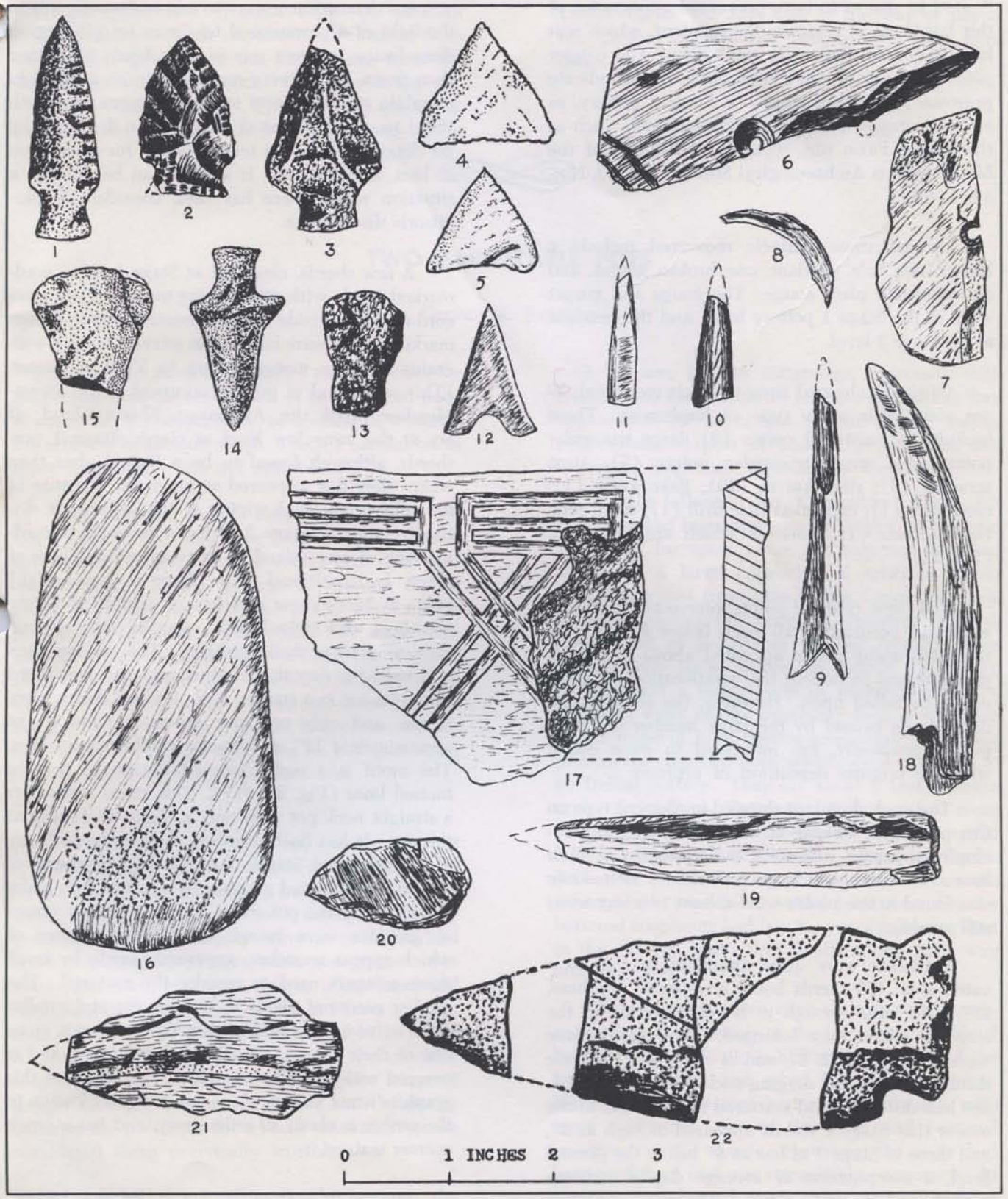

Fig. 23. EXCAVATED ARTIFACTS, CAR-TRACKS SITE. 1-3, Side-notched Points; 4, Large Triangular Point; 5, Small Triangular Point; 7, Pendant; 8, Beaver Incisor; 9-11, Bone Points; 12, Copper Point (contact); 13, Pipe Bowl Reamer; 14, Cross Drill; 15, Expanded Base Drill; 16, Semi-finished Gouge; 17, Stage 3 Sherd; 18, Pressure Flaker (antler tine); 19, Bone Awl; 20, Flake Knife, 21, 22, Stem Knives.

limited in size as to have prevented appearance of this last stage of ceramic development, which was here in contact days with the whites. The copper point of the age of white occupation should indicate presence somewhere nearby of Stage 4 pottery, as at other sites in this part of Massachusetts, such as the Seaver Farm site, reported in Bulletin of the Massachusetts Archaeological Society, Vol. 23, Nos. 3 & 4.—Ed.]

Ground stone artifacts recovered include a broken one hole pendant, one broken gorget, and an unfinished plain gouge. The gouge and gorget were at the Stage 1 pottery level, and the pendant at the Stage 3 level.

Of the 59 chipped stone artifacts recovered, 39 are identifiable as to type of implement. These include: side-notched points (9); large triangular points (8); small triangular points (5); stem scrapers (3); stem knives (10); flake knife (1); cross drill (1); expanded base drill (1); small pipe bowl reamer (1), some of which are illustrated (Fig. 23).

The three types of points, representing all that appeared, occurred at all levels below 4″, but only large triangular points appeared above this level, giving reason to believe that stratification of points might be relied upon. However, the considerable disturbance caused by the large number of refuse pits, undoubtedly, has interfered to some extent with the original deposition of artifacts.

The most abundant chipped implement type on this portion of the site is the stem knife. Ten examples appeared, all except two at depths of 5″ or lower. A well made large pink felsite stem knife was found in five pieces with at least two fragments still missing.

Potsherds were quite abundant in the excavated area, 180 sherds being recovered. Of these, 137 were large enough to be classified as to the stage to which they belonged. Of Stage 1 there were 39, of Stage 2, 87, and of Stage 3, 11. While disturbances by pit digging and other early activities had dislodged and scattered these sherds to the extent that Stage 1 sherds appeared as high as 2″, and those of Stage 3 as low as 8″ below the ground level, a computation of average depths indicate probable levels of deposition. These three pottery stage levels, as computed are: Stage 3—4.5″ Stage 2—6.8;″ and Stage 1—8.7″ below ground level. It was not deemed necessary to adjust these figures in the light of a pronounced tendency for pit-digging disturbance to have moved the sherds up rather than down. They were computed in an attempt to correlate stone artifacts to pottery types, and both stand an equal chance of having been disturbed by pit digging. This is a tenuous basis for correlation at best, but probably, is all that can be done in a situation where there has been considerable prehistoric disturbance.

A few sherds, classified as Stage 1, were cord-marked inside with stick-wiping over it. They were cord-marked outside with elemental dentate design markings. The ware had coarse mineral temper with grains of stone measuring up to ¼″ in diameter. [This same kind of pottery occurred at the Sweet-Meadow Brook site, Apponaug, Rhode Island. It lay at the same low level as classic Stage 1 potsherds, although found to be a little higher than where they first appeared at junction. Because of the subsequent stick-wiping of the interior—a distinctive trait of Stage 2 ware—over Stage 1 cord-marking, it was judged to represent a late phase of Stage 1, transitional with Stage 2 times—Ed.] Stage 2 sherds show a variety of dentate, punctate markings, and incised lines, especially the appearance of scallop shell markings. The scallop shell was used for dentate, rockerstamp, and one sherd shows its use as a trailing tool. Stage 3 sherds were scarce, and only one rim specimen from a pot approximately 12″ in diameter exhibits decoration. The motif is a well executed design in straight incised lines (Fig. 23, #17). This sherd represents a straight neck pot with only a slight thickening at the rim. It has finely crushed shell temper. Many of the sherds of Stages 2 and 3 show evidence of the use of powdered graphite in an attempt to make the inside of the pot water resistant. Many pieces of graphite were found, on the larger ones of which appear scratches, apparently made by small stone scrapers used to powder the material. The smaller pieces of about 1″ in diameter and smaller seem to have been rubbed directly on the pot, since one of their sides is usually slightly convex and is covered with very fine scratches. The source of this graphite is not known; the nearest deposit known to the author is about 40 miles away, and has a much coarser texture.

Surface finds from the site, so far as is known, consist of the same types of chipped implements as those excavated, plus the corner-removed #3

projectile point and crescent drill. No attempt will be made to reach important conclusions from this small dig. Even if the disturbance from the refuse pits does not render this impossible, the author's inadequacy does. This report is offered in the hope that it may contribute something to the knowledge of this site, and of the way of life of the Ceramic-Agricultural people, who once lived there.

Nantucket, Mass.
February 1962

TWO BARNSTABLE POTS

GEORGE K. JOHNSON

During the summer of 1955, I made a discovery that resulted in the restoration of two unusual pots. It came about unexpectedly, as a result of a search for artifacts in antique shops, which I carried on in spare moments, when not entertaining.

This eventful season found me working on Cape Cod at the Chatham Bars Inn, as pianist entertainer. There, I met a young boy, who also was interested in the pastime of hunting Indian relics. Together we explored a site in Chatham overlooking a fresh water pond, but with little success. Then the idea came to us of carrying our search into antique shops, of which this part of the Cape abounds. One day my friend came back to the Inn with great news: he had located an antique dealer with an artifact collection he had purchased from Lyman Kitteredge of Barnstable.

With nothing more to go on, I seized the first opportunity and hurried to the antique shop referred to, hoping for much, but expecting little. Upon arrival, I found the boy's account not exaggerated. There on display were several hundred arrow points, grooved axes, celts, and gouges. But what interested me most was a dilapidated old cardboard box the dealer pulled out from a dusty shelf where it had been shoved as of little value. It contained the dust-covered remains of a quantity of potsherds, of which many were quite large. I bought the stone artifact collection, and the dealer included the potsherds for a small amount, since he considered them practically worthless.

I now had, as I subsequently learned, the remainder of a large artifact collection of the late George Kitteredge of Barnstable. I decided to talk with his son, Lyman Kitteredge, especially with reference to the potsherds, for on examination they appeared to be the broken remains of one, maybe two castellated pots of unusual proportions, and it seemed important to ascertain their source.

On the following day, Kitteredge told me that his father had been professor of English at Harvard University for many years, and together they had assembled a large collection of artifacts before 1900, recovered from sites in the Cape Cod area. Sometime during this period a cranberry bog was constructed in Barnstable not far from a place called Sandy Neck, where the Indians are known to have had a large camp in protohistoric days. While at work on the cranberry bog, a workman by the name of John Bowles accidentally drove his pick ax through two pots, which seemed to him to be Indian pottery. They lay about a foot or more under the surface. Suspecting that they had some value, he picked up all the broken pieces he could find and gave them to Professor Kitteredge for his collection. Several attempts at restoration were subsequently made, but without success. So, the battered fragments had lain for years gathering dust in the old box, until they finally found their way into my hands.

Believing that there were enough sherds present to make restoration of the two pots possible, I brought them to William S. Fowler, Curator of the Bronson Museum, and asked him for his opinion. He agreed to attempt restoration although with some misgivings, due to the worn and battered condition of the sherds. However, the ware had been well fired and was remarkably nonporous. As a result, it withstood warm water soaking without crumbling, which was required to remove the globs of fish glue, which were generously smeared over

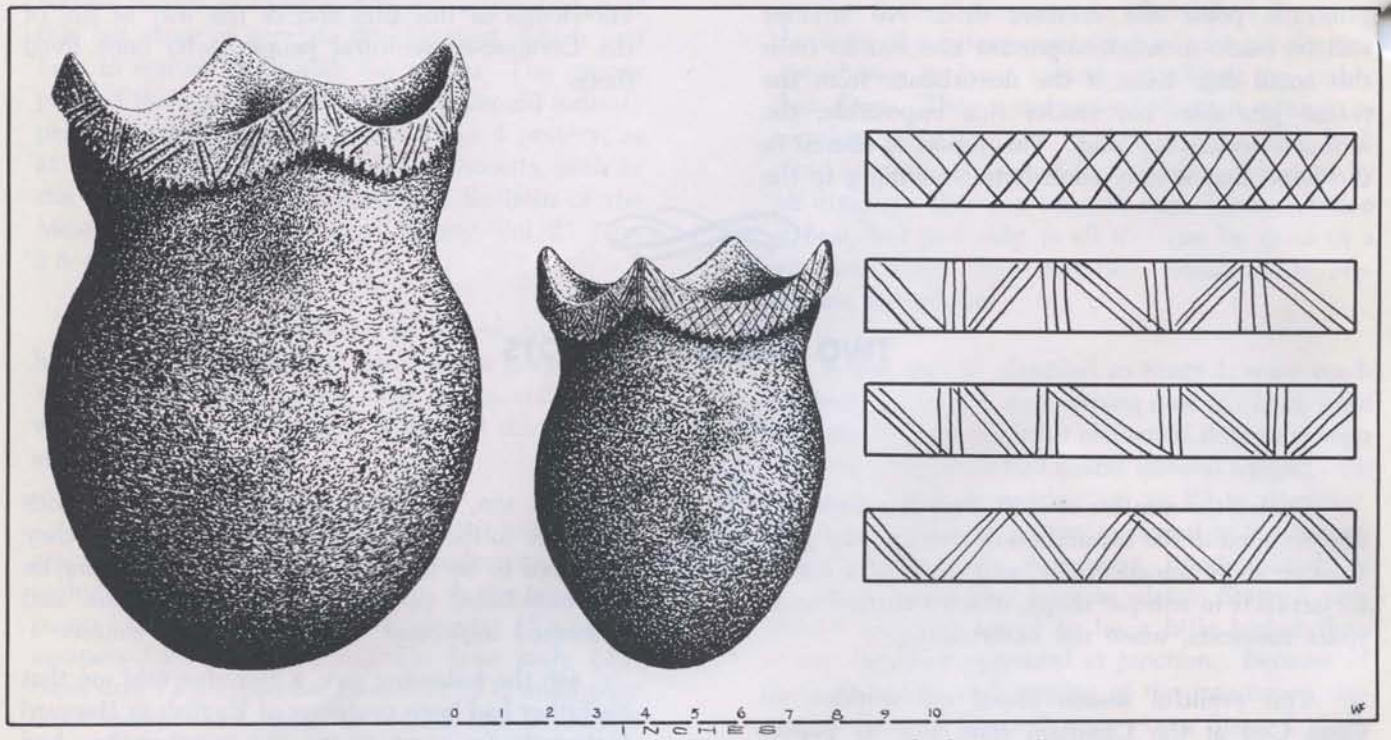

Fig. 24. BARNSTABLE POTS — Stage 4, (Restored). Design motifs, from smaller pot.

most sherds—the remains of unsuccessful attempts at restoration by Kitteredge before discovery of plastic glues. Fowler's efforts finally bore fruit, resulting in two pots, one much smaller than the other (Fig. 24), but both with a similar castellated shape. They are now a part of my private collection.

North Attleboro, Mass.
July 15, 1961

APPENDIX

Editor's Comment: These two Barnstable pots have certain outstanding characteristics, which make a study of them seem desirable. At first glance you are struck by traits, which are similar in both: four unusually high castellations with successive frets appearing below well formed collars; incised design work; semi-globular to globular bodies; and bulbous formations in the neck under each castellation. These similarities suggest manufacture by the same potter. The smaller pot has a 6″ opening at its mouth, while the larger has an 8″; their heights are 8½″ and 12½″ respectively. Both exhibit styling of Stage 4 protohistoric pots, which are believed to have been influenced by Iroquoian castellated pottery. However, because of the great number of these pots, which have appeared on sites in New England, exhibiting a wide range of creative effort, design motifs, and body styling, native workmanship is indicated. Therefore, it may reasonably be assumed that Stage 4 pots of New England were made by local potters. Exception may be made of a few border cases, such as found in Deerfield, Massachusetts, at the end of the Mohawk trail, where several pot recoveries with what appear to be pure Iroquoian traits, suggest manufacture by Iroquois artisans.

It is well known that family groups of Mohawks, on occasion especially during a shad run in the river, intruded upon the River Indians of the Connecticut River Valley of Massachusetts, whom they had subjugated. At such times they lived among the Pocumtucks of Deerfield, and possibly other nearby river tribes for short periods of time during the first half of the 17th century. However, evidence is lacking to show beyond a reasonable doubt that they overran other regions of New England lying further east. Certainly, the highly diversified design motifs, as used by Stage 4 potters, do not conform to the more regimented well established design motifs of various Iroquois tribes of New York State to the west. On the contrary, their varied creative developments suggest skillful independent inventiveness, rather than conformity to established design techniques of a presumed Iroquoian source.

In the case of the smaller Barnstable pot, a marked departure is noted from the usual practice of repeating the same design motif on the four collar expanses between castellations. Here, the potter has deliberately used a different design motif for each collar face, as illustrated. The reason for this divergence can, of course, only be guessed at. However, that the variation is a deliberate act of the potter must be conceded. Therefore, logically, this act probably had a motive for its performance. Could it have been with the idea of placating the spirits of the four winds of the compass? Whatever it was, the potter's ingenuity and creative license had freedom of expression without conformity to any established Iroquoian pattern.

The more or less elongated body shape of these pots with a tendency toward a semi-globular shape, somewhat more in evidence in the case of the smaller pot, follows the more frequent semi-globular shape of Stage 4 pots of New England. In this respect, these pots again exhibit a marked departure from the relatively shorter, more fully globular shape of most Iroquoian ware. Consequently, from every point of view these Barnstable pots should doubtless be considered the work of local native potters. If so, then their beautifully meticulous proportions must be as a result of New England independent genius, rather than of Iroquois directed artistry.

HOW ABORIGINAL PLANTERS STORED FOOD

Howard S. Russell

In the Old Testament story of Joseph and his brethren, Joseph's jealous brothers "took him and cast him into a pit, and there was no water in it." That pit is generally considered to have been for the storage of grain, underground, a method then in use among the Israelites of Chaldea, also by early Britons, and in more recent times, in the Fiji Islands. The same method was used by the aborigines in southern and central New England (as well as elsewhere on this continent), in Ceramic times, for the storage of American grain (maize), and many other necessary winter supplies. As late as 1916, Iroquois Indians in Canada were still employing it for some crops (Waugh), while in the Southwest, desert Indians continue to store corn underground to this day.

To archaeologists this custom of prehistoric storage of food underground is of particular interest. It appears certain in this area, that all permanent villages occupied toward the close of the Ceramic-Agricultural Age must have had such storage pits nearby. Excavators should be informed on this subject that they may not overlook, misinterpret, or irreparably damage any evidence still remaining on sites where they work.

These underground barns have been opened or reported in modern times in such widely scattered places as the Connecticut Valley of Massachusetts and Vermont, Ware River Valley, Sudbury Valley, Plymouth County, South Woodstock, Connecticut, and Kennebec Valley in Maine. Occasionally, the character of the contents is still identifiable. Storage pits have been frequently referred to by early writers, as may be seen by William Bradford's account: In November, 1620, just before the Pilgrims landed at Plymouth, they ran into storages on Cape Cod, under "heaps of sand newly padled with their hands which they, digging up, found in them diverce faire Indean baskets filled with corne, and in some eares, faire and good, of diverce collours . . . a very goodly sight," for which, at a later date the newcomers gave them "full satisfaction . . . to their good contente."

Other early commentators record the presence and use of earth storages on Long Island (very numerous in 1642), in the Massachusetts Bay Colony, and in Southern Maine. However, none have been recorded in Maine east of the Penobscot, (Burrage).

By what characteristics would an archaeologist recognize such an Indian storage pit? The photograph reproduced here shows the outline of baskets, or some type of pit lining, in an area of storages excavated by the hurricane waters of the Ware

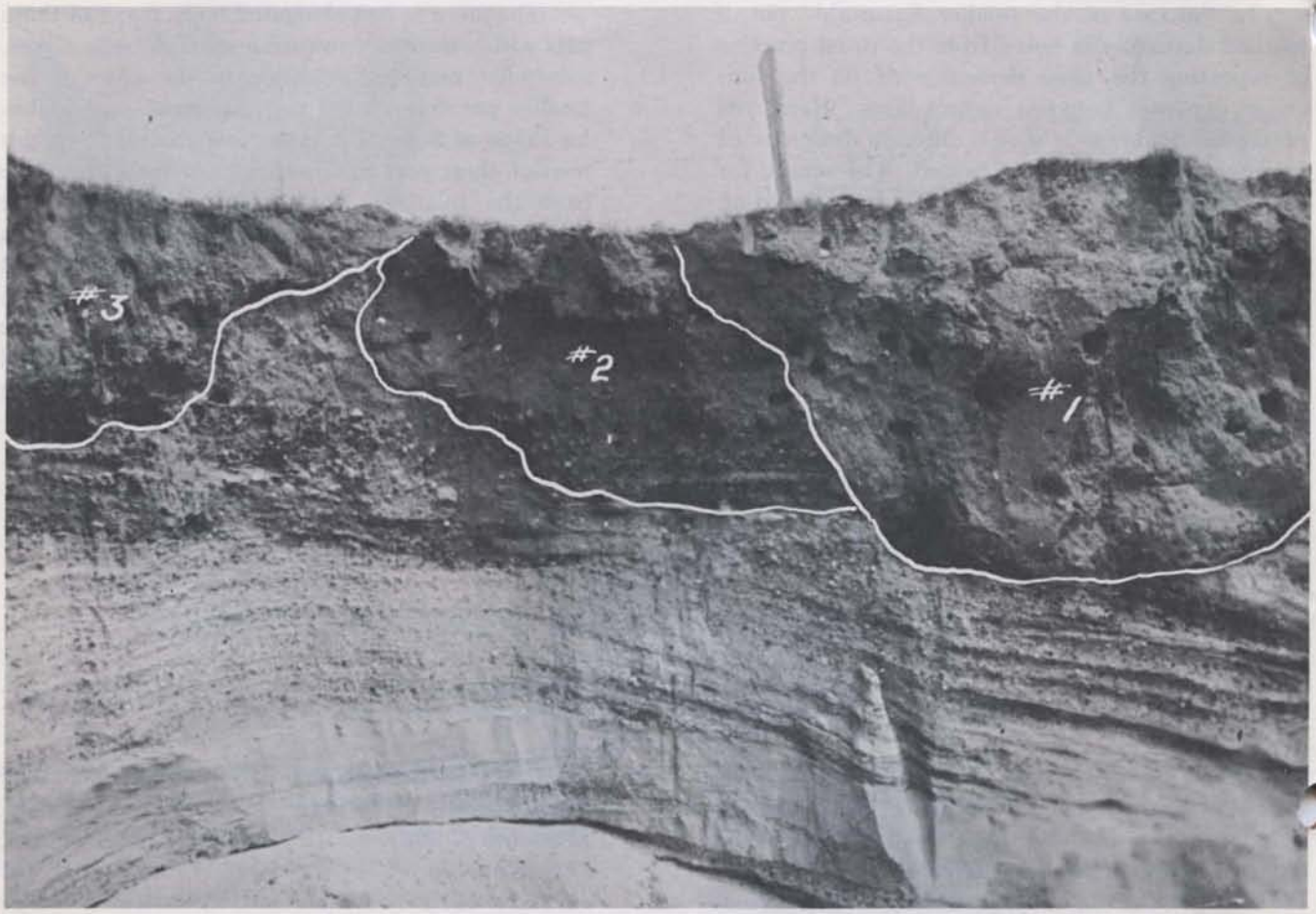

Fig. 25. ABORIGINAL PIT STORAGES, Ware River Valley. Exposed by 1938 Hurricane — at right note pit #1, contents were of fine texture, penetrated by bank swallows after flood exposure; at center, pit #2, somewhat shallower with darker deposit of decomposed material; at far left, pit #3 with swallow holes showing, (courtesy Howard A. Drake).

River. Here in 1938, water rose many feet above normal and tore away the river's sandy bluffs (Fig. 25).

A number of early explorers and colonists have described vividly such storages here in Massachusetts. The record of Champlain, on Cape Cod, is admirably clear (1604): "They make trenches in the sand on the slope of the hills, some five or six feet deep, more or less. Putting their corn and other grains into large grass sacks, they throw them into these trenches, and cover them with sand three or four feet above the surface of the earth, taking it out as their needs require. In this way it is preserved as well as it would be possible to do in our granaries."

Morton, in his New England Canaan, adds details: "Their barns are holes made in the earth, that will hold a Hogshead of corne a peece in them. In these, (when their corne is out of the huske and well dried) they lay their store in greate baskets . . . with mats under, about the sides, and on the top; and putting it into the place made for it, they cover it with earth."

John Winthrop, Jr., Governor of Connecticut (1657), mentions that their underground barns were "well lined with withered Grass and with Matts" before being covered. The contents, he observes, "Kept very well."

Wood, in his New England Prospect (1634) reports a slightly different practice: "Their corne being ripe, they gather it and drying it harde in the sun conveigh it to their barnes, which be great holes digged in the ground in the form of a brasse pot seeled with the rinds" (bark) "of trees."

Johnson's Wonderworking Providence (1654) speaks of "Barnes of the Indians (whose manner is to lay up their Corne in the Earth) "and John Gyles,

a white captive during the wars that came later, had a hand in the process himself: "When we had gathered our corn and dried it . . . we put some into Indian barns, that is, into holes in the ground, lined and covered with bark, and then with dirt."

J. H. Temple, a reliable Central Massachusetts local historian, who had observed some of these Indian barns, in 1887 described them as follows: "Circular excavations, the smaller ones 3′ to 5′ in diameter, the larger 10′ to 15′; and 5′ to 10′ deep, with sides slightly converging" . . . "where the soil was tenacious, not likely to cave in; but in sandy soil, it was common to line the sides with a coating of clay mortar, hardened by artificial heat and now often found unbroken." Set in the sides of a dry knoll or bank, they were placed close together "that they might be protected from bears and other enemies by a picket." When filled, they were covered with poles and long grass or by brush and sods.

Also from the last century, the historian of Deedfield, George Sheldon, offers clear archaeological testimony. On a farm just over the line in Vermont, he says, "we struck a group of thirty-three Indian granaries, lying within a space of 90 x 45 feet. Each showed a basin-like depression from six to fifteen inches in depth. Those examined were about four and one-half feet deep. One was found to have been lined with clay. In others acorn shells, fragments of wood, bark, and broken stone were found." Later, groups of pits turned up in Northfield, 4′ to 12′ deep, and some as much as 20′ across: "always on a watershed," he adds.

Besides corn and acorns, already mentioned, what else was likely to be stored? Here, we will venture to add to local testimony, items mentioned as found in storage pits elsewhere than in New England, since their use was widespread: pumpkins and other fruits (Lafitau), squash (Waugh), beans, pumpkinseeds (Verrill), chestnuts (R. Williams), walnuts, groundnuts, dried fish (Hudson), berries, plums (Catlin), and fat (Carr). Can we believe that this exhausts the list of supplies kept for winter use? For that matter Hennepin, in the Mississippi Valley, tells us that the corn of that region was put into pits for the next summer's eating, when the buffalo and beaver meat, of which they had plenty in winter, would not keep in the heat.

Not all aborigines used the underground method so common in New England. Some tribes elsewhere strung their maize ears on poles inside their dwellings, some put them in "tubs," "bark barrels," "casks," and, in the Southwest, in "basket work" or "above the roof."

The corn crib of the white man is considered an Indian invention, and many tribes had above-ground houses or receptacles of this kind. However, the writer has yet to find a reliable reference to their employment by aborigines in New England, though Nickolay records a tradition of them among the Wabanaki.

Of underground storages, however, there must remain many for archaeologists still to discover, especially in the seacoast sections of Massachusetts where the inhabitants were suddenly decimated by the great epidemic that preceded the Plymouth settlement, and in the valleys of the interior which had to be hastily abandoned when the Mohawks began to sweep down across Hoosac Mountain into the Connecticut Valley.

So, here is an archaeological feature to be kept in mind as an ever present possibility. Search out the sites, photograph cross sections, and save carefully the contents you may find of any such pits, also the remains of baskets or other containers from pit linings. The writer would greatly appreciate your help toward a wider knowledge about aboriginal storage of food.

Wayland, Massachusetts
September 30, 1961

A CACHE OF ARTIFACTS FROM MARTHA'S VINEYARD

E. G. Huntington

The artifacts, as illustrated (Fig. 26) were found by George Magnuson near the head of one of the coves of Tisbury Great Pond on the south side of Martha's Vineyard. The dirt road on the west side of the cove had just been scraped, when Mr. Magnuson walked over it. He saw one of the larger artifacts lying on the surface where the blade of the road scraper had left it exposed. Soon, he had found all the other specimens in a small kettle-shaped hole nearby.

These artifacts, usually referred to as celts, except those in row B, suggest to the writer a kit of woodworking tools. The cutting edges of all specimens in rows A and C are ground and polished. The objects shown in row B were found with the celts. Of these, the broken piece is ill defined and is of doubtful value. It is included only because it was found in the cache. The other two specimens in row B may be whetstones, used in grinding and polishing the celts.

Very few of the small cutting tools found in row C have ever been found on the Island, although they may be common elsewhere. (They are similar to small woodworking celts from the North Middleboro and Worcester areas; the latter celts are now in the Bronson Museum—Ed.).

Vineyard Haven, Mass.
February 1961

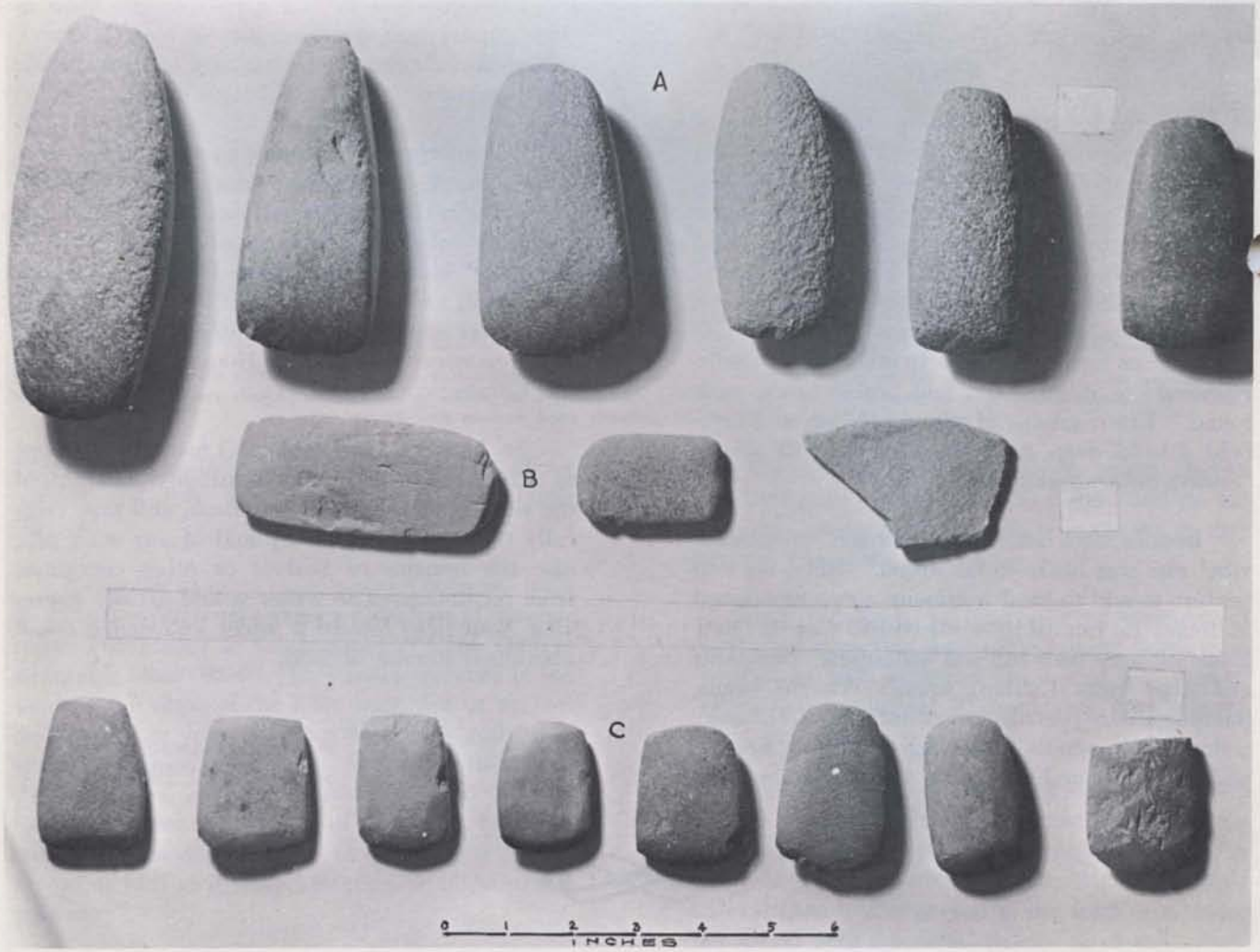

Fig. 26. CACHE OF TOOLS, Martha's Vineyard.

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