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A BURIAL PIT AT TAYLOR HILL, WELLFLEET, MASS.

Howard Torrey and Ripley P. Bullen

Taylor Hill rises, irregularly, some eighty feet above Mayo Beach which forms the north shore of Wellfleet Harbor on Cape Cod. Many Indian artifacts, as well as some burials with grave goods, attest to the occupation of this hill in Indian times.

On August 11, 1945, Mr. Oddopendinen, of Wellfleet, came upon a burial while digging a hole on Taylor Hill under the west corner of the summer home of Mr. Roderick Angus of Newton Highlands, incidental to replacing the building after the hurricane. He told Mr. Angus of the discovery and the latter telephoned the news to the senior author that evening. The authors went to Wellfleet the next day and excavated the burial pit which proved to contain parts of three individuals.

When first viewed by the authors, the skull and some of the bones of a bundle burial (Skeleton No. 1) were exposed. Parts of several bones had been removed by the workmen from the southern edge of the burial pit. These were fragments of leg bones and two astragal or ankle bones.

Sketches in Figure 28 give the location of the burial pit and the arrangement of the two skeletons. Of the third individual, only three teeth were found. For the excavation, the base of the sill of the cottage was taken as a vertical datum. The west corner of this sill and a stake four feet to the northwest on a line extended from the front or southwest side of the sill were used as horizontal points.

At the burial pit the terrain slopes slightly to the south towards Mayo Beach. The surface consists of a few inches of loose, disturbed sand resting upon three inches of stratified dune sand. Below this dune sand is about an inch of lag gravel. The edge of the burial pit was clearly identifiable from the base of this gravel downward. Presumably this stratified sand and gravel is the result of relatively recent wind action which, however, must have occurred since the burial pit was dug. The base of the gravel, while varying due to the slope, is about ten inches below datum. This does not imply that the surface elevation in Indian times was ten inches below datum.

The horizontal dimensions of the top of the burial pit are given in Figure 28. The sides of the pit sloped slightly inward and the bottom was 34 inches below datum. As exposed for the picture, Figure 29, the pit had been excavated to a depth of 31 inches below datum. The highest point of the skull of the bundle burial was 24-3/4 inches and the top of the ribs 27-1/2 inches below datum.

The bundle burial consisted of a skull, two rows of vertebrae laid at right angle to the axis of the burial, and the long bones, superimposed upon which were ribs and bones of the hands and wrists. At the north end of the bundle, between it and the vertebrae, were the pelvis bones and shoulder blades. The knee ends of both the right femur and tibia were practically touching the right hip bone. No bones of the feet or ankles were found in this bundle. However, the two astragali removed by the workmen probably belonged to this burial. As these were removed from the south edge of the burial it would seem likely that the bones of the lower extremities had been placed at the south end opposite the skull.

A foundation post for the west
corner of the cottage was installed here about 1895. The senior author remembers being told, years ago, that human bones were encountered when the hole for this foundation post was dug. They consisted of fragments of sundry leg bones and were reburied nearby. Subsequently these bones were exposed by erosion and taken to the office-residence of Dr. Walter B. Swift, Bay State Road, Boston.

Fig. 29. Burials Exposed in pit on Taylor Hill, Wellfleet, Massachusetts.

The long bones lay directly on a pair of femurs and a pelvis with which the left femur was still articulated. The latter bones, both because of their position and size, appear to be part of the second or flexed burial (Figs. 28 and 29). A left calcaneum, found well beyond the bundle to the east (Fig. 28), presumably also goes with this flexed burial. While the exact location of the upper end of a left tibia, removed by Mr. Oddopendinen, cannot be determined, it fits the left femur mentioned above and came from the area where it should have been to connect this femur with the left calcaneum. The position of the skull, right and left upper arm bones, and neck vertebrae of the flexed burial is shown in Figures 28 and 29. Under the skull were found the right clavicle and scapula.

Between the knees and right elbow of the flexed burial were found three human teeth (an incisor and lower right and left first milk molars of an infant or young child), the tooth of a mackerel shark (Surus oxyrhynchus) (1), a hand sharpening stone or hone, and what appears to be a celt. The horizontal location of these objects is shown in Figure 28. Also included in the fill of the pit were an oyster shell, two fragments of quahog shell, a whelk shell (Siphon Stimpsonii) (2), one quartz and fives felsite chips.

The celt was found directly on top of the hone and the two were between 26-1/2 and 28 inches below datum. The mackerel shark's tooth was 29 inches below datum. While these elevations are about the same as that of the bundle burial (27-1/2 inches to the top of the ribs), the horizontal location seems to associate them with the flexed burial.

The celt consists of a fragment of diabase (3), 3-1/8 x 1-1/8 inches. The side found uppermost in the ground is completely disintegrated. The opposite side is well polished. The shape clearly indicates a small celt such as might be used for a tomahawk.

The hone, of siliceous shale, 4-5/8 x 1-5/8 x 7/32 inches, has a longitudinal groove on both its otherwise flat sides. This stone has been used for sharpening tools.

An arrow point was found between the innominate bones of the flexed burial, pointing at the tip of the coccyx, at a depth of 30-1/2 inches below datum (Fig. 28, P). This point is triangular, 1-7/8 x 1-1/8 inches, with straight sides and a concave base. It has been carefully chipped from dark felsite.

Both skeletons represent adult males who were in their late twenties.(4) Both have alveolar prognathism, slight brow ridges, and jutting and flaring malar bones. The incisors of the bundle burial are somewhat "shovel-shaped" while the corresponding teeth of the flexed burial were too disintegrated to determine this feature. The skull of the bundle burial is meso- or low brachycephalic (about 76%) while that of the flexed burial is dolicocephalic (about 69%). An estimate of the height of the individual represented by the bundle burial cannot be given due to

(1) Identified by Dr. William Schroeder, Museum of Comparative Zoology, Cambridge, Mass.
(2) Identified by Mr. William J. Clench, Museum of Comparative Zoology, Cambridge, Mass.
(3) Identified by Dr. Marlin Billings, Dept. of Geology, Harvard University, Cambridge, Massachusetts.
(4) The authors appreciate the assistance of Dr. Earnest A. Hooton, Department of Anthropology, Harvard University, Cambridge, Mass., in checking over these skeletons.
the poor condition of the ends of the long bones. Figuring from the left femur of the flexed burial the latter would have been about 5 feet 9-1/2 inches tall in life. No special abnormalities are noted for either skeleton with the exception of a large palatine torus and a supratrochlear foramen (in the left humerus) of the bundle burial.

The bones of the flexed skeleton indicate a larger and more rugged man than do those of the bundle burial. From the skull of the flexed burial and the bones positively associated, it is obvious that the basilar portion of the occipital bone, the occipital condyles, the malar bones, and the head of the right humerus are all larger than corresponding parts of the bundle burial. This seems to substantiate the allocation of the femurs and innominate bones found under the bundle with the second skull as they are larger than similar bones found in the bundle (vertical acetabulum diameter 5.8 compared with 5.5 cm.).

Many of the bones of the bundle burial bear marks suggesting interesting possibilities. It will be noticed from the illustrations (Figs. 28 and 29) that this skull had a round hole, 2 inches in diameter, in the sagittal region. No fragments to fill this hole were found either inside the skull or elsewhere. The edges of the hole are rounded, probably from erosion. No cracks are evident, neither is there any evidence of trepanning. Sixteen of the ribs, a pair of tibiae, a pair of ulnae, and a right radius all exhibit small cuts. No similar marks are on the upper arm or leg bones. These cuts are small grooves, 1/2 mm. or less across. In general they are straight lines cut across the bone. Sometimes several cuts are parallel to each other.

Presumably these cuts were made with stone knives. They are not concentrated near the joints nor arranged in a manner suggesting the fleshing or disarticulating of a body. One is unable to escape the suggestion that these marks may be the result of slashing such as might occur during torture at a stake. That these marks are all on the anterior portions of anterior bones of the skeleton supports this hypothesis. If so did the hole in the skull result from a final "coup à tête"?

The following appears to be a reasonable reconstruction of the story of this burial pit. The pit was dug and a large, robust male interred on the right side, head to the west, in a semi-flexed position. The celt, hone and presumably the mackerel shark's tooth were left as grave goods. With this adult was buried a very young child or else the teeth of a child were for some reason included. At a later date another, but smaller, pit was dug at the same location. This second pit was dug until the femurs and pelvis of the first burial were uncovered. A bundle burial was then interred, possibly representing a torture victim, and for some reason the bundle of long bones were laid parallel with the femurs of the earlier burial. Included with this bundle were an extra right ulna and a fibula, apparently from the earlier burial. The hip bones and shoulder blades of the bundle burial were placed approximately on top of the pelvis of the flexed burial. Sections of vertebrae were laid at right angles to the bundle of long bones and between it and the skull.

With these vertebrae were found four extra thoracic vertebrae which, presumably, fill the gap in the vertebral column of the flexed burial. This suggests that the pit for the bundle burial was first dug a little to the northwest of final interment and that the extra bones, so found, were carefully placed with similar bones of the later burial. This paralleling of bones may be an important trait.

While there was no evidence of the second pit in the ground, the inclusion in the bundle burial of a few extra bones, which are missing from and seem to go with the flexed burial, indicates that both interments were not made at the same time.

The arrow point would seem to date both pits. As this type of point is relatively in this area no great antiquity can be placed upon either burial.

Reading, Mass.
Andover, Mass.
November 15, 1945
ARTIFACTS FOUND ON THE JUDD TRACT IN SOUTH HADLEY, MASS.

W. J. Howes

While surveying a tract of land in South Hadley, for development as a housing project, I picked up quite a number of Indian artifacts. The tract, which covers an area of over forty acres, has an eastern exposure, with a difference of fifty or more feet in grade in a distance of over eighteen hundred feet between the upper and lower highways. The soil is a mixture of glacial till and fine sand, overlying clay.

In the central portion of the tract there is a deep ravine, with sources of a small brook starting from the head of two of its several branches. The springs at the source are located midway of the length of the tract.

Not over fifty feet from one of the springs were found river shale and quartz firestones broken and colored by heat, with several cores and chips, all giving strong evidence that there was a camp site at this location.

The tract, about a third of a mile east of the Connecticut River, is opposite the river pond and above the "Great Falls" northerly to the bend of the river and the beginning of a series of rapids that extend nearly a mile up stream. Before the present dam was erected this was always a favorite place for obtaining fish during their run up the river to spawning places. The fishing and planting season coincided, and at this time the Indians throughout southern New England came here to lay in their annual supply of fish.

The native Indians with their families would come from their settlements, some miles distant, to this area where the soil was so well adapted for raising their crops, and would live near the planting fields until the harvest was gathered. As these fields were remote from their settlements and the burdens heavy, the harvest was probably transported back by canoe. It seems reasonable to assume that their agricultural implements which were so readily made and which are now found scattered throughout the tract, were not considered of sufficient value or importance to be taken along as an extra burden. It hardly seems necessary to carry such tools back for storage only to have to return them at the opening of another season. If they were not found when planting began new ones could be quickly made to take their place.

Willoughby's assumption that the straight bladed implements with one polished end, which he illustrates as from the Connecticut Valley (1), were hoes does not preclude the use of local stones conveniently at hand. Reasoning from historical data as to the Indians' method of preparing the planting hills in the fields, with the kind of implements required for cultivating their crops, it seems plausible to assume that these farmers used more hoes of the cruder type than of the type with straight blade and polished end.

The fact that so many of this cruder type, with a more serviceable outline for hafting have been found would seem to indicate that they were better adapted for use than the type with straight blade and polished end. Many of these fields have been gone over many times by collectors who may have been ignorant of the use of these tools or who may have overlooked or discarded such crude implements.

In the Handbook of North American Indians (2) is a statement taken from historical data to the effect that "Sagard, an eyewitness of what he reports, says, in speaking of the agriculture of the Hurons in 1623-26, that they dig a round place at every two feet or less, where they plant in the month of May in each hole nine or ten grains of corn".

We reproduce herewith (Fig. 30) a photo of a portion of the planting field taken many years ago by Clifton Johnson and verified by Mrs. Johnson who accompanied him. Figure 31 is from a photograph loaned by the Springfield Museum of Natural History. It was taken nearly a century ago and shows the same complete field then in existence. The surface of the land in these pictures conforms to the method of planting used by the Hurons and described by Sagard. The field was near the corner of South and West streets in Northampton, Massachusetts. It is no longer in existence as the changed course of Mill River crosses

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the area formerly occupied by the old corn lot.

Fig. 30. Photograph of the old Indian corn-field in North Hampton, Massachusetts (after Olifton Johnson, published in Historic Hampshire in the Connecticut Valley.)

A similar method of planting recorded by Diamond Jenness is illustrated from a drawing by Lafitau: (Fig. 32). The hoes illustrated here are wide and pointed. Holes for the seed are placed so near together that cultivation must have been done with a hoe other than that used in building up the hill.

The hills for planting seem to have been two to three or more feet in diameter and raised possibly a foot or more above the surrounding ground. With fish so abundant, it is probable that a number of them were placed in a dished-out portion of the hill, and covered over as the fields were prepared for planting. Seeds were then dropped in several holes punched in the hill and covered. When the seeds had sprouted and when the corn and the ever-present weeds were large enough, small hoes came into use.

These crude implements are found on several planting fields besides those upon this tract. The writer has a heavy hoe flaked from quartz found near his home, which is just above the river pond and on the opposite side of the river from the aforesaid tract in South Hadley. The pioneer hafting of several of these hoes, of both large and small size, by William S. Fowler is most convincing and follows historical data.

Fig. 32. Corn cultivation among the Hurons. (From Lafitau, J. F.; Moeurs des Sauvages)

Among other artifacts found were two coarse flaked axes of trap rock. Both were chipped by percussion with large deep flakings. The smaller one has a double cutting edge. Some minute flakes were removed to prepare a place for the binding used in hafting the ax. Not far from the tract is a large boulder of trap rock which was deposited by glacial action and from which the Indians appear to have pried lumps.

Two unusual implements were picked up adjoining the location where the axes were found. Both were of quartz. One was somewhat crudely made, flaked all around, somewhat like a core but with a flat pointed end. The other, and better made, was from a quartz pebble of a size one could hold in the hand. Its lower half was chipped away on three sides reducing it to a flat pointed end, the size of a pea. The other side was a flat surface for an inch or more in height. While no implement of this type is recorded, to the knowledge of the writer, he assumes it was used as a stone cutter uses his pitching tool to flake pieces off other stones. The top surface shows little wear. This might be accounted for by supposing that the Indians used a wooden club or mallet instead of a stone hammer for striking the blow. Such an operation could produce a flake with a conchoidal outline. Were a blow struck with a stone hammer, then its force would have a tendency to shatter the stone worked upon as well as the pitching tool itself. Use of a wooden club for this purpose parallels present-day use of copper or lead hammers by certain metal workers who use them in place of one of steel or iron.

There was a flat spall about three
and one-half inches long which evidently was used for a knife blade; two small quartz angle scrapers and quite a number of quartz chips and cores were picked up within range of our survey lines. A careful inspection of the whole field would probably contribute more information regarding the use of this area by the Indian.

Upon another site adjoining Mt. Holyoke College property, which was cultivated this year, two well worked triangular hoe blades and a spade were found. Not over two hundred feet down the hill to the west is a small brook and on its opposite side, other camp sites have been reported.

Holyoke, Mass.
August 10, 1945

AN UNUSUAL STONE BLADE FROM WELLFLEET, MASSACHUSETTS

Howard Torrey

Exploratory field work in 1936 at Seth's Swamp site, Wellfleet, Massachusetts, besides revealing probable evidences of typological stratigraphy, as stated in a previous paper (1), brought forth one object seemingly worthy of special record — a stone blade of unusual shape, apparently bearing evidence of some special, but unknown uses.

Figure 33

This odd blade-like object (Fig. 33), was found within the upper cultural layer, the loam, associated with remains definitely late Algonkin and so may be assumed to be of that origin. The material is one extensively used by that people - a dark brownish-grey felsite dotted with phenocrysts of far lighter shade. The surface is marked by conchoidal fractures, and indicates that the specimen was fashioned by chipping and the entire periphery originally brought to a keen edge. All parts are now slightly patinated. Overall dimensions are as follows: length 1 15/16 inches; width 15/18 inches; thickness 3/8 of an inch.

Both ends (N, S) are more or less knife-like in shape, but the central portion bears a carefully rounded notch (W) in either side. These notches differ somewhat in size and shape. One has a curve with a diameter of 7/8 of an inch, the other 9/18 of an inch. The two ends differ materially. The longer (S) is thick and shank-like, while the shorter (N) is thin and like a stubby blade (one that has been repeatedly re sharpened by rechipping.) The longer has a V-shaped outline, and the shorter, one more or less inwardly curved at the sides and very rounded at the point. One side curve matches the larger notch. The ends also differ in another way. The longer shows wear (W) on the edge and adjacent surfaces, at and near the point, and the shorter on portions of the edges adjacent to the notches. Strangely enough, the edges of the notches also are extremely blunted, especially at the bases. There, and upon the wear on blade-like end, a 10X magnifier reveals fine cross striae, but fails to show any on the shank-like end. Other portions of the periphery retain their sharpness. Thus the specimen is definitely problematical.

What could have been the particular use, or uses, to which this unusual chipped object was put? It obviously is not a projectile point. The shape is unsuitable. Any possibility that the object is a charm, or ornament, seems remote, even though the shape may bear some slight resemblance to an animal or reptile. Blunting of the edges, particularly in the notches, could not conceivably have been sustained incidental to carrying. On the other hand, if carried suspended, the notches may have been previously dulled, in order not to chafe the cord, but this fails to account for wear on the other indentations. Another possibility that seems equally unlikely...

is use as a fish gorge, i.e., a more or less bar-like greased lure, which, suspended by the middle and swallowed, turned sideways when the line was pulled, and so could not be ejected. Like the previous suggestion, this fails to account for all of the spotty wear.

That the odd object may have been a tool of some kind, seems worth more serious consideration. The shape of the shorter, thinner, blade-like end, and that of the longer, thicker, shank-like one, are such that the specimen could have been so used, if hafted. In fact, it has the appearance of being a modified knife, and seems too small to have been firmly held, unhafted. However, it apparently could not have always been attached to a handle, because the shank-like portion shows wear. But, of course, the wear on that end may antedate or postdate the wear on the blade-like one, i.e., the implement may have been converted to, or from, another use, during which it was hafted in reverse. In that case, for what purposes could the respective ends have been utilized?

The character of the wear on the shank-like end is such that there seems to be little or no possibility that it could have been caused simply by exposure to wind-driven sand. Distribution of the wear seems quite definitely to indicate use. How the object may have been hafted, if and when the shank did the cutting, is uncertain, and the overall shape at that time is unknown. That the shape may have been different is probable, as the present one does not lend itself well to hafting at the blade-like end. So, if the object was suitably hafted, or originally large enough not to require hafting, and, if the character of the wear is a reliable guide, the shank-like end could have once served as a perforator, i.e., a pick, drill and reamer, when repairing cracked steatite and earthenware utensils. (Common practice was to make holes at opposite sides of a break, generally by boring from within and without, and then to tie the parts together with sinew or rawhide lacing.) The lack of noticeable striae is in exact accord with use on that extremely soft rock and on shell-tempered earthenware; the extent of wear is such as would be produced by drilling material of average pot thickness.

Perhaps the blade-like end served as some kind of a knife or scraper. In that case, if the blunting of the notches is wear incidental to use, this may quite definitely preclude the possibility that these served in connection with making attachment secure, like notches on some arrow heads and spearheads. On the other hand, the notches may have been previously dulled, as hereinafore suggested, in order not to cut lashings used for that very purpose. Tying knife blades to handles was not uncommon in New England, according to Willoughby (2), who illustrates and describes, with others, one having two notches quite similar to those of the Indian antiquity under consideration. Whatever the exact use of the blade-like end, the adjacent notches may have played a part other than a passive one. So, if the notches had nothing to do with hafting and if the blunting is wear, possibly their curved edges, as well as the dull portions of the shorter blade-like end, particularly the part similarly curved, served a common purpose as special cutting edges. That the notches and curved edge were used on steatite utensils, that is, used to shape the rims, is improbable, not only on account of the presence of the striae, but because such rims generally are of more or less irregular contour and furthermore shows marks left by a tool of definitely different type. It seems far more likely that the notches and curved edge were used in connection with rounding wooden shafts for arrows and spears and maybe on bows and the wooden shanks of bone fishhooks. The similarity of three of the curved edges mentioned and of the striae upon them, is in accord with all being used in this general type of work. The fact that even the smallest of the curves has a diameter greater than an arrow shaft does not make work upon them unlikely. Some oversize would have been desirable. Neither does presence of the scratches make this use improbable. They may be accounted for, even though the hard stone was used on nothing but the soft wood of arrow shafts, if such use at times unwise followed application of a smoother of grooved sandstone, for, like sandpaper, these left imbedded grit. But, if used for this ordinary everyday purpose, why is this type of tool not common? Although there appears to be no satisfactory answer, this use of the blade-like end and notches seems the most probable.

However, both of these quite plausible suggestions, namely, use as a perforator in connection with repairing cracked steatite and earthenware utensils, and a scraper for shaping wooden shafts for arrows and spears lack sufficiently convincing proof to be generally accepted.

So, in brief, use of the specimen for no known single purpose, or on any single type of thing, seemingly would produce the described forms and distribution of plain and striated wear. Instead, if at all times hafted, it may have been through two states of utilization as what has been termed a specialized tool or, if by any chance used unhafted, perhaps it

(2) Charles C. Willoughby, Antiquities of the New England Indians, Cambridge 1935, p. 127. Fig. 66b, p. 130 par. 1.
was a specialized combination tool, in either case especially adapted for use in at least two radically different kinds of work. No more definite general conclusion seems warranted. Thus, the problem is by no means solved. So, perhaps until additional similar specimens are available for study, it may be impossible to definitely determine exact uses of this interesting object from Wellfleet.

Reading, Massachusetts April 17, 1948.

PRIMITIVE WOODWORKING IN THE CONNECTICUT VALLEY

W. S. Fowler

Woodworking was one of the most important industries, among the aborigines of the Connecticut Valley of Massachusetts, as well as those of other parts of the world. Nevertheless, it is one about which little is known, due chiefly to the lack of evidence as a result of the perishable qualities of wood. The woodworking of protohistoric peoples exhibits a degree of skill which it must have required centuries of training to develop.

Many museums have large collections of protohistoric woodworking articles representing articles used for eating, cooking, gaming and ceremonial rites. However, it is probable that most of this work was accomplished with metal tools obtained from early European traders or from the colonists who followed. A list of some of these wooden articles may remind us of the importance of this substance in aboriginal economy. The report of the New York State Museum in 1905, Bulletin 89, "Aboriginal Use of Wood in New York" states that the following wooden objects were in use by the Five Nations during protohistoric and historic times: spoons, ladles, sticks for stirring mush and succotash, salt cellars, dishes, bowls, mortars, pestles, bread turners, fire drills with bow, snow shoes, arrow and spear shafts, bows, blowguns, shields, war clubs, dugout canoes, paddles, house frames, ladders, whistles, flutes, cradleboards, burden frames, brooms, drums, drum sticks, rattles, lacrosse bats, masks, counting sticks and handles for implements of all kinds. Much of this material is of intricate design, according to the report, beautifully tooled with perfect symmetry, and reflects a skill born of countless evolutionary ages of human effort.

Obviously, decay has destroyed nearly all traces of prehistoric objects of wood, except in those sections of the country where climatic conditions are favorable for preservation. In much regions, ancient mortuary wooden articles frequently occur in sufficient quantity to demonstrate the importance of wood in man's early development. However, little evidence has been found to reveal the nature of the primitive woodworking tools of stone or bone. Consequently, much has been left to conjecture in evaluating this important industry.

Of those known tools which probably played a significant role in woodworking, one is the drill. Archaeological evidence shows that this was one of the earliest tools, and was known to Paleolithic man. It is thought that as work on wood developed the stone drill was generally used, as its bit would take hold better when used on wood, and without danger of wear and breakage than when it was used on stone. Other well-known woodworking tools of stone are adz, gouge, ax, groovelcss ax and scraper, but beyond these, one is left to hypothesize the means by which the work was accomplished.

It will be the purpose of this paper to discuss methods of work in use before European trade contacts had disturbed the primitive industrial procedure by the introduction of metal tools, especially the knife. Recent archaeological finds in the Connecticut Valley will be described as correlated with the processing of wood and hafting. The act of fitting a wooden handle to a stone implement, probably a considerable part of all primitive woodworking, will be reviewed in part, with the observation that some of the tools required for hafting were undoubtedly used in doing other kinds of woodworking. In arriving at these conclusions, the author spent days in study, felling saplings and performing the required hafting operations with primitive stone tools from the Connecticut Valley. However, it should be remembered that although the described methods seem reasonable, the writer makes no guarantee that they were followed by the aborigines. On the contrary, it is his belief after experimental study, that early man was guided in his work to a large extent by his own individual ideas, as well as by the shape of the artifact and the condition of the wood he was using.

Nevertheless, from this study has grown the belief that there were certain...
The opposite edge is reworked in more or less of a serrated condition by deep percussion-flaking that has produced a sharp edge. The ends are rounded slightly, furnishing a trait that may be used to distinguish these implements from unworked spalls. As woodworking tools, any of these knives may be used for cutting handles out of saplings or branches. By use of a sawing motion, with the flaked edge of the knife applied against the convex side of the limb or sapling, and the blade bent slightly back with the left hand, the taut fibres may be severed. After the limb has been ringed in this manner, the process is repeated until it is completely severed. In this way, using one of these tools, the writer has cut an oak sapling, and cut it off again in a suitable length for a handle, after trimming off several small branches in the space of only thirty minutes. Small timber of 1½-2 inches in diameter may have been cut in this way to provide the required wood for projectile shafts, bows, wigwam poles, burden frames, snow shoes and handles of all kinds. When larger trees were required, small and large axes were probably used with and without the assistance of fire. Samuel de Champlain in relating an attack by the Hurons on the Iroquois in 1609-1610, says in part (Champlain's Voyages, Vol. 1, p. 210):

"...and began to cut down trees with poor axes which they get in war sometimes and also with others of stone; and they barri­caded themselves very well." [Italics mine.]

When fire was used, it was usually for the larger trees, which provided material for dugout canoes and mortars. It is also probable that the smaller tree trunks were sometimes split by wedges and made into paddles, spades, cradle boards, lining for birch bark canoes and other broad wooden articles.

A universal use of roughing knives may have been that of shaping all kinds of wood products, including the all-important handles for implements. In hafting stone artifacts, where balance is important, as for axes, tomahawks, spoons, gaming sticks, clubs, bows and paddles, it is necessary to produce a handle that is straight, with suitable taper to throw its weight into the right place. As nature rarely if ever furnishes the exact shape wanted, it becomes necessary to do a certain amount of paring to remove undesirable bulges, create a taper and cut shoulders at the end when shoulders are needed for hafting. Such shaping is easily accomplished with these knives while the wood is green. With the right hand, while the left grasps one end of the stick, the other end being pressed firmly against the body, the knife is drawn with a slashing motion toward the body in a diagonal direction. With quick repeated slashes, unwanted surfaces are removed with no danger of splits occurring in the wood.
While these knives do good work on green wood, they are useless on dry wood. Hence their name, as it may imply, classifies them as knives which could have been used for the preliminary roughing out of wood products, probably of small or medium sizes. Other tools were undoubtedly used for finishing after the wood had become dry, as will be shown further on.

**NOTCHERS** - This class of artifacts consists of a number of specimens appearing at different locations in the Connecticut Valley. They measure about 2½-4 inches in length and 1½-2½ inches in width. In thickness, they taper toward the edge of the blade, which is more or less straight, with an even, re-chipped condition irregularly serrated. Usually the smaller specimens are triangular in shape with serrations on one of the two longest sides. The larger ones have irregular forms, generally oval, with at least one straight serrated edge. They are all quite thin; the thickness usually varying in proportion to the overall size. They are made of quartzite, quartz, or chert, with quartzite predominating. A well-made specimen of the smaller triangular shape, made of true flint, was found in a collection of projectile points from the Carolinas. Occasionally, wear may be detected on the serrated edge. Unlike hafted knives, these artifacts never have a notched or stem shank, and probably were never hafted. Because of their thin but strong proportions, they were no doubt highly prized, and were used over and over again until broken or worn out. It is probable that only a few may have been used as whet stones for sharpening stone blades. Infrequently, there is a pecked depression in one or both sides, for a finger hold, but this trait occurs so seldom that its mention seems superficial. The appearance of worn facets is such as to suggest that the smaller specimens were used for the final finishing of shafts and handles, to remove all slivers and rough spots after the wood had dried. The larger ones were probably employed in the roughing-out state, while the wood was still green.

The second style of abrader occurs in three different shapes which have been formed, usually, by pecking — saddle, shell and a form with a concavity. Their length varies from 1½ to 3½ inches. The material is granular rock, as in the case of the first kind, with an occasional occurrence of crystalline roughened quartz and granite.

While the saddle shape is produced by deep, wide, roughly-pecked grooves on opposite sides of the stone to form what looks like the pommel of a saddle. Pecked finger grips are sometimes in evidence. The tool is about 3½ inches in length, and of suitable proportions to be held conveniently in the hand. It seems probable that the wide deep grooves were intended to fit handles of normal size, and were used in the roughing-out operation to file away rough or raised surfaces, such as knots, while the wood was green. Such abrading is practically impossible if deferred until after the wood becomes dry. These saddle abraders can only be used on handles, due to the prominent grooving of the stone, and should therefore be considered as specialized tools.

The shell-shaped abrader is found in smaller sizes running from 1½ to 3 inches in length. The shape, which resembles that of an oyster shell, is formed by flaking and pecking. The constricted end is often pecked to form grips, apparently
for the forefinger and thumb. While these tools may be used effectively in smoothing handles, they may be utilized just as efficiently for filing flat surfaces, as their abrading face is flat, not grooved. They would have served well in finishing most any of the smaller wood products previously referred to, much the same as sand paper is used today. They have been found to do their best work when used on dry wood.

The concave-shape abrader is found in stone blocks more or less oval in form, or somewhat square with rounded corners, of a size to fit conveniently in the palm of the hand. These tools are scarce and probably were not in as general use as the other grinders. They sometimes have pecked finger grips, but always have a shallow pecked excavation on one side about 1½ or 2 inches in diameter. The writer has found these tools invaluable in rounding off the butt end of handles, at the end to be held in the hand. In the case of tomahawks and like implements, it was probably essential to remove all roughness from this end, which may explain the existence of such abraders.

Large stone blocks having one or more long groove with the diameter of a projectile shaft across one face are but rarely found. These are thought by some to have been used as grinders in shaping shafts. This paper, however, holds that other methods, as herein referred to, were in more general use, and were apparently preferred.

SCRAPERS — Contained in this group of woodworking tools are countless sharp-edged flakes of all sizes, not reworked, as well as rechipped flakes having certain definite traits. The preferred stone material seems to have been quartzite, quartz, chert and true flint whenever available. Of the unworked flakes it is sufficient to say that they can be used for scraping wood and probably were, but unless they have a thickness of 1½ inch or more with at least one sharp edge, they are useful but for short intervals, due to a tendency to splinter. However, those that have sufficient body are usable and will perform quite well in paring projectile shafts and handles, but only after the wood has become dry. The rechipped specimens assume different shapes, but are generally small; from 1 to 2 inches in length, with at least one sharp edge that is fairly straight. In this respect they differ from skin scrapers, which usually have a convex edge. Continued hard use appears to have frequently produced a concavity in the straight edge. Experience gained in actual work with these scrapers suggests that they probably found their greatest use in the final shaping of projectile shafts when they may have been utilized to reduce them to the proper balance by shaving. They may also have been used in finishing handles and other wooden objects, when refinement was necessary, and when the abrader was inadequate to obtain desired results.

SUMMARY AND CONCLUSION

While there is scant information from early accounts written during the settlement of the Connecticut Valley to tell how woodworking was previously performed, it is probable that the work was largely accomplished with stone tools. By making actual tests in working wood with stone, a pattern was formed providing a hypothetical approach to the subject. This resulted in the discovery of new types of implements found associated with habitation sites and workshops, with traits which fitted them for woodworking. If these are added to those implements already presumed to have been used, as stated by early explorers and commentators, a fairly definite picture of aboriginal activities in the fabrication of wood products is formed. This study should be one of signal importance, when one remembers the extent to which the cultural life and development of early peoples was dependent upon wood. With it they improved their fighting and food gathering efficiency, they protected themselves from attack, they improved their living conditions, they developed their religious and social life, and they navigated all parts of the earth. This paper makes no claim that the nine types of tools it enumerates were the only ones known to primitive man for woodworking, but rather it offers a challenge to further research, comparison and study.

Holyoke, Massachusetts
April, 1946
I note with particular interest an article by Maurice Robbins in the January issue of the Bulletin called "It Pays to be Careful". I, myself, recently had an experience which might be of interest to those of your readers who have already been impressed by the timeliness of Mr. Robbin's story:

A respectable colored man named Spencer, for many years employed by my family as a gardener, told me last fall that he had found an arrowhead in the garden of Mr. and Mrs. C. E. Shutter, in Guilford, a high-class suburban development, this city, where he is now "turkei back". Later he gave it to me. I was surprised to find that the arrowhead is of glossy black obsidian, quite similar to that in an arrowhead found by a friend of mine near Mexico City and presented to me. I asked Spencer if the Shutters had been to Mexico, and he said, "yes", that they had been there several years ago. I looked under "obsidian" in the Handbook of American Indians, and learned that, at the date of compilation, no objects of obsidian had been found farther east than the state of Ohio. I then telephoned the Shutters, with whom I was slightly acquainted and was informed by Mrs. Shutter that she and her husband, while in Mexico, had purchased a number of arrowheads, several of them "glossy black", which they had given to their children. The children gave some of them away, and Mrs. Shutter thinks they may have lost others about the place. She has placed what remains of the collection under lock and key. This residue does not include any "glossy black" specimens. There does not, therefore, seem to be any reasonable doubt that the black obsidian arrowhead found by Spencer in the Shutter's garden was one which was lost by the Shutter children.

Baltimore, Maryland
February, 1946

A COLLECTION FROM AN ORDINARY, AVERAGE FIELD IN EASTERN MARYLAND

William B. Marye

This collection, which is now in the possession of Philips Academy, was made in a field of about fourteen acres. The field lies on the western side of the old Joppa Road ("Sunshine Avenue"), between Kingsville and Upper Falls, in the Eleventh District of Baltimore County, and is known locally as Margaret's Old Field. There is no appearance of a village site in any part of this field. Collecting was begun in 1914 and still continues (1944). To date about one hundred twenty-nine arrowheads have been found there, in all parts of the field. In addition, two small pieces of soapstone pottery were found near to one another and one "turtle back". As to materials, one hundred five arrowheads are of quartz, two of quartzite, sixteen of rhyolite, six of flint and four unidentified. Quartz chips predominate and flint ones are very rare. A number of rhyolite chips are to be found all in one place in the southwest end of the field. As to type, only four arrowheads are triangular; but a number of fragments consist of points only and the type cannot be determined. There are many small arrowheads in this collection. Nineteen are leaf-shaped, measuring one and a half inches or less. To contrast this collection with one from a village site in the same part of Maryland may be not without interest. The site is in the vegetable garden of Bryn Mawr School, between Melrose and Belvedere Avenues, Baltimore City, at the head of Stony Run. The situation, a low hilltop and level ground in the angle formed by the junction of the main stream and a small spring branch, is typical. The "fertile" area covers not more than half an acre. The number of arrow and spear-heads found to date (including three "blunt" arrowheads and two quarry blades (?)), is ninety-nine. Materials include: rhyolite, 48; quartz, 44; ferruginous quartzite, 2; flint, 2; calcite (?), 1; brown shale, 1.
A COLLECTION FROM AN ORDINARY, AVERAGE FIELD IN EASTERN MARYLAND

There is only one doubtful triangular arrowhead in this collection, but many are more fragments of points.

Baltimore, Maryland, October, 1944.

THE DWIGHT BLANEY COLLECTION

Ripley P. Bullen

A collection of Indian artifacts made by the late Dwight Blaney has been recently presented in his memory to the Peabody Museum of Harvard University, Cambridge, Massachusetts, by his son, David Blaney of Weston. Most of this collection was made by Mr. Blaney between 1896 and 1920 from various sites around Eastham, Massachusetts.

Larger artifacts are represented by a gouge, plummet, semi-lunar knife, bannertone, drilled pendant, adz, four celts, several large knives, and fragments of steatite vessels. Included are forms of projectile points usual for the area, i.e. triangular, stemmed, and corner-removed points made of quartz and felsite. It is interesting to note that the corner-removed points are more heavily patinated than are trianguloids made of similar material.

The more important specimens appear to be those illustrated in the accompanying sketch. Seven specimens (Fig. 34 a, b, and c) are all fairly large, heavy, relatively thick, and made of quartz. They have a strong tendency towards a symmetry. Presumably, they are knives.

The other items of special interest are fifteen elongate spear points made of felsite (Fig. 34 d, e, and f). These points are more heavily patinated than the balance of the collection. They seem to be similar to one type of projectile point mentioned in an article entitled "An Interpretation of the Prehistory of the Eastern United States", by J. A. Ford and G. R. Willey and published in the American Anthropologist, Volume 43. According to them, this type belongs in the "Archaic" or pre-pottery levels of the southeast. A deposit of similar elongate points, lacking any basal specialization, has been found by Mr. Ernest Clarke at Marion, Massachusetts.

Both of these types of artifacts are not unknown in Massachusetts. Their presence, in appreciable quantities in this collection, suggests that more of them may have been used by the Indians than has been realized. The investigation of a site producing either type would appear worthwhile.

Cambridge, Mass. April 16, 1945
The region under consideration comprises a site on the Guida Farm, located a mile and a half east from the City of Westfield, Hampden County, Massachusetts. This city was incorporated as a Town in 1656. The name originally proposed was Streamfield because of its situation between the Little River and the Westfield; but because it was the westernmost town of the Colony, it received the name it now bears.

The Guida Farm was part of a grant of 360 acres by the Town of Springfield to Thomas Cooper in 1856 from the lands of Amoakussen, an Algonkian Indian, who confirmed the grant in 1860.

The land is low and borders the Westfield River which is paralleled, more or less, by the Boston & Albany Railroad. Because of its level and its proximity to the river, the farm has been subject to floods, the last one, in 1938, destroying buildings and depositing a 6-inch layer of silt over a considerable area.

The site itself exists on a river terrace about an acre in area, the only one in the neighborhood, rising some ten feet above the surrounding lowlands. Evidence of Indian occupation was found in this area in 1937 during the removal of loam, when two burials of adult Indians were found. With them was a fragment of a pottery jar, several stemmed arrow points and a Celt. Reconnaissance excavations were made in 1942. In the higher land, an occupational layer some 10 inches thick was found at an average depth of three feet. This did not exist in the lower land, although a deeper level was found throughout the whole site, covered by a lens of flood-laid silt. A few pottery sherds and a white quartz arrow point were found in this lower stratum but this was not deemed sufficient evidence to indicate that this actually represented an occupational deposit.

More extensive excavations were carried on in 1945 by the Museum of the American Indian, Heye Foundation. As incessant rains made contemplated excavations in the lower part of the site impossible, the total area explored was limited to 1250 square feet.

Pottery constituted the large bulk of the material recovered, the greater number of sherds being of Iroquoian type. They were thin-walled, and made of poorly-fired clay shale, which was badly disinte-

grated. Grit-tempered sherds of Algonkian type were sturdier and in a better state of preservation.

Stone artifacts were unusually scarce, only three broken hoe blades, four hammerstones and five unfinished implements being found. Several fractured water-worn stones were scattered throughout the excavated area.

Contact material consisted of two glass beads, a small undecorated fragment of sheet copper, the base of a clay pipe bowl and two lead bullets.

Although no burials were found, badly broken skeletal material was scattered throughout the site. With the exception of a few human teeth and the lower jaw of a beaver, such fragments were too small for identification.

No refuse pits were located, nor were hearths, fireplaces or house floors found, although charred kernels of corn and butter-nut shells were present and charcoal was plentiful throughout the site. Of the corn and shell specimens, Mr. Volney H. Jones of Ann Arbor, Michigan writes under date of October 11, 1945:

The nut shells from Massachusetts are, I believe, of butternut rather than black walnut. The two are in the same genus and are similar but these specimens compare more closely with butternut. The corn kernels are of the broad kerneled, crescent-shaped type grown by the Iroquois - but not exclusive to them.

Additional reconnaissance surveys on the property belonging to Mr. Homer Bush, adjoining the Guida Farm, revealed two flood-disturbed burials. With them were two flint chips, pottery sherds of the "Late Algonkian" type and a small notched piece of brass.

From analysis of the pottery recovered and here illustrated, 85% might be considered Iroquoian, 32-1/2% Algonkian with the remaining 12-1/3% showing mixed influence.

Despite dominance of Iroquoian pottery styles, absence of associated stone and bone artifacts makes identification of the principal occupants of the site difficult. There is no recorded excavated material from the immediate neighborhood with which comparison might have been made.
POTSHERDS FROM THE GUIDA FARM, WESTFIELD, MASSACHUSETTS
POTSHERDS FROM THE GUIDA FARM, WESTFIELD, MASSACHUSETTS

(Photos by Museum of American Indian)
LEGEND PLATE I
Potsherds from the Guida farm, Westfield, Massachusetts. Those followed by a catalog number are in the Museum of the American Indian Heye Foundation. Others are in the possession of the Guida family, Westfield, Massachusetts. (I - Iroquoian; A - Algonkian; gt - grit-tempered)

1. Vertical lines on rim above grooved ring with parallel horizontal lines below. (I)
2. Checkerboard pattern with vertical and diagonal line. Punctate impression between parallel lines. (I)
3. Rim sherd with five parallel stick wrapped impressions which are parallel with rim. Below 5th impression are diagonal incisings. (A. gt.)
4. Chevron design by trailing. (I)
5. Diagonal trailing lines with suggestion of herbon design. (Algonkian - possibly Iroquoian influence.)
6. Vertical lines above deep horizontal grove. (I)
7. Trailing diagonal parallel lines on shoulder with crossed hatched lines. Upper edge of rim cross-hatched. (I)
8. Roulette pattern on shoulder and parallel to same on rim. Perpendicular stamping on outside edge of rim. (I)
9. Perpendicular parallel impressions suggesting use of scallop shell. (A)
10. Perpendicular impressions on rim. (I)
11. Horizontal and vertical lines with dots between them. (I)
12. Incised chevron design with broken horizontal lines. (Algonkian - possibly Iroquoian influence.)
13. Punctate impressions below top of rim, below horizontal parallel lines and diagonal incised lines. (I)
14. Trailing incised diagonal lines. (I) (20/8041)
15. Trailing incised horizontal and vertical lines. (I)
16. Collared rim, with diagonal and vertical lines. (Algonkian - possibly Iroquoian influence.)
17. Vertical fluted parallel lines. (A)
18. Vertical lines above deep horizontal grove. (I)
19. Horizontal punctate line over diagonal lines. (I)
20. Rim with cord impression. (A. gt.) Bush Farm. (I 30/051)
21. Rim sherd with cord impression (A. gt.) Bush Farm. (20/3051)
22. Rim sherd with horizontal and parallel lines with punctate impressions below constricted neck. (A. gt.) (20/8041)
23. Incised herring bone design on neck, vertical and parallel incised lines on rim. (Algonkian - possibly Iroquoian influence, gt)
24. Padle-marked shoulder. Incised dots on rim. (A)
25. Textile impression on shoulder and rim. Wrapped-stick impression above shoulder. Diagonal stick impression below rim. (A)
26. Collared rim, with cord-wrapped stick and indented impression. (A. gt.)

LEGEND PLATE II
Potsherds from the Guida farm, Westfield, Massachusetts.

1. Iroquoian rim sherd. Flat top and side sloping down to collar. Incised vertical and horizontal lines on top of rim and side. (20/8041)
2. Rim sherd with stamped punctate design curving to a point. (A. gt.) (20/8037)
3. Rim sherd, with nodule below high point. Incised vertical and horizontal lines at right angles to each other with diagonal incised lines. (I) (20/8041)
4. Three horizontal incised lines at top of rim. Below, diagonal lines above horizontal incised lines. (I) (20/8041)
5. Rim sherd. Three horizontal parallel incised lines on top of rim. Below horizontal lines of dots. Chevron design with horizontal and vertical incised lines. Raised collar with incised vertical lines and deep impressions below. (I)
6. Rim sherd with deep impression and horizontal incised lines. (I) (20/8041)
7. Rim sherd with row of dots on rim. Below, three parallel horizontal incised lines with diagonal trailing lines below. (I) (20/8041)
8. Chevron incised lines on shoulder, four parallel incised lines which follow rim. Inner part of rim marked with small perpendicular incisings. Below stick wrapped impression. (A)
9. Outflaring rim sherd. Inner, outer and top of rim marked with small marked diagonal incisings. Two parallel incised lines around rim between which are dot impressions. Incised chevrons on shoulder with twelve incised horizontal lines within chevrons. Small impressions on borders of chevrons. (Algonkian - possibly Iroquoian influence, gt.) (20/8038)

Museum of the American Indian Heye Foundation
May, 1946
FOUND AND LOST

I wonder if by any chance you'd like to have me read,
Of the finding and the losing of a little copper bead?
It happened down in Wareham on a Sunday afternoon,
And I don't expect the finder will forget it very soon.
We were digging at a camp site in a steady pouring rain,
A condition, I, an amateur, would never want again.
I was excavating actively a little way from Bill,
And up to then our findings had been absolutely nil,
When all at once from Charley came a loud and gleeful shout.
And from his pit he soon arose and clambered swiftly out.
We asked him then to show to us the artifact he found,
To pay for all his digging in the wet and soggy ground.
He came to our vicinity with most uncommon speed,
And proudly showed a thing unique, a tiny copper bead.
The scientists have stated that the nearest copper ore
Was found a lot of miles away from our New England shore,
And so by even simple minds deduction can be made,
That any copper dug up here arrived by means of trade.
So any copper artifact by Indians completed,
Is very rare and always should with thoughtful care be treated.
I don't suppose that Charley's mind made any such reflections,
I greatly doubt he gave a thought to garment imperfections.
Within a pocket of his pants the little bead was placed,
And then to his own diggings his backward way was traced.
A short time after his return the air was sharply rent
With vigorous expression of a very great lament.
The fact is such a sorrow that I hesitate to speak,
The bead it seems was placed within a pocket with a leak.
Then through the hole it slithered and fell upon the ground,
Thus lost to archaeology soon after it was found.
What joy to find so rare a thing! How sad so soon to lose it!
How hard it must have been for him to plausibly excuse it!
But of our group I think that he is ablest to sustain it,
And he of all I'm very sure has power to explain it.
He has the gift of sympathy and thoughtfulness of others,
I never saw a man so kind! He treats us all like brothers.
If he while digging has good luck, and all our luck is bad,
He can't enjoy himself at all, it makes him very sad.
He'd give away an artifact of absolute perfection,
And please himself that he could thus improve a friend's collection.
So rare a trait it seems to me deserves our commendation,
I only hope that he in turn approves my explanation,
And that some day another bead by him will be recovered,
That proves to be the equal of the first one he discovered.

Adrian P. Whiting