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AN EXPERIMENTAL STUDY OF THE MANUFACTURE
OF ARTICLES OF BONE AND ANTLER

by

E R N E S T E . T Y Z Z E R  *

An experiment has been conducted to study possible techniques by which aboriginal bone and antler artifacts were fashioned. It has been found possible to reproduce without great difficulty the "simple bone points" which occur in the shell heaps of Maine using as tools stone material found in these sites.

Of the material collected from several Maine shell heaps over a period of years, it has been found that a certain type of bone object—i.e. the simple bone point—is by far the most numerous of the artifacts found (Fig. 1, Nos. 15-18). These bone points have certain characteristic features. They vary greatly in length and in excellence of workmanship. They vary greatly in size also, the probability being that the smaller ones represent points that have been reduced in size through breakage and reworking.

The question arises as to whether the term "single bevelled point" (Burkitt 1921, p. 138 and Plt. VI, Nos. 2, 13, 19, 25, 27; 1956, p. 82 and Fig. 9, No. 7) would be more applicable to artifacts of this type since it emphasizes an important feature, i.e. a form which lends itself to splicing. While the bevel is present in the better made specimens, a high percentage of the Maine points are derived from thin-walled long bones of relatively small animals and hence present a hollowed-out rather than a bevelled surface. In fact, the polish which is found extending over a portion of the artifact is a much more constant feature, being found on the crudest of specimens. Thus the term "simple bone points" as applied by Smith and Wintemberg (1929) appears to be provisionally preferable until more is known of their usage.

As compared with objects of bone, antler articles are relatively rare in the coastal shell heaps, consisting in the author's collection of a five-toothed antler comb, (Fig. 1, No. 23) an antler punch, some comb teeth evidently from combs broken in the course of manufacture, and several strips of antler showing grooves for cutting (Fig. 1, No. 19, 20).

In a previous paper (Tyzzer 1936), attention was called to four quite evident procedures in the manufacture of the points in question: 1) the cutting of narrow strips from the shafts of long bones, 2) the shaping of the artifact by a planing or scraping process, 3) the grinding smooth of that portion which will become the exposed surface of the artifact, and 4) the application of the final polish to this portion.

Clarke and Thompson (1953), in a study of the "groove and splinter technique" in cutting antler and bone, point out a widespread distribution of the burin in the Upper Palaeolithic and Mesolithic Periods. In fact, such emphasis is placed on the employment of the burin that the impression is given that they are essential to the cutting of the above materials. An illustration of the enthusiasm for the burin is Carleton Coon's allusion to it as man's passport to the New World (Coon 1954, p. 81). In contrast to its importance in Old World archaeology, great areas occur in the Americas from which no reports of characteristic European forms of burins are available, although they do occur in boreal regions of North America (Collins 1953, Fig. 3).

The present thesis sets forth the following: an abundance of bone artifacts have been reported from various sites in the United States and Canada which, thus far, have furnished no examples of artifacts recognized as burins. (See Ritchie, Webb, Smith and Wintemberg, etc.) In excavations of a shell heap on Harbor Island, Brooklyn, Maine, and several shell deposits on the adjacent mainland, somewhat over 1400 bone points or fragments of the same were recovered. This obviously required the cutting of a like number of bone strips, but in association with this material, only a single possible artifact of the characteristic burin type was found (Fig. 1, No. 10). This was in the form of a notched projectile point, the tip of which had been broken square across, with one lateral edge showing the stepped flaking seen on certain European burins. Whether the latter was accidentally or intentionally produced is not known. At best, this makes a rather poor case for any wide employment of burins when the amount of bone cutting on the sites excavated is taken into account.

In the study of cut bone, grooves or valleys occur so sharp at the bottom that it does not appear that most burins would reach the depth of the cut or make a cut of this shape (Fig. 1, No. 14). The question now arises as to how comprehensively the term burin is made to apply. Narrow pointed flakes

* The author is indebted to Eugene C. Winter for the illustrations, and to D. F. Jordan for assistance in preparation of the text.
or spalls, sufficiently sharp to reach to the bottom of
the furrows, are of frequent occurrence in the shell
heap. However, there seems to be no doubt that
the classical European burin would serve quite satis-
factorily in cutting bone or antler strips, the point
being that they could not have been the agents
concerned in the cutting of the deep acute-angled
grooves.

In the experimental manufacture of bone
points, spalls were selected having three converging
planes forming sharp tri-faceted tips (Fig. 1, Nos.
1-3). It was found important to employ stone of
tough quality, such as jasperite, or certain types of
felsite. The stone selected was hafted in a short
(9") stout stick. Newly cooked lamb and raw beef
bone, as well as old dry beef bones were utilized.
Dry beef bone, being much harder, was much more
difficult to work. It was found important to furnish
a firm support on which the bone to be cut was laid
full length. Some difficulty was encountered in
starting the furrow along a straight line, but once
started, the cutting proceeded satisfactorily. By
fastening the bone to be cut to its support, and by
hafting the cutting implement in a longer stick
(18"), so that both hands could be employed, the
cutting operation was greatly facilitated. The use of
both hands requires an assistant to hold the bone;
or some device, such as a cleft in a log. By such
means, bone was cut with surprising speed. Oddly,
slight breakage of the point of the implement did
not destroy its cutting efficiency.

Obviously, some cheating was unavoidable. In
the cutting of sticks and the hafting of stone imple-
ments, steel tools were employed and the operations
were carried on at a work bench which furnished

support for the bone being cut. It was found that
moistening the bone facilitated the cutting. The
stone used was predominantly of shell heap origin.

Having produced the strips, the process of
shaping the points proved more laborious. The
strips were held at an angle, with one extremity
against a support. "Thumbnail" scrapers were first
tried out, but due to the curvature of their edges,
they tended to slide off the strip of bone under
operation. Thick flakes or blocks of stone (Fig. 1,
Nos. 4, 5) with straight acute-angled edges (Circum
30°) proved more effective in either planing or
scraping strokes. However, nothing approaching
the beautiful straight longitudinal scoring seen on
some of the shell heap points was attained.

A number of flat stones, one face of which had
apparently been used for grinding purposes were
found in the shell heap material. One of these, of
course, gritty texture, was selected for the grinding
process, but proved quite unsuitable. Sand proved
to be very satisfactory as a grinding agent. This was
applied to the inner surface of a piece of open-
textured leather, which was wrapped around the
portion of the bone point to be ground, the grinding
being accomplished by rotary motion.

The final polish was readily obtained by rub-
ing on a piece of hide. Also, among the beaver-
toothed implements collected from the shell heaps
are several with polished, incurved extremities,
which could have served remarkably well for bur-
nishing cylindrical surfaces or rounded edges. These
also may have been employed by the Indians in
finishing the bone points.
A point of interest in regard to the Maine shell heap sites studied is the absence of artifacts with cleanly drilled apertures for needle eyes, and of line-holes in harpoons. Since it has been found possible to cut bone with rodent and carnivore teeth, the possibility of their usage as chisels should be taken into account. The irregular marking of the contour of the perforations and their slightly elongated shape suggest the possibility that such tooth implements were employed. Nothing of the nature of stone drills occurred in the material derived from the sites excavated.

The experimental production of characteristic bone points, using spalls with narrow, three-faced points for cutting strips from long bones; and the thick, acute-angle edged stone for shaping, demonstrates the successful cutting of bone without the employment of characteristic European types of burins. Doubtless, the technique employed by the Indian differed in detail from that of the experimental work, but the latter demonstrates certain principles. The absence of recognized burins over a wide territory, especially from sites yielding an abundance of worked bone, appears significant.

Cross sections of grooved bone show that some of the furrows are so thin and sharp at the bottom that none of the classically-shaped burins would fit. It is also evident that the cuts made in removing material between the teeth of antler combs, the thin cuts made in the cross-cutting preliminary to breaking of slender objects of bone, and probably nicks cut at intervals along the edge of bone objects (Fig. 1, Nos. 22, 23), were made by very thin cutting edges such as would be provided only by thin-edged flakes of stone.

**Summary**

Characteristic European burin types, so important during certain periods in the prehistory of the Old World, and in boreal regions of North America, appear to be notably lacking over wide areas of the United States. They do not appear in reports on sites yielding large quantities of worked bone, and were not found in the coastal shell heaps of Nova Scotia by Smith and Wintemberg; nor in those excavated by the author in Brooklyn, Maine, with a possible single exception of the specimen referred to above.

It is shown that bone may be cut, and objects of the simple bone point type—of common occurrence in the shell heaps—may be readily manufactured employing material available without using classical European burins. Also, the inadequacy of the burin for certain types of bone and antler work is pointed out, although it is quite suitable for cutting those materials. The employment of beaver-tooth implements for burnishing and possibly for cutting purposes is pointed out, and the use of rodent and carnivore tooth implements for perforating needles and harpoons is suggested. These coastal sites present an extensive usage of bone up to the time of European contact.

It should be pointed out that while the exact methods of the aboriginal bone-working technique may differ in many respects from the methods employed by the author, the present study does demonstrate certain possibilities. It is possible that future investigations may reveal evidence of breakage or wear of such implements as may have been used in the cutting of bone and antler.

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**Tyzzer, Ernest E.**


**Webb, William S. and David L. DeJarnette**
GODDARD'S
by
GUY MELLGREN AND ED RUNGE
As told to Janet Wilder

This site, unique in the experience of Ed Runge and myself, was found in September of 1956 in the following way: we had just returned from New Brunswick and decided to dig a shell lens at Naskeag Point, a location that had been recommended to us. We asked a stranger if he knew who owned the shell heaps; he answered our question, then invited us to view what he thought might be shell lens on his property. This man introduced himself as Mr. Goddard, and in no time at all we were inspecting the shore line in question. No shell lens did we find, but while examining the area we discovered a few stone chips along the eroded edges and quick as an archaeologist drawing a conclusion we were removing tips, bases, scrapers, knives and points in rapid succession. Here was truth stranger than fiction.

When this site was originally established, it must have been during some distant era when Red Men of the North were making extensive foraging expeditions southward. Coming down the Penobscot to the ocean they discovered there an enchanting bay that offered not only great beauty, but great bounty. Salmon teemed in the river; game abounded along river banks and bay shores; spruce bordered the irregular coast line, and every cove had its incredible store of shellfish. Instead of being faced with the problem of selecting an advantageous main camp site, the Indians were in the delightful dilemma of selecting which one. However, in Blue Hill Bay they came upon a point of land that seemed unsurpassed from every conceivable angle. This Maine promontory, which they named Naskeag, or "Place of the Shellfish" was ringed round with protecting seaward islands. The ocean, off the point, could become, at worst, no rougher than a storm-tossed lake.

The point itself was a natural terrace about eight feet above high tide level. It was 100 yards wide and 300 yards long, bordered with evergreens behind which rose a table and which rose again to an elevation approximately 30 to 50 feet above sea level. At the foot of the terrace lay two crescentic beaches, one to the east and one to the south, with sands formed from decaying granite ledges and boulders—ideal places to beach canoes. Naskeag Point is still pretty much the same in appearance, for erosion has been at a minimum due to its sheltered position. Runge and I think that these people chose this as their headquarters and agreed among themselves to keep this special place entirely free of shell refuse.

While digging, we soon realized that stratigraphy is practically non existent, for beneath six inches of topsoil there is but one or two inches of midden except around glacial boulders where the midden is very deep. We were also immediately impressed by the absence of shell lens. On a seacoast this seemed unusual, and we find no record of any parallel in Maine. However, this was only the first of several astounding features. The site is distinguished by the presence of knives and thumbnail scrapers in overwhelming numbers, almost 750 of each having already been found, and as yet only five percent of the site has been dug. In other words, the tool industry here was of the greatest importance. This is borne out by the variety of knives, straight-based, oval-based, tear drop shaped and some with twisted tips.

Another feature of the site is the frequency of fire pits, unstoned, and filled with gray ash. The fires must have been left to burn out for no charcoal is evident. These pits are usually about 20 inches in diameter and range to 20 inches deep. Where the terrace projects toward the sea we found a probable fishing station, and in this section the base of many pits contained what appears to be an offering—invariably a corner-removed projectile point type, possibly indicative of an earlier culture. As we uncovered pit after pit we began to wonder if all others, at one time, had contained some form of perishable offering, perhaps bone or wood, suggesting a ritual.

This same fishing station yielded plummets, corner-removed points, and knives and scrapers in diminishing quantities. In this same section, two slate points were uncovered; and these, together with the plummets, caused us to speculate as to whether this might have been a stop-over for Cemetery Complex Man. Several miles away, on either side of the site, cemeteries have been recorded. While dealing with unusual aspects, we find that
A—Twisted tip knife, B—Teardrop knife, C—Straight base knife, D—Oval base knife, E—Thumbnail scraper, F—Pictograph, G—Corner-removed point, H—Corner-notched point, I—Large triangular point, J—Side notched point, K and L—Ground slate points, M—Portion of slate object. All full scale.
these stone tool specialists were exceptionally selective in their choice of materials. They used exotic kinds—rose quartz, Labradorite, chalcedony, beryl and bi-colored cherts, to mention a few. Obviously they preferred these to the materials at hand.

For the present, though, we feel it is too early to determine the time in which this site was inhabited; we believe that it could not have been occupied to any extent since European contact. First of all, contact material found is negligible; secondly, war would have made it imperative to use indigenous stone; and finally, few implements in the nature of weapons have been found.

Of the two contact items that have appeared to date, one is an antique pewter button. The other is a silver coin resembling a type that was minted in England for approximately 600 years. While the faces on this coin were changed many times, the reverse side bore a crossed-line motif that was altered little. The coin found at Naskeag bears parallel crossed lines terminating within a circle, which helps to fix its date within the reign of Stephen, and Henry I, chronologically 1135 to 1154. Therefore it would seem that this coin was at least 803 years old when we excavated it.

Probably the best calendar will prove to be the pottery uncovered in the usual large quantities typical of Maine. We found approximately 2500 potsherds, representing 100 pots more or less, with no two designs identical. We have been able to identify it as intermediate pottery related to Vinette II, typified by many variations of but a few design elements. The exterior of a few pieces carry traces of pigment. We dug several portions of clay pipes and stems, and the pipe bowls were ornamented. A fragment of chlorite pipe was uncovered, followed by 13 fragments of an elbow pipe which has been restored by Eugene Winter.

We noted bone, but due to the lack of shell lens it had deteriorated to the point where few pieces were recognizable. Even such durable items as teeth—shark, beaver, bear and those of other small mammals were in poor condition. Owing to the presence of local copper mines it was no great surprise to find native copper. This was in the form of one side-notched point, incomplete, and four other pieces—apparently formed by beating. Beside these, there were three blobs of re-melted copper.

We have a few other less common items which we believe worthy of mention. These include three stone spheres, a pictograph resembling a six-paned window, a one and three-quarter inch wafer-thin, double-ended tool which really must be seen to be appreciated, a portion of a drilled cylinder, and lastly, two stepped-abrading-stones. We call your attention to these odd abraders because a stone similar to them is described in the January, 1958 Bulletin, in an article called “Artifacts and Fancies,” by South Shore Chapter.

This report is 95 percent incomplete, the 95 percent representing the as yet untouched portion of the Goddard site. It took us two years to excavate 5 percent, which means that at this rate we will be ready to present a final report 38 years from now. If you can’t wait that long, neither can we. With time off for good behaviour, from our wives and families and our jobs, we hope to be able to wind this up much sooner.

For technical advice, we are gratefully indebted to:
Douglas Byers, Director, Dept. Archaeology, Phillips Academy, Andover, Mass.
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Eugene C. Winter, Jr., Chairman, Northeastern Chapter, M.A.S.
Charles Nettleship, numismatist.
We are also indebted to Mr. and Mrs. DeWitt R. Goddard, site owners, for their cooperation and hospitality.
THE HOUSATONIC INDIANS

THE ABORIGINAL INHABITANTS OF SOUTHERN BERKSHIRE COUNTY

by

RAYMOND H. BROWN

We hear much about other Indian tribes who inhabited what is now the Commonwealth of Massachusetts but very little about those who inhabited the Southwestern corner of the Commonwealth, namely: The Housatonic Indians, better known as the Stockbridge Indians.

The Indians who inhabited the Southern portion of Berkshire County at the time of its settlement, were offshoots of a tribe which was scattered along the eastern borders of the Hudson River, from the vicinity of Albany, southward to Poughkeepsie.

This tribe was known to early New York and Massachusetts settlers as “The River Indians”, and is sometimes referred to as the “Mahikanders”, in ancient New York history. Those of this tribe who dwelt in the Housatonic Valley, were called from the Housatonic River, the Housatonic Indians; and after they were gathered together in the town which had been set apart for them by the legislature, under the name of Stockbridge, they became known as the Stockbridge Indians. The proper tribal name of these Indians in their own language, is Muh-he-ka-neew in the singular, and Muh-he-ka-ne-ok in the plural, signifying “The people of the great waters continually in motion.” The name has been variously written but the common English pronunciation is Muh-he-con-nuc or Muh-he-kun-nuck. The tribal tradition says that they came from a distant country in the northwest, were scattered by famine, and wandered easterly through the wilderness to the shores of the Hudson River, where they found fish and game in abundance. Here they built their wigwams and made a permanent settlement. Tribal tradition also says that they were very numerous at one time and able to muster a thousand warriors.

At the time of the commencement of the settlements in Berkshire, however, there were but a few Indians living within its limits, but prior to this, they had been quite numerous in the Southern part of the County and had dwelt there for many years. This is attested to by their many places of interment and by the great number of utensils and artifacts which have been and still are being found. Between the meadow and back roads, in the extreme northern part of Sheffield, and on their reserved lands, was one of their places of interment, the same being mentioned by Rev. James Bradford in the History of Berkshire, and not far from their Skatekook settlement. In Great Barrington, on the east side of the highway, and just north of the Great Barrington Fair Grounds, quite a number of years ago, the late General Timothy Wainwright, in excavating a sand bluff, exhumed the remains of a large number of bodies, and many others were afterwards found on the same bluff by the late Linus Manville. In each of these instances, some pieces of crude pottery were discovered, most of which crumbled when exposed to the air. Near the same spot, in later years, the late Samuel Whitwell came upon two Indian skeletons while digging a cellar; and others have since been found in that vicinity. In digging a cellar of a house formerly belonging to the late David Leavitt, a mile south of the village of Great Barrington, the remains of six bodies were found. Other burial places have been discovered on the east side of the Housatonic River above the bridge which crosses the river in the upper part of the village of Great Barrington and formerly known as the “Great Bridge”. The Rev. Sylvester Burt, in the History of Berkshire says that “one man digging thirteen post holes to secure his barn-yard, discovered the remains of six bodies.” This was on the place formerly belonging to the late William Walker, and in after years, the remains of another body was found in digging a well on the same premises. A little farther north, at the gravel bed of the late Lewis G. Ramsey, Indian bones have been frequently uncovered; and other graves, apparently aboriginal, have also been found in various other localities in Great Barrington. A monument marks the site of the ancient burial place of the Indians in the village of Stockbridge. Relics of Indian occupancy, such as stone axes, pestles of stone, some of fine workmanship, have often been discovered in the village of Great Barrington. The stone tomahawk is more rarely found. To this day, after nearly 200 years of cultivation, the flint spear heads and arrow points are still being found.

In the village of Great Barrington, quite a number of years ago, the late Capt. George Turner unearthed quite a number of arrow points in an unfinished state, probably a cache, which had been forgotten by its owner or owners, while digging a post hole near his house east of the bridge in the upper part of the village. Afterwards, the late
Theodore Chapin discovered a similar cache in his dooryard. One camp site was located on the top of Green River Hill, on the Egremont Road, on land presently owned by James L. Sinclair where spear and arrow points as well as chips and broken pieces of flint have lately been found, indicating a work shop at that place. Arrows and spear points have also been found on the easterly side of Green River, opposite to Green River Hill, indicating a camp site at that point. In Egremont, camp sites were located on three knolls south of the Old Marsh Pond on the farm formerly owned by the late Newman L. VanDeusen where many fine specimens of Indian workmanship have been found. A large stone mortar with three holes in it is located in a stone wall on this farm, the wall having been built around the mortar. Also, in the town of Egremont, on the easterly side of the road and on the westerly bank of Green River, on the farm of Edward E. Miller, was another camp site where a number of fine specimens have been found at various times. A burial place was located on the westerly side of the road on Mr. Miller's land.

Major Talcot's fight with King Philip's Indians is probably the earliest occurrence connecting Southwestern Massachusetts with history. This fight took place in August, 1676, during the latter part of King Philip's War, when Major John Talcot, with a body of Connecticut soldiers and friendly Indians, pursued a war party of fugitive Indians into this section, overtaking them on the westerly bank of the Housatonic River in the village of Great Barrington, and giving them a severe beating. A narrative from Hoyt's Antiquarian Researches is as follows: "Major Talcot having taken post at Westfield, Mass., and not long after his arrival at that place, the trail of about 200 Indians was discovered, shaping towards the Hudson. Talcot immediately took the trail, and pressed on to overtake the Indians, and on the third day, discovered them encamped on the west bank of the Housatonic River, in the most perfect security. Being late in the day, he resolved to postpone an attack until the next morning, and drawing back lay upon his arms in the most profound silence. Towards the dawn of the day, forming his troops into two divisions, one to pass the river below the Indians, make a detour, and attack them in the rear, while the other was to approach by a direct route opposite their camp, and open fire across the river the moment the attack commenced on the opposite side. The plan was partially frustrated. One of the Indians left the camp in the night, and proceeded down the river for the purpose of taking fish, and as the troops crossed the river, as had been ordered, were advancing to attack, he discovered them and gave the usual cry, Awanux, Awanux! on which he was instantly shot. Talcot now opposite to the Indian camp, hearing the report, instantly poured in a volley, as the Indians were rising from their slumbers. A complete panic ensued, and they fled in confusion into the woods, followed by Talcot, and most who escaped the first fire made good their retreat. The division below was too distant to share the victory. Twenty-five Indians were left on the ground, and twenty were made prisoners, and among the former was the Sachem of Quaboag. Talcot lost but one, and he a Mohegan."

Hubbard in his narrative of Indian Wars—written soon after the occurrence—locates the fight on the "Ausotunnoog River in the middle way betwixt Westfield and the Dutch River and Fort Albany." Mr. Hubbard says that a great party of Indians, judged to be about two hundred, were observed to pass by Westfield. "News thereof being brought to Major Talcot, he with the soldiers, the soldiers of Connecticut Colony under his command, both English and Indians, pursued after them as far as the Ausotunnoog River, (in the middle way betwixt Westfield and the Dutch River and Fort Albany), where he overtook them, and fought with them; killing, taking prisoners forty-five, whereof twenty-five were fighting men, without the loss of any one of his company, besides a Mohegan Indian. Many of the rest were sorely wounded, as appeared by the dabbling of the bushes with blood, as was observed by them that followed them a little further." - - - "It is written since from Albany there were sundry lost besides the forty-five forementioned, to the number of three-score in all; and also that a hundred and twenty of them are now dead of sickness."

It is quite probable that the place where Talcot's fight took place was at the site of the Great Wigwam, near the fordway on the middle trail between Westfield and the Hudson River where the trail crossed the Housatonic River in the Village of Great Barrington. The site of the Great Wigwam was on Church Street in Great Barrington, a little east of the Congregational Church.

The present State Highway Route #23 in Massachusetts and New York State was, for the most part, located along the middle trail between Westfield and the Hudson River.
THE HOUSATONIC INDIANS

Probably the earliest reference to the Housatonic River by Massachusetts authorities is to be found in the journal of the Rev. Benjamin Wadsworth, a minister of Boston, and afterwards President of Harvard College, who, in 1694, accompanied the Commissioners of Massachusetts and Connecticut to attend a treaty held at Albany, N. Y., between the Commissioners of Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and the Iroquois (The Six Nations). The Wadsworth party travelled from Boston to Albany, on horseback, with a guard of 60 dragoons, commanded by Capt. Wadsworth of Hartford, Conn. They left Boston on August 6th, arriving at Westfield on August 9th. Mr. Wadsworth says: "We set out from thence (Westfield) towards Albany the nearest way thro' ye woods;" they travelled 24 or 25 miles and encamped. "Ye road which we travelled this day was very woody, rocky, mountainous, swampy; extream bad riding it was. I never yet saw so bad travelling as this was. We took up our quarters, this night, by ye side of a river, about quarter past five, (probably the Farmington River in Otis) August 10th, travelled about 25 miles and took up our Lodgings, about sundown in ye woods, at a place called Ousetonuck formerly inhabited by Indians. Thro' this place runs a very curious river, the same (which some say) runs thro' Stratford; and it has on each side some parcels of pleasant, fertile intervale land. Ye greatest part of road this day was a hideous, howling wilderness; some part of ye road was not so extream bad. August 11th, we set forward about sunrise, and came, ye foremost of us, to Kinderhook about 3 of ye clock. They continued on to Albany, and returning, took their route towards Hartford, via Kinderhook, Claverack, Taghkanick, Kent, and Woodbury, Conn. Leaving 'Turconnick', they rode 12 or 14 miles, on our left a hideous high mountain. About noon they came to Ten Mile River, 'called so from its distance from Wyantenuck, (Canaan, Conn.) runs into Wyantenuck, by ye side of which we rode, I believe, 6 or 7 miles and passed ye same a little after sundown.' Wyantenuck River is ye same ye passeth thro' Ousetonuck; it is Stratford River also."

Doubtless Mr. Wadsworth and his party travelled the Middle Trail from Westfield to Kinderhook, crossing the Housatonic River at the old Indian fordway near the Great Wigwam in the Village of Great Barrington, and this extract from Mr. Wadsworth's journal would seem to confirm the tradition that an Indian settlement had existed there at a prior date. The settlement at the Great Wigwam was non-existent in 1694, however. It had probably not been inhabited by the Indians since the time of King Philip's War, 18 years earlier.

The name "Housatonic" means "over the mountain." "Hoo-est" means "over", "ten-nuc" means "the mountain." The Indians who lived in this locality came "over the mountain" to hunt and fish from the Hudson River country, south of Albany, and a number of them had settled in the Southern Berkshires permanently.

The long house of these Indians was located near Castleton-on-the-Hudson, from whence the town of Castleton, N. Y. derives its name; that is, from the Mohican Castle.

The source of flint used by these Indians of Southern Berkshire for their artifacts was the Indian flint mine which was located on the West side of the Hudson River in the town of Coxsackie, N. Y. The flint mine was distant from the Southern Berkshires only a little over 30 miles; probably a day's journey through the woods. Likewise, the long house at Castleton was also distant a little over 30 miles from the Southern Berkshires and doubtless frequent visits were made to and from these points.

At Westfield, on April 25th, 1724, Konkapot and twenty other Indians of the Housatonic tribe (afterwards called the Stockbridge Indians) deeded "all of Housatank allias Westenook"—in consideration of the payment secured to them of "Four Hundred and Sixty Pounds, Three Barrels of Sider and thirty quarts of Rum", executed a deed conveying to the settling committee—Col. John Stoddard, Capt. John Ashley, Capt. Henry Dwight and Capt. Luke Hitchcock—"A certain tract of land lying upon the Housatonack river allias Westenook," bounding "Southardly upon ye divisional line between the Province of Massachusetts Bay and Colony of Connecticut in New England, westwardly on ye patten or colony of New York, northwardly upon ye great mountain known by ye name of Mau-ska-fea-haunk, and eastwardly to run four miles from ye aforesaid River, and in a general way so to extend."

The Indians reserved within this tract all the land on the west side of the river, lying between the mouth of a brook called "Mau-nau-payment" and of a small brook lying between the aforesaid brook and the river called "Waumpa-nick-se-poot" or "White River" (now called the Green River) extending due west from the mouths of the said brooks to the Colony of New York, and also a clear meadow lying between the before-mentioned small
brooks and White River. The tract conveyed by this deed included the whole of the towns of Sheffield, Great Barrington, Mt. Washington, and Egremont, the greater part of Alford, and large portions of the towns of West Stockbridge, Stockbridge, and Lee. This was a much larger territory than was contemplated in the legislative grant to the settling committee.

As the boundary line between Massachusetts and the State of New York had not then been definitely established, the western limit of this tract was rather indefinite. The Great Mountain called Mau-ska-fee-haunk—the northern boundary mentioned in this deed, is believed to be the Rattlesnake Mountain in the Town of Stockbridge, near the southern slope of which the north line of the township of Great Barrington ran as afterwards surveyed.

The tract reserved by the Indians, with the exception of the clear meadow, lies immediately south of the south line of the town of Great Barrington, and extends from the Housatonic River to the New York State line, westerly through the Town of Egremont. The clear meadow is included in the recognized limits of the town of Great Barrington.

Mention should properly be made of Monument Mountain which is located in the northerly part of Great Barrington and south of Stockbridge. This mountain was the Mas-wa-se-hi (a nest standing up) of the aboriginees. It is a favorite place of resort for pleasure seekers from abroad and from the surrounding territory; it being noted for the extraordinary beauty of the scenery which its summit affords. It is formed of quartz rock, thrown up, in some great upheavel of nature into wild, craggy ledges and overhanging precipices. The name "Monument Mountain" is derived from a rude pile of flint stones, which formerly stood at the foot of the southern slope of the higher part of the mountain, a short distance westerly of State Road Route No. 7. This pile of stones was originally, some six or eight feet in diameter, circular at its base, and was raised in the form of an obtuse cone. It was definitely of aboriginal origin and was in existence before the white settlers came into this section. The original pile of stones was thrown down quite a number of years ago by some vandals, the stones scattered about, and an excavation made under the original monument, perhaps in the expectation of discovery of some hidden treasures. The stones have now been thrown together in a circle, and still mark the site of the monument. Tradition says that the territory of the Muh-he-kun-nucks was once invaded by a hostile tribe. The Muh-he-kun-nucks lay in ambush for their enemies in the passes of the mountain, fell upon, and defeated them with great slaughter; and that the pile of stones commemorated that event. In a letter written from Indian Town (Great Barrington) in November, 1735, the writer says with reference to this pile of stones, "it is raised over the first sachem who died after they (the Indians) came into this region. Each Indian, as he goes by, adds a stone to the pile. Captain Konkapot tells me that it marks the boundary of land agreed upon in a treaty with the Mohawks. The Muh-he-cun-nucks being entitled to have all the country for their hunting ground within one days' journey in every direction from said pile. He also says a chief was buried there but the stone is added to keep distinct the monument.

The Rev. John Sargeant, in passing from Great Barrington to Stockbridge, in company of Ebenezer Poo-poo-nuck, an Indian interpreter, November 3rd, 1734, on the occasion of his first visit to the Indians, observed the monument, and made the following record in his diary: "There is a large heap of stones, I suppose ten cart loads, in the way to Wnah-tu-kook (Stockbridge) which the Indians have thrown together, as they passed by the place, for it used to be their custom every time any one passed by to throw a stone to it. But what was the end of it they cannot tell; only they say their fathers used to do so and they do it because it was the custom of their fathers. But Ebenezer says, he supposes it was designed to be an expression of gratitude to the Supreme Being, that he had preserved them to see the place again."

Similar piles of stones, or monuments, are still intact, just over the Massachusetts line in New York State, being located at a corner boundary of the towns of Claverack and Taghkanic, and mentioned in the deeds of Livingston Manor, which are recorded in the County Clerk's Office in Hudson, N. Y. as "a place called Wawannaquasick where ye Indians were wont to pile stones."

Researches made by various individuals and the large number of relics and other evidences of aboriginal occupancy which have been discovered in Southern Berkshire would seem to indicate that at one time there was a large Indian population inhabiting the towns of Great Barrington, Sheffield, Egremont, and Stockbridge long before the country hereabouts was known to the white men; and there is ground for belief that the Great Wigwam was the central point or council seat of this population. However great or small the native popu-
lution of Southern Berkshire may have been, the Indians were but few in number at the time of the establishment of the mission among them in 1734. At that time, according to the history of the mission, Umpachene, with four other families, resided at Skatekook, on the reserved lands in the extreme northerly part of Sheffield, Konkapot, with four or five other families lived in Stockbridge, on land known as the Great Meadow, called Wnah-tu-kook, and the Gilders lived in Egremont. The dwelling place of Konkapot stood on a knoll, on the east side of the road, a short distance north of the brook which bears his name. The name “Skatekook” or properly “Schaghticoke”, means “where the small stream empties into the large one and Corn Lands adjoin.” At this point (Skatekook) the Green River (Waumpanicksepoot) formerly emptied into the larger Housatonic, and the Corn Lands of the Indians were the Clear Meadow and the bluff to the south of it. The name “Wnah-tu-kook” signifies “the head of the stream.”

The Rev. Samuel Hopkins of West Springfield was primarily responsible for the establishment of the mission to the Indians in Great Barrington, in 1734.

The attention of Mr. Hopkins was directed to these Indians by a neighbor of his, Ebenezer Miller. Mr. Miller who had his information from Housatunnuk, informed him that the chief (Konkapot) who was the principal man among these Indians “was strictly temperate, a very just and upright man in his dealings, a man of prudence, industrious in business, and disposed to embrace the Christian Religion.”

Mr. Hopkins, being much impressed, called upon Col. John Stoddard at Northampton, on March 11th, 1734; consulting with him with reference to sending a religious teacher to the Indians, and also to confer with the Rev. Stephen Williams of Longmeadow. Through the influence of these individuals the subject of providing a religious teacher for the Indians was laid before the “Board of Commissioners for Indian Affairs” in Boston, with whom funds for religious purposes had been deposited. The Commissioners requested that Messrs. Hopkins and Williams visit the Indians, and ascertain their feelings with regard to the establishment of a mission among them. Gov. Belcher had then recently commissioned Konkapot as a Captain, and Umpachene as a Lieutenant, and these chiefs went to Springfield in May, 1734, to receive their commissions, accompanied by Jehoiakim VanValkenburg, as interpreter.

Upon their arrival in Springfield, the Indians were waited upon by Messrs. Hopkins and Williams, the subject of the establishment of a mission among them being presented to them, it was favorably received and it was arranged for the ministers to visit the Indians at Housatonic in July, hold a conference, and lay the matter before them for their consideration. At the appointed time, Mr. Hopkins was detained by sickness and the Rev. Nehemiah Bull went with Mr. Williams in his stead to Housatonic on July 8th. The Indians were assembled, a conference held, and after four days deliberation on the part of the Indians, they consented to receive a religious teacher. Messrs. Bull and Williams were soon afterwards authorized by the Commissioners to employ a missionary, and they made arrangements with Mr. John Sargeant, a graduate and tutor at Yale College, to officiate in that capacity. In October, 1734, Mr. Sargeant, accompanied by Mr. Bull, made his first visit to the Indians, leaving Westfield on the afternoon of October 11th. Mr. Sargeant was ordained as a minister at Deerfield on August 31, 1735, in the presence of Gov. Belcher and a large committee of the Council and the House of Representatives. A numerous delegation of the Housatonic Indians was also present, and by whom Mr. Sargeant was formally accepted as their spiritual teacher. The mission was established at Great Barrington in the latter part of October, 1734. Mr. Sargeant opened a school on November 5th, and the next week he had 22 or 23 Indian children for scholars, to which two more were added the following week. With the exception of a few days spent in a journey to Albany, Mr. Sargeant remained here, teaching and preaching until December 9th, when he returned to his collegiate duties at New Haven, taking with him two Indian boys, sons of Konkapot and Umpachene, and leaving the school in charge of Mr. Timothy Woodbridge, who had arrived about the last of November, and who became, thereafter, the permanent schoolmaster.

The mission was maintained at a building erected for that purpose in Great Barrington during the winters of 1734-1735 and 1735-1736.

In the Spring of 1736, the mission was moved from Great Barrington to Stockbridge. At the time of the opening of the school in Great Barrington, the whole number of Indians collected there was about fifty; some additions were made to these, and soon after the removal to Stockbridge, the number was increased to ninety persons. The return of the Indians to their homes, with the opening of Spring, which had been forseen, but not provided for, presented an
obstacle to the successful operation of the Mission. In order to induce them to dwell together that they might be more efficiently and advantageously instructed, it was proposed that a township should be granted them in 1735. This matter was discussed and it was considered desirable by the Indians as well as by Mr. Sargeant and others interested in the Mission. The Indians were desirous of having a township granted to them to the northward of Monument Mountain which would include the “Great Meadow” at Wnah-tu-kook where Konkapot lived.

On March 25, 1736, the General Court of Massachusetts granted to the Indians a township, not to exceed six miles square, above the mountain, and upon the Housatonic River, and appointed Messrs. Stoddard, Pomeroy, and Ingersoll, a committee to lay out the same. The committee were directed to lay out to each, the Rev. John Sargeant and Timothy Woodbridge, the school-master, one-sixteenth part of the township, and also to lay out a sufficient quantity of land for the accommodation of four English families, who were to be settled upon the land under the direction of the committee, by and with the advice of Messrs. Sargeant and Woodbridge. They were also empowered to dispose of the land reserved to the Indians in the deed of 1724 “in order to make satisfaction, so far as the same will go, to the proprietors and owners of the lands” now granted to the Indians; and also to give to the proprietors of Upper Housatonic, living below the mountain, an equivalent in the unappropriated land, lying adjacent to Sheffield, Upper Housatonic, or to the town granted to the Indians; and further to make to the proprietors living above the mountain, an equivalent in some of the unappropriated lands of the province.

On May 7, 1737, “the grant of the town was fully confirmed to the Indians”, and in 1739, the township was incorporated as Stockbridge.

The Mission was continued in Stockbridge for many years, as successfully as its founders, perhaps, had hoped. However, idleness, the love of rum, together with the interference of unprincipled white men, who not only furnished the Indians with rum, but by misrepresentations and falsehoods, endeavored to dissuade them from listening to the instructions of their missionary, presented serious impediments to its success. These were gradually overcome; the Indians became civilized; many of them were Christianized, educated, and became respectable and industrious citizens.

Their numbers were gradually increased by accessions from other parts of the country. In 1739, they numbered about 20 families, 14 communicants, and about 60 of them had been baptized. Some had houses built after the style of their white neighbors, and Konkapot had “a shingled barn.” In 1740, their population was 120; in 1749, it was 218. They afterwards increased to about 400.

Aside from the Christianizing and civilizing of the Indians, one great advantage resulted from the Missions; that of the securing of their friendship which was of inestimable value to the settlers of the Housatonic Valley during the French wars, when their numbers, and known loyalty to the English presented a barrier and a sure protection to the inhabitants against the massacres and devastation which many of our frontier towns suffered, and they in common with their white neighbors, enlisted in defending our borders against the allied attacks of the French and Canadian Indians.

During the Revolutionary War, the Stockbridge Indians rendered notable and meritorious service. A number of them enlisted as Minute Men, and together with other Berkshire soldiers, did duty about Boston during the time of its occupancy by the British and also participated in the Battle of Bunker Hill.

These Minute Men were each presented with a blanket and ribbon by a special vote of the Provisional Congress of Massachusetts. Through General John Paterson and Captain William Goodrich, an address was made to the tribe by the Congress, explaining the reasons and causes of the controversy between the Colonies and the Crown, and commending their zeal in the cause. The Indians replied to this address, following a council of two days, held in Stockbridge. On April 11th, 1775, they gave assurance of their sympathy and their readiness to assist in the coming struggle. During their service around Boston, eighteen of the Indians petitioned the Congress in July, 1775, to pay over the money which was, or might become due them for services, to Messrs. Timothy Edwards and Jahleel Woodbridge, “as they were sensible of their (own) want of prudence in disposing of their money,” and were desirous that the Congress “would devise some method to prevent them from getting too much strong drink.”

A full company of the Stockbridge Indians went to White Plains under the command of their own Indian Capt. Daniel Ninham. They participated in the Battle of White Plains, where four
THE HOUSATONIC INDIANS

were slain in battle and some died of sickness. During the whole of the War of the Revolution, they furnished scouts for the American army in various sectors.

Shortly after the Revolutionary War, the Indians began to remove to a township in the westerly part of New York State which had been given to them by the Oneidas, and which was called New Stockbridge. In 1798, they had all removed to that place.

Later on, they again moved to the State of Wisconsin where a reservation had been given to them by the Federal Government near Green Bay, Wisconsin, where about 400 of them reside at the present time; their principal town being Keshena, Wisconsin.

This, then, is the remnant of the great Muh-he-ka-ne-ok Nation whose tribesmen greeted and entertained Henry Hudson and his men on their voyage up the river which bears Hudson's name, in September of 1609.

SOME COMMENTS ON THE MOORING HOLE PROBLEM

by

Ripley P. Bullen

I have read, with interest and some trepidation, Bernard W. Powell's article "The Mooring Hole Problem in Long Island Sound" in the January, 1958, issue of the Bulletin of the Massachusetts Archaeological Society and feel moved to make a few comments.

As a boy I visited Cape Ann summers—especially the Lanesville-Pigeon Cove region. There I saw various small boats moored in the manner mentioned on the second page of Mr. Powell's article, particularly where the shore consisted of a sloping rock ledge. An iron pin in a hole in the ledge secured a metal ring. A similar ring was fastened to a pole erected some thirty feet out and in reasonably deep water (depending on the tide). Between these two rings was a rope one end of which was tied to the bow and the other end to the stern of a small boat. The usefulness of this arrangement, similar to a travelling clothesline, is obvious.

Dr. Austin Oliver, Assistant Curator of Biological Sciences, Florida State Museum, advises me that he saw this ring-bolt method of mooring boats in Labrador both at Turnevick and, to a larger extent, in Punch Bowl Harbor in 1926. As at Cape Ann, one bolt was fastened by a hole to the rock ledge. It would seem as if many recent people, over a considerably area in northeastern North America, used ring bolts in mooring holes in ledges (or boulders), and that the presence of such a hole anywhere in this area can hardly be considered evidence of Vikings.

The part of Cape Ann which I visited had—or rather had had—very active granite quarries. It is true that modern methods use power tools and produce very round "drilled holes" even in hard granite. However, such holes used to be made with small sledges and straight-edged chisels. As a boy I used such tools and made holes like "spherical triangles" as Mr. Powell illustrates. A good driller would have been mortified by such a hole.

If Mr. Powell wishes to get comparative data on drill holes along the New England coast may I suggest Cape Ann where (1), there is an old tradition of stoneworking and off shore fishing, (2), where a sloping granite shore is present; and (3), where I saw mooring holes in use around 1910-1915.

May I be permitted a couple of further but minor comments?

Mr. Powell writes that a good man can, supposedly, drill a satisfactory hole in less than fifteen minutes. I think that time is a bit short for hard Cape Ann granite but, be that as it may, it would seem that the steel tools of recent times are better than the wrought ( ?) iron ones available in 1003 A.D. Also, if a mooring hole was drilled before a marauding party landed wouldn't there have been a danger, thereby, of sounding an alarm?

It may well be possible to flip a mooring pin from its hole as Mr. Powell suggests but I'd hate to bet my life on it. I suspect warriors hastening to a boat would take the pin from the rock as they entered the water to board the boat. If they forgot, a blow on the gunwales with a battle axe (cutting the line) would expedite matters.

And what did they do if there were no rocks available for mooring? Most seafaring people, including the Vikings, land on sandy beaches when they are available.

Gainesville, Florida
January 16, 1958
SOME STONE DRILLING TECHNIQUES

I have read with considerable interest Mr. Bernard W. Powell's contribution to the "mooring-hole controversy." At risk of having your readers join in a perhaps unprintable version of "You Are Old, Father William" I now offer my 1½ cents' worth.

As a kid I was fascinated by operations at a rock quarry where stone for road building was being mined. It was a very small operation, but there was a rather old and rickety steam drill there, and, of course, plenty of hand drilling. And here I would like to point out that a hand drill and a chisel are two very different things, since the bit of a correctly sharpened drill is curved like the bit of a food-chopper (or semilunar knife if you prefer). When the gang was drilling, three men with drilling hammers stood around the drill which was held by a fourth man. After each man struck the head of the drill, the man who held it had to lift and turn the drill slightly. With a crew who knew their business this was a ticklish operation, since a hammer hit the drill only slightly less frequently than once a second. Water was put in the hole and a piece of bagging placed around the shaft of the drill to prevent the mud from spattering everyone.

On more than one occasion I have held the drill when the holes were shallow and the drills short, but when they became too long for my strength to jump the drill, I had to relinquish my place. I was never allowed to strike, though, for no one had the faith in my eye to warrant holding his wrists in range of my 10-pound hammer.

No matter who held the drill, the hole always came out triangular, with bulged sides. This, I suppose, is because one edge of the bit always serves as a pivot while the drill is turned, and they almost automatically become set at the corners of an equilateral triangle since the wrists can turn comfortably about 60° when performing such a job.

There are two ways of breaking up boulders. One is by using a mud-pack. This involves placing a stick or two of dynamite flat on the boulder and covering the dynamite with thick mud. It is quick and easy, and perfectly satisfactory when the operation is performed at some distance from a building, for there is a concussion that will break windows within a quarter of a mile. The other method, and one used near buildings, involved drilling a hole in a boulder with a hand drill. This was not always drilled from the top, but might be drilled from a slanting face in order to take advantage of the crystalline structure of the rock. These holes were always "bulged triangular" in cross section. Some holes never were loaded and fired because of a number of reasons; no more broken stone might be needed; the project might be called off and postponed because of more pressing business, never to be taken up again; or some other event might intervene. There is a hole in a boulder in a field not far from our house in Maine, and close enough to the water to have been considered a possible mooring hole. We drilled it before the war but never blew it because the fuse got wet and wouldn't burn, and then bad weather set it, and then my helper went off to war. Perhaps we better touch her off before someone thinks Leif did it.

I mentioned an old steam drill at the quarry. It didn't drill a perfectly round hole, but one that was somewhat squarish. That was probably because it was so old. The new airdrills with hollow shafts and a movable head do make perfectly round holes.

Fred Johnson just told me that when he was a boy he followed a man who was drilling holes in boulders in a big field by a lake in Hubbardston. He was going to split the boulders to make a stone wall. He split less than half and never made the wall. The last time Fred was there the holes were still in the boulders in the field; enough holes to be needed; the project might be called off and postponed because of more pressing business, never to be taken up again; or some other event might intervene. There is a hole in a boulder in a field not far from our house in Maine, and close enough to the water to have been considered a possible mooring hole. We drilled it before the war but never blew it because the fuse got wet and wouldn't burn, and then bad weather set it, and then my helper went off to war. Perhaps we better touch her off before someone thinks Leif did it.

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This is by way of suggesting that holes that aren't perfectly round may have been drilled by people who still walk the streets, and not by Norse.

Douglas S. Byers
Andover, Mass.
January 29, 1958

MEETING NOTICE

Our semi-annual Spring Meeting will be held at the Peabody Museum in Salem, Mass., on Saturday, April 12th. The Program Committee has labored hard to draw up an interesting program for the occasion, and there is the additional incentive of viewing the varied displays in one of the country's outstanding museums. We also understand that arrangements are being made for members to visit several of the old homes in this historic city. In every way this should be an outstanding meeting, and merits a full attendance of our membership.
EDITORIAL COMMENT . . . .

Available previous issues of the Bulletin may be purchased by members at fifty cents per copy. The charge to non-members is one dollar each. Many of the forty-four issues of the News Letter are available at twenty-five cents per copy. The publication of the Index covering Vols. 1-17 has created a demand for some of the previously published articles and members should consult the available list of Bulletins in News Letter No. 44 and forward their requests promptly before the supply is exhausted. Please inclose payment and address all requests to Mrs. Mabel Robbins, Secretary, Bronson Museum, Attleboro, Mass.

We have an inquiry from a large institution interested in acquiring a complete file of our Bulletins. If any member wishes to dispose of same please contact your Editor and he will make the necessary transfer arrangements.

Not so long ago your Editor paid ten dollars for a copy of Sidney Perley's "Indian Land Titles of Essex County, Mass." Attractively printed and boxed, this limited edition of 183 copies includes a map of Indian localities in the above County together with reprints of the old Indian land deeds of the area. It also describes the tribal territories of Pentucket, Agawam and Naumkeag, and is fully indexed. The Society has acquired twelve copies of this valuable historical reference work which are available to members at $4.50 per copy, first come first served.


The July issue of the Bulletin will have Mr. W. Sears Nickerson's article on "The Old Sagamore Mattaquason of Monomoyick." Mr. Nickerson is a life long resident of Cape Cod, and relates in detail the life story of this important Cape sachem. Accompanying the article will be a map of the tribal domain, showing the Indian place names and pointing out other spots of historic interest.

An error in a section of our revised By-Laws has come to attention. Under Article IV, Section 2, sub-head C, the word VOTE inadvertently appears and should be stricken from members' copies.