Bulletin of the Massachusetts Archaeological Society, Vol. 21, Nos. 3 and 4

Massachusetts Archaeological Society

Follow this and additional works at: https://vc.bridgew.edu/bmas

Part of the Archaeological Anthropology Commons

Copyright
© 1960 Massachusetts Archaeological Society

This item is available as part of Virtual Commons, the open-access institutional repository of Bridgewater State University, Bridgewater, Massachusetts.
THE EEL BRIDGE SITE
Gerald C. Dunn .......................................................... 33

DID LAFITAU DRAW WHAT HE SAW?
William S. Fowler ....................................................... 38

THE BRADLEY SITE ON THE PENOBSCOT
Guy Mellgren ............................................................... 43

METHODS OF TRANSLATING INDIAN PLACE NAMES
Laurence K. Gahan ....................................................... 46

FURTHER PROOF OF VIKINGS AT FOLLINS POND, CAPE COD
Frederick J. Pohl .......................................................... 48

RECENT WORLD-WIDE SEA LEVEL CHANGES
Rhodes W. Fairbridge .................................................... 49

IDENTIFICATION OF IMPORTANT SITES IN THE NORTHEAST
Benjamin L. Smith ........................................................ 52

MAINE COAST POTTERY (Seventh Installment)
William J. Howes ........................................................ 54

IROQUOIAN-MOHAWK POTTERY (Eighth Installment)
William J. Howes ....................................................... 56

POTTERY SIZE SCALE
William J. Howes .......................................................... 61

RECOVERY OF AN AX OR MACE IN ITS ORIGINAL HAFT
Maurice Robbins .......................................................... 62

EDITORIAL COMMENT ..................................................... 64
MASSACHUSETTS ARCHAEOLOGICAL SOCIETY

OFFICERS

President
Eugene C. Winter, Jr. 1 Erickson St., Stoneham, Mass.

First Vice President
Viggo C. Petersen 4 Cottage St., Marion, Mass.

Second Vice President

Secretary

Treasurer

Editor

Trustees
Society Officers and Past Presidents — Ex-Officio
Waldo W. Horne William D. Brierly
Walter Thomas, Jr. Donald C. Wilder
Adrian Whiting
Guy Mellgren, Jr.

MASSACHUSETTS ARCHAEOLOGICAL SOCIETY BULLETIN published in four Numbers of one Volume each year, commencing in October.

Price this issue: $1.50

Subscription by membership in the Society: $3.00

Note: Address all requests concerning membership, and the purchase of back Bulletin numbers to the Secretary, Mabel A. Robbins . . . Mail Society dues to the Treasurer, Arthur C. Staples.

BRONSON MUSEUM

This is the Society's museum, Fifth Floor of the Bronson Bldg., 8 No. Main Street, Attleboro, Mass. — Museum hours are from 9:30 to 4:30, Mondays, Tuesdays, and Thursdays; for special arrangements to visit on other days, contact the Director, Maurice Robbins, or the Curator, William S. Fowler by mail at the Museum address.

The Museum includes exhibits of artifacts and seven dioramas portraying man's prehistoric occupation of New England. The displays are arranged so as to show man's development through four culture stages, from early post glacial times.

The last diorama recently completed, extending 15 feet across the front of the museum, depicts an Archaic village of seven large and unique wigwams, the foundations of which were excavated at Assowampsett Lake by the Cohannet Chapter, the only settlement of those early days ever discovered. Human figures to scale make the scene come alive and help create what unquestionably is an outstanding addition to our ever growing museum displays.
In the period of 1957, repairs were made on the Burnham Dam, and during a period of several months the Sebasticook River was drained to its original level, exposing numerous rapids in the old stream bed. John Hill of Oakland and I had commented on the fact we should plan to go and have a look for Indian sites. On the day before they started to refill the stream Manley Cates and I looked over the area. From Burnham Dam to Eel Bridge is a distance of two and three quarter miles. Small sites are to be found on both sides of the river where adz blades, gouges, pendants, points, hammerstones, pestles, and chips have been found in the past. However, no pottery sherds have been recovered other than at the Eel Bridge site. We may assume, then, that such material deposits indicate only a scattering of transient camps as peoples passed up and down the Sebasticook from the Penobscot to the Kennebec River area (Fig. 1).

It is our belief that the Sebasticook River, 70 miles in length, (called Sebestigunk by present day Indians), is a river system of much greater importance than has been generally recognized. It ranks...
sixteenth in length among Maine rivers. What do we know of the river as it flows from Burnham Dam westerly to its confluence with the Kennebec?

At the mouth of the stream on the north side was built Fort Halifax; completed in 1754. It was probably chosen to control communication between the Norridgewock and Penobscot Indians, and was a route traveled by Penobscots on their journeys to Quebec. A block house was built on top of a hill back of the fort to command a view of the falls where considerable fishing was done. These falls were where the Central Maine Power Company’s dam at Winslow is now located. Aboriginal artifacts have been found for years in the immediate vicinity. However, building of the dam, relocation of the highway, and rebuilding of the bridge have prevented appearance of artifact material, except to a limited extent.

Importance of the Taconic Falls in early times was very great. All traffic had to be carried past the great falls, which are just below the railroad bridge at Winslow and Waterville. The fort built in 1754 at Winslow commanded traffic up and down the Kennebec and over to the Penobscot by the short route (Arnold’s) to Quebec. Indians going from Penobscot to Quebec did not follow the Sebasticook to its mouth, but carried across to the Kennebec at a point above the falls, and the block house, previously mentioned, commanded this carry.

In Spragues Journal of Maine History, Vol. 9, No. 3, 1921, Fort Halifax ... “This location was at the confluence of Kennebec and Sebasticook rivers, and probably was chosen as it was the only known way of communication between the Norridgewock and Penobscot Indians, and was the route traveled by the Penobscots in their journeys to Quebec and also because it was the northern boundary of the Plymouth Colony grant. Another name appearing is Nequamke Falls some five or six miles below Taconic Falls.”

Further up stream about three and a half miles was located the so-called Lancaster Red Paint Cemetery. (P.95-100, Moorehead’s Archaeology of Maine). In the vicinity of Benton Falls a number of skeletons were found when gravel was dug out on the north side of the stream. Artifacts have been found in the areas bordering the stream, as well as on higher ground some 20 feet above. At Clinton it is reported that skeletons and artifacts were found when gravel pits were opened on the north side of the river, but what became of the material is unknown. Another rumor has it that Indians camped on an island about a mile above the village. Inquiries as to Indian sites in the vicinity of Burnham have proved negative in results; but our location of the Eel Bridge site proved different. A twenty mile stream flowing from Unity Pond would seem to have offered good travel through swampy terrain, which must have abounded with game. The entire area is still the home of moose, deer, muskrats, and other game. So much then for what is known or rumored. All this indicates extensive use of this Sebasticook water highway. Chief Peltoma was supposed to have lived in the vicinity of Pittsfield at Peltoma Bridge, which is only two and a half miles distant from Eel Bridge. It is entirely possible that Peltoma’s village may have been located at Eel Bridge site, though history is silent on the subject. Search for a history covering early days of Pittsfield and Burnham have been unrewarding. In fact, no Burnham town history could be located, and nothing but a very general one on Pittsfield as compiled by an eighth grade class in that town.

**MEANINGS OF SEBASTICOOK**

Seven Indians of three tribes between 1916 and 1930 gave these interpretations of the word Sebasticook: stream; river scatters; a measure or mark; level ground flooded at low tide; stream coming from a lake; to the empty river; and, the short route. These Indians were in their 80’s, but common sense analysis will show how far off they were with the possible exception of the last one, which seems to apply. If interested in more about the names, see pp. 11 and 12 of Fannie Eckstorm’s book “Indian Place Names of the Penobscot Valley and the Maine Coast.”

To appreciate why the Sebasticook was of such importance in the aboriginal system of communication, we should note the typography of the drainage basin. The river fans out into wide spreading branches, the longer, but lesser branch, rising in Sangerville and Dover, known as Maine River, the shorter and more important branch rising in Newport, called the east branch. Probably, Main River and its east branch originally were known as Sebasticook (the almost-through river) because this was the shortest and easiest route to the Penobscot. By following different tributaries six important objectives could be attained. Thus the Sebasticook was a main water highway of ancient travel and the principal route by which French missionaries communicated with one another in the area they were working. Connecting the Penobscot with the Sebasticook.
route was a short carry of some 40 rods in Levant between Swadaapscook and Kenduskeag streams, now connected by a canal. This was called the crossing. Various Indian names attributed to this area are interpreted to mean: a cross; a short cut; narrows; across; and almost through. In the history of Clinton, through which the Sebasticook flows, mention is made that in 1880 Indians from Old Town came down the river to sell their baskets in the vicinity of Waterville, traveling up the Kenduskeag, then crossing over and coming down the Sebasticook. Burnham, the township in which the Eel Bridge site is located, was known as 25 mile pond plantations. It was incorporated in 1824, and that part of Clinton, known as Clinton Gore, was annexed to it in 1873.

THE SITE

Location of the Eel Bridge site was accomplished only after much searching. After receiving evidence of small camp sites below Burnham, as previously mentioned, it seemed that there should be nearby a larger site worth exploring. During our search we found chips, pottery fragments, and one adz near rapids in the Sebasticook, which seemed to indicate a possible fishing station. On the bank, some three feet above the stream, the evidence we sought was found, namely, quantities of chips, black earth, and fire stones.

At the start of excavations, eighteen 6 foot squares were staked out over an area measuring 24 by 36 feet. In the upper 6 inches of soil were recovered most of the artifacts. Very few were found at greater depths, with the exception of spots in proximity to hearths. During late 1958 and during 1959 the original area was expanded so that the total area dug now equals 2,464 sq. ft., extending 54 ft. along the stream by 56 ft. deep.

ARTIFACTS RECOVERED

ADENA BLOCK-END TUBE. A small drilled fragment was found. It is white in color, and is of a material identified by Professor Bodine of Bowdoin College as coming from Ohio; may well be a section of an Adena tube. If this is so, it is one of only a few listed as found in Maine.

SCRAPERS. Scrapers found, number 87 all told, and include flake, thumbnail, and steepedge types; are of felsite, jasper, and chalcedony. Most are of the steepedge type, the largest measuring 3/4 by 1 1/2". One large oval scraper was also recovered, and is illustrated.

BONE MATTER. In an area, still the home of moose, deer, and smaller animals, bone recovery seems rather small. There was a quantity of bone in only one large hearth consisting of remains of moose. Elsewhere, the wet clay loam appears to have decomposed organic refuse, such as bone, so that all evidence has disappeared.

DRILL. Only one T based drill was found.

LARGER TOOLS. One fragment of a well made gouge, an unfinished adz, and fragments of possibly 3 other adz blades or gouges were recovered.

PLUMMET. One plummet appeared, which may have been intrusive.

HEARTHS. Hearths were very numerous, of which fifteen had stonelined pits. In a number of instances, they had for a hearthstone or base a large flat rock weighing several hundred pounds. Smaller flat stones were placed in a manner so that a fire pit of one to three feet in diameter resulted. These stone walled pits were often found 12" to 14" beneath the surface, and may represent an earlier occupation, although other artifact evidence was lacking, except the plummet, which may have been intrusive into the upper level, already noted. Later hearths were located on top of the lower ones, and the entire upper level was covered with black charcoal-filled earth containing scattered fire stones. In this upper 6 to 8" were found most of the projectile points, scrapers, and potsherds. All this leads one to believe that the upper level was occupied by ceramic people whose culture extends back some 500 to 1,000 years.

PROJECTILE POINTS. A study of 125 projectile point specimens from the site puts 54% into a group having a width of one inch or more, while 55% have either a truncated base or are of the leaf type. Since the site is located at rapids and has an extensive swampy hunting area, we would classify most of the points as spear blades; only 6 specimens seem small enough for arrow points. Points are made of felsite, jasper, and white quartz; felsite as used is often referred to as “Kineo flint” and seems to have been obtained from river bed glacial cobbles. It probably was not imported, therefore, from the felsite escarpment quarry at Mt. Kineo on Moosehead Lake.

KNIVES. Both stemless and stem knives were found, usually made of felsite. The stem specimens were large, 5 to 6" in length.
Fig. 2 ARTIFACTS FROM THE EEL BRIDGE SITE. Projectile point styles 1-14; Stem knife 15; Stemless knife 16; Steepedge scrapers 17, 18, 20; Oval scraper 19; Plummet 21; Celt (fragment) 22; Coin (enlarge) 23; Block-end tube (fragment) 24; Ceramic pipe (fragments) 25, 26; Trade pipe (kaolin) 27.
POTTERY. Potsherds appeared in great numbers; well over 3,000 small and large sherds were recovered, including many rim sherds. These sherds were found mostly within or in close proximity to the upper hearths. The ware is coarse textured for the most part, and has mineral temper with considerable mica. A study of the material shows no evidence of Stage 4 pottery of Iroquoian influence. Decorations consist of dentate, punctate, rocker-stamp, cord-wrapped-stick, and trailing. Rims are everted, some slightly decorated while others are left plain. While coiling probably existed, there seems to be no trace of it, possibly due to superior firing or other improved techniques. One base sherd, the only one found, suggests a semi-globular shaped pot, which indicates that it belonged to Stage 3 ware. With the exception of this and one or two rim sherds with laminated colors from Stage 3 pot, the remaining rim sherds indicate Stage 2 ware, mostly derived from the last half of the period, whose pointed bases had all been destroyed.

Not enough sherds were found belonging to any one pot to facilitate restoration.

FOLLOWING TRAITS OF SITE POTTERY ARE STAGE 2 EXCEPT WHEN OTHERWISE INDICATED

1. SHAPE—conoidal, or pointed base; one semi-globular sherd (Stage 3).
2. NECK—constricted; surmounted infrequently by a narrow collar (Stage 3 when laminated).
3. RIM—flat and evenly constructed, decorated outside; when decorated inside (Stage 3).
4. WARE—3⁄8" thick, course textured; mineral temper with mica added.
5. CONSTRUCTION—coiling has been skillfully concealed.
6. SURFACE MARKING—stick-wiped inside, or tool smoothed; cord-marked outside, often left smooth.

Fig. 3 POTSHARDS FROM THE EEL BRIDGE SITE. Stage 2 rim sherds 1-4, 6-9; Stage 3 rim sherd 10; Semi-globular base sherd (probably from a Stage 3 pot) 5.
7. DECORATION — simple motifs, punctate, dentate, rocker-stamp, and cord-wrapped-stick over neck and collar when present.

CERAMIC PIPE. A small well decorated fragment of a ceramic pipe bowl and part of a pipe stem from the site indicate manufacture and use of ceramic pipes during the culture period as postulated for the upper level.

CONTACT ARTIFACTS. A small copper coin, or possibly a skin tally token was found four inches deep. Closely associated with it was a large unfinished spear point and half another finished specimen of the same type. Two kaolin trade pipes, one illustrated, were found at the site, which together with the coin should indicate contact in colonial days. However, without evidence of Stage 4 pottery to connect the ceramic culture with that of the white, such contact evidence must be considered intrusive in one way or another.

SUMMARY

This site appears to be a fishing station and stop-off for aboriginal travel to and from the Penobscot and Kennebec rivers. It was occupied intensively from possibly A.D. 1200 to 1450, when, apparently, it became abandoned due to the absence of Stage 4 pottery evidence, and was only frequented occasionally from then on down to colonial days. The underlying hearths, as reported, and one or two intrusive artifacts, such as the plummet, which may have intruded into the upper ceramic zone of occupation as a result of refuse pit digging by the later occupants, suggest use of the site by earlier pre-ceramic people, who evidently lived on the excavated area only occasionally. Artifact types including pottery resemble those found in Maine shell heaps. Occupational evidence extends along the river for a quarter of a mile, but the greatest concentration occurs in the site area excavated.

Appreciation is gratefully extended to the owners of the land, who allowed us to carry on our work with their fullest cooperation. It is our sincere hope that publication of this report will indicate to others in our state of Maine the value of the printed word as a means of preserving the story of early man in this part of the Northeast.

Collaborating in the work of excavation at this site have been 23 members of the Maine Archaeological Society, the Maine Chapter of the Massachusetts Archaeological Society, including, Charles Berdan and family, Manley and Mrs. Cates, Augustus Demers and family, Robert Dow and son, Hugo and Mrs. Eckman, the Faust brothers, Norman Fossett and son, John Hill, Erwin Cook, Richard Weed, Joseph Ware, and Jackie Nickle.

Gardiner, Maine
November 1959

DID LAFITAU DRAW WHAT HE SAW?

WILLIAM S. FOWLER

Author's Note: For probably the first time, Lafitau's sketch of Huron women planting corn is reproduced herein as it was originally drawn. While copying the original engraving as printed in Lafitau's account of his journey up the St. Lawrence in 1724, the writer discovered two glaring inconsistencies, which have apparently gone unnoticed over the more than two centuries since its publication. One was that all eight of the figures were performing their respective planting operations as though they were left-handed. The other was that, if the promontories shown in the distance were those on the Richelieu near St. Hilaire, as seems likely, then the precipitous portions were at the wrong end of the elevations, of which one is almost certainly Mt. St. Hilaire. Now, by simply reversing the print by photographic procedure, both inconsistencies have been corrected: all figures now appear right-handed, as they normally would be, and the bluffs have their sheer ends on the left, as they appear today looking across the Richelieu from the St. Lawrence. Lafitau may even have sailed up the Richelieu, a matter of only a few miles, and sketched this planting scene with the Mt. St. Hilaire escarpments appearing prominently in the background.

What seems to have taken place was that the French
artisan who engraved the copper plate followed closely all
details of Lafitau’s sketch with right-handed planters and
correctly placed bluffs. But, without the advantage of
photographic procedure, not available at that early date,
the print was made off the original engraved plate, which
would have reproduced the sketch in reverse. Now, by the
simple photographic process of reversing the French engraving,
the scene becomes for the first time as it was originally
drawn, which corrects the distortion of the natural setting
and makes it more realistically a part of this paper.

Fig. 4 CORN CULTIVATION AMONG THE HURONS (Copy) — From J. F. Lafitau: Moeurs des Sauvages Ameriquains, Vol. 2, p. 155, Paris, 1724.

Fig. 4 LAFITAU’S ENGRAVING REVERSED, PROBABLY, AS ORIGINALLY DRAWN
Ever since an illustration of Hurons cultivating corn by J. F. LaFitteau attracted my attention, I have been interested in trying to discover the sources for this drawing. This French explorer had sailed up the St. Lawrence River in 1724, and had sketched or had his artist sketch in pen and ink certain scenes along the way. Moeurs des Sauvages Ameriquains, printed in Paris, 1724, shows this cut of maize planting in volume 2, page 155. In the sketch, which has been copied for this report (Fig 4), appear eight Huron women planting maize. But the thing which is most significant, it would seem, is that four of them are wielding hoes, each of which is fitted with a triangular blade.

It is difficult to believe that a Frenchman in 1724 would have pictured hoe blades triangular in shape with pointed bits if he had not actually seen them, because the French hoe of those days, still in use today, is much different in shape. In the vineyards of France peasants continue to use the traditional long bladed hoes with truncated bits. Is it any wonder, then, that LaFitteau's drawing at once poses the query: did he draw what he saw, or was he merely governed by a generous amount of imagination? Any inquiring mind which is acquainted with the clumsy long bladed French hoe would scarcely fail to stop and wonder at the pointed hoes of LaFitteau. And yet, there they are without a reference of any kind to account for their presence. How is it possible that this apparent anomaly has stood for all these years with but scant notice being paid to its presence?

Such questions as these passed through the writer's mind sometime after he had discovered what seemed to be a stone triangular hoe blade carefully shaped by human chippings. This type specimen, now in the Museum of Natural History, Springfield, Mass., appeared on an Easthampton camp site on the Manhan, a tributary of the Connecticut River at Mount Nonatuck. Made of basalt, it has a thick base which is worked down to a thinned hooked point, producing a triangular shape overall. But the trait most instructive in revealing the probable use of the blade is a wide shallow groove across its oblique thick base. Evidently, this groove had been made to accommodate the end of a handle to be lashed with raw hide, or its equivalent, to the blade. Upon placing a 1½” handle in the groove, the appearance at once became that of a hoe with the tilt of the blade at a slightly obtuse angle to the handle; just the right position for digging (Fig. 5).

Since making this find, hundreds of other triangular hoe blades have been found and identified not only by the writer, but by many other individuals as well. These blades have occurred frequently on plowed sites, so much so that their identity as belonging to a late culture rather than to earlier ones was strongly suggested. Eventually, they were recovered at site excavations, and at such
DID LAFITAU DRAW WHAT HE SAW? 41

Fig. 6	TRIANGULAR HOE BLADES. Richelieu River sites, St. Lawrence Valley, Canada.

In 1957 a Canadian visit served to place the writer in Montreal with a day available for exploration. He made the east bank of the Richelieu River, north, and finally up the Mohawk Valley to Schenectady, Bulletin of the Massachusetts Archaeological Society, Vol. 9, No. 4, p. 83. Throughout this entire area triangular hoes were located in sufficient quantity to ascertain their importance to the occupants of the various sites visited. How much further into New York State the trait may have penetrated has not yet been determined, since the writer’s investigation stopped just west of Schenectady on a site beside the Mohawk River where three good specimens were found.

Triangular hoe blades, as referred to here, have in general the shape of the type specimen, but there is wide variation in size and kind of stone material used. There are those that are quite large, which probably were used for breaking soil. Then there are medium sized ones, which may have served in forming corn hills as shown in Lafitau’s illustration. Small blades are very numerous, and they would only have been suitable for weeding; removing weeds from between the maize shoots, which was attended to most assiduously, according to early commentator, William Wood. Most of these blades are made of semi-friable stone, such as shale, sandstone, argillite, and impure granite, although stones with higher tensile strength are not uncommon, including quartzite, basalt, felsite, and even quartz. Examination of many specimens suggests the probability that they were quickly fashioned by removing a few essential chips here or there from fire spalls of nearly the desired shape. However, there are many specimens, which like the type specimen, appear carefully worked with a considerable amount of chipping, but they are in the minority and probably represent merely a desire on the part of some artisans to make superior implements. For the most part, however, the superficial work chiefly exhibited by the run-of-the-field type of blade might well be attributed to women artisans, if they were the planters as is amply suggested. For women, burdened as they were with a multiplicity of other duties, such as pottery making with family and household cares thrown in, were doubtless anxious to acquire hoes quickly when they needed them, even though they were not as well shaped as specialized artisans would have made them, just so long as they served their purpose.

With the archaeological discovery of triangular hoes in Massachusetts, the question arose as to how far afield the trait diffused. Lafitau’s Huron planters suggested that the trait traveled as far north as the St. Lawrence, but this was nothing more than an unconfirmed supposition. So, in 1947 the writer made a five day survey of plowed sites throughout Massachusetts, Rhode Island, Connecticut, the east bank of the Hudson River, north, and finally up the Mohawk Valley to Schenectady, Bulletin of the Massachusetts Archaeological Society, Vol. 9, No. 4, p. 83. Throughout this entire area triangular hoes were located in sufficient quantity to ascertain their importance to the occupants of the various sites visited. How much further into New York State the trait may have penetrated has not yet been determined, since the writer’s investigation stopped just west of Schenectady on a site beside the Mohawk River where three good specimens were found.
main water route used by aborigines and whites throughout the past ages, as it connects the St. Lawrence with the Champlain-Lake George-Hudson River navigation route. It seemed probable that here, if anywhere, evidence of the triangular hoe should appear, if its diffusion moved north as was thought probable. After locating a well identified site on a high bank overlooking the Richelieu not more than two or three miles from the St. Lawrence, the first triangular hoe specimen (Fig. 6, No. 1) appeared. Another specimen (Fig. 6, No. 2) was recovered from a second site a short way up river. Still, other pieces of evidence from another site climaxed the day's work. These recoveries were sufficient, it would seem, to prove without doubt that triangular hoe blades were made and used in the St. Lawrence-Richelieu area, and that the trait had diffused into what is now Canada.

CONCLUSION

It is now quite evident that Lafitau faithfully recorded what he saw. That his Huron planters were using triangular bladed hoes seems no longer to be a myth, but is now established as a reality. But one more point of interest seems to make this probability all the more convincing. In Lafitau's drawing he shows high bluffs appearing in the background, which have a great deal in common with certain land elevations, one of which rises thirteen hundred feet at St. Hilaire, where Route 9 crosses the Richelieu. This high bluff, Mount St. Hilaire, may be seen over the flat countryside for miles around, and, as the Richelieu is but a mere ten or fifteen miles at the most distant from the St. Lawrence at this point, should have been clearly discernible from Lafitau's boat. A reliable source reports this group of bluffs to be the only one of its kind in the entire St. Lawrence Valley. Therefore, it seems almost certain that Lafitau illustrated corn planting on the south bank of the St. Lawrence looking toward the Richelieu with Mount St. Hilaire and another lesser bluff appearing in the distance.

With this historic confirmation of the use of triangular bladed hoes by Lafitau, verified by the writer's recovery of actual triangular stone hoes from Richelieu camp sites, there should now be ready acceptance of the triangular hoe as an archaeological reality. Furthermore, with this disclosure, the triangular hoe blade should hold an important place as perhaps the most diagnostic agricultural trait, and when found stratigraphically,
be found in:


Besides noting implications, which may be drawn from Lafitau's drawing of the Huron planters in so far as triangular hoes are concerned, it is equally important that attention be focused upon the woman in the group, who is bent over from the waist. It will be seen that she has a dibble of some sort in one hand, and is engaged in punching it into the ground apparently for the purpose of making holes into which to drop kernels of corn.

Now this dibble can be none other, it would seem, than a planting tool similar to the stone implement the writer found on the Heard Pond site, Wayland, Mass. in 1951, and subsequently identified as a corn-planter (Fig. 7, No. 5), now in the Bronson Museum.

If this anology is sound, then the corn-planter has historic confirmation by Lafitau along with the triangular hoe, and becomes equally important as a diagnostic indicating the presence of maize planting wherever found.

THE BRADLEY SITE ON THE PENOBSCOT

GUY MELLGREN

While on vacation in Maine in August 1954, I decided to try to locate the Godfrey Cemetery mentioned in the Lafayette National Park Museum Bulletin No. 2, entitled, "The Lost Red Paint People of Maine" by Walter Brown Smith. The site was opposite Indian Island in the Penobscot, which is the reservation of the Penobscot Indians.

At the risk of being scalped, I inquired of two Indian boys if they could tell me where the site was located. They had heard of things being found but could not help me locate it. I later realized that I had landed on the site of the Indian Island Cemetery when I tried to paddle around the island in my canoe. This site was dug by the Penobscots, themselves, and Ben Smith of Concord obtained many of the artifacts for preservation. As a result, he was able to do a tremendous job in his "Analysis of the Maine Cemetery Complex," published by the Massachusetts Archaeological Society.

I then tried to find an exhibition of Red Paint specimens in Oldtown or Bangor, only to learn, eventually, that there was one in the Bangor Historical Society's archives which were closed. Hours later, sadder, and not a whit wiser, I decided that I would have to find my own site.

With this thought in mind, I crossed the Penobscot and headed downstream. I checked two small potato fields and then pulled up beside a large tract, which was obviously used both as a dump and as a source of loam, sand and gravel. Close by the road, I picked from a loam pile a core or turtle-back (7). This seemed to be of great age and it had evidently been re-used as a hammerstone. Encouraged, I drove to the opposite side of the field. To the left was an area bulldozed into loam piles probably during the preceding year, as the moss and weed growth seemed to indicate. Stepping from the car, I noted a stone protruding three or four inches from the ground. Anticipating nothing, I automatically stooped to pull it from the earth. As my fingers closed around it, I felt its smooth-round bit, and drew out an 11¾" beveled adze (11). Within a few more paces I found an 8" gouge (15). I saw another protruding stone roughly chipped, but with its buried end nicely ground, and this time I had in my hands a 4½" adze. Reaching the end of the cleared strip, I turned and there before me lay a 4½" side-notched obsidian-like blade, 2" broad, its tip covered by sand (4). As this was the finest blade I had ever seen, you can well imagine my joy upon removing it and finding it to be perfect.
Fig. 8 ARTIFACTS FROM THE BRADLEY SITE, (referred to in the text).
I returned to the car for my hoe, and as I had had the presence of mind to mark each find on the earth's surface, I was able to re-examine each spot. Approaching the first marker, I drew the hoe toward me, when what should appear but a large, undisturbed deposit of brilliant red ochre! Embedded in it were a 9½" celt (12), which would have been longer except that its hafted end was crumbling; and a 7" gouge. The location of the third marker also disclosed a deposit ("burial" as previously referred to by Moorehead), containing a celt about the same size as the small adze I had drawn from the spot earlier (14). No deposit was found beneath either the second or fourth finds.

While giving the area a second look, close scrutiny revealed other stains appearing through the moss, and these proved to be additional red ochre deposits. As some of these contained no tools, I surmised they might have been of a perishable nature, or possibly were removed with the loam. The third deposit disclosed a retouched blade (2), similar to the first one, and a fire-making set consisting of a felsite pebble and a piece of iron pyrites (10). Quite likely, the set was once wrapped in bark and contained seeds of cotton grass, dried moss or other tinder. By this time, I was sure I was dreaming, but felt that if I could get back to show the things to my wife, it might become a reality. When I did, my wife assured me that this was not the sort of stuff of which dreams are made.

Upon returning to Hingham, I phoned my friend, Ed Runge, in Randolph, some 15 miles away, and began a leisurely narration of my experiences. I got no farther than the description of my first find, when he interrupted to ask if I was going to be home. I assured him I was and it seemed that I had hardly returned the phone to the stand before he appeared. We made plans to return to the site on August 28th, and wishing to share our good fortune, invited Roland Engstrom of Bridgewater, and my cousin, Fred Forbes of Stoneham, to accompany us.

I have been assured that the ensuing twenty-one days were of customary length, but I am inclined to doubt it. However, August 28th duly arrived and after driving all night, we arrived at the site on a dismal gray dawn with overcast sky. Soon, we were washed out by a downpour, which spoiled our chances for taking good pictures.

At the end of the first half hour, each of us had at least one artifact. My own records show that close by the first deposit was another, which contained a 5" celt (13); a dark gray side-notched blade 4¾" long (6); a plummet partly decomposed; a 4 x 6" fragment of sandstone, one inch thick, showing use as a honing stone (8); a ground slate spear base, 3" long (9); another 4" sand-colored blade (1); and a 3½" blade of black flinty stone with white inclusions (5).

Returning to the third deposit, I found a 1½" adze, ground with eight facets, and stained with iron from another fire-making set; also a sixth blade of mottled gray material, 4" long (3). By this time I believe we had a total of 45 artifacts, and felt that we had covered the site completely. However, on a later trip, I found two more red ochre deposits each containing a single adze, one about 6" long, the other about 9". These were in the fifth and sixth deposits previously identified. There was also a chip and charcoal deposit. I got good pictures and accurate measurements on this occasion, and although we have since revisited the site, methodically testing it, we have found no other artifacts.

Our finds were publicized in the Maine papers, and we related our experiences at the meeting of the Massachusetts Archaeological Society at the Bronson Museum, Attleboro, in the fall of 1954. Since then further research at the Bradley site, which by now appears well dug over, has brought no additional finds to view.

In September of 1956 Runge and I found several broken stone tools similar to those from the Bradley site on two locations thirty miles apart in New Brunswick, Canada. Benjamin L. Smith of Concord, Mass., whom we consider a leading authority on Maine culture evidence, says: "I think this is as exciting a piece of information as I have heard of in a long time. I do not think there is any question that the Maine and New Brunswick artifacts are made of the same kind of stone, from a source, incidentally, that has never been traced. I think that this discovery bears out the theory that the Maine Cemetery Complex People came in from the north or northeast, likely from the St. Lawrence Valley and New Brunswick as well. The whole thing has a northern flavor to me."

Now, in 1960, Runge and I have a new site which we will not go into just yet. We will merely mention that it was once a campsite of people who made tools like those from Bradley. When we are through excavating this new one, we will venture a few theories and conclusions of our own.

Hingham, Mass.
February 1960
METHODS OF TRANSLATING INDIAN PLACE NAMES

LAURENCE K. GAHAN

Editor's Note: The author has spent many years of his life investigating everything pertaining to the translation of Massachusetts' Indian place names. He has made certain discoveries, as mentioned in this article, which seem to lead to reliable interpretations. This sort of constructive research is a worthy contribution, and should be of interest to many.

The speech of the Indians of Massachusetts was split into a number of dialects which themselves were off-shoots of three different languages; the Abnaki, Massachusetts, and Mohegan. These were, of course, Algonquian tongues. The Mohican and Massachusetts were closely related, but between these two and the Abnaki there was a rather wide gap. The Abnaki influence, represented by the Pennacooks, extended as far south as Shrewsbury. The Mohicans held the western part of the state and parts of the Connecticut valley.

The different tribes; Massachusetts, Wampanoags, Nausets and Nipmucks; all spoke different dialects. Eliot used the letter "n", (in the word anum, (dog) - ), as an example, showing how it changed into "I", "m" or "r" according to dialect. Incidentally, in any dialect, these letters could become "h" or "y" or, especially if used initially, be omitted entirely. "m" in "min", the combining form for "mineoh" (berry; is "n" at Chilmark and "w" at Stockbridge.

I have just mentioned "the combining form." The Indian languages were agglutinative, the meaning of which is "stuck-together." An Indian word, stripped of affixes and with generally one to three syllables knocked off, could be combined with one of several other similarly treated words so that these became one word. This process of agglutination was called contraction by Roger Williams. Disregarding or confusing these abbreviated words, the "combining forms", and attempting to make the Massachusetts vocabulary cover all dialects, are factors which have caused many mis-translations. Another factor has been the failure to realize that the habit of contraction, built into the language, caused an elision of initial syllables, so that a correct translation of many place names requires a replacement of these syllables. Fortunately, in many of these names, both the original and the shortened forms have been written down. Examining them it almost seems as if there were "high" and "low" forms of Indian, similar to "high" or "low" German or Swedish.

The Indian languages here seem to have been in process of breaking down, much in the same manner that French was derived from the original Latin. An initial letter of the "w" series, "m", "n", "T", "h" or "w", was often omitted. "Aspowunk," in Hamilton, is the same name as "Masponek", in Milford. Words like (wam)pougset and "mugjet" become "pohit" and "muit." This process was more marked toward the west and north, the Mohican language seeming to bear the same relationship to the Massachusetts as French bears to the Italian. It is possible to make out most of the Mohegan words, but many are much distorted.

The variations in the writing of place names are not entirely due to the English. An Indian, at a distance from a place, was just as apt to give a similar sounding name, perhaps with a different meaning, as anyone else. The Abnaki called Massachusetts "Messatsoosec", which meant "dry-trees-stretched-out place." The English settlers were writing before their own language had "jelled," so as to speak, and some of them produced some peculiar results, but it is surprising how many of the names are written nearly accurately. Eliot wrote that the English alphabet was adequate for the production of all Indian speech (he excepted "w"), but I imagine that digraphs like "gk" and "qt" and a number of others would have been a bit difficult for a poor Englishman to recognize. Eliot seems to have disregarded a number of such digraphs. In Trumbull's vocabulary, taken mainly from Eliot's "Bible", there are similar words listed under two different letters—"p" and "t", so that it seems as if Elliot himself did not hear both letters on all occasions. So it was with many of the early writers. When hearing a sound in which two hard consonants were combined, the ear only registered one.

The Indian language contained a number of affixes, but in place names we are concerned with a few infixed and suffixes. Eliot mentions euphonious syllables "of no meaning". As suffixes, (Quinneboggin, Wamsutta-a) they had none, but as separatives I consider that they were of great importance, as they must have affected the accent, which, in turn, probably made considerable difference in meaning with words made up of similar sounding components. For instance, it is possible to translate "Aptuxet" (and a number of other names) four different ways. "Metugk" (combining form "tugk") is the word for "tree". "Pautuck", (combining form "tuck") is the word for "falls". "Tuck" is one word for "river". "S" is used for the diminutive. The ending "et" or "t" is often preceded by "s" as a sepa-
Due to this fact; that one word or name may have several perfectly reasonable translations; we have to consider just how the Indians themselves chose their place names. I find that, in the greater number of cases, by far, the names refer to local features of topography, the abundance of certain plants or animals, and, in some cases, artificial features or conditions. Their attitude is shown very clearly by the name “Magoonquauqog”, meaning “Place of the gift”. This name was given by Eliot to a tract in Hopkinton (now in Ashland) which was given to the Indians for a village site by the Massachusetts General Court. A few years after the founding of the village Gookin visited it and was told its name was “Magunquaquag”, or “place of great trees.” A locality in Rehoboth bears the name “Mis­shanegitaconet”, or “field of slaughter”. However, there is another similarly sounding name which used. It is “Messenegtaquaneh” which means “Dry tree hill here”, and seems to have been the preferred form as there are several different spellings, all ending with the “eh”.

Where there is any question of meaning I have, in all cases, chosen the one which seems to apply to the locality. I have avoided using such meanings as “fishing place” with which one translator peppered the map of Massachusetts. In nearly all cases where he used “amog” (fishing place) I have learned that the breakdown should have been “komuk” (enclosed place), or “-oke”, preceded by an euphonious “am” following a “p” or “t” or “k”.

There is one series of sounds which make accurate translation impossible in a number of cases. This is the “woon” series, consisting of combining forms which mis-hearing and dialectical variations have combined into a dozen homonyms, due to changes in “w” and related letters, before mentioned. “Nan”, for instance, can mean “point”, “fish”, “narrow”, “dry”, or “sandy”, to give some of the commoner meanings; there are others. In cases where these prefixes occur the best way to arrive at the right meaning is to inspect the terrain to see which would apply.

As an instance of what variation in dialect can do to meanings let’s consider “Uncachewalumaug”, (Whalom Lake in Lunnenberg.) Using the Massachusetts dialect, it can be translated as “Fox and dog place.” Un­neas, fox; kah, and; (w)alum, dog; maug, place. But when we transpose a few letters according to dialect we have something very close to “anuchemineo-m-aug”, (the second “a” is very strongly accented), which gives us the much more reasonable “acorn-place” as the meaning.

The contraction of names by omission of the initial syllable is shown by the existence of several names which have both short and long forms, such as Quabaug, (Brookfield), where there are records containing both “Musquabaug” and “Squabaug”; “Skaticoke”, which is a contracted form of “Pischag­ticoke”; and “Sowams”, contracted from “Assawom­set” and “Sowamset”.

There are a number of names such as “Agawam”, “Pokanoket”, “Penobscot”, (we have one; Nobscot Hill in Framingham); the generally accepted translations of which I completely disagree with, but my arguments in favor of my own ideas would occupy entirely too much space. As a matter of interest let me state that there are three possible translations of “Massachusetts”. Besides “Place of the big hills”, it could mean “foot of the hills place”, and Cotton, who prepared a “Vocabulary of the Massachusetts Indian Language”, had as a footnote to one of his chapters—“Massachusetts, an hill in the form of an arrowhead”.

I have compiled a list of some nine hundred and fifty Massachusetts place names and offer translations of most of them. In none of them have I found any flowery or imaginative language—“long river”, “wide pond”, “high hill”, are typical. The white man seems to have furnished the imagination for the translation of the Indian names.

October 1959
FURTHER PROOF OF VIKINGS AT FOLLINS POND,
CAPE COD

FREDERICK J. POHL

Author’s Note: A recent letter from Dr. Maurice Robbins contains information which bears directly upon the subject discussed in this paper, and should be read as associated evidence: “You will recall that at the time the stakes of the ship shoring were recovered there was no thought, at least on my part, of using them for radiocarbon samples. Consequently, they were not protected in any special way from contamination. In fact, during several months which ensued between my taking them to the Museum and sending them to you, they were immersed in fresh water to prevent shrinking and cracking. This treatment would have tended to contaminate them with fresh carbon from the water or from dust which may have accumulated. I do not think that the carbon date as received by you in any way invalidates your contention that the stakes could have been of Viking origin. Concerning the late material including nails, etc., which we removed from the excavations in the Follins Pond gully, Roland Wells Robbins surely must be aware of the fact that modern materials are often introduced into every early strata by both frost action and human agencies. Extraneous data can be made to tell strange stories unless one is capable of careful analysis.”

Why should I answer a second time the charge repeated by Mr. Roland Wells Robbins in Hidden America, written in collaboration with Mr. Evan Jones, that the stakes of the shoring at Follins Pond were “above the water table”? The adequate answer to that was given by the quotation from Dr. Maurice Robbins which I published on p. 56 of THE VIKINGS ON CAPE COD, which book Mr. Robbins and Mr. Evans list in their Bibliography. Dr. Maurice Robbins found the stakes below the water table. He spent eight hours in the gully at Follins Pond on May 10, 1952, in charge of the group of the Massachusetts Archaeological Society who dug drainage ditches and uncovered the shoring, but Mr. R. W. Robbins saw the gully for the first time the next day and passed his swift judgment on the water table within five minutes of his arrival there. It seemed to several impartial observers that he had his mind made up before he entered the gully.

A basis for his skepticism was no doubt his conviction that there could not have been a sufficient depth of water in Bass River for Leif Erikson’s ship to have ascended to Follins Pond. He had observed at the site of the Saugus Iron Works that 300 years ago the sea level had been about 3 feet lower than at present. From this correct observation he had drawn the conclusion that the sea level had been rising at about 1 foot per century, and that 1000 years ago, in Leif Erikson’s day, it was therefore 10 feet lower than today. He felt strengthened in his conclusion by Mr. Frederick Johnson’s observation at the Boston fish weir, not realizing that there are circumstances which may vitiate the use of this as authentic evidence, because the Boston Basin is a sedimentary one and subject to compactness. Mr. R. W. Robbins is not the first archaeologist by whom I have been told: “In Leif Erikson’s day, Bass River was only a brook.”

I dared hold to and publish my belief that there had been sufficient depth of water in Bass River for Leif’s ship because all reported evidences from Greenland were to the effect that the glaciers were receding there in Leif Erikson’s day more than at present: less ice on land—more water in the ocean. That belief has been justified.

It is now known and positively established that there have been great oscillations in sea level. Our knowledge of sea-level changes goes back 400,000 years, and with fairly detailed accuracy during the last 10,000 years. It is based on the ages of fossil mangrove and barnacles, which can grow only between high and low tide levels, and of coral which grows only up to the low-tide level. The Report of Sea Level Changes presented by Dr. Rhodes W. Fairbridge of the Department of Geology, Columbia University, on September 7, 1959, to the International Oceanographic Congress, in session at the U.N., gave many facts of great historical significance. For example, the sea level was 5 feet above the present about 250 B.C., and it dropped to about 6 feet below the present at the time of the birth of Christ, which was a comparatively cool period. Between A.D. 500 and 800 it rose, and was again above the present level for several centuries. In the last 800 years it has been below the present level with three major oscillations.

The sea level 1000 years ago was 2 to 3 feet higher than today. Dr. Fairbridge has specifically stated this also in a personal letter to me.

While I no longer have complete confidence in mooring holes as evidence of the presence of the Vikings, because as I state in THE VIKINGS ON CAPE COD, “no one can prove when any particular mooring hole was chiseled,” it is interesting to note that sea level oscillations put a new complexion on the subject discussed in this paper, and should be read as associated evidence: “You will recall that at the time the stakes of the ship shoring were recovered there was no thought, at least on my part, of using them for radiocarbon samples. Consequently, they were not protected in any special way from contamination. In fact, during several months which ensued between my taking them to the Museum and sending them to you, they were immersed in fresh water to prevent shrinking and cracking. This treatment would have tended to contaminate them with fresh carbon from the water or from dust which may have accumulated. I do not think that the carbon date as received by you in any way invalidates your contention that the stakes could have been of Viking origin. Concerning the late material including nails, etc., which we removed from the excavations in the Follins Pond gully, Roland Wells Robbins surely must be aware of the fact that modern materials are often introduced into every early strata by both frost action and human agencies. Extraneous data can be made to tell strange stories unless one is capable of careful analysis.”
RECENT WORLD-WIDE SEA LEVEL CHANGES

or four feet above-water level which is customary with mooring holes, the indication now is strong that both were made at a time when the tidal water level in river and pond stood two or three feet higher than today.

Leif Erikson's ship sailed up Bass River with several feet of clearance. Corroborated by the Massachusetts Archaeological Society's uncovering of the shoring that could have been only for a Viking ship, my identification of the area of Leif Erikson's Vinland camp is still afloat with plenty of water under the keel.

Brooklyn, N. Y.
November 1959

RECENT WORLD-WIDE SEA LEVEL CHANGES AND THEIR POSSIBLE SIGNIFICANCE TO NEW ENGLAND ARCHAEOLOGY

RHODES W. FAIRBRIDGE
(Professor of Geology, Columbia University, New York)

INTRODUCTION

Recent changes of sea level have been recognized by geologists for more than a century, and forty years ago R. A. Daly of Harvard pointed out the worldwide evidence for a significant drop of sea level only a few thousand years ago.

Radiocarbon dating, using the known decay rate of the unstable isotope carbon —14, in its ratio to the stable form C-12, as developed by Libby, has revolutionized the study of sedimentary geology. For the first time it has provided us with a yardstick for measuring rates of accumulation and precise details such as the exact ages of former shells (calcium carbonate) and peat or woody material (organic carbon).

The writer has recently collected specimens from all over the world for radiocarbon dating, and a preliminary curve of recent sea level changes has been published (Fairbridge, 1958). A possible cyclicity of such oscillations is tentatively suggested at 550-1100-1650 years (Fairbridge, 1959). Of the odd 100 dates at present completed only 15 refer to the Atlantic seaboard of North America, and these are now submitted in the attached graph. It should be stated most emphatically that this is a first approximation. Modifications must be expected. Indeed we still know very little about the relative stability of eastern North America that, even in the short time span involved, may cause appreciable displacements in the actual level of the earlier beach lines.

THEORETICAL BACKGROUND

Certain assumptions are almost always made when dealing with the past. It is just as well to spell these out at the beginning.

1. The last Glacial Epoch in North America is represented by the Wisconsin stage. Its maximum extent is believed to coincide with a time when sea level was about 300-350 feet below the present. Investigators in the Mississippi delta region give it as 450 feet but this is not well supported elsewhere and may be due to inadequate allowance for the compaction and subsidence of the delta. The time of this maximum was probably 17,000 years ago, thus about the limit of the Tazewell substage. The writer estimates that at this time about 80 million cubic km of ice were locked up in continental ice sheets as compared with about 40 million now. In the more normal geological eras there were no such great ice sheets, and the Quaternary period (the last 600,000 years or so) is regarded as a climatically abnormal geological age.

2. Following the ice maximum, it is believed that an oscillatory climatic warm-up ensued. Melting was not continuous and several ice readvances occurred, but in the course of 10,000 years so much melting had occurred that sea level had risen over 300 feet and all continental ice was gone from eastern North America and Europe. From the point of view of ancestral man, a great empty hunting ground opened up, covering some 3 million square miles on this continent alone. This was an ecologic
vacuum, with no competitors. The northerly retreat of the cold climatic belt during each warm phase may have been at a rate of about one mile per year. However, periodic cold oscillations probably interrupted any continuous mass movement to the north.

3. By the year 6000 B.P. (4000 B.C. approximately) sea level had reached its present stand, coinciding with the end of general ice melting. Since that time Greenland and Antarctica have maintained rather constant ice masses and have not upset the world's ice-water equilibrium. However, minor climatic oscillations have occurred in a certain rhythm (we suggest combinations of 550-1100-1650 years) when the mean temperatures for average temperature latitudes would have ranged up to 5° F. above the present means. These warm changes marked the first few millennia of this period, especially the so-called "Climatic Optimum" of 6000-4500 B.P. Cooler oscillations followed and temperatures to 3-4° F. below the present mean alternated with higher temperatures. The warmer phases in New England probably were marked by drier, hot summers and cold winters, and the cooler phases by wetter summers and milder but snowier winters. These climatic changes were really very large considering the nomadic, unprotected way of life of early Man. Considerable trekking north and south must have been stimulated by such extremes.

RELATIONSHIP OF SEA LEVELS TO LOCAL OR REGIONAL EARTH MOVEMENTS

This is a very difficult subject. It is well known that after the load of ice was removed from the continent the earth's crust responded by isostatic uplift. In northern Canada the rate of uplift may have exceeded an inch a year for centuries. However, near the terminal moraine extending through New Jersey, Long Island, Martha's Vineyard, etc., the load had never been great and reaction was probably minimal.

The reaction to ice-load removal probably set in immediately after the withdrawal began, back about 17,000 B.P. Although northern Canada, with its immensely greater original load, is still rising, what about coastal New England? The only data we have about current sea level changes comes from tidal gauges. The New York gauge shows an apparent rise of about 4 mm a year; take away 1 mm for the world tendency, there is a residue of 3 mm representing a current lowering of the Earth's crust in this area. How long has this been going on? We do not know beyond half a century or so. A similar calculation for Boston is 2 mm and Portland 1 mm. It seems as if the whole Atlantic seaboard is warping slowly downward, a maximum being at about Savannah.

At present we lack adequate C-14 dates to check the duration and overall rate of this downwarping, but it is apparent that if it has been going on for a long time, the graph of the worldwide sea level changes will have to be tilted down to the left in order to be applied to New England. On the other hand, if it is a recent tendency only, then the graph may be still significant. One should note, however, that the C-14 data for New England are mostly restricted to lowered levels, so that we may reasonably expect that the high (10-foot) terraces will not be found—or rather that they will be lower elevations.

RELATIONSHIP OF SEA LEVELS TO ABORIGINAL MIDDEN SITES

Since many of the early men in this region were gatherers of shellfish, their midden pits and heaps are a common feature of the coast. Carefully selected shell (clean, unweathered and without secondary lime crust) and uncontaminated charcoal urgently need collection and dating by the radiocarbon method. Unfortunately, the current price per date is about $250 per specimen, so that it is hardly practicable to carry out an extensive program.

Of great interest is the relationship of a midden to its underlying formation. An example recently examined at Croton State Park on the left bank of the Hudson (kindly demonstrated by Messrs. Brennan Olafson and Brammer) showed an unweathered till surface. The elevation of the contact (till/oyster shell) is about five feet above high tide level; the river is tidal here and does not flood. It seems possible that the till was stripped of its oxidized surface during a recent high sea level stage and the oyster-feasting aboriginals descended onto this favorable promontory as soon as the land was dry enough to offer a camp site. Several reports of recent offshore dredgings along the Connecticut shore indicate Lamoka or archaic artefacts in "drowned" shore 10 feet or more below present tide
level. These may correspond to one or other of various levels of "drowned forests" that mark the various low sea level stages from New York to Maine.

When describing a site for sea level correlation it is highly desirable to give precise latitude and longitude, any literature references, the exact level above high tide limit, and the approximate tidal range in this area. It is reasonable to consider whether or not the ancient shell collectors would have camped at this site under present-day geographic conditions and to express an opinion as to whether the site might appear too close to the water or too far away from contemporary shellfish beds.

In closing, let us stress that we are just at the beginning of an exciting new phase of archaeological and geological research. The discoveries of each will be watched with the greatest mutual interest.

REFERENCES


IDENTIFICATION OF IMPORTANT SITES IN THE NORTHEAST

Benjamin L. Smith

An outline of certain site characteristics, which if found singly or in combination should warn an observer that an important site is being uncovered, and that the help or advice of a qualified archaeologist is required.

At the last annual meeting of the Massachusetts Archaeological Society in Attleboro a long discussion took place as to the best method of preventing destruction of important aboriginal sites in the New England area, especially in Massachusetts. It was proposed that so-called vigilante committees be set up in key areas to which any person or Society member could report the discovery or threatened destruction of an important site.

Such a system had been previously discussed, but without action because of the time and expense involved in following up "scare" leads, only to find the site a small station of little real importance. It was felt, therefore, that a paper should be prepared to serve in a rough way as a guide to well meaning persons should a threatened site come to their attention. This paper was to contain a set of simple standards, which could be quickly applied, and with the aid of a qualified archaeologist serve to determine whether or not the site in question warranted careful investigation.

The writer felt, at the time, that the preparation of such an outline was practicable, and the following is an attempt to present a series of prominent characteristics to be looked for, together with a few words as to the importance of each. In no sense should it be considered complete, nor should anyone fail to report a site just because it does not seem to fit these suggestions.

Any site displaying one or more of the following features should be reported, especially if it is threatened by destruction or looting.

1. Extensive areas of black greasy earth below the loam.

This feature usually denotes a concentrated habitation area, and it should be closely examined for indications of occupancy, such as chips, fire stones, artifacts, bone fragments, potsherds, etc. Small blackened accumulations of one or two feet in diameter may often prove to be only the remains of refuse pits or hearths, and are not important as a part of this feature unless found in considerable number.

2. Heavy concentrations of chips, artifacts, and other remains of obvious aboriginal character spread over an appreciable area.

Such camp litter demonstrates that the site was heavily occupied; was not a transient camping place.

3. Repeated occurrence of archaic types of blades: adz, gouge, ground slate ulu, plummet, etc.

Early archaic sites are always important, and blades from such sites tend to be rather large and well chipped, with projectile points having corner-removed stems which are rounded, taper to a point, or are slightly bifurcated.

4. Concentration of graves, even though the contents are not spectacular.

An isolated aboriginal burial is of interest and should always be carefully preserved when possible. But a concentration of graves is more important and should always be reported at once, after all possible steps have been taken to prevent further destruction.

5. Ceremonial graves with unusual associated grave goods, such as: cache blades, powdered red ochre, potsherds, and finely made articles.

Finding of ceremonial graves should be instantly reported and all possible steps taken to prevent further digging or disturbance of the site except under competent control. Ceremonial graves are of several types and any of the grave goods or features listed above should be a clear warning to the discoverer. In addition, these graves might contain rare articles, such as roll copper beads, copper nose spikes, carved stone or shell pendants, birdstones, boatstones, gorgets, atlatl weights, and ceremonial axes, gouges, or celts. Groups of such graves are, of course, more important than just one, which often may be destroyed upon discovery. Since ceremonial graves seldom occur singly; the finding of one usually indicates the presence of others nearby.

6. Stone chips of unusual size, quantity, or materials.

Occasionally, sites are found on which appear chips of unusual size and thinness. These are doubtless the work of master artisans, and should denote
a site of importance. Again, chips may occur of imported exotic stones, such as flint or jasper, and quantities of them might indicate concerted trade with outside areas, which should be reported.

7. Fluted points.

Fluted projectile points in situ lying usually 10" or more below junction of loam with subsoil are a positive indication of extreme importance, since they are associated with the ancient period of about 9,000 years ago. Any site producing them, even occasionally in disturbed plowing, should be excavated with great caution and by the best trained men available—an archaeological must.

8. Post molds.

Sites having been scraped free of loam often reveal the existence of multiple post molds, the structural remains of primitive wigwams. In such cases, try to arrange for the demolition work to stop long enough to permit driving small stakes into the post mold discolorations and then call for help, but only if a house floor pattern of some kind is discernible. One should not be fooled by discolorations of a circular nature caused by rodents or decomposed tree roots. Such remains look at first like post molds, but when followed down are found not to terminate in points like sharpened posts.


Often, when a grave is disturbed, ceramic vessels will be encountered, usually in a broken condition, lying above the skeleton. Therefore, potsherds may serve as indicators of other treasures below. Most large sites produce potsherds, and a few of these by themselves do not warrant more than casual notice. However, large concentrations of sizable sherds in good condition are important. Mark the area, pick up all you can find without digging, and then send for help in exploring the area further. Plain ware can be just as important as highly decorated material; quantity and condition is what counts most.

10. Caches.

The uncovering of a nest, or cache of blades of a similar type indicates an intentional deposit for some definite purpose, ritual or otherwise. Such deposits are always important and should be reported at once. They usually contain 10 or more blades, although sometimes there are less.

CONCLUSION

The features listed above should serve to warn an observer that an unusual find has been made, whereupon, every effort should be made to contact the foreman in charge of the demolition, and through him the owner of the site. An attempt should be made to persuade them to shift their operations to another section while archaeological assistance is sought. Sometimes this destruction cannot be stopped due to construction deadlines for work completion. In such cases, try to record every possible bit of information about what you find. Photograph remains whenever possible and preserve, with suitable identification marks in India Ink, all material you can recover. Explain to all who may show an interest that it is important to keep everything together for a time at least, and that your concern stems from a desire to learn all you can about the prehistoric occupants of the area by scientific methods—is not just idle curiosity. Above all, try to keep information about the discovery out of local newspapers, for publicity is your worst enemy.

Concord, Mass.
January 1960

Editor's note: Until such time as committees may be established to collaborate in saving valuable information from sites being destroyed, those at our Society Office, Bronson Museum, Attleboro, Mass., stand ready to offer assistance to anyone requesting it in writing or in person, as to how best to handle any particular reclamation undertaking of archaeological remains.
MAINE COAST POTTERY

WILLIAM J. HOWES

(Seventh Installment)

Editor's Note: Original manuscripts of Mr. Howes have been edited to bring them more up-to-date, with the various pottery development stages added. However, in making this revision an effort has been made to retain Mr. Howes' original ceramic conceptions.

Pottery from this area runs true to type; apparently was influenced less by outside contacts than that of any group located in southern New England, where creative ideas pressed in from Long Island. Construction of early Maine ware was evidently accomplished by some kind of plastering; there seems to be no evidence that the coiling process was used. Tempering was mostly of crushed stone, while some sherds indicate use of crushed shell. Maine clay does not appear to be as pure as that found in most clay deposits in southern New England, but seems to have extraneous matter mixed in. Pottery ware was apt to be thick and its large amount of impurities made it quite porous and brittle.

Early Algonkian potsherds have been found in the "Whaleback Shellheap" in Damariscotta, Maine. Some of these sherds are from a considerable depth in the heap. They appear to be part of an elongated type of pot with a slightly constricted neck, which tapered to a pointed base. Decoration on some sherds is rocker-stamp, or an allover zig-zag pattern accomplished by stamping the design with a rocking and progressive rotating movement of a dentate tool.

On later ware decorations became more diversified. Many different designs were introduced, including horizontal bands which encircled the upper portion of the pot. These were indented in various ways. On one sherd was used a most unusual type of manipulation in order to accomplish the desired effect. A band of linears around the neck seems to have been made with a blade having teeth of irregular lengths. The manipulation of the implement was unusual, for apparently it had to be applied to the surface of the pot at an angle, then turned up at a right angle and pulled out. Just the reverse was employed to make the design on another sherd. Here a three toothed...
Fig. 11  INTERMEDIATE MAINE WARE (probably Stage 2),
from various Maine shellheaps.

Fig. 12  LATE MAINE WARE, of Iroquoian Influence (Stage 4),
from various Maine Shellheaps.
implement was pressed into the clay, then dragged out.

Another type of decoration characteristic of Maine pottery, perhaps more than any other, is that of a series of deep punctate holes punched into the outer surface of the ware at regular intervals. These were made by using a blunt ended implement. Punctate holes usually overlaid other kinds of decoration. Many times punctate bands were punched into the narrow collar at the rim, or spaced lower down around the neck. On one sherd, which had its whole exterior surface ribbed with horizontal half-round linears, one rib just below the neck was punctated with deep holes, while all the others were cross-hatched vertically throughout their whole length.

A later type of dentate work appears on a sherd where both coarse and fine toothed tools were used. The arrangement here is a triangular pattern, well balanced and executed with the most scrupulous care. Broad closely set rows of fine toothed dentate lines at the rim frame the triangle, which is flanked by zig-zag lines. This presents a most original conception of pottery art (probably Stage 3).

The stylus, a one pointed tool was used to some extent for pottery decoration, probably at a later date. It is found being frequently used in connection with deep undercut necks, wide collars, and castellated rims characteristic of Stage 4 ware of Mohawk influence, to be found throughout southern New England as well.

### IROQUOIAN-MOHAWK POTTERY OF THE CHAMPLAIN VALLEY AREA, NORTHERN VERMONT

**William J. Howes**

(Eighth Installment)

Pottery recoveries from this area represent some of the finest ceramic ware ever produced by Mohawk potters. The shape of the pots and decoration of some exhibit a high degree of creative art ability.

Geographically located as this area is, with the Vermont mountain ranges acting as barriers, occupants in the region were undoubtedly protected against molestation from antagonistic invaders. In this quiet location, Mohawk potters, for the Mohawks had occupied in later times a large section of western Vermont on the shores of Lake Champlain, were not interrupted in their development of an outstanding type of pottery. Before long they had attained great renown as foremost ceramic artisans. Their pottery was graceful and pleasing in form, and decorations were attractive, well balanced and refined. In modeling, they were the first to recognize and use the value of light and shadow as a decorative feature in their ware.

At first, a collar was made with a moderate undercut neck, and usually with four or more castellated points surmounting the collar. Later, it was more deeply undercut, perhaps, with the idea of casting an effective shadow line around the vessel. Castellations sometimes assumed unusual arrangements. After the collar was formed, deep indentations or jabs were often made at its junction with the neck. This characteristic later became a mark of identification in their ware. There is a boldness of treatment in the application of these indentations, which appears especially pronounced on vessels with deeply undercut collars. In such cases, the shadow effect about the pot stands out in marked contrast to the delicate line markings immediately above (Fig. 13).

Most Mohawk designs from this area are often composed of a series of parallel lines forming chevron panels, each panel having the lines running at opposite angles to those of the adjoining panel.
IROQUOIAN-POTTERY

Iroquoian Pot

University of Vermont Collection
BURLINGTON, VERMONT

Fig. 13
This type of design is sometimes overlaid at castellations with three indented small circles, apparently depicting the eyes and mouth of a face (Fig. 13).

The famous Colchester square rim, high collar pot with gracefully designed castellations, on display in the University of Vermont Museum, is probably the most outstanding example of Mohawk pottery ever recovered. Its decorative motifs are few with even repeats maintained around the vessel, but their arrangement is incredibly beautiful. Their execution represents the work of a master potter who excelled in her line of endeavor (Fig. 14).

Some sherds appearing in this area show Algonkian influence. For example, a few exhibit a slightly constricted neck, and appear to be from a Stage 1 conoidal body type with pointed base, as is found in Maine and other parts of New England. Doubtless this indicates that early potters of the Champlain-Vermont area had contacts with other peoples in New England, and had derived ceramic ideas from a similar source. The all-over type of cord-marked decoration on these sherds is another similar feature. Then, there are a few sherds of Stage 2 ware showing deep punctate depressions characteristic of Maine coast pottery. While such sherds are rare, their occurrence within this region of Vermont can probably be attributed to contacts with the Maine coast culture.

Other sherds decorated with dentate work probably indicate Mohawk workmanship, because of superior dentate results with finer lines more meticulously impressed into the clay. It seems probable that Mohawk designs and techniques were introduced into certain parts of New England by Mohawk invasions of either a peaceful or warlike nature. For example, the Mohawks are known to have subjugated Connecticut Valley tribes, and it is probable, lived among them with their families at various times. Such contacts as this could well have been the means of permitting ceramic traits of the conquerors to rub off onto the conquered. Mohawk influence is believed to have come into New England sometime about A.D. 1600 or a little before.
IROQUOIAN POT
FROM COLCHESTER, VERMONT

University of Vermont
Collection
BURLINGTON, VERMONT

Fig. 14
Iroquoian Pot
FROM VERMONT

HEYE FOUNDATION COLLECTION
Pottery Size Scale

Suggested method of determining diameter of a pot at any point in its body: place sherd on curve which matches its curvature and read diameter ~ ~ ~ ~ ~ William J. Howes
RECOVERY OF AN AX OR MACE IN ITS ORIGINAL HAFT

MAURICE ROBBINS

Editor's Note: The careful graceful shaping of the poll suggests a special use, not utilitarian, for this implement. It may have been used as a battle ax or mace. Two other recoveries of similar implements have been made in this area. One is in the Museum of the American Indian, New York, and was found off Fairhaven, Mass., illustrated by C. C. Willoughby. The other was found off Manhattan Island and is in a poor state of preservation. It is in the American Museum of Natural History, New York.

The day was bright and sunny and the water of Buzzard's Bay was like a sheet of polished glass. The fish were biting well, too well in fact, bait was dwindling fast and the morning was but half spent. Eugene Margarida from Fall River was well down the bay; off to his left the chain of the Elizabeth Islands glistened in the morning sun while to his right the mainland appeared as a dark cloud upon the horizon. Margarida hated to leave the spot, for, as he well knew, it would be difficult to locate again. But one cannot fish without bait, so, marking well his bearings, he started the outboard and turned the prow of the boat toward Penikese Island, where the exposed flats promised the needed supply of bait.

By the time the shore was reached the tide was well out. Here on the bay side of Penikese the beach is narrow at high tide, but at the ebb, tidal flats appear and the water recedes nearly a quarter of a mile from the cliff-like face of the highland. Pulling his boat after him, Margarida waded the last hundred feet in shallow water before he threw out the anchor and seized his clam hoe. In a few moments the flats in his immediate vicinity began to look like a plowed field, as Margarida dug here and there in search of clams or quahaugs with which to fill his empty pail.

Moving over to a new spot where the clams were spouting merrily, he sank his hoe deep in the yielding sand and heaved up a fair sized clod of muck. What was that stick which protruded from the side of the hole? It looked for all the world like the handle of something. Seizing it Margarida attempted to draw it out of the clinging muck, but about 2” broke off in his hand, and this small piece looked as though it had been worked by the hand of man. With his hoe, the now interested fisherman removed more of the black muck until a queer looking object lay exposed. The rounded handle terminated in an almost square bulge through which a polished stone had been inserted. Margarida's first thought was of the Vikings; he had heard that they had been in these waters. Here he thought was a Norse battle axe. Even in his excitement Margarida kept his head. The rays of the sun were already hot and would certainly dry out and crack the water soaked wood handle of this implement. Wrapping it in seaweed and then bundling the mass in a bit of old blanket which he had used to pad the seat of the boat, he dipped the whole in sea water and stowed the dripping bundle carefully in the bow of his boat. Fishing forgotten, he hurriedly pushed out to deep water and headed for home.

I had just finished mowing the lawn when a car turned into the driveway. Carefully removing a dripping bundle from the trunk and carrying it at arm's length, a man approached my back door. I was prepared for almost anything, but, when the bundle was unwrapped and the axe appeared still wrapped in seaweed, I could hardly believe my eyes. Instantly there came to mind an illustration of a similar implement which I had seen in Willoughby's Antiquities of the New England Indians (pp 141-143). I was greatly relieved to find that Mr. Margarida had not only brought the implement to show, but was willing to leave it with me for preservation. It is unusual to find a person with sufficient interest and intelligence to place the value of preservation above that of possession. Filling the bath with cold water the implement was immediately immersed in the element in which it had rested for so many years and I turned to the task of discovering how best to preserve it permanently.

Bulletin No. 67 of the National Museum of Canada contained the necessary instructions which were carefully followed. A small metal tank with a close fitting cover large enough to immerse the implement completely was first constructed. The initial treatment was the removal of salt which was accomplished by repeated soaking in fresh water baths. A sufficient quantity of high test pure alcohol was required for the next series of baths, and this is a difficult material to secure. The problem was solved through the aid of a good friend of the museum who prefers to remain anonymous, and by the Robert S. Peabody Foundation, who also furnished a portion of the required fluid. During the following ten weeks the implement was immersed in baths of 190 proof alcohol, a new bath being prepared weekly, until some ten gallons of the precious
fluid had been used. The next step was to eliminate the alcohol by repeated baths in Zylol which was accomplished over the ensuing five weeks. Zylol is eliminated in turn by immersion in acetone. The final step is to feed small scraps of celluloid to the solution until the wooden portion of the artifact is completely filled by the hardening material. In all, about twenty weeks passed before the implement could be removed from the solution and allowed to dry out and harden. As no new cracks appeared after several weeks of slow drying the preservation was deemed complete.

The artifact, which now rests in a case in our museum, is a particularly well preserved specimen of a celt in its original haft. It appears as in the accompanying illustration by William S. Fowler. The overall length is slightly less than twenty-four inches, but, as a small portion is missing, its original length is unknown. The expanded end in which the stone blade is mounted is approximately eight inches in length by two and three quarters by two inches. The stone blade has been inserted through a carefully made perforation and fastened in place by some unknown adhesive which apparently was not soluble in any of the preservative materials. A careful examination of the quartered oak wooden handle creates the impression that its maker must have been in possession of metal tools. The sharp cuts at the junction of the handle and the expanded poll, and again at the extreme end of the poll do not seem to be the work of stone tools. If this deduction be valid, the artifact probably dates from the time of the explorers when such tools first became available to the local Indians through barter.

In order that this unique specimen might be preserved and placed on permanent display, Mr. Margarida parted with his find at a nominal price. He is to be congratulated upon his sense of value and his willingness to relinquish his find that others might have the opportunity of studying this ancient ax.

Attleboro, Mass.
January 1960
EDITORIAL COMMENT

The Bulletin of the Massachusetts Archaeological Society is published for the purpose of informing its readers about archaeological research being carried on in New England and the Northeast. Much information is contributed by Society members, while papers from other accredited sources are always welcome. However, we must depend to a considerable extent upon site reports, information about outstanding discoveries and other related matters, which may be written up and offered for publication by any Society member, who believes he has some worthwhile contribution to make. There are site excavations under way sponsored by Society Chapters, of which reports will be made when completed. In addition, there are several private digs being undertaken by Society members. This interest in active research is highly commendable, but only when recovered artifacts and data are recorded in such a way as to provide detailed information for use in writing final reports.

At the Society office in the Bronson Museum, we stand ready to cooperate with any member wishing to obtain information as to how to properly dig a site. Requirements are not at all difficult; in fact are quite simple so long as certain logical methods are followed. In later Bulletin issues we will attempt to outline basic procedure for site excavation. In the meantime, may we urge you to contact us for assistance as you may require. Wider use by interested members of this sort of collaboration should ultimately result in contributing much to the already steadily expanding archaeology of the Northeast.

BULLETIN MANUSCRIPTS

When submitting written reports for publication, certain specifications should be followed:

1. Type your text on standard 8½" x 11" sheets, double spaced, with wide margin at left side of sheet for editorial corrections.

2. Do not indent quotes.

3. Illustrations are most desirable and will be accepted without cost to the author, if they are line drawings in India Ink and are made to fill size 9½" x 11½" (full page); 4½" x 11½" (half page of a full single column); or 6" x 9½" (half page across both columns).

4. Illustrations, if found to require more space to accommodate full size drawings of artifacts, may be made to fill size 11½" x 13½" (full page); or proportionately larger sizes for the half page sizes already mentioned.

5. Illustrations should not be made to fill format full page size 7" x 9", as this does not allow for a reduction, which is desirable in order to refine drawn lines.

6. Photographic illustrations will be accepted without cost to the author in place of line drawings, if they are in black and white prints in good focus with clear detail, and are about size 7" x 8½" (full page); 3½" x 8½" (half page of a full single column); or 5" x 7" (half page across both columns). Somewhat larger sizes in proportion may be used with good results, but considerably smaller sizes are not desirable, as enlargements blur details of print. Your photo illustrations do not have to fit above sizes exactly; approximate sizes will be acceptable, but may not fill areas as completely as those mentioned above.

7. In mentioning suggested sizes, sufficient space has been allowed below each to provide room for legend, or foot notes.

BACK BULLETIN ISSUES

At our Society Office we have on file copies of many back numbers of the Bulletin. To help Society members obtain copies, especially, new members, who want to read about past research in the field, we are offering back Bulletins at a special price to members of 50¢ each, separately, or $1.00 per group of (4). Send your order with remittance to our Society Office indicating your preference, or if requested, we will make a selection for you made up of numbers containing important site reports, etc.

The Society Office will be glad to receive back Bulletin issues from any member, who does not care to keep them on file, as many times issues, which are now exhausted, become available to new members only in this way. More than half of all back issues have been completely sold out. Therefore, before destroying unwanted back Bulletins, we urge that you send them to us.