10-1965

Bulletin of the Massachusetts Archaeological Society, Vol. 27, No. 1

Massachusetts Archaeological Society

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

Part of the Archaeological Anthropology Commons

Copyright
© 1965 Massachusetts Archaeological Society

This item is available as part of Virtual Commons, the open-access institutional repository of Bridgewater State University, Bridgewater, Massachusetts.
BULLETIN OF THE
MASSACHUSETTS ARCHAEOLOGICAL
SOCIETY

VOL. 27
NO. 1
OCTOBER, 1965

CONTENTS

AN ADENA-CONNECTED BURIAL SITE
Barker D. Keith ................................................................. 1

THE GROOVED AX: AN IMPORTANT DIAGNOSTIC
William S. Fowler ........................................................... 5

LONG COVE: A MAINE SHELL DEPOSIT SITE
Walter G. Bruce ............................................................... 8

SIGNIFICANCE OF WEAR ON CHIPPED IMPLEMENTS
Charles F. Walcott ........................................................ 12

CHRONOLOGY OF SOME KAOLIN PIPE TYPES
William S. Fowler ............................................................ 14

PUBLISHED BY THE
MASSACHUSETTS ARCHAEOLOGICAL SOCIETY, INC.
Society Office, Bronson Museum, 8 No. Main Street, Attleboro, Mass.
MASSACHUSETTS ARCHAEOLOGICAL SOCIETY

OFFICERS

President
Harold F. Nye ........................................ Converse Road, Marion, Mass.

First Vice President
Donald C. Wilder ..................................... 86 Brewster Avenue, South Braintree 85, Mass.

Second Vice President
William B. Brierly .................................. 9 Hawthorne Street, Millbury, Mass.

Secretary

Financial Secretary
Mabel A. Robbins .................................... 23 Steere Street, Attleboro, Mass.

Treasurer

Editor

Trustees
Society Officers and 2 Last Past Presidents
Walter Thomas, Jr. Edward G. Bielski Robert A. Martin
Frank Kremp Robert E. Valyou George S. Gibb

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

Price this issue $.75
(Subscription by membership in the Society: $3.00)

Note: Address all requests concerning membership to the Secretary; all orders for back Bulletin numbers (4 for $1.00 to members) to the Editor; and mail Society dues to the Financial Secretary. Exception: Classification No., Vol. 25, #1 — $1.00 to members, $1.50 to non-members.

BRONSON MUSEUM
Tel. 222-5470

This is the Society’s museum, 5th Floor of the 8 North Main Street Building, 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 at the Society Office, Bronson Museum, Attleboro, Mass.

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 most recent diorama extends 15 feet across the front of the museum. It depicts an Archaic village of seven large and unique wigwams as indicated by their foundations, excavated at Assowampsett Lake by the Cohannet Chapter. Human figures to scale make the scene come alive and help create what unquestionably is an outstanding addition to our ever growing museum displays.
AN ADENA-CONNECTED BURIAL SITE

Barker D. Keith

Discovery of this site occurred by chance, as so often is the case. One morning in April of 1963 a workman from the town health department stopped in at the writer's home in Brookfield, Massachusetts, to make certain inquiries about a new sewage trench being dug at Tobin's camping grounds nearby. His hands were stained red. Asked if he had been painting, he said no, but had come in contact with back-fill from the trench at a place where he had noticed in the profile a large red patch. At once, this suggested the presence of red powdered ochre to the writer, who immediately made an examination of the dug trench. Here in the soil, which had been removed, appeared artifacts and remnants of human bones. This was evidence enough to indicate a burial deposit had been disturbed by the trench digging. Writer's troweling then began to uncover fragments of a human cranium, several vertebrae, and the right jaw with some teeth in place. Mixed among the bone remains appeared seldom-seen grave goods, such as large and small copper beads, large shell tubular beads, and tiny perforated shell beads. All were well preserved by copper salt leaching from the copper beads — these grave goods will be fully described further along. Digging deeper, the writer excavated the remainder of the grave and found about a bushel of red ochre just under the loam, with more human bones badly disintegrated. They lay in a dismembered condition, which suggested the presence of a bundle burial.

By this time the writer had become inspired to explore the area further, after being told by the owner, James Tobin, that when laying the pipe he had found more bones and red ochre about 20 ft. from the opened grave. Here, upon further excavation the writer came upon another burial, which had been very largely destroyed by the trench diggers. It was now time to seek permission for a more complete excavation of the area. This was gladly granted by Mr. Tobin, but with the understanding that it be put off until fall, to prevent conflicting with summer activities at his camp grounds.

The drain trench cut north and south across a knoll with an elevation of about 4 ft. above its periphery. Roughly speaking, it has a diameter of about 90 ft., and lies several hundred yards distant from the outlet of Quaboag Lake in Brookfield. The deepest grave pits were dug to depths of 35". They penetrated through water-washed coarse sand, which was covered with about 2" of loam at the top. At the 35" depth a clay-packed soil appeared, representing a natural formation of early Pleistocene days. At no place through the sand was a humus layer encountered, which, if present, might have indicated an earlier ground level over which the sand mound had been made by human labor. Therefore, it seems probable that the site is not a man-made mound, but rather a natural geologic sand drumlin, selected by man as a suitable place for burials.

The site could have been reached by canoe from the west, as the Quaboag River out of the lake flows westerly and empties into the Chicopee River, thence into the Connecticut at Chicopee, only a few miles below Holyoke, referred to again in the conclusion. This places the site only about 40 miles away from the wide Connecticut River, which in early days offered a natural means of travel from the Sound, north into the interior of New England.

When fall arrived, the writer enlisted the services of several Society members including Maurice Robbins and Karl Dodge — the latter is directing excavation of the Oakholm site on the opposite shore of the lake. On a cold windy day in November excavation commenced, and before work stopped that day, two more burials had been uncovered. While the material from one proved uninteresting, the recovered artifact from the other was exciting, because of its rareness and its Adena culture implications. It is a 4" Thin Shell tube of indurated clay, or fire-clay, more often called a Blocked-end tube (Fig. 1, #8). Its drilling tapers from a large opening at one end to a small one at the other. Usually, this drilling maintains a uniform large diameter all the way through the tube but for a thin undrilled section at one end. This is then drilled with a small hole to meet the large one. Nevertheless, the recovered tube is considered as a variation belonging in the Blocked-end tube classification.

For the next several weeks, as weather permitted, the writer continued excavation of the drumlin, and before snow-fall, had uncovered 8 more burials. Later, 6 additional burials were exposed, making 14 in all. Each was thoroughly excavated and their sizes and grave goods, if any, carefully recorded. The most significant artifacts have been illustrated. The writer is indebted to the Editor for this art work. Also, he is indebted to Maurice Robbins for his research in identifying the beads and in securing from Dr. Dragoo of the Carnegie Museum of Pittsburg, after a review of the grave goods, his confirmation that they contained definite Adena culture traits.

For purposes of comparative study, enumeration follows of graves and burial recoveries, with all per-
tinent details listed. First, however, several general points of interest are worthy of notice. 1) All grave shafts except #1 and #2, previously disturbed by trench digging, and #3, which started at a somewhat lower depth, had their origin in the top of the sand, directly under the 2” layer of loam. They were either slightly oval or circular in shape. 2) A few human teeth were noted in several graves, appearing each in one place, as though the skull had completely rotted away and left the teeth, which, also, were in a state of decay. 3) All human bone remains were badly disintegrated, and many fell to pieces, when exposed to the air. 4) As noted, fire-clay, a term generally used by archaeologists, is another name for indurated clay. This formation is frequently encountered in Ohio, and represents a clay deposit, which has been hardened due to its natural exposure to extreme heat when the earth was in an eruptive state of evolution.

Burial #1) (Fig. 1, #1-5). Partly destroyed by trench digging, it contained about a bushel of red ochre, which extended down throughout the pit from top of the sand, or junction, where disturbance was first noticed. Human cranium fragments and other skeletal parts, including the right jawbone and teeth were present. Grave goods consisted of a small worked deer knuckle, quantities of Barrel-shaped rolled copper beads in two sizes, a number of large Conch columella tubular beads, several Olivella (rice) shells, perforated for stringing — the copper beads had been interspersed with the Conch tubular beads, — and a small Birdstone without drilled holes.

Burial #2) (Fig. 1, #17-21). Also, partly destroyed by trench digging, it had a limited amount of red ochre, a human jaw-bone with teeth, and other bone fragments. Grave goods included, 1 small Stemless knife of quartzite, a small decorated pin of slate, beaver incisor, and 2 small Stem knives of quartz.

Burial #3) (Fig. 1, #8). No red ochre occurred, but a human bone and cranium fragments were present. Grave goods consisted solely of a 4” Blcked-end tubular pipe of fire-clay, highly polished. It lay among the bone remains. Pit dimensions were about 3’ in diameter, and 18” deep.

Burial #4). It contained nothing but flecks of charcoal; had dimensions of about 3 x 4’ oval, 21” deep.

Burial #5). This grave was filled with pea-sized stones and flecks of red ochre, with a patch of pulverized charcoal at its base. It contained no human bone remains or grave goods. Its dimensions were 8 x 20” oval, 4” deep — a shallow deposit.

Burial #6) (Fig. 1, #6,7). Scattered throughout this grave were large pieces of charcoal and burnt sand, but no red ochre. Grave goods consisted of a 5” Adena spear point of Ohio Valley flint, and a Cigar-shaped tubular pipe of fire-clay, badly damaged probably by fire. These lay together at the bottom of the grave shaft. The tubular pipe was uncovered carefully, and dimensions noted. It was full of fine cracks, and became shattered in its removal from the pit; has since been restored at the Bronson Museum. The pit’s dimensions were 23 x 28” oval, and 29” deep.

Burial #7) (Fig. 1, #9-11). There were flecks of charcoal and burnt sand at the top of this pit, then a layer of red ochre, in which appeared a few decomposed human teeth and one projectile point. Beneath this at the pit’s bottom was a second point closely resembling the first, and a tool that may have been a pipe bowl reamer of quartz. The two points are of quartzite with stubby stems, which appear to be the remains of what once were longer stems. The blades are triangular in shape, and if longer stems were originally present, they are suggestive of “Ashtabula” type points of the Adena complex from Chautauqua County, N. Y. Dimensions of the pit were 24” in diameter, and 26” deep.

Burial #8) With no red ochre or human bone remains, this grave contained charcoal flecks and burnt sand only. It had a 24” diameter, and was 26” deep.

Burial #9). Like #8 this grave was without red ochre or human bones. It contained flecks of charcoal and burnt sand, without grave goods of any kind. Its dimensions were 20 x 22” oval, and 25” deep.

Burial #10) (Fig. 1, #13-16). Its top layer of 18” contained numerous bits of charred wood in sand. Then came a thin layer of charcoal, below which was sand with much red ochre at the bottom. A pocket of human teeth appeared above the red ochre, and in the first 18” layer occurred a chunk of fired clay with mineral temper; may have been accidentally dropped into the fire along with the firing of pots, and thus fire-hardened. It seems to indicate presence of ceramics. Grave goods included Stem scraper of quartz crystal, Rubbing stone, small piece of worked graphite, and a cache of 4 broken knife blades of quartzite. Dimensions of the pit were 30 x 36” oval, and 33” deep.

Burial #11). This deposit was composed of a dark discoloration of sand at the bottom of which appeared a large anvil-shaped stone, bottom-side up, lying in red ochre. The stone showed no signs of wear. Dimensions of the pit were 24 x 32” oval, and 18” deep.
Fig. 1. GRAVE GOODS, Quaboag Burial Site. Burial#1: 1, Olivella Shell Beads; 2, Birdstone; 3, Barrel-shaped Rolled Copper Beads; 4, Conch Columella Tubular and Copper Beads; 5, Worked Deer Knuckle. Burial#2: 6, Adena Spear Point; 7, Cigar-shaped Tubular Pipe. Burial#3: 8, Blocked-end Tubular Pipe. Burial#7: 10, Pipe Bowl Reamer; 9, 11, Points (Ashtabula?). Burial#12: 12, Adena Point. Burial#10: 13, Graphite; 14, Stem Scraper; 15, Rubbingstone; 16, Mineral-tempered Clay. Burial#2: 17, Slate Pin; 18, Beaver Incisor; 19, Stemless Knife; 20, 21, Stem Knives.
Burial #12) (Fig. 1, #12). Reddish-brown burned sand filled the pit with no charcoal remains showing. In this fill occurred a pocket of red ochre, in which appeared one white quartz Adena point, and a broken knife blade of flint. The pit's dimensions were 24 x 30" oval, and 20" deep.

Burial #13). This pit contained flecks of red ochre scattered through a discolored sandy fill, but with no grave goods in evidence. Its dimensions were 24 x 28" oval, and 18" deep.

Burial #14) (Fig. 1, #4). In this deposit occurred flecks of red ochre, which extended all the way to the pit's bottom. Along with parts of a human skull in a disintegrated condition appeared a few Barrel-shaped rolled copper beads, 2 Conch columella tubular beads, and what appear to be 3 flat shell beads badly eroded and in a poor state of preservation. Because of the small number of Conch and copper beads, which are identical to those from burial #1, and as this deposit lay only about 6 feet distant from the first, the probability is that both pits were opened at the same time. In this event, burials #1 and #14 doubtless were used simultaneously during the burial rites, with a small part of the burial goods finding their way into burial #14. This pit had an oval shape of 18 x 20" and was 24" deep.

While excavating around burials #1 and #14, 11 post molds were discovered lying in an irregular arc, which if extended would have described more or less of a circular pattern with a diameter of about 12 feet. The post molds measured about 3½" in diameter and were pointed, having been vertically driven into the soil. This feature is suggestive of a wigwam abode of some kind having small proportions. Whether it was contemporaneous with the burials, or was built at a later date by people who found the sand drumlin a desirable location for a lodging place cannot be determined from the evidence.

CONCLUSION

In an effort to arrive at a realistic interpretation of the evidence as presented, research has been made to obtain pertinent information bearing upon the subject. The Prehistory of the Upper Ohio Valley, by W. J. Mayer-Oakes, and The Eastern Dispersal of Adena, by W. A. Ritchie and Don W. Dragoo have been used for reference. Certain likenesses between Adena culture traits from these western areas, and some of the recoveries from the Quaboag site are noticeable. In New York State, the Adena-influenced culture period is called the Middlesex Focus, which has a number of elements characteristic of Ohio-Adena. Apparently, Adena is not represented as a pure culture in the Northeast. Rather, its traits seem to be mixed with other culture elements belonging to this eastern area. Ritchie says: "The new evidence would seem to indicate the actual migration of groups of Adena people into the east and northeast, their considerable dispersal along certain major waterways, and their ultimate differential cultural assimilation into various local populations."

One of the first waterways into New England that might have attracted this traffic from the Sound, would have been the Connecticut River. Certain recoveries in and about Holyoke at what used to be known as the Great Falls on the river, display a number of Adena elements, which seem to bear out this assertion. W. J. Howes reports this evidence in his article, The Thin Shell Tubes, Bulletin of the Mass. Arch. Soc., Vol. 3, No. 2. He refers to one burial uncovered in the town of South Hadley, a short way from Holyoke up the road to Granby. It occurred in a sand bank along the side of the road. In it, among other things, were 2 Blocked-end fire-clay tubes, 4 and 5" in length and highly polished, 4 Side-notched #5 points, rolled copper beads, and copper ornaments. Parts of the skull had been preserved by copper salt leaching; the rest of the skeleton had turned into a dark granular substance. In another burial overlooking the Great Falls of the Connecticut at Holyoke, occurred 2 Blocked-end tubes, probably of fire-clay, rolled copper beads, Marginella shell beads, and several bone beads. In still another burial in Holyoke, while workmen were leveling off a hill a short way from the Great Falls, more of the same occurred including, 3 Blocked-end tubes, a Bar amulet drilled at each basal corner like a Birdstone, Conch columella tubular beads, rolled copper beads, copper nose spike, and a shallow soapstone bowl with lugs. This burial had a great deal of red ochre. The presence of the stone bowl is, of course, an important piece of evidence.

Against this exhumed evidence, it might help to enumerate some diagnostics of the Adena culture of Ohio. They include: Blocked-end, Parallel-sided, and Cigar-shaped tubular pipes, Bar amulet, Birdstone, Boatstone, Reel-shaped gorget, Conch columella tubular beads, Marginella and Olivella shell beads, Rolled copper beads, copper ornaments, Grooved ax, Wing atlatl weight, Adena projectile point (large ovate extended stem), and of the early phase, pottery vessels with flat bottoms, often with lugs, grit-tempered, and cordmarked inside and out, resembling stone bowls, of which doubtless they were copies. Conoidal-shaped pots followed during later Adena periods. The age of Ohio-Adena appears to extend perhaps for a thousand years or more, from about 500 B.C. or before, to A.D. 500.
Another Adena-linked trait may be Barrel-shaped copper beads. This type of what may be a rolled bead Barrel-shaped appeared in a Point Peninsula burial on the Sea Breeze site in New York State. Here, the Middlesex Focus — Adena connected — believed to have influenced the Point Peninsula, may have been responsible for copper beads of this type.

Often, materials from which artifacts are made furnish clues as to culture provenience, when their sources can be determined. Such a material is fire-clay, of which a well known source exists near Portsmouth, Ohio. This is in the Adena area. Here, fire-clay was the favorite material from which thin shell tubes were cut, and occasionally, other products as well. Then, too, Adena artisans used much flint from the Ohio Valley, and a certain variegated Indiana flint from Harrison County. According to Dragoo of the Carnegie Museum, the Lake Quaboag 5” flint projectile with its banded characteristics might well be from Ohio Valley deposits — its basal shape is typically Adena. The material from which the Cigar-shaped tubular pipe is made has been identified by Dragoo as fire-clay, badly fire eroded — probable source is Ohio.

The Quaboag burial recoveries include several well-known Adena elements: Cigar-shaped tubular pipe from burial #6; Adena projectile points from burials #6,12; Blocked-end tubular pipe from burial #3; Birdstone (probably cut from fire-clay, but not drilled), Barrel-shaped copper beads, Olivella (rice) shell beads, and Conch columella tubular beads from burials #1,14. The frequent use of red ochre in the burials is another characteristic of Adena, and the selection of a sand mound is also typical. The other Quaboag elements may represent local culture traits, representing the merging of Adena with an established eastern culture.

Of much interest is the carefully marked slate pin found in burial #2. No reference has been found of a similar artifact appearing in Adena burial remains, or elsewhere. What its use was must be left to conjecture, but its carefully ground point and decorated stem should indicate an object of worth to whoever made it. Also noteworthy is the chunk of clay with mineral temper, which has been fired, in burial #10. If this is what it seems to be, there can be little doubt that it was buried by people who had the knowledge of ceramics. If these burials represent more or less contemporaneous interments by the same people, as their close undisturbed relation in the same sand mound would seem to indicate, then they may all have Adena connections.

Furthermore, if they are related to the Adena-connected burials at Holyoke, as their grave goods suggest, then the Holyoke stone bowl burial inclusion lends a temporal suggestion. Combining the Quaboag pottery-connected conjecture with this stone bowl evidence, a good guess might place this arrival of Adena settlers as taking place during the prolonged transitional period — about A.D. 200-300 — that extended between the closing down of the steatite quarries and the ceramic take-over by the potters in the making of Stage 1 pots.

Brookfield, Mass.
March 7, 1964

THE GROOVED AX: AN IMPORTANT DIAGNOSTIC

WILLIAM S. FOWLER

Of all important stone artifacts denoting some specific culture affinity, the Grooved ax holds a preeminent position. It appears associated with several different culture complexes in various sections of the New World, and because of this wide-spread occurrence, probably indicates culture diffusion of some kind. Broadly speaking it usually appears in two types: Grooved and Full Grooved forms. Sometimes the latter has two or more grooves running around its poll to accommodate hafting thongs. As in the case of the single grooved type, these are not only pecked out, but often are intentionally polished. Most archaeologists, wherever they may be located, consider this ax to have diagnostic importance in determining the culture to which it belongs.

For example, in the Upper Ohio Valley it is found to be associated with the Archaic, which pre-
cedes the Ceramic Age. Also, this holds true for New Jersey and New York. Because of the great distance involved, probably there is no need of citing occurrences of this ax in the Southwest and California where it is also present. A diffusion of the trait may have taken place between the East and West, but which way it moved is still a moot question, although the chance of an eastern movement seems more tenable. In New York, Ritchie's Coastal culture has this ax, which is considered to be a late aspect of the Archaic. However, in Pennsylvania and the Upper Ohio Valley, although the Grooved ax in those areas is said to be an Archaic diagnostic, no effort is made to differentiate between an Early and a Late phase of this culture. Furthermore, industrial stone bowl making in those regions is crowded into a short period of only 500 years, called the Transitional, which is placed between the Archaic and Ceramic epochs. This seems surprising, since stone bowl making was an active industry, similar to that of New England, in this part of the Appalachians. Therefore, evidence there should be just as available as in New England, where it suggests a much longer period of bowl making. Further south in the Potomac Valley of Virginia, the Grooved ax has been reported in numerous stone bowl quarries. It was found there in a worn-out condition, either from the excessive use of quarrying steatite, or from preference of the quarriers to use only those axes, which were worn down from previous hard usage from felling trees.

While this paper explores New England culture as related to the grooved ax, it should be obvious to all that the peoples of this area were here only because they had migrated from some adjoining region. Many artifact traits appearing in other parts of the country found their way into this coastal area in this way. As a result, it seems probable that an investigation into use of the Grooved ax by New England peoples should be rewarding. This type of ax has been reported from every part of this northeastern region, but appears more in abundance toward the central and southern areas.

About 100 years ago in Tyngsboro, Massachusetts on a Merrimack River plowed field, a remarkable recovery was made, as shown by illustration (Fig. 2). Picked up by a Mr. Gordon, it has been handed down in his family. Recently, it was kindly loaned to the Bronson Museum for exhibit by Earl E. Estey of Coventry, Rhode Island. This ax is unique in several ways, which will be obvious to all students of this type of implement. Its narrow elongated blade looks more like a copy of a trade iron tomahawk than a Grooved ax. And yet this cannot be, since its center is completely surrounded with a deep wide groove, similar to that of a Grooved ax. Its blade is ground to a sharp edge by careful rubbing, which indicates a tool for cutting something workable like wood. Because of its relatively small size, it should probably be considered a small Grooved ax; does not belong in the classification of a Hatchet. This latter artifact has been described as a hatchet-shaped chipped implement — not pecked — with a ground cutting edge, and with side-notching for hafting. The Tyngsboro ax is noteworthy because of meticulous beveling of its poll on all four edges. Such trimming may easily be accomplished by percussion action, but is almost never present on axes. Evidently, in this instance, the maker was a perfectionist with pride of good work-
manship and a creative urge above the average. The entire job of shaping this tool was done by pecking, as in the case of all Grooved axes. So, from every point of view, the Tyngsboro find conforms more to that of a Grooved ax than to any other type of implement.

Years of controlled excavation in New England at camp sites and in stone bowl quarries has produced much evidence concerning the important industry of stone bowl making and where it belongs culturewise in the area. Also, its separation from the following Ceramic culture seems fully supported by the evidence. In passing, it should be pointed out that between 20 and 30 quarries have been located and explored in Massachusetts, Rhode Island, and Connecticut. As they lie in a much frequented occupational area, artifact recoveries from them tend to reflect social contacts with the numerous camp sites in the region.

There is no longer any doubt about the separation of stone bowl making from that of ceramics. If absence of broken pottery at all but one stone bowl quarry is not sufficient evidence to satisfy everyone, then results of controlled excavation at that exception, the Bagged Mountain shelter-quarry in Connecticut, should be convincing. At this site, potsherds from five broken vessels were recovered from the overburden, where they had been dropped by later-day hunting parties, who used this rock shelter site as a hunting lodge. But of more importance is the fact that these Stage 2 and 3 potsherds were separated from the underlying workings of the quarry by a sterile layer of subsoil wash. This furnished clear proof of separation of the two industries by many years — the site was not used during Stage 1 pottery times.

But of equal importance was the recovery of a worn-out Full Grooved ax in the Wilbraham quarry and another broken one in the Westfield quarry. These ax finds correspond to those from the Virginia quarries, which place the Grooved ax quite definitely in Stone Bowl Late Archaic times. This culture position has also been established at certain excavated sites, where Grooved axes have appeared at junction, or just below humus in the stratum directly underlying that of the Ceramic Age. Such ax evidence has appeared at several sites in the Narragansett Bay drainage: Titicut, Nunkatusset, Potter Pond, and Sweet-Meadow Brook.

Hence, it appears that the Grooved ax is a reliable diagnostic of the Late Archaic, which probably extended back from the Ceramic Age some 2,000 years, as suggested by excavated evidence, to allow for quarry tooling and industrial development. From this deduction it seems unrealistic to try to cram this industrial age into a short 500 year span, called by some archaeologists the Transitional. With the probability that the longer period took place, at least another 1,000 years should doubtless be added to allow at the start of the period for the arrival and consolidation of Late Archaics from the Great Lake area. Coming in small family groups, one at a time, they brought with them many new ideas. However, it must have been a long time before populations had increased to a point where people would have been able to undertake cooperative effort such as that required for stone bowl quarrying. As this writer sees it, during this non-quarrying period of about 1,000 years of hunting survival, these people were of the Late Archaic; were racially the same as their descendants, who later on worked the quarries. Of diagnostic Late Archaic artifact traits, perhaps the most widely accepted because of their association and inclusion with the Grooved ax, are: Wing atlatl weight, Clumsy plummet, Grooved gouge, and projectile points — Eared, Corner-removed #7, Side-notched #1, Small Stem, and Small Triangular #3,4. Also, proven as belonging to this culture period is the practice of cremating the dead with well-developed mortuary rites, including secondary burials often with the use of red powdered ochre, when available. Such burials frequently yield large ceremonial blades of projectiles and knives with Grooved axes occasionally a part of such deposits. Also, there is evidence to show that such burial practices extend back to the early arrivals of this culture complex by a Carbon-14 date of about 4,300 years ago at Wapanucket 6.

With the Late Archaic clearly defined in this way, it remains to be shown why the Early Archaic should probably be segregated from it, at least in New England. Here, artifact traits appearing in the stratum underlying that of the Late Archaic have marked differences from those that occur above. That such a sharp culture division should occur is understandable, when consideration is given to the kind of survival contempo­raneous New England offered. There is ample evidence to suggest that in the bushy tundra of the Early Archaic, caribou herds moved up through this coastal area between the Hudson River and the coast, and were man's most important game. His time was taken up very largely by hunting with some fishing, which kept him continually on the move. This highly nomadic existence would not have been conducive to the development of advanced spiritual beliefs accompanied by complex mortuary rites; such ceremonies are to be found with people having a more sedentary form of existence. Correspondingly, man's implements of the Early Archaic must have tended
toward shapes and sizes suitable for his daily pursuits as a hunter, first and foremost. Therefore, it seems consistent that his projectile points should be found to run more to slender proportions for spear throwing, and some with sharp barbs — the Bifurcated type — for harpoon hunting of seal. It is here at this low stratigraphic level that the ground slate Ulu appears along with the finely chipped Leaf knife. These are important diagnostics of the Early Archaic. If this early age, extending between 6,500-5,000 years ago, produced this sort of an existence in New England, it does not follow that the same would have been true, for example, in the Upper Ohio Valley. There, life may have been more sedentary, with the eating of fresh water clams as is reported. The conclusion seems to be that any given environment with its particular kind of fauna determines to a large extent what man’s actions will be, and what kind of implements he will use. For man is tied closely to his fauna and climatic surroundings, to which he must accommodate himself or perish. Hence, it is not unexpected to find projectile point styles of this early phase of the Archaic consisting for the most part of narrow shaped Corner-removed #5, 8, and 9 as found in New England, while they take other forms in more distant areas where the mode of life may have differed.

Another condition that may be unique for New England is the sudden ending, stratigraphically, of several well-known implement types of the Early Archaic, and their replacement by new styles of tools for performing similar operations. For instance, the diagnostic Early Archaic Oval atlatl weight is followed abruptly by the Wing type; Ulu and Leaf knives by Stemless and Stem types; Channeled gouge by the Grooved gouge, together with the Grooved ax; Classic plummet by the Clumsy form, and Grooved and Perforated weights. Such sudden and complete changes of implement types seems to denote a corresponding change of cultures, in which a new tradition is replacing a former one.

The question now arises, if this is the case, what happened to the Early Archaic nomadic hunters? Did they cease to exist due to some strange catastrophy that caused mass extermination, or did they move out of the area for natural reasons of survival? It seems more probable that the latter condition prevailed, since the caribou-tundra-hunter combination seems to have moved north with the gradual retreat of the ice cap, and the descendants of the Early Archaics may now be manifested by the Caribou Indians of the Quebec-Labrador Peninsula, or even the Caribou Eskimo of the Canadian Barrens. While this explanation seems to justify the belief in a gradual movement out of New England and the area east of the Hudson River, it is possible that a similar situation may also have existed over a limited area on the west side of the river as well. Also, suggesting migratory seasonal movements of Early Archaic hunters between New England and neighboring regions to the south are certain projectile point types, reported on Long Island and in New Jersey. Because of their similarity to those to the north, the implication seems to suggest contacts, if not actual seasonal occupation by the Early Archaic Caribou Hunters of New England.

Bronson Museum
January 1964

LONG COVE: A MAINE SHELL-DEPOSIT SITE
WALTER G. BRUCE

The coast of Maine has produced many aboriginal sites on which shellfish remains have appeared in varying amounts. Some of these, such as that at Damariscotta, have had so much shell refuse dumped over them that immense middens have been formed, which appear as high mounds. These extend in some cases for hundreds of yards along bays and inlets from the sea and are commonly spoken of as shellheaps. However, there are others where the shell refuse does not appear to have been deliberately dumped in midden heaps, but seems to have accumulated about the living quarters of the occupants in a normal way. Most always such sites are not in evidence as a result of obvious mounds of shell, but are more or less flat areas hidden from view by vegetation, except for eroded patches of shell, which tend to expose the site.
Such shell remains may be called shell deposits, and are more informative for archaeological excavation than the more extensive shellheaps.

Such an occupational remain was located by the writer in 1960 at Long Cove near the village of Mintern. This small fishing hamlet is located on Swans Island, which lies about five miles off the southwest corner of Mount Desert Island, settled in 1765. Today, lobster fishing is its chief industry, but in proto-historic times the Tarrantines, a tribe of the Abnaki, occupied the island. They promised help to the whites in the event of a Mohawk attack, and remained their loyal friends throughout the Indian wars.

Long Cove is situated across Burnt Coat Harbor from Swans Island Village in the township of Mintern. It extends back from the harbor some 1,000 feet, and at one spot a 10 foot wide stream of fresh water empties into the cove. Here, at the mouth of the brook, at an elevation of about 15 feet above tide water appeared the site, which is the subject of this paper. Only a short distance from the brook and up a steep bank, shell evidence was noticed where rains had washed away the humus cover. Here, it was decided an excavation should be undertaken. So work started in 1960 and continued through 1963 during a short time each summer. As the excavation progressed, it appeared that the site was comparatively small in size, covering about 1,400 sq. ft., of which 972 sq. ft. were carefully excavated in 6 foot grids. This comparatively flat area lies at the foot of a steep hill on its east side about 30 feet from the shore of the cove. In the past, the site has been exposed to only superficial disturbance, which resulted mostly from the tramping over its surface by those using a blacksmith shop nearby, and by fishermen going to the brook for fresh water to fill their casks. Otherwise, the site has remained as it was left by its aboriginal occupants.

**OCCUPATIONAL EVIDENCE**

Covering the area of occupation appeared 4" of humus underlaid by 2" of sand near the edges in one or two places, only, evidently there as result of erosion from the hill in back. Below these layers of recent fill came crushed shell deposits and other accumulations from aboriginal residents, which varied in depth from about 4" at the periphery to 20" near the center. Observations were made and recorded from three grids with results that show much variation in the sequence of occupational layers of deposit. For example, in one grid with deposits 18" in depth, appeared 1" of shell mixed with dirt, then 7" of thick shell deposit, followed by 2" of wet shell remains, underlaid by 4" of blackish soil, and finally 4" of reddish soil (no ash was present). In a second with 16" deposits appeared 4" of shell in black soil at the top, below which appeared 2" of ash, then 4" of reddish soil with some shell, then 4" of heavy soil, followed by 2" of ash, underlaid by gravel. In the third with 22" deposits occurred 8" of black soil with some shell, then 6" of shell, below which came 2" of ash, then 6" of reddish soil on gravel.

It seems obvious from this evidence that occupation of the site occurred at intervals, in which different parts of the area were lived on at different times — uniform occupation of the entire plat probably never took place from generation to generation. This sporadic sort of camping, therefore, has so completely mixed the layers of deposit, as to destroy their value as indicators of culture sequence. In spite of this non-conformity to the usual uniform distribution of occupational layers, much may be learned from a study of the evidence.

There appeared at least 7 refuse pits varying from about 12 - 27" in depth. They contained whole shell remains, for the most part, some quahog, a few large oyster, a large amount of clam, and a few periwinkle mollusks, beside animal and fish bone remnants. As for artifact contents, the pits produced most of the 800 potsherds that were recovered, while stone artifacts, in general, were found outside the pits. At the bottom of one pit appeared a 10 lb. chunk of local blue clay mixed with mineral temper, evidently prepared for pottery making. It had been left behind unused, but seems proof enough that pottery had been made at the site.

Only one stone hearth was found *in situ*. It was a large one extending into four grids, and appeared at a depth of about 16". Evidently, it had been used extensively, as it had an accumulation at its bottom of 6" of ash. Throughout the site were scattered many firestones, which indicated more hearths had been present at some time, but had become demolished during the life of the site.

Pottery remains at the site form an important part of the recoveries, as they indicate time of occupation. Of the 800 sherds, most appear to belong to Stage 2 ware, while one or two sherds indicate the presence of Stage 3, one of which has a constricted neck with castellations indicated; is of rare occurrence, probably diffused Owasco traits from New York State (Fig. 3, #33). There were no sherds of Stage 1 pots, which places the time span of the site within the remaining part of the Ceramic Age, but before Stage 4, evidence of which is lacking. An important observation is that while most sherds appeared in refuse pits, there were
Fig. 3. BONE IMPLEMENTS AND POTSHARDS, Long Cove Site. 1-3, Barbed Spear Point; 4-7, Harpoon Point; 8, 9, Needle; 10-12, Pressure Flaker; 13, Splinter Awl; 14, 15, Ulna Awl; 16-18, 20, 21, Fishhook Point, (19, probable method of hafting); 22-24, 26, 27, Fishspear, (25, probable method of hafting); 28, Stock, (showing tools being cut out); 29, 30, 32, Stage 2 Sherds; 31, Stage 3, (laminated collar); 33, Late Stage 3, (Owasco influence: castellated narrow collar with constricted neck).
Fig. 4. STONE IMPLEMENTS, Long Cove Site. Projectiles: 1, Small Triangular; 2-6, Small Stem; 7, 8, Corner-removed; 9-13, 15-19, Side-notched; 14, Leaf; 20, 21, Large Triangular; 22, 23, Tapered-stem; 24, 26, 27, Flake Drill; 25, Tapered-stem Drill; 28, Flake Knife; 29-31, Celt; 32, Stem Scraper; 33, Flake Scraper; 34, Elbow Stone Pipe; 35, 36, Stemless Knife.
many lying outside in the various occupational layers. Usually, such sherds were badly deteriorated, especially those found at the bottom of site deposits. For example, a few appearing in the dirt layer just above the gravel base, about 16" deep, were so badly rotted that they crumbled when touched. However, two of these were recovered without breakage, and were found to belong to Stage 2 ware with a stick-wiped interior and a conoidal base. A representative display is illustrated (Fig. 3, #29,30,32).

Bone implements are a significant part of the tools from the site. They occurred in all layers more or less throughout the site except in ash remains. In all, 167 specimens were recovered from which a selected representation is illustrated (Fig. 3). It includes: harpoons, fishhook points for binding to wooden stems, spear points, awls, etc. Such a collection never occurs except in shell remains, which tend to preserve them.

Finally, stone implement recoveries represent another important part of the evidence, as typologically, they may be studied as to their culture association. Many were made of Kineo felsite and of dull black flint. A few were of reddish jasper and of quartz. All told, several hundred specimens were recorded, of which a representative group is illustrated (Fig. 4). They represent types, which have been affiliated with Ceramic remains at other New England sites. A few types, like the Tapered Stem point seem to represent an overlapping from Late Archaic times, but on the whole, types hold closely to those of the Ceramic. Stone implements were found in all layers of deposit down to the gravel. A Corner-removed#3 and 2 Small Triangular points appeared imbedded in the gravel; probably were intrusive from the reddish dirt just above in which other points were recovered.

CONCLUSION

At this Maine coastal site, there are several pieces of evidence that seem to this writer significant and worth noting. First of all, it is evident because of the presence of potsherds from top to bottom of occupational remains, that the site falls entirely within the Ceramic Age. This would make it a closed site of one culture. This is further confirmed by the presence of shellfish eating throughout. As reported in various site reports appearing in the Society Bulletin, the practice of eating shellfish had its inception with the introduction of pottery making. Also, it is supported by Ceramic culture types of stone implements recovered, as for example: Large Triangular, Small Triangular#5, Leaf, and Side-notched#5 points; ceramic pipe fragment; to mention a few of the most diagnostic.

Absence of Stage 1 potsherds suggests that the site does not follow immediately the Late Archaic, but came into use some time later, when the advent of Stage 2 ware with stick-wiped interiors had been introduced. It was at a time when shellfish eating was well established, and warmer weather than now may have existed with relatively warmer waters, since quahaugs were present. Furthermore, site evidence of refuse pits in which shell refuse was disposed of suggests settlements of a more permanent nature than those of clam bake parties, which are presumed to have been responsible for the more extensive shell-heap sites.

The writer believes there is close similarity between bone and stone implement types of this site and those reported from Rhode Island and Massachusetts. To him, these type likenesses suggest racial similarity between the ceramic peoples of Maine and those in other parts of New England.

Ledyard, Connecticut
February 1964

SIGNIFICANCE OF WEAR ON CHIPPED IMPLEMENTS

Charles F. Walcott

The purpose of this paper is to suggest that evidence of wear on some edges of chipped implements may be of assistance in determining their probable use.

Many years ago, the writer picked up in Canton, Massachusetts, a well-worked flake of felsite (Fig. 5, D). Close examination revealed evidence of wear on its steep chipped "business" edge. Not only were the fine ridges between the depressions produced by chipping smoothed over, but the whole edge was rounded.
off and retained a polish. This was in marked contrast to all other chipped edges of the implement. It was this evidence of wear that convinced the writer that he had a scraper in his hand. Some years later, when a large well-made triangular blade of Kineo felsite (Fig. 5, E) was found adjacent to a shell heap in Maine, the same signs of wear were readily apparent along one of its three sides. A strikingly similar implement, illustrated in Willoughby's Antiquities of the New England Indians, p. 128, Fig. 67,a, shows the same evidence of wear along one edge. It seems reasonable to assume that these tools were hafted in such a way as to subject only the worn edge to wear in the scraping of hides and other materials.

The three wide blades (Fig. 6), all just under 5" in length and of a similar shape, were found within a mile of one another along the shores of Penobscot Bay, Maine. Exhibit A, made of a fine-grained green indigenous felsite, was a surface find near a shellheap many years ago. It shows no signs of use or wear. Exhibit B, also a surface find near a shellheap, has a broken tip and shows smoothing from wear along one edge, a distance of about 2½" from its point to a spot about midway down the blade, as illustrated a to b. This would be consistent, it would seem, with its use as a knife, the handle and lashings having protected the base of the blade from wear. The third exhibit C, of Kineo felsite, was found about 6" deep in shell near
the top of a shellheap. As may be seen, the blade narrows abruptly about the same distance from the base, as on that of the previous one where it begins to show evidence of wear. The narrowing, probably, is due to reworking of the cutting edge on both sides of the blade, making it narrower and steeper edged. It seems probable that these three exhibits are knife blades, the first, unused, the second, worn on one edge but not resharpened, and the third, resharpened by chipping until it became steep-edged and narrowed.

More interesting and perplexing are signs of wear on three implements, originally classified as drills (Fig. 5, A, B, C). Exhibit C, a finely made felsite specimen from Thoreau's Clam Shell Bluff field in Concord, Massachusetts, was thought to be a T drill at first. However, it may be seen that although symmetrical when viewed face on, it is asymmetrical when looked at edgewise. Its flaring base is chipped in such a way as to be slightly concave on one face and decidedly convex on the other. This produces a typical scraper-shaped bit. In addition, although the symmetrical and well-made sharpened point shows no evidence of wear from use, the base of the tool displays exactly the same worn smoothness as found on scrapers D and E, first mentioned. Again, similar wear appears on a pointed tool, A, of black flint from Saratoga, New York, although in this case, it, base does not have the same scraper-like asymmetrical shape as C. The third exhibit B, from Sudbury, Massachusetts, made of a fine black flint-like stone, consists of the basal half, probably, of a drill, the base of which is flattened with the same wear showing as found on the others.

The question arises: were these last mentioned implements that seem at first glance to be drills, merely scrapers, after all? It seems unlikely that their pointed bits would have been so well finished only to be inserted and hidden away in a handle. Possibly, they were a combination tool, with one end anawl to perforate hides, wood, etc., while the wide basal end was used to scrape whatever material was being worked. For, it seems unlikely that wear from friction in a hafted handle, were they to have been used as drills, awls, or pipe bowl reamers, would have been sufficient to cause the basal polish found on these blades. It would be interesting to know how many implements, now classed as T drills, show similar wear from scraping on their wide basal ends; and further, to what extent this type of dual implement is distributed over the Northeast.

Cambridge, Mass.
July 11, 1963

CHRONOLOGY OF SOME KAOLIN PIPE TYPES
WILLIAM S. FOWLER

In the course of archaeological excavation at sites where colonial occupation has superseded that of aboriginal, artifacts of the early colonists often appear. Among such articles as wrought iron latches and nails, oxen shoes, old bottles, gun flints, and musket balls, there frequently occur kaolin clay pipes in various degrees of preservation, usually with their stems broken off near the pipe bowl. A study of these pipes is important in so far as they may help determine the approximate age to which associated relics, both aboriginal as well as colonial, may belong. This is especially significant when later-day disturbances of plowing or its equivalent are not present to disturb the artifact association being studied. As a result, much interest has developed in kaolin pipe research, in order to learn how their changing shapes from one age to another may help establish a usable type chronology for archaeological dating during the period of colonial occupation.

That English kaolin pipe shapes have changed over the years, from the 16th to the 20th century, is evident from a study recently conducted at Colonial Williamsburg, Virginia. During excavations there and elsewhere in the vicinity, pipe specimens were recovered and ultimately dated, as a result of reliable evidence made available. With permission of Alfred A. Knopf, publisher, and Ivor Noel Hume, author of Here Lies Virginia, 21 different pipe shapes have been reproduced from this publication and are herewith illustrated (Fig. 7). Each type carries an approximate date span, indicating period of manufacture. All are of English make except three, which were made in Virginia of different colored clays, and are so labeled.
A review of these shapes reveals a change of styling, as one period runs into another. 1) There is a definite trend from a small to a larger bowl. 2) A bulbous-shaped bowl gives way to one with straighter lines, more like the modern TD kaolin pipe. 3) A wide basal nipple, often stamped in early times with the touch or mark of the manufacturer, is gradually replaced, with only a few exceptions, by a more pointed one. Also to be noted toward close of the 19th century is the introduction of a fluted bowl style of Virginian manufacture.

Another authenticated source of information about kaolin pipe styles occurred in 1953, during restoration at Saugus of the first successful iron foundry in America, where bog iron was used as the basic stock. It was known as the Hammersmith works and consisted of a blast furnace, forge and other processing units. It is a matter of record that construction of the plant commenced in 1646 under the direction of John Winthrop, Jr., son of the first governor of Massachusetts Bay Colony. As early as 1641, Winthrop, Jr. had sailed to England to study iron manufacture and to persuade a group of capitalists to invest money in what was known as the “Company of Undertakers for the Iron Works in New England.” From this inconspicuous start, and after an unsuccessful first attempt at Brain-tree, a successful ironworks was established at Saugus, only a few miles north of Boston.

During the building of the main works in 1646, a skilled blacksmith by the name of Joseph Jenks...
obtained the first American patent for "engines for mills to goe with water" (water wheels). After obtaining locally the required capital, he built a blacksmith forge handily located next to the main plant and blast furnace. There he installed three water wheels, and commenced to manufacture various kinds of wrought iron products from smelted iron stock purchased from Hammersmith, as produced in their larger forge. Thus, Jenks operated what might be called a concession on premises of the ironworks. The Hammersmith works operated until about 1670-1675 turning out at times as much as a ton a day of various sorts of iron products. After this date, it was completely abandoned and never again manufactured iron. During this span of about 25 years of iron production, certain products including "... 28 Hatchets for ye Indians ..." were made, expressly for trade with the natives. As evidence of this, William Curtis, applying for a job from Winthrop, Jr., puts it this way: "... and to make all sorts of ware that the County has need of both for Englishmen and Indians ..." It is presumed that Jenks made some of such products, for several iron hatchets, which later became tomahawks in the hands of marauding Indians, were recovered from the Jenks works. Evidently, trade with the natives for anticipated pecuniary gains seemed more important then, as unfortunately it still does, than prudence in declining to put implements of war into the hands of potential enemies.

However, what is of more interest as related to the subject of this paper is that numerous kaolin pipes were taken from the Jenks works; and representative specimens are illustrated (Fig. 8). As a result, they may be dated as falling between 1646, when Jenks first established his blacksmith forge and 1675, when operations ceased. They are of English manufacture and are made of white clay, except exhibit #4, which is of red clay. All but one have the characteristic bulbous bowl. This indicates a marked preference for this style over the straight-lined bowl during the 17th century. Two exhibits (#5,6) have an initialed touch — PE — maker unknown. However, another bulbous-shaped bowl recovery, not illustrated, carries an initialed touch — RT — which probably indicates Robert Tippet of England to have been its maker. He is known to have made kaolin pipes about 1675.

Comparing pipes at the Jenks works to those from Virginia, it is of interest to note that the basal nipples of the former coincide with similar large faced nipples of the latter during the first half of the 17th century. From then on, Virginian evidence shows a trend toward smaller to pointed nipples, when this style of pipe is used. When straight-lined bowls occur, their length is relatively longer and their proportionate diameter less than the 20th century TD pipe. One illustrated specimen from Virginia, the first exhibit, dating back into the 16th century, has a distinctive style different from those that followed. It shows an inconspicuous pointed basal nipple surmounted by a relatively small bulbous bowl.
CHRONOLOGY OF SOME KAOLIN PIPE TYPES

It is hoped that from these kaolin pipe references a better understanding may develop, as to some changes which took place during the several centuries of kaolin pipe manufacture.

Bronson Museum
February 1965