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SIGNIFICANCE OF MOVEMENT AMONG THE POLAR ESKIMO

W. Elmer Ekblaw

February to mid-March. From mid-July to mid-August, temperatures are generally well above freezing most of the time, occasionally rising as high as 60 degrees.

Most precipitation falls as snow, some as frozen fog or frost and very little, even in midsummer, as drizzle or rain. Several years may pass without rain at all. Sea-ice, after it forms, quickly becomes covered with snow, and with frost that forms upon both ice and snow until the snow mantle achieves an inch or more of depth.

The sea ice begins forming in the shadow of high cliffs as soon as the sun begins setting daily after August 21st, or even before that time in some of the narrower, deeper bays and fjords that extend east and west, but it does not freeze thick, nor is it generally likely to remain permanent, until late September or early October, when the sun even at noontime is so low in the sky that its rays have little warmth. The bays and fjords freeze over first, the strait between islands and mainland without strong currents, freeze over next, and finally even exposed capes and promontories, with few exceptions, become fringed with belts or ice of varying width that increases in thickness as Winter wears on. The ice begins breaking up with spring tides in late March or early April, off outer promontories and islands first, next along shore and in straits, and finally in the innermost reaches of branches of long fjords. The icefoot, the narrow fringe of ice that freezes fast to the land, between limits of low tide and high tide; and does not rise and fall with the tide, begins forming as soon as ice begins to form, and in many places endures long after the moving sea ice has broken up or drifted off shore. The icefoot constitutes one of the most important avenues of Polar Eskimo movement.

The land itself is high and rugged, except where the sea has carved a rocky shelf, or glacial streams have built a narrow flood-plain or rounded delta. The talus slopes, and the fell-fields that form the tops of the icefree plateaus are paved with sharp-edged sharp-edged fragments of rock un-rounded by chemical decomposition, and kept sharp by frequent riving by frost and freezing water. Slopes are high and steep, snow drifts deep in swales and gullies, in the short summer every stream-bed is swept by torrential flow from the ice-cap, and there is very little game to reward land travel, except where ptarmigan and hare find forage, or caribou range wide over the wilderness seeking scant browse or grasses.
It is to the sea that the Polar Eskimo must turn for his sustenance, his daily living, and food for his dogs. From the sea he obtains his major supplies of meat for food; skins for clothing, harpoon-lines, sledge traces, bed covering, tupik or tent, kayak or decked over canoe, and umiak or open woman's boat; bladder for lighting and heating the igloo, cooking the food, and drying damp clothing; ivory and bone for the spindle, the lance skillfully wrought, artifacts he needs for house and hunt. From walrus, seal, bear, narwhal, and beluga he obtains his major supplies of clothing, harpoon-lines, and on across Melville Bay to the skerries, fishing for barter with the white man; about the coastal shores he also collects their eggs and fledglings in the nesting season, and stores both birds and eggs in stony cairns for winter reserve; along the shore he traps the blue and white fox that yield him much rich warm fur, both for clothing and for barter with the white man; about the coastal shores he also kills most of the hares that form a palatable part of his dietary and provide him best material for stockings. Along the coast too, he collects the grass he uses for his bed platform, for padding his boots, and for many another use; the moss and willow down essential for starting and keeping his blubber lamp going; the arsenopyrite with which he strikes the sparks to light his fire.

Fish, so prominent in the economy and dietary of Eskimo farther south, play small part in the life of the Polar Eskimo; a very few thin, slinky, salmon form the only catch he takes in the course of the year. Vegetables, cereals, or fruits do not grow so far north. Polar Eskimo diet is strictly a meat and blubber diet, the vitamins necessary for health and vigor coming from vital organs of the animals killed.

Such is the land of the Polar Eskimo. In this land of few and scattered resources, where game is sparse and highly mobile, the people, if they would live, must be highly mobile too. Prolonged sedentary life is denied them. They must be ready to move quickly and expeditiously from one hunting ground to another. They must be prepared to roam over relatively wide territory to obtain the quantity and variety of food, fuel, and materials their every day life demands. Ready mobility and wide range of adaptability must characterize their way of life. Settlement must change frequently, often seasonally, always annually. As game moves, they must move with it.

Accordingly, the Polar Eskimo must perform a quasi-nomad. The hunter, whether he travels by kamatik (sledge) or kayak, must move over wide hunting-ground to find adequate game to support himself, his family, and his dogs. Rarely is game so abundant that he can rest from the hunt. Only when weather or state of the ice or sea prevent, can he find respite from the long, often hazardous chase. It is a restless wide-ranging life. He moves his family and his domicile from one hunting ground to the other, as need and occasion arise.

The Polar Eskimo comes of a nomad stock. Whatever its original center of origin, the Eskimo stock has dispersed over a wide area from Siberia to East Greenland. It entered Greenland by immigration from the Arctic Archipelago, across Ellesmereland and thence across Smith Sound and channels northward, which freeze over nearly every winter and thus form an easy and trustworthy threshold to Greenland. It may have followed one of two likely routes across Ellesmereland; one the narrow middle belt from Bay Fjord to Flager or Bietstedt Fjord, the other, the more northerly way, from Greenland to Lake Hazen and thence down Ruggles River to Archer Fjord or Lady Franklin Bay. The passage from Ellesmereland to Greenland over the sea ice should not have presented difficulties even in late spring or early summer when bears and seals are numerous on the ice, and provide ample food for a nomad hunting party of considerable number.

Once across the straits, the pioneer Eskimo apparently pushed not only northward and eastward around the northern extension of Greenland, but also southward to Thule, and on across Melville Bay to the skerries, islands, and icefree coastal fringe of the mainland that now constitute Danish Greenland, where the largest concentration of Eskimo stock, albeit with a strong admixture of European blood, is resident. On the eastern coast, conditions were too frigid and resources too scant for permanent settlement except at Angmagssalik, well toward the southern part of Greenland, where a small, poverty-stricken remnant of the eastern migration survived and still maintain themselves. They, like the Greenlanders of the western coast, and more recently, the Polar Eskimo of northwestern Thule, have been strongly modified in both blood and culture by contact with European, especially traders, later explorers and administrators, and finally, but to minor extent, by the armed forces.

The Polar Eskimo probably represent part of the early migration that tarried in Thule, a relatively rich and productive hunting ground, and maintained itself intact throughout the centuries of vicissitudes that distinguish the Arctic at such high latitude. It may well have been reinforced from time to time by subsequent immigrations from the Archipelago or even by return migrants from south of Melville Bay. One such instance is recorded historically, the movement in easy stages of Kudluksuak and his band in 1854 to 1857 from Pond's Inlet near Bylot Island, part of Baffin Land, northward along the shores of North Devon Island and Ellesmereland to and across Smith Sound, and thence to Thule. The far-reaching effects of that immigration, both in improvement of stock and culture, are a matter of anthropological interest and record, of
SIGNIFICANCE OF MOVEMENT AMONG THE POLAR ESKIMO

primary significance. Kudlukauk's party moved by dogaledge and on foot, chiefly in early spring when sledding conditions prevailed, and camped for the summer, fall and winter where game supported them, though at times precariously. Their trek was slow and difficult, but of the party of seventeen that left Pond's Inlet, all but three reached Thule.

Within Thule itself the Polar Eskimo live at a number of major and minor settlements, at intervals of from 25 to 75 miles along the thousand miles or more of Thule's coast and adjoining islands. Four to six families constitute a major settlement; three, two or even a single family, a minor settlement. Almost annually each family changes from one settlement to another, generally in the late spring, while yet the sea-ice, or at least the ice-foot permit movement by sledge along the coast. Since each settlement provides only limited variety of game, a man changes his residence, or switching from one settlement to another, where one assortment of game is found, to another settlement, where there are other types.

Once settled in a locality, the family remains there relatively or wholly isolated during summer and early fall, when travel only by sea, either by kayak or umiak, is possible. When the family first arrives at the settlement, it sets up its tupik or tent for summer occupancy at a site usually well within a bay or fjord, where water from stream, pool or iceberg becomes available as summer advances, and where access is easy to the sea, and sea game, and cliffs and slopes where dovekies and murres may be netted, or to islands where eldories nest and their eggs can be collected. From the tupik or tent settlement, the hunters go out in their kayaks to seek game the sea affords them, while women and children net birds, gather eggs, snare hare and ptarmigan, and otherwise move with their families, living as best they can on the minor but busy activities of the house. The umiak, or woman's boat, a fragile, open vessel capable of carrying ten or a dozen, is rare among the Polar Eskimo but now and again when skins are abundant, the people of a major settlement may join in building one. Then the whole population of the settlement may use it in extending the range of their summer movement.

When the brief summer draws to its close, ice forms and snow begins to fall; the group at the summer settlement moves out from the interior site, where it has dwelt, to a site more advantageous for travel when sea-ice becomes solid enough for sledding. The winter settlement is chosen, generally in some niche of the shore or the lee of some cliff, that provides shelter and safety from heavy winds and gales. As soon as sledding becomes practicable by sea-ice and icefoot, a period of widespread movement among the villagers begins that continues more or less uninterruptedly during winter, whenever weather and ice permit. Every family becomes host or visitor in turn, sometimes singly, or as parts of families. It is the period of restlessness, intermingling and constant interchange of gossip, experiences, and hospitality, when the whole Polar Eskimo group becomes informed upon the previous season's activities and vicissitudes of every family, every person. Sometimes a settlement, particularly one that has been exceptionally successful in the season's sea hunting, becomes crowded with visitors; while settlements that have not fared so well, and have been unable to lay in adequate stores of blubber and meat and dog food are depopulated and deserted for weeks at a time.

Then comes the March-April walrus slaughter on the ice off shore from three minor settlements well toward the northern limits of Thule, just a few miles south of Cape Alexander. At that time, almost every able-bodied man, woman and child of the group congregates there. The igloos of the three settlements are crowded to capacity, but even so, they house only a small percentage of the crowd; the rest build snow-houses, or igloos, in which they camp as long as they remain in that locality. The group is drawn to the area because large numbers of walrus come at that time to rocky shoals and submerged reefs, where among kelp, bladder-wrack and other seaweed they find abundance of mussels and other shellfish upon which they feed at the time. The walrus break holes in the ice when they come up for air, and there, as well as along the edge of the ice, the hunters harpoon them, and after considerable effort, kill them and drag them up onto the ice to quarter, and later to sledge the booty to shore to cache under stones for future use. In a good season the hunters kill more walrus in a few hours than they can cut up and cache the rest of the day. It is a time of plenty, feasting, and merriment, as well as of opportunity to discuss and conclude tribal affairs for the ensuing summer.

By mid-April, the sea-ice is fast breaking up and drifting to sea, the icefoot becomes precarious in places, and the walrus leave the mussel-shoals. The Eskimo then scatter to the various settlements where they have decided to spend the summer, and day by day, families or groups of families depart for their summer settlements and hunting grounds. Thus is the seasonal round of general movement ended.

There are other regular seasonal movements in which only part of the Polar Eskimo engage. One is the extended hunting trip by small groups of hunters to Kane Basin to the north, or Melville Bay to the south, where polar bear are fairly numerous in late winter and early spring. Such a trip may cover several hundred miles and may last the hunting party for two to three weeks, or even a month. Women rarely accompany such bear hunts because of the hazard. Another such hunting trip is to Ingalfield Land, a rugged area northeast of Etah, where widespread
grasses and other plants yield forage for a fairly large number of scattered caribou. Small parties, generally both men and women, sledge from the settlements across the ice cap to the caribou grounds, where they stay two or three weeks to lay in a supply of caribou skins then in prime pelage, for sleeping bags and blankets for bed platforms, to say nothing of a goodly number of haunches of venison, if the hunt proves successful.

A third movement of somewhat larger groups of folk sometimes marks a winter when ice freezes across the mouth of a fjord or inlet, forming a barrier entrapping large numbers of beluga or narwhal, which are unable to escape. As ice freezes over the open water behind the barrier, the entrapped animals are confined finally to the small pool they keep open by coming up to breathe. Such an entrapped school of beluga or narwhal is called a savssat. It may number as many as several hundred. Since the animals cannot escape, and must come up to breathe, they fall easy prey to the hunters. Word of the formation of such a savssat is sped up and down the coast, that as many Eskimo as wish may participate in the kill.

Since the white man brought them suitable lumber for larger sledges and provided them with adequate equipment for wider travel, the Polar Eskimo occasionally travel across Ellesmereland and beyond, where musk-oxen, caribou and bear are still rather numerous, and seal and walrus fairly abundant, to spend the summer hunting those pristine wildernesses, where man only occasionally encroaches. They also now make more or less frequent trips in spring and fall to visit their kinsmen, who until a few decades ago were only legendary for them, and the trading stations, in Danish Greenland. Only since the white man's equipment made such longer trips possible, have they visited the Danish Greenlanders.

...
Valley of western Massachusetts and one in Rhode Island have contributed. It is felt that in spite of limited investigations, confined to several small areas, a tentative chronological pattern may be formed to serve as a basis for comparison of other sections of the entire region. While this Society is made up of interests that are limited by state borders, a study of ceramics which knew no boundaries other than natural barriers must extend beyond the confines of the State. Hence, while it may appear that there was a persistent influence of Mohawk technique throughout most of New England will be found, eventually, to have had a more or less homogeneous ceramic development is yet to be determined. However, it seems probable that most all, if not all, of southern New England had an associated ceramic development. One exception seems to be Rouse's Shantok style of Connecticut, which suggests the intrusion of a foreign influence that evidently was confined to a restricted area for some unknown reason. Other foreign influences are suggested by certain sherds whose surface treatment and design elements seem to confirm it. However, inasmuch as this evidence is sporadic and at times only imperfectly executed, it may represent an imitation of more refined workmanship from other regions rather than an independent invention in this area.

Such is the case with certain cordwrapped potted ware, with suggestions of construction from thick coils and with coarse mineral-temper, which has been found on lower excavated levels underlying all other kinds of pottery. This ware seems to equate closely with Ritchie's Vinette I, the earliest pottery of New York State.

Then there is a similarity among certain design elements to the punctate, rocker, and cord-wrapped stick of Maine, as well as the rocker and dentate herringbone of Ritchie's Laurentian and Vine Valley Aspects. While some of these elements, which are found on sherds from numerous localities east of the Mississippi, may be parallel inventions, it seems likely that they may indicate a similar diffusion. Still another association with an outside influence seems evident from several platted design elements over cord- or fabric-wrapped potted ware of the Westfield Valley. This unique design treatment together with the general vessel style are traits that are too close to Ritchie's Owasso Aspect not to remain unnoticed. Finally, Mohawk-Iroquoian design elements executed with much variation, and at times in some confusion, on vessels with incipient collars probably indicate Iroquoian influence. This evident diffusory Mohawk-Iroquoian element extends from the Connecticut River to the sea coast. Add to this, evidence of what seems to be pure Mohawk pottery from the Deerfield Valley, and it would appear that there was a persistent influence of Mohawk technique throughout most of Massachusetts, probably in proto-historic days.

All of these apparent diffusions have evidently left their marks, some more than others, upon New England ceramics. Apparently, these traits were willingly imitated by the coastal peoples, who may have seen in them opportunities to improve their technique or to beautify the decoration of their ware, or possibly just to keep up with the ceramic changes of their neighbors. From this it would seem that local originality was somewhat stifled and potters became partially dependent upon outside influence for the improvement of their pottery. If this is a fair conclusion, it seems quite possible that the ceramic industry of this region may have been a marginal manifestation, which was continually under pressure from ideas that radiated from some center of influence.

A classification of some Massachusetts pottery has been compiled and has received the approval of the committee in charge. It is divided into four chronological stages, early, intermediate, late pre-historic, and historic. In each stage, seven pottery traits - vessel shape, base, wall, rim, construction, surface treatment, decoration, and design - are examined and tabulated. A comparison of these traits suggests a development of Massachusetts ceramics through at least four periods of change. Undoubtedly, there were corresponding cultural developments, which if they could be established would add much to the rather fragmentary information that is now available concerning the life of pre-historic ceramic peoples in New England.

Recorded evidence seems to indicate that the first clay pots were vessels with pointed or conoidal bases and relatively thick walls, with coarse mineral-temper, and no decoration except cord-wrapped potted outer and inner surfaces.

From this beginning, there emerges in the second intermediate stage the same conoidal based pot with slightly thinner walls, surface treated with cord-wrapped paddling on the outer surface only, and with the inner surface left plain or sometimes scraped. In this period, shell temper appears occasionally for the first time. An important modification is the subsequent appearance of design elements with simple arrangements, the decoration consisting of rocker, dentate, punctate, finger nail marks, cord-wrapped stick, and trailed lines. Of the four periods of development, this intermediate stage probably represents the longest time span. During its existence several changes from plain to decorated ware are indicated and it is quite probable that enough evidence will ultimately be discovered to support a subdivision of this stage.

In the third stage, there occurs a change in vessel shapes introducing semi-globular bases, often with constricted neck and everted rim. Surface treatment continues to be sometimes a fabric-wrapped paddled outer surface partially smoothed over, (possibly by use), while the decoration now shows incised treatment in general use. Unique platted designs and dentate
herringbone motifs are reminiscent of Ritchie's Castle Creek Owasco culture.

In the final stage of proto-historic days, some vessels become nearly full globular in shape with collars and constricted necks, suggestive of Mohawk-Iroquoian technique. This ware has a plain surface treatment over most of the vessel's body and is tempered with fine mineral or shell, depending somewhat upon the geographical location of the site. Decorations are generally found to be on the collar, with occasionally a simple element appearing on the neck. Designs are usually incised with occasional dentate or impressed markings. Sometimes castellated collars have small bosses at the corners. Design elements are geometric in form including some triangles and chevrons that appear to be copies of the more skillfully incised Mohawk chevron motifs.

This classification has been compiled from available evidence including excavated sites and surface collections. It is developed on a fairly broad base for convenience and ready reference, and undoubtedly will be subject to further subdivisions as more evidence appears. No attempt has been made to include all possible pottery variations in this area, as some are not well known at present.

**CLASSIFICATION OF SOME MASSACHUSETTS POTTERY**

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### I E A R L Y  -  (Similar to Ritchie's Vinette I)

| 1. Base - pointed, (Conoidal). |
| 2. Wall - about 3/8" thick, straight or slightly convex. |
| 3. Rim - rounded. |
| 5. Surface treatment - cord-wrapped potted outer and inner surfaces. |
| 6. Decoration - none. |

### II INTERMEDIATE

| 1. Base - pointed, (Conoidal). |
| 2. Wall - about 1/2" thick or less, constricted neck. |
| 3. Rim - rounded or flattened, sometimes with projecting lip. |
| 4. Construction - coiling suggested, medium coarse mineral or shell-temper. |
| 5. Surface treatment - plain or cord-wrapped potted outer surface only, inner surface sometimes scraped. |
| 6. Decoration - rocker, dentate, punctate, finger nail marks, cord-wrapped stick, trailed lines, (decoration usually limited to upper part of vessel, occasionally covers rim). |

### III L A T E  P R E - H I S T O R I C

| 1. Base - conoidal to semi-globular. |
| 2. Wall - about 1/4" thick, sometimes straight but more frequently with constricted neck. |
| 3. Rim - everted rim, rounded or flattened, usually undecorated. |
| 4. Construction - apparently not coiled, fine mineral or shell-temper. |
| 5. Surface treatment - cord or fabric-wrapped potted outer surface, (rarely plain). |
| 6. Decoration - (A) incised, (B) plated, (wrapped paddle edge or other tools). |
| 7. Designs - (A) lineal "v" and horizontal elements, (B) oblique plated panels, and herringbone dentate element, (compact). |

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**IV HISTORIC**  -  (Iroquoian influence)

| 1. Base - globular. |
| 2. Wall - about 1/4" thick or less, constricted neck. |
| 4. Construction - apparently not coiled, fine mineral or shell-temper. |
| 5. Surface treatment - body generally plain. |
| 6. Decoration - incised, occasionally impressed, sometimes with decorated bosses. |
| 7. Designs - geometric elements including triangles, chevrons, and occasionally diamonds. |

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Atteboro Museum
Atteboro, Massachusetts
March, 1948
SHELL HEAPS ON SANDY NECK, BARNSTABLE, MASSACHUSETTS

Ripley F. Bollen and Edward Brooks

Sandy Neck is a peninsula, about six miles long and three-quarters of a mile wide, which forms the northern boundary of Barnstable Harbor on Cape Cod in southeastern Massachusetts. As the name implies, this peninsula is composed chiefly of sand. The Neck is covered with innumerable dunes and the topography is substantially changed by storms. The northern shore of Sandy Neck consists of a beach bordering Cape Cod Bay. On the southern shore, between the Neck and Barnstable Harbor, are salt marshes cut by tidal creeks.

While Sandy Neck is rather inhospitable as a permanent home, it must have been attractive to Indians because of the food it produced. There were fish and shell fish in the harbor, birds in the marshes, small mammals along its shore, and an occasional deer among the dunes. It is not surprising, therefore, to find shell heaps containing Indian artifacts on the Neck.

These shell heaps were investigated by Brooks, accompanied by various people, from 1932 to 1935. Two concentrations of small deposits of shell were found. The first, which included seven shell heaps and one workshop (hence referred to as Sites 1 to 8), was located on the southern side of the Neck, near the salt marshes, about two miles west of Sandy Neck Light. The other, comprising three shell heaps (Sites 9 to 11) was similarly located but about a mile and a half further to the west. These two concentrations were separated by an area of stunted pines and cat briars.

Site 1 - This site consisted of a layer of shell at the base of a large sand dune. A difference in species of mollusks was noted: the lower portion was composed of oyster shells while the upper part was made up of a mixture of scallop, quahog, sea clam, soft shell clam, razor clam, and mussel. Below, was a dark zone which separated the shell heap from the underlying sand. Food remains, other than those mentioned above, included bones of fish, deer, dog, raccoon, turtle, heath hen, and great auk.

Many sherds of pottery were found in both zones of the shell heap, and a few sherds, of a differently decorated vessel, were found in sand below the deposit of shell. The few stone artifacts were concentrated in the dark zone below the heap. These included an expanded-base drill, a scraper, a small stemmed point, a side-notched point, and three triangular points (Fig. 1, 10, 11, 12, 13, 14, 22, and 24), respectively. Bone tools included a chisel and a splinterawl (Fig. 1, 3 and 4). Two miniature vessels, one decorated with impressions made with a cord-wound stick and both with a row of punctate holes below their rims, were found at the edge of a small ash pit at the southern rim of the site (Fig. 1, 23 and 26).

Sherds from the top of the shell heap represented a shell-tempered, coiled ware, 7-9 mm. thick. Channel marks, left after scraping the interior surface, were not obliterated. The outer surface was beaten with a paddle wrapped with a coarsely woven textile material. To judge from a few sherds which appear to be from a pointed bottom, these malleations were not applied to the lowest part of the vessel.

Sherds from the center of the shell deposit apparently are from similar vessels. In this case, however, paddles had been wrapped with very coarse cords. Impressions were applied at an angle of about twenty degrees from a perpendicular to the rim. In one case, a considerable space had been left between turns of the cord around the paddle. On some body sherds the edge of the cord-wrapped paddle had been applied in a criss-cross manner to produce an effect similar to that made by a cord-wrapped stick. As before, malleations did not extend to the bottom. Rims were flattened and sloped outward, while walls were straight. Four other sherds in the collection were from different containers. One was only 4 mm. thick, with a flat, outward-sloping rim. The side bore faint narrow marks as if it had been rubbed with a four-pronged tool. Another exhibited a single row of imprints of a cord-wound stick. The other two had been incised with medium wide lines which crossed each other.

Sherds found below the shell heap came from a shell-tempered vessel which had a slight constriction of neck and a rim with a rolled-over outer lip. The shoulder was decorated with small indentations arranged in rows parallel to the rim. The top of the latter had been notched with a cord-wound tool. Along the neck was a row of shallow punctate holes.

Site 2 - This shell heap produced pottery which was abundantly tempered with scallop shell. Rims were flattened. Walls were 6-10 mm. thick and without noticeable constriction or neck. Outside surfaces were imprinted by means of a fabric-wrapped paddle. Impressions were nearly perpendicular to rims.
Site 3 - Pottery from this site was shell-tempered, about 8 mm. thick, and probably coiled. Rims were flat, apparently undecorated, and wider than walls. Vessels were undecorated as far as could be ascertained.

Site 4 - While pottery from Sandy Neck was predominantly tan or brown in color, one vessel from this site was very reddish. This container was shell-tempered and its walls were 7-8 mm. thick. Most sherds were undecorated, but a few bore imprints of a fingernail, arranged in vertical and horizontal rows (Fig. 2, b). Similar marks were found on one or two fragments of a flat rim which appeared to be part of this vessel.

One sherd from this site is a fragment of a channeled collar or one pushed slightly outward. The collar was decorated with incised (?) parallel lines which alternated their direction in adjacent areas (Fig. 2, a), and which were probably made with the edge of a scallop shell. The rim measured only 4 mm. in thickness, was clay colored, and shell-tempered.

Twelve sherds from this site were sparsely tempered with fine mineral material. Some quartz could be identified, but a 10X glass was not sufficient to determine whether the particles were angular or rounded. The sherds had split so that the inner surface was not preserved; outer surfaces were undecorated except on one sherd which showed small parallel marks, apparently made with a cord-wound stick.

Site 5 - No specimens were found at this small deposit of shell.

Site 6 - A great deal of pottery, part of the skull of a dog, the jaw of a rabbit, some bird bones, and a triangular arrow point (Fig. 1, 2) were found on Site 6.

Three vessels from this site were essentially similar in shape and decorative treatment. They do not appear to have been constructed by coiling. One vessel which was tempered with angular fragments of unidentified rock was black in color with walls 5-6 mm. thick, and a flat, undecorated rim. Smoothing marks on the inner surface have been removed. The neck was constricted and the mouth flaring. Body and neck were malleated with a textile-wrapped paddle. Wide shallow lines were incised around the neck parallel to the rim. Diagonal lines, made with a three-pronged tool, were then added to form a row of connected "V's" (Fig. 2, e).

One of the other pots was similar except that it was gray-tan in color, and tempered with shell instead of mineral. The third container, also shell-tempered, was thinner, with walls 4-5 mm. thick. Neck and body were malleated with a string- instead of a fabric-wrapped paddle, a smaller tool also three-pronged, was used for incising the neck (Fig. 2, f). The design was not as regular in arrangement as that on the first vessel.

Other blackish sherd were from small vessels, probably globular in shape, with channeled, or slightly pushed out collars. The paste was shell-tempered, walls only 3-6 mm. thick and covered with cord-wrapped paddle malleations. In one case, the collar was decorated with five rows of triangular punctates, parallel to the rounded rim. In another case, three rows of marks, parallel to the rim, were above a row of connected "V's". These marks were made by impressing the clay with a pointed tool. Imprents were contiguous in both cases.

Another vessel was represented by coarse cord-malleated, shell-tempered, body sherds, the inner surfaces of which were partially smoothed. Two sherds, apparently from the same pot, exhibited thickened rims, 3mm. wide and 10 mm. deep. Both the top and side of this rim appeared to have been cord-malleated, in a fashion similar to that used on the exterior surfaces of body sherds.

At Site 6, some pottery which was found below the shell was shell-tempered, and its exterior surfaces were coarsely cord-malleated. It did not seem to differ significantly from those sherds just described.

Site 7 - There were two cultural zones at this site, one Indian and the other Colonial. The Indian remains consisted of a small shell heap in which were found pottery and what appeared to be a waterworn or sand-blasted, chipped hoe. Sherds were medium thin, 3-6 mm., and shell-tempered. Body sherds were malleated with a cord- or fabric-wrapped paddle. These impressions have been partially smoothed over. While no sherd which was found preserved any of the lip, what may be a rim sherd was incised with horizontal, vertical, and diagonal lines to form a chevron-like design (Fig. 2, d).

The Colonial feature consisted of a thin clay floor located over part of the Indian shell heap. About nine inches of sand separated this floor from the deposit of shell. Associated with the clay floor were a metal spoon (Fig. 1, 11), fragments of iron, four lead bullets, several gun flints, two small thimbles, a few sherds of brown glazed redware and of blue and white glazed Delft pottery, part of a yellow glazed redware pitcher, a few fragments of bottle glass, charcoal, and two bones from a whale. This part of the site was not completely excavated.

About a thousand yards to the north, another clay floor was located. Here two coins, bearing the profiles of William and Mary, were found by Mr. Francis B. Ellis of Montclair, N. J. Another thousand yards to the southeast were the remains of an old brick kiln, believed to have been used for "trying out" oil from whales. Fire blackened bricks, odds and ends of whale bones, and bits of iron were scattered about the
Fig. 1 - Miscellaneous Artifacts from Sandy Neck, Barnstable, Mass. 1, human teeth, Site 11; 2, rodent incisor, Site 6; 3, bone chisel, 4, bone awl; 5-8, 14, 17, fragments of turtle carapace; 12, 13, 21, fragments of animal bones; 10, drill; 15, 20, tips of points; 16, stemmed point; 18, scraper; 22, side-notched point; 19, 24, triangular points; 23, 26, miniature vessels; Site 1; 2, triangular point, Site 6; 11, spoon, Site 7; 23, triangular point, Site 5.

Site 8 - This site consisted of a small area in which many chips and a few straight-sided triangular points (Fig. 1, 23) were found. It is believed to have been a workshop.

Site 9 - Site 9, the first site of the more western group to be mentioned, consisted of two adjacent shell heaps. In one of these deposits, bones of fish, birds, deer, and dog, as well as a small amount of pottery, were found. SherdS, found at the eastern edge of this heap, were small and shell-tempered. Body sherds bore cord-malleations which had been partially smoothed over. One sherd exhibited three wide, shallow incised lines. Another bore ten parallel lines apparently made with a comb-like tool. One rim fragment showed a flat undecorated rim while another had small punctate holes in its flat top and faint lines parallel to the rim incised on the side.

Other sherds, found in sand below the shell, were 6-12 mm. thick, sparsely tempered with quartz, and reddish in color. This vessel had a pointed bottom, smooth inner and outer surfaces, and a rim thickened to a width of 15-19 mm. Just below the rim were some vertical smoothing marks. On some rim sherds the flat top was decorated with imprints made with a cord-wound stick or with the edge of a cord-wrapped paddle. Other rim sherds which were undecorated appear to be from the same vessel.

From the other heap at this site, bones of deer, dog, and fish were found. All sherds were shell-tempered and about 5 mm. thick. Body sherds were cord- or textile-malleated and partially smoothed over. Rim sherds indicated a slightly constricted neck. One bore five shallow incised lines parallel to the rim and other lines running diagonally. Unfortunately, the design could not be made out but it probably was similar to the connected "V" design previously mentioned. Other rim sherds bore shallow parallel lines incised with a comb-like tool. These marks alternated between being parallel to and diagonal to the rim. Above and between these lines faint malleations could be seen (Fig. 2, g). The inner lip was decorated with a row of three wedge-shaped marks, made, presumably, with the edge of a scallop shell.

Site 10 - This site produced three straight-sided triangular points as well as pottery. Sherds were shell-tempered, 5-7 mm. thick, and came from a vessel with constricted neck, everted rim, and apparently globular body. Inner surfaces were very smooth. Outer surfaces of body, but not neck sherds, had been malleated with a paddle wrapped with coarse cord. The neck was decorated with shallow, incised lines, first parallel, and then using a three-prong tool, diagonal to the rim. The resultant design (Fig. 2, g) is similar to the connected "V". The top of this rim, originally flat, has been notched.

Site 11 - Two human teeth (Fig. 1, 1) were found at this site. A small amount of pottery which was found was tempered with scallop shell. Sherds were medium thick, 5 mm., with inside surfaces scraped. Outside surfaces were roughened by means of a tool having two prongs. These marks were applied in a cross-cross manner.

Discussion

Summarizing the data from these eleven sites, we find that seven of the line projectile points were triangular in shape. The exceptions, one small stemmed and one side-notched point, both came from Site 1. A few vessels had pointed bottoms and were decorated with imprints of a cord-wound stick. Some had collars, but most were more or less semi-globular in shape, with constricted necks. These semi-globular pots had cord- or fabric-malleated bodies and connected "V" or chevron-like designs incised on their necks.

Except for part of Site 9, Site 1 was the only site at which any substantial amount of pottery decorated with impressions of a cord-wound stick was found. Noting the same exception, Site 9 was the only site at which we may be sure that vessels were made with pointed bottoms. It appears to be significant that Site 1 was also the only site to produce projectile points other than triangular in shape. At Site 9, sherds of a vessel with a pointed bottom, and bearing a few imprints made with a cord-wound stick, were found at greater depths than were sherds of other vessels at that site. This implies that Site 1 is probably a little older than the other ten sites. It may also be suggested that Sites 4 and 6 are the latest of these shell heaps.

That the artifacts described in this paper are typical of Sandy Neck and may represent a true sample is strongly suggested by an examination of a collection from the Neck made by Mr. Howard A. Jones of Greenwood, Mass. All sherds in the latter collection are shell-tempered and of the same type as most of the sherds described earlier, i.e. from vessels with cord-paddled bodies and incised necks. All five of the projectile points secured by Mr. Jones are reasonably large and triangular in shape. Included in the Jones collection are two amorphous chipped implements, probably knives, and a pipe (see Willoughby, Antiquities of the New England Indians, p. 132, Fig. 104, e, for an illustration of this pipe).
Fig. 2 - Sherds from Sandy Neck, Barnstable, Mass.  a and b, Site 4; c, Site 9; d, Site 7; e and f, Site 6; g, Site 10.
Bullen believes (Bullen, The Foster's Cove Site; An Indian Site in Andover, Massachusetts, Vol. VII, No. 2, this series) that the earliest pottery in eastern Massachusetts was about 1600 B.C., made with coarse mineral temper, and cord-malled on both inner and outer surfaces. Vessels had pointed bottoms, straight or excavate sides, and rounded rims. Succeeding pottery was also mineral-tempered but grains of temper were less coarse and walls less thick. Decoration consisted of impressions made with dentate stamps, rocker-like tools, or cord-wrapped paddles applied only to outer surfaces. Impressions of the latter were usually applied parallel to the rim and were not partially smoothed over. It appears that pottery decorated with cord-wound sticks was a little later. Vessels still had pointed bottoms but rims were flattened, wider than walls, and necks slightly constricted. Pottery was usually tempered with shell or vegetable matter instead of mineral temper.

It will be observed that, except for the small amount of pottery decorated with cord-wound sticks and that with thickened rims, none of the wares described for Sandy Neck fall into the above classifications. Practically all Sandy Neck sherds are shell-tempered. The bulk of the collection seems to represent semi-globular vessels with constricted necks and everted rims. Cord-or fabric-mallowsions on body and neck are partially smoothed over while shallow lines are incised over these mallations at the neck. If we may judge from other sites, such vessels are relatively late, possibly proto-historic, in date. While the few collarred sherds are of a type which is, at present, unique for the area, there seems to be no question but that they represent very late pottery.

The complete absence in both the Brooks and Jones collections of early pottery, early projectile points, or other early artifacts appears to be important. If further work can substantiate present indications and demonstrate that early artifacts are not present on Sandy Neck, an interesting problem will be presented.

Was Sandy Neck uninhabitable in earlier times? If so, when did it become usable by man? Did earlier Indians scorn shell fish or not know that they were edible? Was the population so small and the food supply so great that inhospitable places, such as Sandy Neck, were not utilized?

The present indications are that the exploitation of Sandy Neck by Indians occurred in relatively late, possibly proto-historic, times. History mentions the presence on Sandy Neck, at least in summer, of Indians whose usual abode was across the harbor at a place called Cummaquid, a small settlement between the towns of Barnstable and Yarmouth Port.

The following has been abstracted from Alexander Young's Chronicles of the Pilgrim Fathers of the Colony of Plymouth, published in 1831:

In the summer of 1621 ten Pilgrims with Tisquantum and another Indian went in a shallop to recover a boy who had become lost in the woods. They "put in that night for harbour at a place called Cummaquid" (Barnstable Harbor, p. 214). "In the morning we espied savages seeking lobsters, etc. They brought us to their leader, or governor, whom they call Iyanough, a man not exceeding twenty-six years of age, but very personable, gentle, courteous, and fair conditioned, indeed not like a savage, save for his attire. His entertainment was answerable to his part and his cheer plentiful and various" (p. 215). Iyanough went with the Pilgrims to Nauset (Eastham) where the boy was returned, "bo­ung with beads" (p. 216). On the return voyage, "having scarce any fresh water left, and at least sixteen leagues home, we put in again for the shore. There we met again with Iyanough, the sachim of Cummaquid, and the most of his town." "He, being still willing to gratify us, took a runlet, and led our men in the dark a great way for water, but could find none good; yet brought such as there was on his neck with them" (p. 218).

On page 345, Young records that Iyanough was among those Indians who died of illness in March, 1634. At that time he would have been about twenty-eight years old if the Pilgrim's estimate, made two years earlier, was correct.

The reference above to drinkable but not good water, "such as there was on his neck," would seem to refer to Sandy Neck, where such water can be secured, and not to the mainland. This would place Iyanough and his people on the neck at the time of the Pilgrim's return. As mentioned earlier, this trip occurred during the summer of 1621.

A very interesting burial was found at Cummaquid in 1861. This burial has been preserved and is on exhibit at Pilgrim Hall, Plymouth, Mass. The following copy of the statement applying to this exhibit has been kindly supplied by Mr. Henry W. Royal, Secretary of the Pilgrim Society of Plymouth. Further details concerning this burial are included in a letter written March 9, 1866, by Amos Otis to Samuel G. Drake and included as Appendix D, p. 289, in Drake's Early History of New England, published in 1864.

REMAINS OF THE SACHEM IYANOGH OF MATTACHES, DISCOVERED AT BARNSTABLE, MAY 1861.

The remains in this case were taken from a grave near the location of the ancient Indian Village of Mattachese, sometimes called Iyanough's town. While ploughing on May 15, 1861, Patrick Hughes and David Davis discovered the grave, their Plough striking the kettle. The body was buried in a sitting posture, the brass kettle placed over his head, the pestle on the right arm, the
Iron hatchet and earthen dish at his feet. Several wrought iron nails, one spike and specimens of black and white Wampum were also found. The impression in the earth showed that his bow and arrow and other articles, with which he had endowed, were also deposited in the grave.

I hereby certify that I obtained the above facts from the persons present when the remains were exhumed. I have no doubt of the entire accuracy of these statements.

AMOS OTIS

Mattachese is the old name for that part of Barnstable now called Cummaquid. Apparently Cummaquid originally referred to the whole area around Barnstable Bay including Sandy Neck but has now been restricted to the land between Barnstable and Yarmouth Port.

One of the authors (Bullen) went to Plymouth and through the courtesy of Mr. Royal was able to examine the remains of this burial. Most of the bones, the metal kettle, the pestle, the iron hatchet, and rim sherds of the pottery vessel were found.

Examination of the bones casts doubt as to the accuracy of Otis's assumption that these remains are those of Iyanough, in spite of the Pilgrim's report of Iyanough's good looks and gentle manner. The bones are not rugged, there is little evidence of musculature, the acetabulum is less than 4½ mm. in diameter, the head of the femur is a little smaller, both the sacrosciatic and the sub-pubic notches are shallow and wide, the sacrum is not very curved, and a preauricular sulcus is well developed. These criteria clearly indicate the skeleton to be that of a female.

While all the teeth are erupted they exhibit but little wear. There is no evidence of any suture closure. The epiphyses of the heads of both humeri are partially but not completely obliterated. From these facts one would have to conclude that the individual represented by this skeleton was about twenty-one years of age at death. Both the age and sex indicate this burial not to be that of Iyanough.

Irrespective of personal identity, this burial was found in the area occupied by the Indians whom the Pilgrims saw at Sandy Neck in 1621. Therefore, a few comments on the burial goods may be of interest. While the metal container was not measured, it is very large, about two feet in diameter, with straight sides over a foot high and with a flat bottom. The iron hatchet head is of a type designed for insertion in a wooden handle. The pestle is large, about eighteen inches long and three and a half inches in diameter. While this artifact appears to be a roller pestle, one end is decorated and smaller than the other. This shaped end is similar to that sometimes found on pestles from Massachu-

setts, suggesting either an animal head or a phallus. The groove around this head could have been used for a supporting rope. The fact that this pestle has a decorated end may be significant as its inclusion in this historic burial would seem to indicate very late provenience for this type of pestle. A similar suggestion of late use of such pestles was found by Willoughby at the "Indian Burial Place at Winthrop, Massachusetts," (Papers of the Peabody Museum, Harvard University, Vol. XI, No. 1).

The pottery vessel found with this burial is unlike any represented in the collections from Sandy Neck. It appears to be later. The few sherds available were from a noded collar. They are grey in color and tempered with sandy ground shell. This collar has a high castellation and a thickened outer lip. The outside of the collar, below the thickened lip, is undecorated. The inside of the lip is notched. The top of the lip is decorated with three or four incised lines running parallel with the edge. The point of the node is eroded so that its decoration cannot be ascertained. Along the inner lip are small incised lines which slant a little from a perpendicular to the edge. The inside of this thickened lip or rim is concave behind the thickened portion but further down the curvature is reversed.

Conclusions

We feel that present archaeological evidence indicates occupation of Sandy Neck by Indians from what may be referred to as a period characterized by pottery occupying an intermediate position in our sequence down to very late prehistoric or protohistoric times. History places Indians on the Neck during the summer of 1621. However, the lack of associated European goods or of pottery like that found in the historic burial at nearby Cummaquid indicates that none of the investigated sites dates from the historic period.

It is reasonable to think that Indians who wintered in Cummaquid, or at other places, moved to Sandy Neck in the summer. Archaeological work in Barnstable would be required to confirm or refute this theory.

Contrary to the label on the Cummaquid burial, now at Pilgrim Hall, Plymouth, it was not the burial of Iyanough, the Sachem of Cummaquid, but that of a young woman. Associated artifacts from this burial indicate that castellated vessels, somewhat similar to those of the Iroquois, are historic in date on the north shore of Cape Cod.
THREE BURIALS AT THE HUGHES SITE,
NANTUCKET, MASSACHUSETTS
Ripley F. Bullen and Edward Brooks

On August 25, 1940, Mr. Arthur F. Hughes, then game warden of Nantucket, discovered an adult Indian burial on the east shore of Long Pond. Excavation revealed two additional burials, those of a child and of an infant, and a storage pit.

The Hughes Site, part of M-52/23, covers a small area on a high knoll that drops sharply to the shore of the pond. On this knoll is a thin shell heap consisting primarily of quahog shells. The subsoil is coarse sand that affords good drainage. This fact together with a cap of shell found in the tops of the burial pits probably accounts for the excellent condition in which the skeletons were found. At various other places along the shore of Long Pond are extensive but thin deposits of shell. While most of them are aboriginal, a few have yielded Colonial objects.

The arrangement of the four pits and their relationship to the shell heap is shown in Figure 3. Figure 4 shows a profile of Pit 4. This pit, presumably dug for storage purposes, contained only ash, charcoal, pebbles, and black dirt. It is evident from the profile that the sides of this pit had slid inward, partially filling it.

Unfortunately the shell heap did not extend as far as the burial pits so that it is impossible to tell whether the latter were dug before or after the shell deposit over Pit 4 had been formed. The burials were in simple shallow pits dug into the yellow subsoil. A layer of shells of the spinel whelk had been placed in the top of each grave pit.

Some scattered shell was found in the blackened top soil over and around the tops of the burial pits. Also near the burials, but not in the burial pits, were found a few fragments of pottery, a fragment of a pottery pipestem of Indian manufacture at a depth of 58 cm., and a deposit of mussel shell. In the latter was a triangular point, a little over an inch in length, made of a dark felsitic rock.

The grave fill of the adult burial consisted of dirt mixed with beach pebbles and broken mussel shells. Several large shells of the spinel whelk were at the right shoulder of the skeleton. A small shred and part of an awl or bone needle were near the right hip. These did not appear to be burial goods but merely accidental inclusions in the fill. The skeleton of a dog had been buried at the feet of this individual. The inclusion of dogs with human burials is well documented for New York State but this seems to be one of the first recorded instances of such joint burials in Massachusetts. It should be noted that another joint burial of an adult and a dog has been found on Nantucket at the site at Folger's Meadows.

The skeleton of the adult represented a male Indian, about 25 years old at death. In life he was about 5 feet, 7 inches tall. The skull exhibited alveolar prognathism. He had been buried on his back, head to northeast and bent over the left shoulder, face to east. The left leg was bent upwards at an angle of about 15°. At the left knee was the highest point of the burial. The right leg and left hand bones were missing. The jaw and some of the ribs were broken. It is not certain whether these breaks occurred from pressure in the ground or at death. Apparently this man met a violent death as the squamous portion of the right temporal bone had been forced into the brain cavity by the impact of a blow. Possibly he had been mutilated. Top of skull was 47 cm., shoulders, 60-65 cm., and bottom of the grave 69 cm. below the surface of the turf.

The fill of the child's grave was sterile. The child was probably a young girl about 5 or 6 years old. The six-year molars and upper lateral incisors were fully formed and ready to erupt. Prognathism was present and was probably a contributing factor to teeth wear found on both upper and lower middle incisors. Palette was "U"-shaped and a suggestion of a mandibular torus was noted. There were no sills to the nasal apertures while the sills of the orbits were sharp. The skull was distorted, presumably from pressure in the ground.

Due to the tender age of the individual at death, little can be said about the bones of the infant burial. It was unaccompanied by grave goods and the fill was sterile.

While no estimate can be made of the date of these burials, it is believed they are not very old. The triangular point of dark felsitic rock and the fragment of aboriginal pipe-stem would not suggest great antiquity. The adult skeleton is at the Peabody Museum of American Archaeology and Ethnology, Cambridge, Massachusetts, and those of the child and infant in the repository of the Massachusetts Archaeological Society in Andover, Massachusetts.

Andover, Massachusetts
New York, New York
May, 1947

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THREE BURIALS AT THE HUGHES SITE

Fig. 3 - Plan of excavations at the Hughes Site.

Fig. 4 - Cross section through Pit 4.
A ROCK SHELTER NEAR WORCESTER

Ripley P. Bullen

House Rock, in Milbury, Mass., is a large, erratic, granitic boulder about the size of a small cottage. It is located near the east side of the new Worcester-Providence highway, just north of the Milbury-Sutton town line. On the northern side this rock has an overhang forming a rock shelter. The ground, on the same side, slopes downward to a small brook.

On May 13, 1939, C. C. Ferguson of Milbury, Karl Dodge, then of Worcester, and the author investigated this rock shelter to see if it had ever been used by Indians. Profile of the shelter consisted of top soil, 2-3 inches thick, under which was yellow loam, 3-4 inches thick, lying on top of a gravelly deposit. In yellow loam were found 46 sherds, scattered from burnt (?) rocks, and three places where the dirt appeared reddened by heat. A fragment of calcined bone and a piece of quartz, which might have been worked, completed the collection. No charcoal was found in the yellow loam but charcoal of recent fires was in the top soil. Mixed with top soil and yellow loam were many fragments of granitic rock, apparently slabs from the roof of the shelter.

Sherds were tempered with coarsely crushed quartz, 5 mm. in greatest dimension, which was fairly abundant. Walls measured 10 mm. in thickness. Surface hardness was 3 on Moh's scale. The color of the sherds was a pinkish-tan (Cinnamon, according to Ridgeway). Sherds were all from one vessel which was apparently lemon-shaped, about 8 inches deep, and constructed by some form of coiling, using increments of clay, 20 mm. wide. No decoration was found on the side of the vessel, but the rim, which was rounded in some places and pinched slightly outward in others, bore diagonally applied impressions of a round stick or similar tool.

Apparently the shelter was used by Indians at least once. Most of the sherds found are in the repository of the Massachusetts Archaeological Society.

Andover, Massachusetts
February, 1947