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ARCHAEOLOGY OF THE POLAR ESKIMO

BY

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By CLARK WISSLER.

PREFACE.

The objects upon which this study is based are from the archaeological collections made by members of the Crocker Land Expedition of the American Museum of Natural History, 1913-1918. The sites represented are in the main on the shores of Northeast Greenland, which in historic times were occupied by a group of Eskimo known in America as Smith Sound Eskimo and in Denmark as the Polar Eskimo. The writer was not a member of the expedition, but represents the anthropological staff of this Museum, in whose custody the collections were placed. He is not, therefore, familiar with the characteristics of the sites from which these objects come and can treat them only as objective examples of Eskimo culture. As such, they offer some suggestive contributions to Eskimo anthropology.

The members of the expedition, particularly Doctor Edmund Otis Hovey, geologist of the Museum, Mr. Donald B. MacMillan, the leader of the Expedition, and Captain George Comer, well known to students of the Eskimo for his former contributions, all gave the greatest assistance in the preparation of these pages. The pen drawings were made by William Baake and the plans and map by S. Ichikawa.

CLARK WISSLER.

June, 1918.

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INTRODUCTION.

The objects described in this paper are from the archaeological collection of the Crocker Land Expedition. The value of observations based upon old Eskimo graves and camp sites is now clearly realized and it may be taken for granted that future explorations in the Arctic will give special attention to the collection of such data. Scandinavian scholars have made considerable progress in this direction, particularly for East and South Greenland. In this country, the first specific contribution was Captain Comer's collection from Southampton Island, Hudson Bay, fully discussed by Boas. Some years earlier, collections from Siberian sites were brought to this Museum by Bogoras, a member of the Jesup North Pacific Expedition, but these were not fully described. Still later, the Stefánsson-Anderson Expedition returned very large collections from sites all the way from Point Hope, Alaska, to Coronation Gulf on the east. These, with the collections returned by the Crocker Land Expedition, present an Arctic archaeological series not paralleled anywhere. Since this Museum also has collections from living Eskimo representing every important cultural group from Siberia to Greenland, it offers exceptional facilities for comparative studies.

While no archaeologist accompanied the Crocker Land Expedition, its members were fully aware of the importance of such data and kept a sharp lookout for old house sites and camp refuse. Captain George Comer, noted for his contributions from Hudson Bay, accompanied the relief vessel in the summer of 1915. Those familiar with the full history of the expedition know that this vessel was frozen in at Parker Snow Bay. Captain Comer was, therefore, an involuntary member of the party until the return of all in September, 1917. Not expecting to winter with the party, he was neither equipped nor otherwise prepared for archaeological work, but, wishing to make the most of the opportunity, he did what he could.

His method was to locate old house sites and dig away the débris covering the original floors. In all, fifty-three such sites were plotted and excavated. Their distribution ranged from Parker Snow Bay to Rensselaer Harbor. In addition, some twenty graves were examined.

Anyone with a general idea of Eskimo life will understand how unlikely it is that a single site will be occupied continuously or even for appreciable periods at intervals. Such conditions are decidedly unfavorable to archaeological investigations, since their successful outcome depends upon the establishment of chronologies as interpretations of observed stratifications,

or superpositions. Nevertheless, Captain Comer found little difficulty in distinguishing between sites belonging to Eskimo of the last fifty years and those of earlier date. His collections, taken objectively, show that some reasonably old sites are represented.

Yet, the most important discovery was a considerable deposit of camp refuse at a site near North Star Bay, a small harbor within Wostenholme Sound. Since the mere location of such a site is unique in Eskimo archaeology, we shall speak of it as Comer's Midden.

CHARACTERISTICS OF THE LOCALITY.

As to the location and physical characteristics of the site, the following statement is made by Doctor Edmund Otis Hovey: —

The archaeological site dug into by Captain George Comer near North Star Bay was in front of the igloos forming the Eskimo settlement of Oo-ma-nahq, which is actually on the southern shore of Wostenholme Sound. It is on the north side of the isthmus leading out to the butte called Oo-ma-nahq, which rises about seven hundred feet above the sea at the north side of the mouth of North Star Bay. The neck of land lying thus between North Star Bay and Wostenholme Sound presents a gently rolling surface which has been a sea bottom within recent geological time. It consists of a sill of ancient basic igneous rock (diabase) covered with a thin mantle of sand, gravel, shingle, and boulders. The highest portions of the plain, which is from a quarter of a mile to a mile in width, are about fifty feet above the sea. The igloos stand near the sea and are about fifteen feet above high water mark. They command an excellent outlook northward across the Sound and a broader view can be secured from the low cliffs rising about twenty-five feet above the water fifty or sixty yards to the northeast. The low, gentle ridge which ends in these cliffs gives the igloos a measure of protection against the heavy wind that occasionally sweeps out of the fjord. The Eskimo have occupied with igloos at least three sites along the south coast of Wostenholme Sound, but that at Oo-ma-nahq shows evidence of being the principal one utilized. In fact, there are many ruins of old igloos scattered along a zone bordering the sea at this locality, but the natives seem never to have dwelt along or near the shore of North Star Bay itself. The ice remains from two to three weeks longer in North Star Bay than it does in the more open Wostenholme Sound, while seals, walrus, and narwhal are more abundant in the Sound than in the Bay and can be hunted more easily and successfully from Oo-ma-nahq than from North Star Bay.

The refuse heap at which Captain Comer worked, lay in front of three igloos nestling in the lee of the low columnar basalt or diabase sea cliffs to which I have referred, their entrances being from ten to twenty feet back from the shore line. The heap was formed by throwing débris from the dwellings over the bank toward the sea. In cross-section it was inclined lenticular in shape, its base being the steep shingly beach, and, toward the eastern end of the deposit, the ledge of rock which rises one to three feet above it. The lay of the ground caused most of the material thrown on to it to slide or roll down to the bottom of the slope, where much of it would be washed away by the sea or carried off with the ice foot. The vertically lowest part of the heap, therefore, would not contain the oldest material, but the oldest articles would be those which stuck to the inclined bank and the successive layers, or were held in place there by snow or freezing water until they were covered. The bottom of the deposit, that is its lowest portion vertically, seemed to me to be a mixture in respect to probable antiquity. There did not seem to be anything in the nature of the deposit itself that indicated its age in years. Its rate of accumulation would depend on the number of families occupying the nearby igloos, the continuity with which the dwellings were used and more or less upon the abundance of food and

other material. In times of plenty more would be lost or thrown away than in times of scarcity. The deposit consisted of artifacts mixed with bones, whalebone, ivory, decayed grass, earth, and stones. It exhaled a strong odor of ammonia when the thawed portions were disturbed.

EXCAVATIONS IN COMER'S MIDDEN.

Fig. 2 shows the site of Captain Comer's excavations. According to his notes, a considerable space at the foot of the ledge was filled with fallen rock and sand. This mass of débris presents a triangular cross-section with a base of about ten feet. Built up on its irregular surface was a layer of camp refuse to the average depth of about five feet. A section of this was dug away as shown in the illustration.

Captain Comer assumed that since the outer surface of the midden was subject to repeated thawings and freezings, it would be wiser to discard, or segregate this layer. Consequently, about two feet was removed, exposing the solidly frozen mass beneath. It is apparent that the refuse of each year raised the level of the heap and thus brought one notch higher the perpetually frozen deposit beneath. Excavations in this frozen layer were tedious. It was necessary to wait until the surface had thawed for an inch or two, then scrape the muck away and wait again.

All of the objects described as from this midden were taken from the frozen layers where they had been in perpetual cold storage ever since they reached the ice table. On this account, we cannot judge their ages by degrees of decay.

THE AGE OF THE DEPOSIT.

While the place of these remains in Eskimo culture is a point to be demonstrated in the succeeding discussions, certain general observations may be noted at this time. In the first place, stone tools of every kind were absent. Only three slate knives were found, a few flakes of flint, a bit of chaledony and two stones showing chipping (Fig. 13). It may be objected that these are, nevertheless, sufficient evidence for the use of stone, but our experience with other sites around Hudson Bay and westward is that the camp débris left by a stone-using Eskimo, will yield many examples of such use. Further, if the many hafts of tools found had indicated stone points and blades, the failure to find stone here might be ignored as a puzzling inconsistency, but as we shall see, these hafts indicated the use of metal. In fact, some tiny fragments of iron were secured.

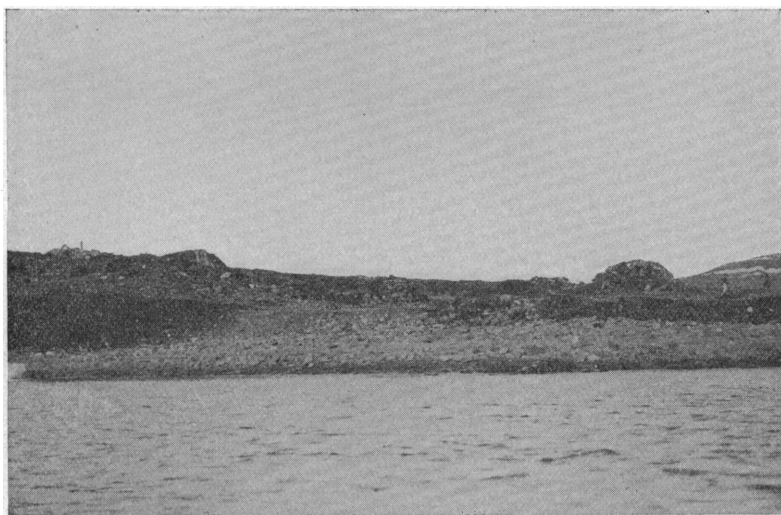


Fig. 1. The Village of Oomanahq, Comer's Midden to the Left. Photo by Dr. E. O. Hovey.



Fig. 2. Near View of Comer's Midden showing Excavations. Photo by Dr. E. O. Hovey.

The other materials shown in the collection are bone, antler, wood, and whalebone. Of ivory, there are a few examples, all of which show little weathering and according to Captain Comer's statements were on, or near, the surface. The distribution of the other materials was approximately uniform, except that the objects of whalebone were near the bottom.

Large quantities of unworked bone were removed, in fact such material made up a large part of the refuse heap. In the main, there were the bones of rabbits, birds, caribou, and seals. Seal teeth were also numerous. Those of the bear were seldom met with and the walrus scarcely at all; indeed, but a single tooth for the latter. Ivory, as stated, was scarcely in evidence. On the other hand, the true whalebone was surprisingly abundant, though body bones were not equally well represented.

Another striking feature was the great mass of spruce wood fragments, suggesting that wood played a prominent part in the culture of these Eskimo.

As the description of the site suggests, the precise determination of the order of accumulation is not easy. Objects thrown over the bank would tend to reach the bottom of the sloping refuse heap, so that we may suspect the horizontal order at the base to be the most significant. However, Captain Comer's method avoided many of the complications presented, for he first took off two to three feet of the outer surface and segregated the objects found. The remainder of the deposit was frozen and necessitated removing but a thin layer day by day as the freshly exposed surface thawed out. Thus, there is no reason to doubt that the collection from this lower section of the refuse belongs to a period earlier than that from the surface layer. No glass or other traces of trade articles were found in this lower layer, though such may be seen on the surface at camp sites around the bay. At Etah several of the house sites excavated yielded bits of glass and some a few brass shells of the type used in Kane's time, while many gave no sign of European contact. Further data upon these points will be developed as we proceed with the detailed account of the objects found.

METHODS OF WORKING BONE AND IVORY.

Although repeated references are made to the technique of bone and ivory working among the Eskimo in the many publications upon the culture of these people, no full description of the processes involved has come to notice. It is generally stated that these materials are worked by cutting, sawing, and drilling, and that of these, the most preferred and perhaps the most aboriginal, is drilling. A discussion of these processes, as illustrated in the archaeological collections returned by the Expedition, seems advisable,

since they may give us some basis for estimating the relative age of the Eskimo cultures represented.

Of the three processes named, sawing is undoubtedly recent, since it can only be executed in the manner observed in the collections by the use of a metal saw. Some of the objects from each of the localities represented give evidence of having been worked by sawing. In some cases, the trial saw cuts of the native workman are still to be seen. These are of such a form and size as to preclude the possibility of the use of any other implement save a modern steel saw. Even specimens from Comer's Midden present a few examples of sawing, though most of the antler objects in that collection have been worked by cutting or hacking. (But one piece in the entire lot shows evidence of having been grooved on opposite sides and then broken.) On the other hand, the collections from other points in North Star Bay, from Parker Snow Bay, Saunders Island, and the vicinity of Etah, furnish many examples of sawing, particularly in the edges of bone sections for sled runners and on the edges of ivory sled shoes. Anyone familiar with Eskimo collections will recall frequent examples of saws, in many cases, of native manufacture. The usual form is a small blade of trade steel, the teeth for which have been produced by filing, hafted with a curved piece of antler somewhat like the handle for the ordinary carpenter's saw. As will be shown elsewhere, no metal tools of any kind were found in Comer's Midden, but from the other sites a number of such implements was collected, among which is a saw of this type from Etah. It is further plain that all of the collections obtained, with the possible exception of those from the deeper layers in Comer's Midden, belong to a period when trade saws and their counterparts were in general use among the Eskimo of Greenland.

As stated before, the preferred Eskimo method for cutting bone, antler, or ivory, is by drilling holes side by side in the direction of the desired cut and then breaking off the material along this line. While this method has been cited as almost peculiar to the working of ivory, our collections show that it is also applied to working antler and bone of the whale, though it is true that the number of examples of such drilling is far greater in ivory than in the other materials, particularly in the collections from the vicinity of Etah. On the other hand, it will be noted that ivory objects were of rare occurrence in Comer's Midden and such examples as were noted seem to have been on the surface. Nevertheless, among these is a piece of ivory cut by drilling with a very small drill, something less than one-sixteenth of an inch. The holes are deep and clear-cut, such as scarcely could have been accomplished without a metal drill. But there is also a piece of antler from this same deposit cut in the same way. The collections from Etah contain a very fine example of the application of this method to the cutting of antler

in which we find a large tine has been cut off by drilling twenty-four holes in a line passing entirely around the piece. The drill in this case was about three-sixteenths of an inch. There are other examples in the collection of antler cut in the same manner. Yet, if we take into consideration the entire number of worked pieces of antler returned by the collectors, it must be said that the usual method is by sawing, except in Comer's Midden, where almost without exception the antler has been cut or hacked.

The Etah collections contain a large series of whale bone slabs used in making sleds. Most of these, as previously stated, have been brought to their present shape by sawing, but a few show evidence of having been cut by drilling. Similar pieces were not returned from the other localities, except one from North Star Bay which, incidentally, was cut by drilling. From Comer's Midden there are no examples of such whale bone sled pieces, though there are pieces of worked bone evidently used in the construction of sleds. The inference would be that the type of sled used by the people occupying the site of Comer's Midden was different from that returned by these collections. To this point we shall refer again.

From Comer's Midden there is an interesting oval flat piece of bone, a section of which has been cut out by drilling. A similar piece was found nearby on the shore. A piece of ivory sled shoe from Etah shows an interesting example of drilling in some secondary working. It had been brought to a point by drilling and then wedged so as to break away the corners.

From Etah and Saunders Island come many sections of ivory sled shoes, all showing evidence of having been worked by splitting and sawing. Their form, size, and arrangement of the drill holes show them to be of one precise type. The interesting point is that no such sled shoes were found at Comer's Midden. There were, however, long pieces of bone drilled in a different manner which may have served the same purpose.

Another object of frequent occurrence in Comer's Midden is a bone snow knife of the well-known Greenland type. The curved handle for this has been cut out by hacking. In no case is there evidence of sawing or drilling.

The apparent rarity of drilling at Comer's Midden, in contrast to what seems to have been the rule in the other sites, makes a brief examination of drills desirable. Five metal drills in wooden shafts were collected: one from Saunders Island; one from the shore of North Star Bay; one from Parker Snow Bay; and two from Etah. One or two special points in these deserve mention. In one specimen (60.1-4575) the tang of the drill, which is driven into the wooden haft, has been given a triangular form, doubtless to prevent its twisting in the shaft. Fig. 3 seems to have been a double tool. When found, the metal drill point was in place, as shown in the drawing, but on

examination, it appears that it was held in place laterally by two small wooden wedges. When these were pulled out the shaft was easily withdrawn and the other end of the point found to have been beaten out in the form of a small chisel or other cutting tool. From general appearances, this metal point seems to have been beaten out from a nail. No similar tool has come to notice and this may no doubt be set down as another example of Eskimo ingenuity. The points of all the drills have the same form, as shown in Fig. 3. They are slightly flattened with somewhat flaring edges. That this form is rather universal in Eskimo drills is indicated by its occurrence in specimens from Alaska.¹ Murdoch describes a specimen with a bone point of this same shape suggesting that the type is an old one even antedating the use of metal. Naturally, the stone drill points that have been so far collected do not have this form, but taper slightly from the point. Nevertheless, they do show a rounded end similar to the iron specimens in our collections.

As previously stated, no metal drills were found in Comer's Midden; and though there are a considerable number of wooden objects, among these appear no drill shafts. Still, we do find a piece of bone (Fig. 4) which bears a striking resemblance to both the metal drill point and to the bone point described by Murdoch. It is not certain that this is a drill point but the similarity is so striking that attention is called to it. With this exception, there are no specimens from the Midden that suggest drills, though, of course, there are evidences of drilling in some of the objects.

In conclusion, it appears that while there may be some differences between the culture of the people occupying the site of Comer's Midden and those occupying the other localities from which collections were returned, all belong to a period when metal tools were in general use. Particularly, the size, depth, and form of drill holes found in the worked material at most of the sites leaves no other conclusion but that metal drills were used.

KNIVES.

Perhaps the most interesting objects in the collections from Comer's Midden are some fragmentary knife hafts similar to some specimens described by Boas from Southampton Island. The best example of this type was fully described by this author whose illustration we reproduce here,²

¹ Murdoch, John. "Ethnological Results of the Point Barrow Expedition" (*Ninth Annual Report, Bureau of American Ethnology*, Washington, 1892), 179.

² Boas, Franz, "Second Report on the Eskimo of Baffin Land and Hudson Bay" (*Bulletin, American Museum of Natural History*, vol. 15, part 2, 1907), 384, Fig. 178.

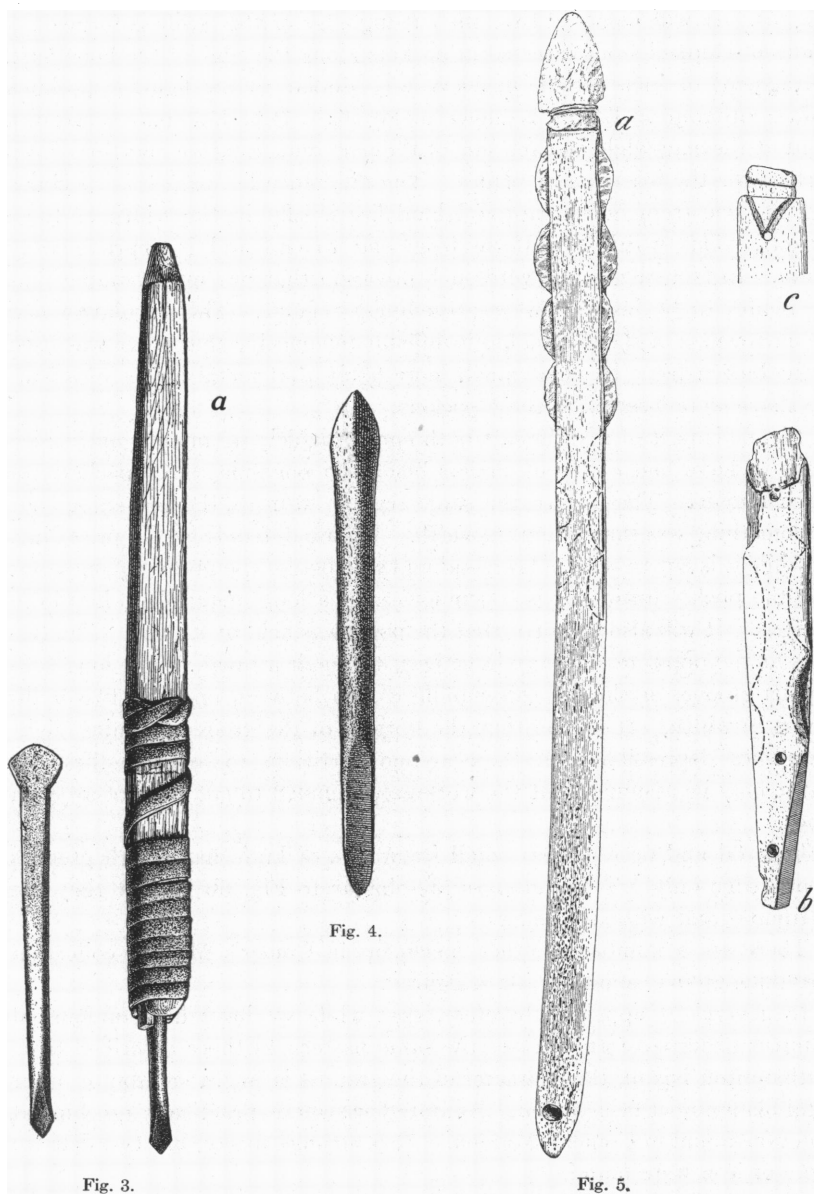


Fig. 3.

Fig. 5.

Fig. 3 (60.1-4540). Drill with a Detachable Point, Parker Snow Bay. Length of *a*, 23.5 cm.

Fig. 4. (60.1-4480). A Bone Point resembling a Drill, Comer's Midden. Length, 7 cm.

Fig. 5 (60-5144, 5389). Bone Knives with Stone Blades, Southampton Island. Length of *a*, 68 cm. Boas, 1907.

(Fig. 5). It will be noted that the cutting edge of this knife is formed by blades of chipped stone inserted in pockets along the edge of the bone haft. A fragment of such a haft, in every way similar to the figured specimen from Southampton Island, is shown in Fig. 6a. It had, as may be seen, a point at the end, while on each side of the part remaining we find three deep pockets for the insertion of blades. The difference between this specimen and the one from Southampton Island lies chiefly in the width of these pockets. This width is uniform from end to end and is approximately 2 mm. In fact, it is made with such precision that one must assume that the blades to be inserted were exceedingly regular. This regularity and the narrowness of the slot makes it difficult to conceive that stone was used as the knife edge. It seems much more likely that metal blades of a leaf-like shape were inserted in these pockets.

Fig. 6c is part of a knife haft both ends of which are missing and which seems to have had a row of similar blades on one side, three pockets for which remain. These have the same regular form as the preceding, but are something less than 2 mm. in width. Fig. 6b differs from the preceding, for while it is cut to receive both end and side blades the grooving does not take the pocket form, but is continuous as if a long metal blade had been inserted. It will also be noted that the point was held by a rivet. The two holes at the opposite end may have been to repair a break. The long continuous groove, or slot, in this handle is also between one and two millimeters in width. It is true that the bottom of the groove contains slight pocket-like depressions, but there are no partitions to separate these, so that it may be assumed that the workman intended to cut the slot an even depth.

Figs. 6d and 6e represent small fragments of knife hafts with grooves on one edge only. These grooves are similar to Fig. 6b in that they are continuous and without pockets.

There are a number of other specimens in Comer's Midden collection containing grooves similar to those figured.

In general, it appears, therefore, that while we have here undoubted examples of knives formed after the same pattern as those described from Southampton Island, the character of the grooves is such that iron or other metal blades must be assumed. As stated elsewhere, practically no chipped stone was found in Comer's Midden. Also, strange to say, but two definite traces of iron were found.

Captain Comer notes in his diary, under date of August 29th, 1916, that he found part of a knife blade two feet below the surface containing flakes of iron set in a groove so as to form a cutting edge. He made, at the time, a rough sketch of this specimen, which is reproduced here (Fig. 7). Unfor-

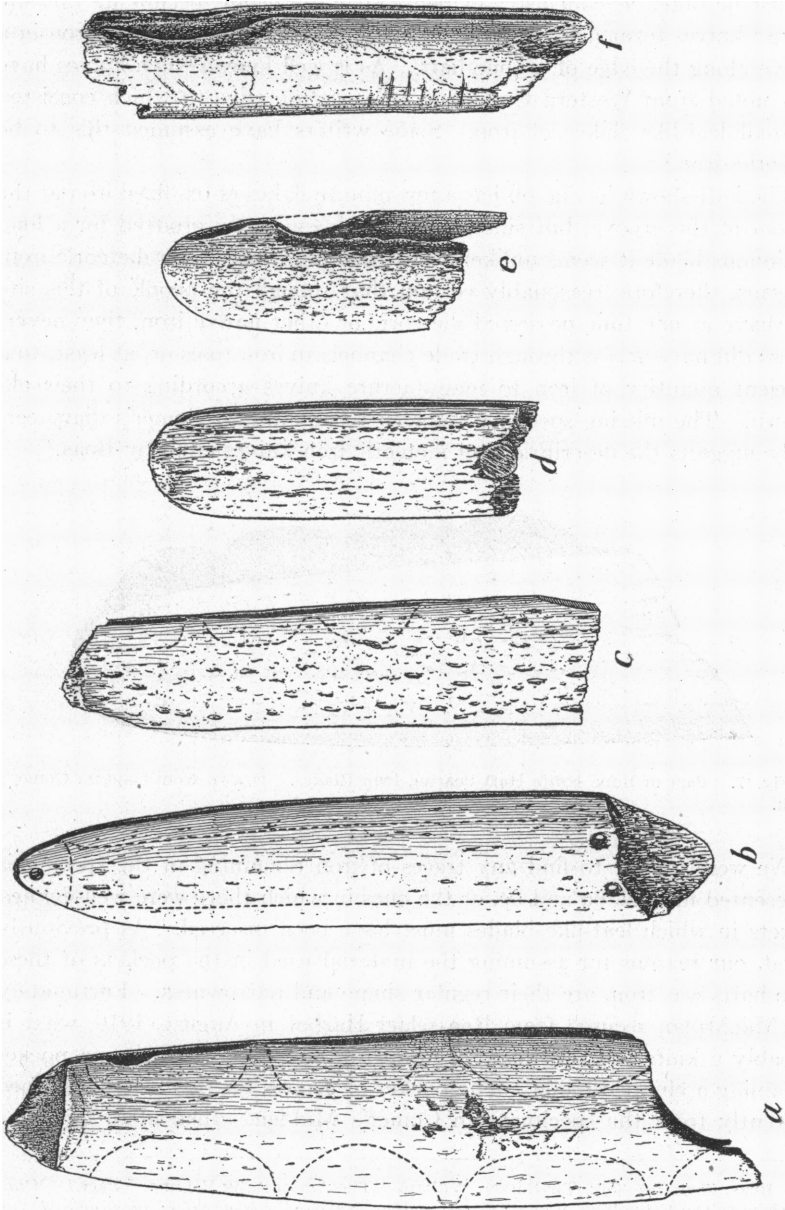


Fig. 6 (60.1-4409a, 4409b, 4409c, 4409d, 4409e, 4614). Bone Harts for Knife Blades. Length of a, 16 cm.

tunately, this specimen, with others, was lost in transit. Nevertheless, it must be taken as conclusive evidence that the people occupying this site did use knives formed by setting small flakes or leaf-like pieces of iron in a groove along the edge of a bone haft. As is well known, such knives have been noted from Western Greenland, the cutting edge to which consisted of small leaf-like flakes of iron. Some writers have assumed this to be meteoric iron.¹

The haft shown in Fig. 6b has a few minute flakes of oxidized iron at the bottom of the groove, but since this knife is evidently grooved for a long continuous blade it seems unlikely that this could have been meteoric iron. It seems, therefore, reasonably certain that though the people of this site may have at one time possessed meteoric or other native iron, they nevertheless did have access through trade channels to iron tools or, at least, to a sufficient quantity of iron to manufacture knives according to their old pattern. The missing specimen referred to in Captain Comer's diary certainly suggests the descriptions of meteoric iron knives cited by Boas.²

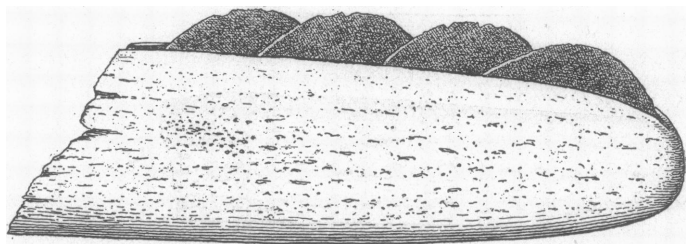


Fig. 7. Part of Bone Knife Haft bearing Iron Blades. Drawn from Captain Comer's sketch.

We were unable to find any traces of iron remaining in the specimens represented in Figs. 6a and 6c, or the ones in which there were well-defined pockets in which leaf-like blades must have been inserted. As previously stated, our reasons for assuming the material used in the pockets of these knife hafts was iron, are their regular shape and narrowness. Fortunately Mr. MacMillan secured from Rensselaer Harbor in August, 1916, what is probably a knife (Fig. 8) made of antler, in one side of which is a pocket containing a chipped blade. The pocket or groove for this blade is shaped differently from the specimens in Comer's Midden. Instead of having a

¹ Boas, *ibid.*, 384-386; Thalbitzer, William, "The Ammassalik Eskimo. Part I. Contributions to the Ethnology of the East Greenland Natives" (*Meddelelser om Grønland*, vol. 39, Copenhagen, 1914), 488-490.

² Boas, *ibid.*, 384.

uniform width, it is oval, tapering at each end to conform to the outlines of a chipped flake. It further appears that there was a similar stone blade on the opposite edge, but only a small part of the groove remains. The finder of the specimen turned in a second piece of stone which may have rested in this groove when the haft was intact.¹

This find is not only interesting because it gives us an opportunity to compare the two types of knife haft in question, but also because it is the first specimen, to our knowledge, found in Greenland suggesting the type of knife described from Southampton Island by Boas and the curious harpoon heads from Alaska and adjacent regions in the sides of which were grooves containing small flaked blades.² It would seem therefore that the use of knives with cutting edges formed by a row of flakes was at one time universal among the Eskimo from Greenland to Alaska. We may be warranted, therefore, in concluding that the iron knives formed by setting small flakes of iron in a row along the edge of the bone handle, were copies of the

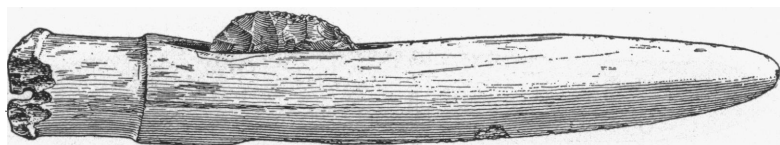


Fig. 8 (60.1-5096). Knife bearing Lateral Stone Blades. The opposite blade is missing. Rensselaer Harbor, Length, 15 cm.

older stone knife, as has been suggested by Boas, Thalbitzer, and others³ and also that the pocketed hafts from Comer's Midden belong to this series. It need not necessarily follow that the natives at Comer's Midden used meteoric iron. It may be imagined that natives coming in contact with iron in small quantities and incidentally, would be likely to make knives in the form of those already in use and thus make them conform to the old type of stone knife.

The probability of this is suggested by another find. In June, 1917,

¹ As to the finding of this specimen Mr. MacMillan writes as follows:— It was found in Rensselaer Bay in one of the very numerous old igloos dotting the whole coast line from Etah 78° 20' to the southern edge of the Humboldt Glacier, 79° 10'. This knife was brought to me by an Eskimo by the name of Myah, who found it in August, 1916. Both cutting edges of flint were with the handle. How the knife was used I do not know. I have drawings of other old knives, as described by the older men of the tribe, but all with numerous teeth, some of which overlapped.

² Wissler, this series, vol. 14, part 2, Fig. 3bcd, 407.

³ Boas, *ibid.*, 484; Thalbitzer, *ibid.*, 490.

Captain Comer found in an old house ruin near Etah a number of objects among which was Fig. 6f. This is a rather curious fragment of what seems to have been a knife, for the haft is almost circular in cross-section instead of flat and knife-like, as in the specimens previously described. Yet, on one edge of the fragment are two pockets similar to those described, in one of which there remains a fragment of iron. The groove resembles that of the preceding in its regularity and is again approximately 2 mm. wide. Another curious feature is that the grooves do not run exactly parallel to the fragment and there is also a small pocket cut to one side of the others, suggesting an error in workmanship. The fragment of iron shows indications of crude beating, but its appearance does not suggest meteoric iron. In fact, Professor R. W. Tower of the Museum staff tested it for nickel without result.

Again, at the same place Captain Comer picked up a small piece of antler in the end of which had been driven the section of a knife blade (60.1-4617). Of course, there is no way of knowing whether this specimen is more recent

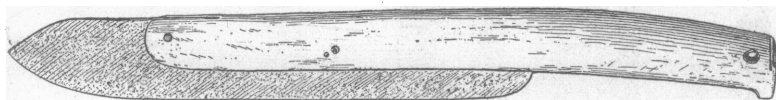


Fig. 9 (60.1-5064). A Knife of Recent Make with Blade of Hoop-Iron. Length, 31 cm.

or even contemporaneous with Fig. 6f. The amount of weathering of the two bones is about the same. It is, however, obvious that the maker of the specimen 60.1-4617, had access to trade knives.

Near Sunrise Point Captain Comer found in a house ruin, among other objects, a fragment somewhat similar to Fig. 6f. The pockets in this specimen are rather deep but are otherwise not different from Fig. 6f. Yet, no traces of metal were observed. In the same ruin a number of stone chips were found, none of which, however, suggest their use in knives of this sort.

At various places in the vicinity of Etah Mr. MacMillan found fragments of knife handles, some grooved on one side and some on both, but in every case the grooves were without pockets, narrow and straight, suggesting the use of long strips of iron or steel knife blades for the cutting edges. In other words, they resemble, in every particular, recent Eskimo knives such as may still be seen in collections (Fig. 9).

At this point it may be worth examining the few examples of chipped stone returned by the collectors to see if any of the objects could have served as blades for knives similar to Fig. 8.

As previously stated, there was very little stone from Comer's Midden. However, there were three flint chips indicating that at least some chipping had been done there. From the vicinity of Etah twelve sites returned some examples of chipping though these were usually confined to one or two chips. Captain Comer found, July 29th, 1917, while digging in a house ruin near Sunrise Point, a small cache of flint chips on the left side of what was the passageway to the house. There are, in all, something over a double handful of these chips, but they are simply flakes struck off evidently in the making of stone implements. There are but three pieces in the lot

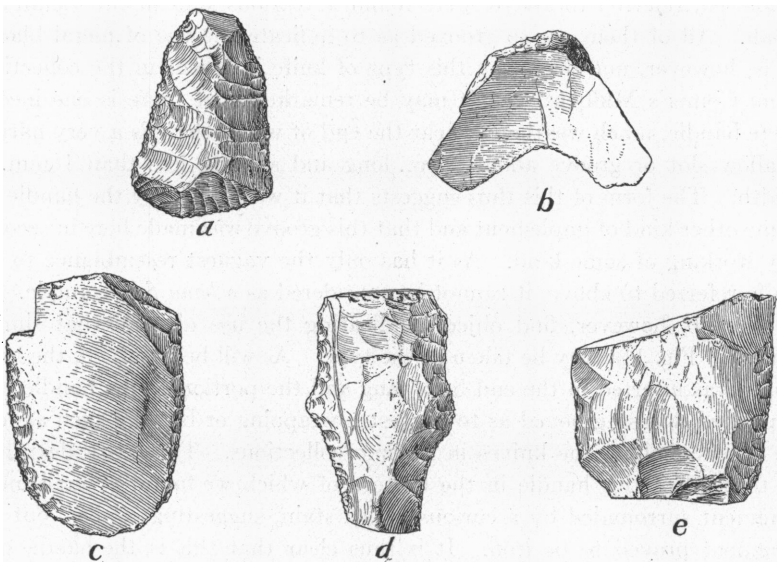


Fig. 10 (60.1-4734, 4597, 4650, 4622, 4639). Chipped Flints from Etah. Length of *a*, 2.4 cm.

that show fine surface chipping. Among these are flakes struck off in re-shaping a large tool of some sort. The surface chipping is particularly fine and regular. Of the entire series of fragments from the other sites, not over a large handful in all, we find no piece that seems at all suitable for insertion in a knife, with one possible exception. Fig. 10e was found in a house ruin at Etah and may be a part of a broken lance head, but is also of such a shape that it could be set in the pocket of a bone knife similar to Fig. 8.

The only other cases of chipping deserving mention are shown in Figs. 10 and 13. Fig. 10a is evidently the blade for a small scraper; Fig. 10b

has the appearance of a spoke shave, though this may be accidental; Fig. 10c is a carefully shaped object which we have been unable to identify; and Fig. 10d which is apparently part of a drill.

One peculiarity of the knives from Comer's Midden is the absence of the type from Greenland well illustrated by Thomsen.¹ This type has a long slender bone handle with a groove cut on one side near the end for the insertion of a blade. As has been remarked by writers upon the subject, this type of knife is a prototype of the stone knife formed by placing a small stone blade near the end of a handle, such as may be seen in Alaskan collections illustrated by Murdoch.² Knife handles of the type described by Thomsen, referred to above, were found at various sites in the vicinity of Etah. All of them are so grooved as to indicate the use of metal blades. It is, however, not clear why this type of knife is absent in the collections from Comer's Midden; yet, it may be remarked that there is one incomplete handle, much weathered, near the end of which there is a very narrow shallow slot or groove about 2 cm. long and slightly less than 1 mm. in width. The form of this thus suggests that it was originally the handle for some other kind of implement and that this groove was made here in secondary working of some kind. As it has only the vaguest resemblance to the knife referred to above, it cannot be considered as a *bona fide* example.

We do, however, find objects indicating the use of somewhat similar knives. Fig. 11a may be taken as the type. As will be observed, the knife blade was inserted in the end by a tang and the portion of the handle that remained was so grooved as to suggest a wrapping or binding such as may be observed upon the knives in Eskimo collections. There is a deep hole in the end of this handle in the bottom of which we found a small metal fragment surrounded by a curious bluish stain, suggesting copper, but the fragment proved to be iron. It is thus clear that this is the handle of a metal knife and one may assume that it had a large blade somewhat similar to knives from Hudson Bay figured by Boas.³ Since such a knife could not well be made of native iron, we assume this blade to have been of commercial iron.

Altogether there are seven handles of this type from Comer's Midden. One of these has the remains of a sinew cord in the handle hole. All have deep sockets in the end for tangs similar to that of the figured specimen. The form and depth of these sockets suggest similar metal blades. It is

¹ Thomsen, Thomas, "Implements and Artefacts of the North-East Greenlanders Finds from Graves and Settlements" (*Danmark-Ekspeditionen til Grønlands, Nordostkyst, 1906-1908, Meddelelser om Grønland*, vol. 44, Copenhagen, 1917), Fig. 26, 429.

² *ibid.*, 160, Fig. 117.

³ Boas, *ibid.*, Fig. 202, 404.

true that we have a knife of frequent occurrence in Greenland collections and also extensively in the Stefánsson collections from Alaska, which carried a short stubby stone blade. A large series of handles from Point Hope and Point Barrow shows forms strikingly like the handles from Comer's Midden, but in most cases these were intended for stone blades, the sockets being much more shallow and of a different shape. We also have from the same Alaskan sites a number of specimens with the stone blades still in place. A comparison of these with the handles from Comer's Midden leaves us no other conclusion than that the latter handles were all fitted with metal blades.

From another site at North Star Bay Captain Comer picked up a handle in every way similar to Fig. 11a. There are curious greenish stains on this specimen and another from the same site, suggesting copper, but no piece of metal remains.

There are two other objects from Comer's Midden which seem to have been intended for knife handles. These are longer than the specimens just described being in fact long enough for two-handled knives such as have been described for the Eskimo further west. One of these handles is shown in Fig. 16a. There is a shallow groove across the end apparently for the insertion of the knife blade. There are, however, no rivet holes, suggesting that this handle was never completed. The other specimen is similar to this except that it bears a rivet hole but is not figured because of its fragmentary condition. A comparison of these with knife handles from Hudson Bay and elsewhere indicates that these are most likely handles for a large two-handed knife. So far as I know, this type has not heretofore been observed in Greenland.

No handles of this type were returned from any other site except a possible specimen from the vicinity of Etah. This is, however, in such a fragmentary condition that it is impossible to determine its precise character and it may therefore be passed as doubtful.

The only other object from Comer's Midden suggesting a knife handle is the fragment shown in Fig. 11c. Somewhat similar forms, as for example, Fig. 11b, were picked up at several sites near Etah. The above is, however, the only example of such a handle from Comer's Midden.

From another site on North Star Bay comes a knife handle, much weathered and decayed. Its form is clearly indicated in Fig. 11d. It has a deep groove in the edge at the end, indicating the insertion of a blade and certain green stains about this aperture suggest copper. The handle end has been grooved as if for attaching a cord.

In general, then, it may be said that practically all the knives from these sites in West Greenland belong to the metal-using period of Eskimo culture.

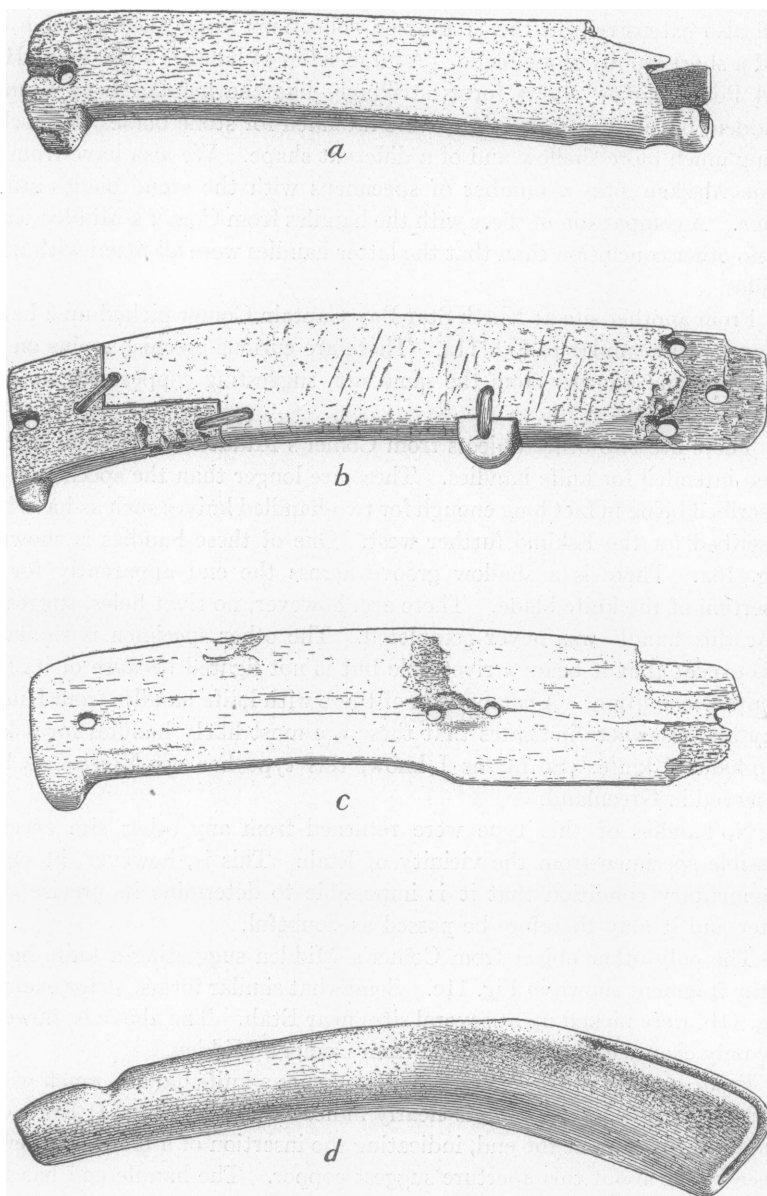


Fig. 11 (60.1-4404a, 4633, 4404b, 4515). Knife Handles: *a*, Comer's Midden; *b*, Etah; *c*, Comer's Midden; *d*, North Star Bay. Length of *a*, 12.3 cm.

The significance of this has been discussed at length by Thalbitzer¹ and by Solberg² and more recently by Thomsen.³ From these discussions it seems that the only example of the old Eskimo stone knife similar to the type specimen described by Boas from Southampton Island (Fig. 5) is the one shown in our Fig. 8. The Museum at Copenhagen seems to possess several examples of knife hafts similar to our Fig. 6 but none of these indicates the use of a stone blade. We have previously mentioned the possibility of meteoric iron having been employed for the blades of such knives. The investigation of Danish students has shown, however,⁴ that most of the early iron knives used by the Eskimo in West Greenland were made from native telluric iron and not meteoric. As to the use of telluric iron we shall have more to add later. It has been assumed therefore, that the Eskimo iron culture of West Greenland is very old and possibly even older than the period of European contact. The assumption is that the pocketed haft of the type shown in Fig. 6 is a literal copy of the older stone knife shown in our Fig. 5. It would follow, therefore, that the old and original type of Eskimo knife for both the Hudson Bay region and West Greenland was one having an edge formed of small chipped pieces of stone set in a row. This gives us a kind of chronology for West Greenland in that the sites showing iron knives of the type of Fig. 6 are almost contemporary with sites on Hudson Bay yielding stone knives of similar pattern. Further, we may assume that the knife formed by a long narrow blade of iron set in a groove is a later type, possibly, as has been suggested, a direct copy from European trade knives. Hence, we may assume that all sites returning knives of this character belong to the historic period. If this assumption is justifiable it appears that at least the lower strata of the site at Comer's Midden belong to the earliest period of Eskimo occupation in West Greenland and are certainly older than many of the sites examined in the vicinity of Etah. Nevertheless, there were certain sites at Etah, particularly the one yielding the specimen shown in Fig. 6f and the one from Rensselaer Harbor, giving us so far the only known example of a stone-edged knife of this type. As to whether there was a still older culture in West Greenland properly designated as a stone age culture, we need not discuss at present. Suffice it to say that no evidences of such a period of occupation were brought to light by the archaeological work of this Expedition.

¹ Thalbitzer, *ibid.*, 488-490.

² Solberg, O., "Beiträge zur Vorgeschichte der Ost-Eskimo" (*Videnskabs-Selskabets Skrifter*, II, Hist.-Filos. Klasse, Christiana, 1907), 53-54.

³ Thomsen, *ibid.*, 424-434.

⁴ Thomsen, *ibid.*, 432.

ULU OR WOMAN'S KNIFE.

As previously stated, few stone objects were found in Comer's Midden.¹ Altogether there were just nine pieces, some of which have already been referred to (p. 127). The others are shown in Figs. 12-14. Of these Figs. 12ab are undoubtedly ulus, and of particular interest because they seem to have been used without an additional haft, though from the roughness of the edge it must be inferred that some kind of binding or other hafting was used. The cutting edges have been carefully ground and in the case of Fig. 12a, to a remarkable keenness. Fig. 14 is evidently the blade for a small ulu-like knife, tapering at the top to form a tang for insertion in the handle.

Fig. 13a is a curious fractured form having what seems to be a broad cutting edge. This may be an accidental chipping, but the edge shows some signs of wear from use. Fig. 13b is still more curious. It reminds one of certain paleolithic types, in fact, the *coup de poing*. Its sharp chisel-like edge shows some indication of wear. The top of the object seems to have been broken away. The function of this implement, if implement it is, can, of course only be conjectured.

Among the bone objects were thirteen ulu handles of various forms. The prevailing type is shown in Fig. 15a and a slight variation of the same in Fig. 15b. The interesting thing about all these handles is that they have a very deep but narrow slot suggesting the use of a metal blade. There is, in fact, but one in the whole lot which has a slot of a form suggesting a stone blade. In this case, we cannot be sure, however, for the specimen seems to have warped slightly, which may account for a certain amount of distortion

¹ Note on the Stone Implements and Chips in the Crocker Land Expedition Collection, by Dr. E. O. Hovey.— The few stone implements and artificial chips recovered from Captain Comer's midden at Oo-ma-nahq near North Star Bay are bits of slate or flakes of trap rock (diabase) from the vicinity, aside from one knife point worked from a chip of chalcedony. Chalcedony was collected by Mr. Elmer Ekblaw, geologist of the Crocker Land Expedition, from cavities in the ancient igneous rocks of McCormick Bay and it is not unknown elsewhere along the coast.

True flint artifacts and flakes were found in the refuse heap excavated by Captain Comer near Littleton Island. These resemble the flint of England so closely that it seems most probable that the material was brought to the north water of Baffin Bay by the whalers who frequented the region in the years following Captain Ross's visit. Magister M. P. Porsild, chief of the scientific station at Godhavn, Island of Disko, has obtained from the Greenlanders of Danish Greenland fragments of flint that were brought to their Eskimo ancestors by English whalers for use in the flintlock guns that were utilized in trading in former days. Such flints are reported to be common in the more recent kitchen middens of that part of the coast.

Flint, or chert, is probably rare along the coast from Cape York to Smith Sound. Neither Mr. Ekblaw nor I saw any there, but the Eskimo told the former that it occurred at McCormick Bay and in the limestone beds of Northumberland Island.

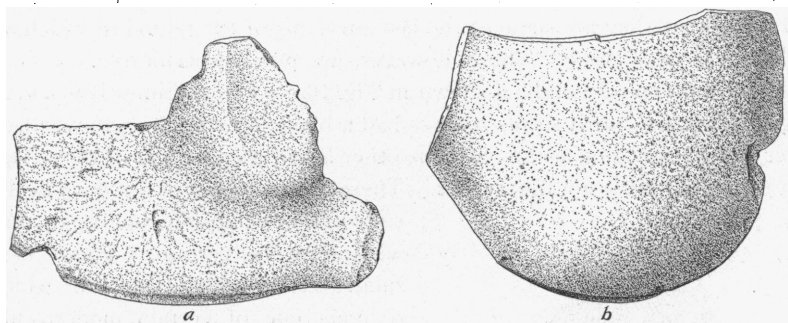


Fig. 12 (60.1-4402a-b). Stone Ulu, made from Local Diabase. Length of *a*, 13 cm.

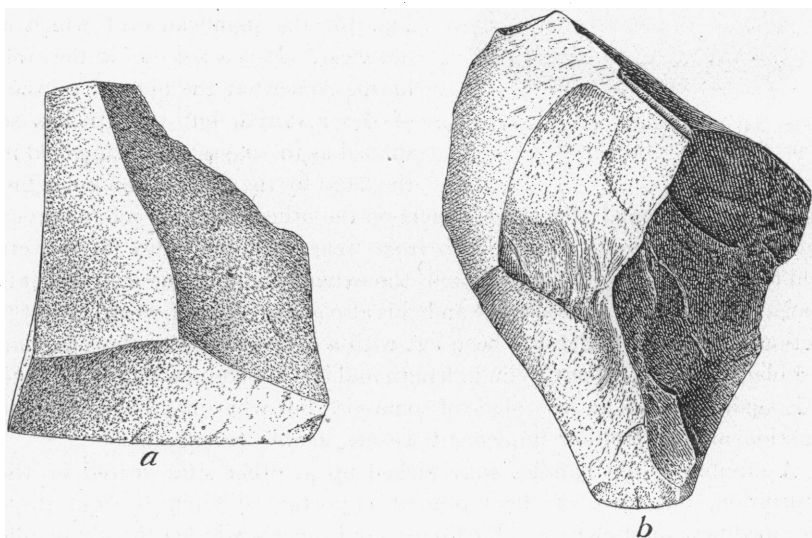


Fig. 13 (60.1-4402d-e). Chipped Stones: *a*, Slate; *b*, Diabase. Length of *a*, 6 cm.

in the shape of the slot. It is not clear, therefore, what may be the relation between these evidences of iron-bladed ulus and the more primitive stone ulus just described. Of course, several explanations suggest themselves. As for instance, the mere accidental use of stone implements in case of need and again that they are some of the last survivals of the period in which all such knives were stone. These, however, are purely speculative.

A curious type of handle is shown in Fig. 16c. The specimen is in a very fragile condition, but it seems to have had a blade inserted in a groove at its lower edge, suggesting a ulu. On the other hand, the purpose of the extension to the handle is not quite clear.

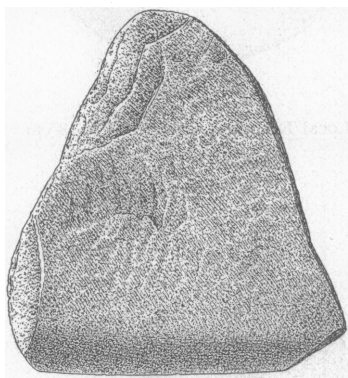


Fig. 14 (60.1-4402c). Part of Ulu Blade, Slate. Length, 6.5 cm.

There is a suspicion of a groove in the end of this extension, but as to that we cannot be certain. There is a small wooden object (Fig. 16b) which reminds one of certain modern ulu handles. Though the object here is but a toy, nevertheless it must be taken as positive evidence that the conception of this type of ulu handle was in the mind of the maker.

Finally, we have a singular haft in Fig. 15c the significance of which is not clear. It is a piece of antler, following somewhat the natural contour of the material, but nevertheless so shaped as to suggest its being held in the hand by the thumb and index finger on one side and the three fingers on the other. The peculiar curved notch in the end shows a high polish from wear, as if the index finger were held there in use. On the other hand, the extended end of the instrument is sharpened almost to a chisel edge and this also shows signs of wear. A large section of the lower edge has been cut with a deep groove for the insertion of a blade. This is about 8 cm. in length and has an average width of 3 mm. This again suggests an iron blade of some sort, but what may have been the function of this peculiar implement we are unable to suggest.

A number of ulu handles were picked up at other sites visited by the Expedition, but none of them present important differences from those described here or elsewhere. We do miss in Comer's Midden the ulu handle made of two pieces, a form described by Boas from Southampton Island¹

¹ Boas, *ibid.*, 430, Fig. 231; also Kroeber, A. L., "The Eskimo of Smith Sound" (*Bulletin, American Museum of Natural History*, vol. 12, art. 21, 1900), Fig. 28.

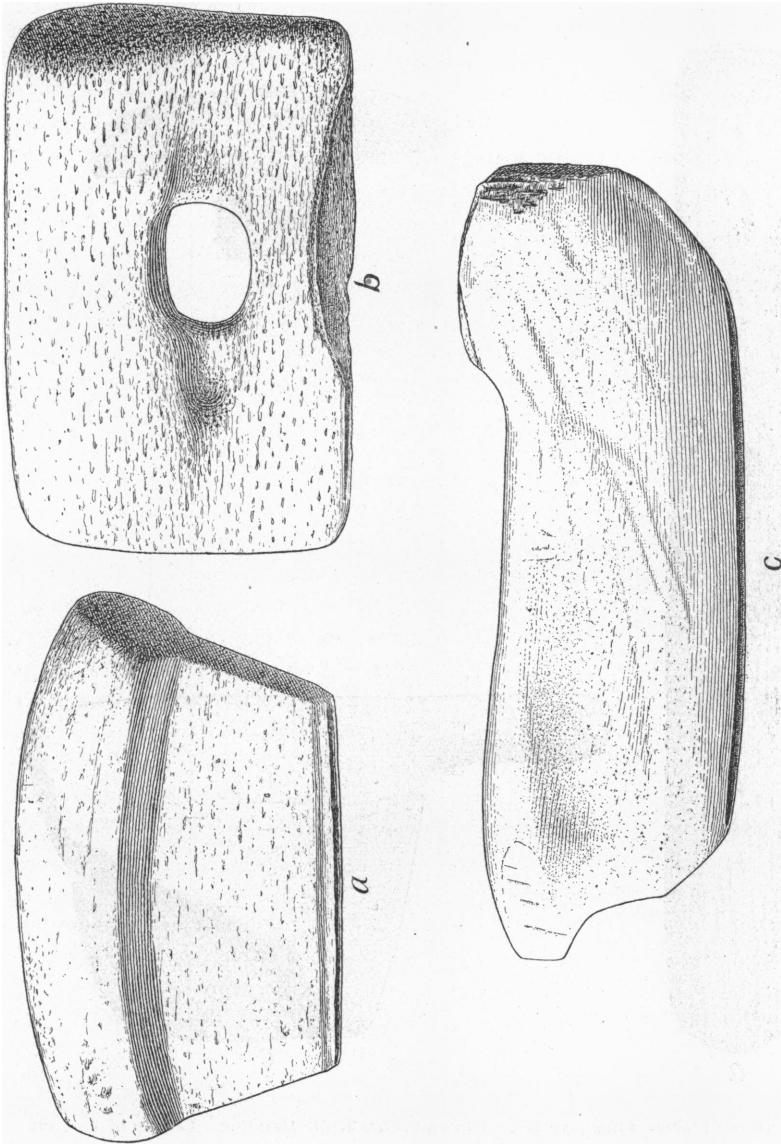


Fig. 15 (60.1-4405a-c). Ulu Handles. Length of a, 9 cm.

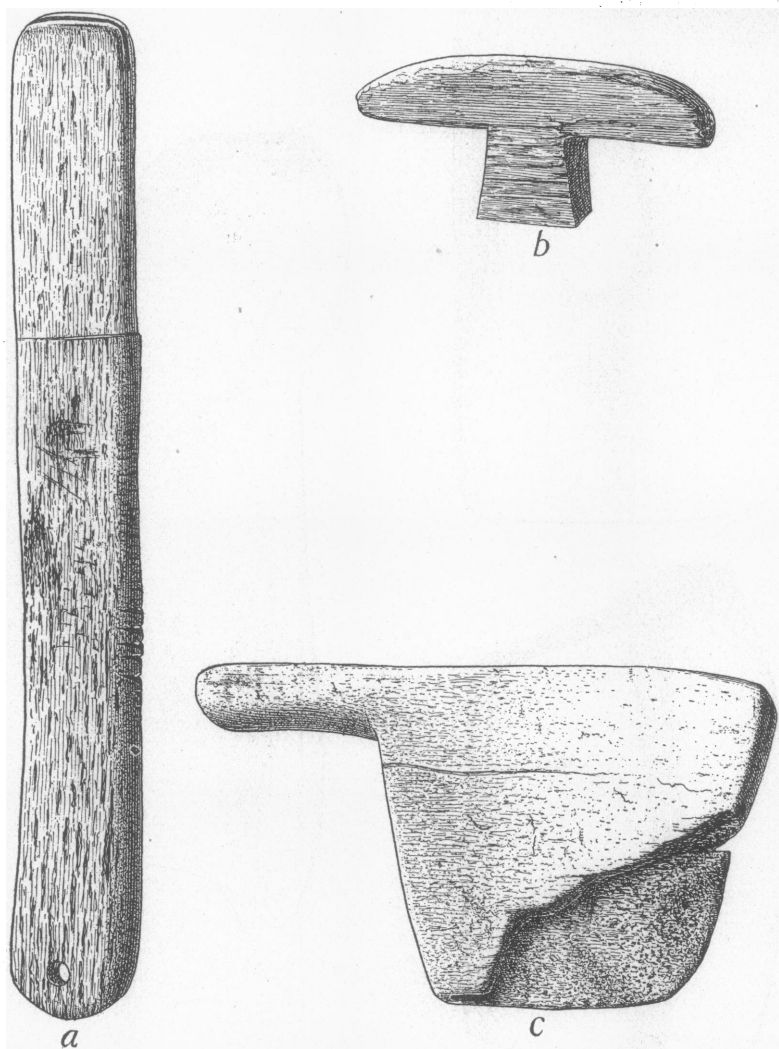


Fig. 16 (60.1-4480, 4405d, 4405e). Ulu and other Knife Handles. Length of *a*, 17 cm.

in which the heavy ridged handle, as in our Fig. 15a, is a separate piece and attached to the lower more slender shaft by thongs. Parts of such specimens were found at several sites in the vicinity of Etah, and at Parker Snow Bay, but none, as stated before, were found in Comer's Midden.

We frequently see in Eskimo collections a type of woman's knife figured by Porsild¹ which has a metal blade with a long narrow tang to the top of which is attached a cylindrical piece of ivory or bone. No such pieces of ivory or bone were found in any of our sites. However, there are some modern examples of metal knives picked up from the surface having such handles. One may suspect, therefore, that this type is particularly recent in West Greenland.

WHETSTONES.

Two pieces of sandstone regularly cut and rectangular in cross-section were found. Both had rubbed surfaces as if used for whetting metal tools.

SPOKE SHAVES.

From Comer's Midden we have one specimen (60.1-4409) which may be characterized as a spoke shave. What we have, as in other cases, is simply a haft minus the blade. This piece is of antler about 12 cm. in length and slightly curved. In the middle of one edge is a very narrow slot about 3 cm. long, presumably for a metal blade. This object is particularly well-preserved and comes apparently from the surface.

SNOW KNIVES.

Comer's Midden returned a large series of snow knives, though most of them are broken. Such knives have been thoroughly discussed by Thomsen.² It appears from this discussion that such knives have not heretofore been returned from West Greenland, though since they occur around Hudson Bay and Cumberland Sound as well as in East Greenland, their present appearance in Northwest Greenland was to be expected. All those from Comer's Midden seem to be of a slightly different type from those found in

¹ Porsild, Morten P., "Studies on the Material Culture of the Eskimo in West Greenland" (*Meddelelser om Grønland*, vol. 51, Copenhagen, 1915), 212, Fig. 47.

² Thomsen, *ibid.*, 421-424.

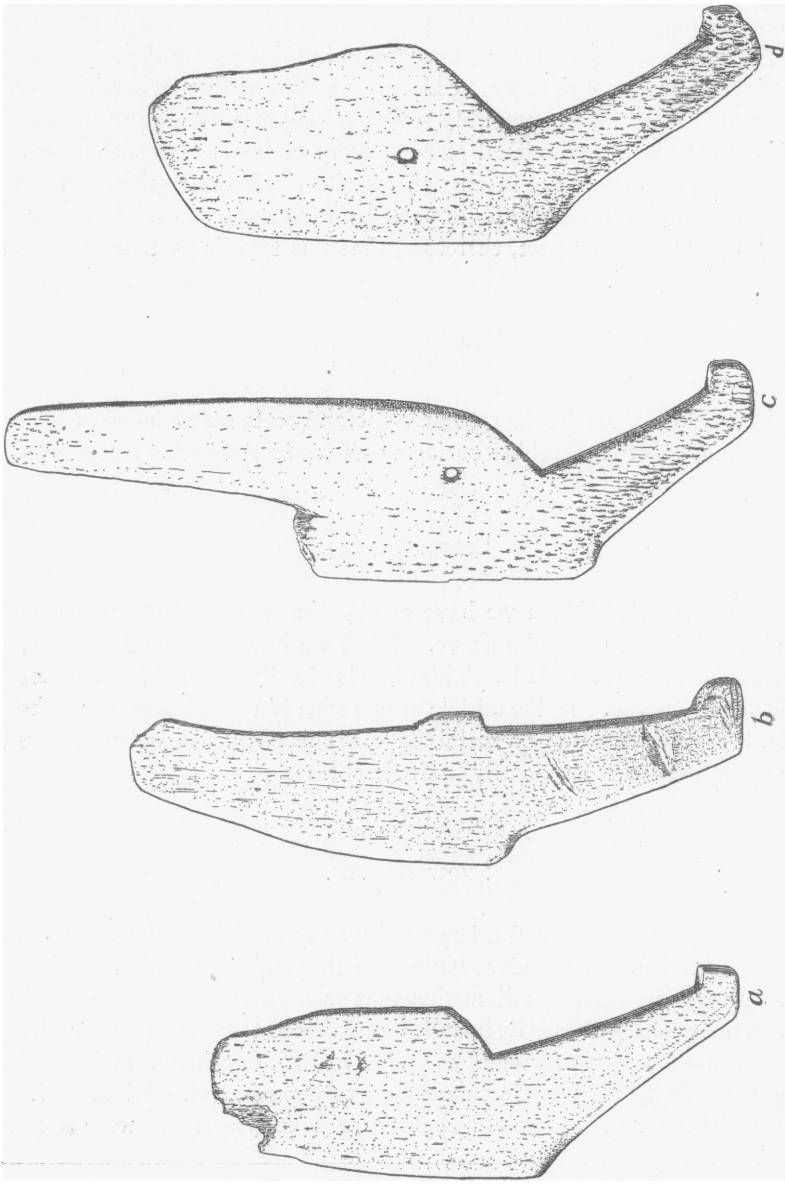


Fig. 17 (60.1-4403a-d). Snow Knives. Length of a, 18.5 cm.

East Greenland. The difference is chiefly in the prominence of the upper shoulder or guard which is a notch similar to the lower shoulder in East Greenland snow knives, but, as will be seen from the illustration of specimens from Comer's Midden, the upper part is usually formed by a sharp curve in the handle. Two of the knives, however, as in Fig. 18a, have a small prominence on the back to serve as a guard. Yet, with these slight

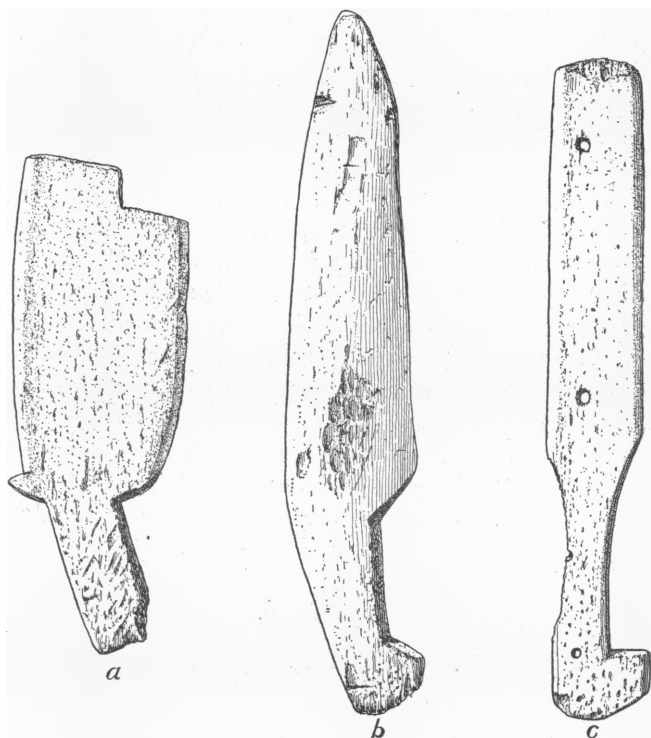


Fig. 18 (60.1-4403e-g). Snow Knives. Length of a, 18 cm.

variations, we have in Comer's Midden both types of knives described by Thomsen as characteristic of East Greenland. As previously stated, fragments of such knives were more frequent in Comer's Midden than any other object. The fragments consisted of knobbed ends of handles, slivers and pieces of blades. All are of bone and some show exceedingly fine workmanship. There are a few fragments of bone blades so nicely made and with such keen edges that their mere use for snow knives may be questioned.

But since they are of the same material and since no other handles were found which seem to fit them, we may assume that they are parts of blades for knives of similar shape, if not actually parts of snow knives.

As stated by Thomsen a simple straight knife of ivory is frequently used as an ice scraper for kayaks, both in Greenland and elsewhere. No ivory knives were found in Comer's Midden, for, as stated elsewhere, ivory was exceedingly rare, but part of a bone knife was recovered which suggests this form (Fig. 18c). That the prevailing type of snow knife was not peculiar to Comer's Midden was indicated by a precisely similar specimen from another site on North Star Bay. Again, from the sites at Etah we have several good examples of such knives. So far as their completeness permits, these are of the type of Fig. 17. All are of bone and greatly weathered, as if of considerable age. Of more frequent occurrence at the Etah sites is another type made of ivory, bone, and antler. This is long, slender, and sword-shaped.¹ All are new, showing little or no weathering. This type does not appear in Comer's Midden, though there is a single fragment of antler suggesting such a blade. However, this being the only possible example as opposed to the great number of the other type, the above noted difference still stands.

It seems, therefore, that the type of snow knife from Comer's Midden has slight individualities of its own, but is otherwise strictly comparable to those from East Greenland and Hudson Bay. Hence, they belong to the older substratum of Eskimo culture and presumably to the earliest period of occupation of Comer's Midden and the Smith Sound district generally, being contemporaneous with the old type of iron-bladed knife previously described.

THE ADZE.

It is now clear that we are justified in assuming that the site known as Comer's Midden was occupied as early as any yet known in Northwest Greenland. Hence, a full description of the collection made by Captain Comer is necessary. Unless otherwise stated, all the succeeding references to specimens will be from that site.

First, we may note that five adze heads were secured, three of which are shown here (Fig. 19). Those figured have rather large sockets suggesting stone blades, but there is another that must have carried a thin metal blade. As may be inferred from previous statements, no pieces of stone suitable for these hafts were found, but there is nothing in the forms of the figured specimens to preclude the use of such stone blades. The forms of these adze hafts are quite uniform with those of East Greenland and again with those

¹ Kroeber, *ibid.*, Fig. 2.

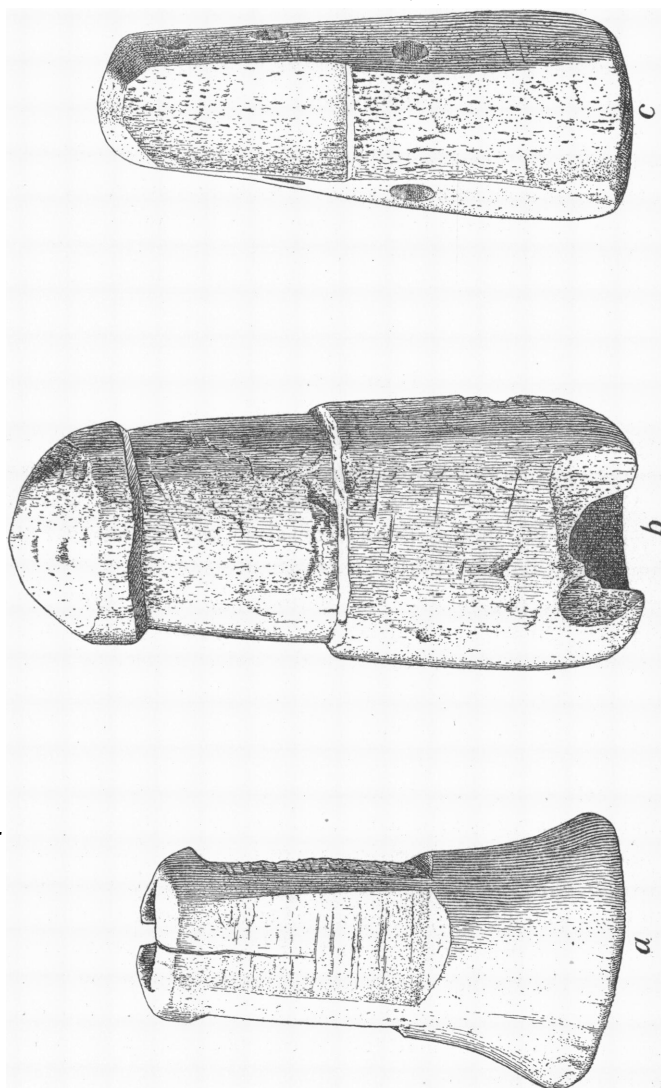


Fig. 19 (60.1-4392a-c). Adze Heads. Length of a, 8 cm.

of Alaska.¹ Fig. 19c has three lateral holes for the binding cords and Fig. 19a reminds one of Solberg's type.² Fig. 19c is also precisely like a Baffin Land piece.³

No adze heads were found at the other sites visited.

ICE PICKS.

To the butt end of a harpoon or lance shaft is usually attached a sharpened piece of bone or antler for breaking ice when necessary. A number of these were collected. All were joined to the shaft by a plain bevelled splice and two had holes through them as if for securing by lines. Similar objects have been noted for East Greenland and in fact all the Eskimo.⁴

HAMMERS.

From many of the sites about Etah we have hammers made of antler, all in one piece, the hammer head being a large shaft and the handle a section of a tine. All of these show very little weathering and are therefore presumably recent. Now, though there is an abundance of worked antler in the collections from Comer's Midden, there are no examples of such hammers either complete or in fragments. On the other hand, we have the object shown in Fig. 20a, the ends of which show indications of use as a pounder. Its most interesting feature, however, is the series of perforations. From front to back is a large one measuring 6 cm. at the back and 4 cm. at the front in vertical section. Horizontally, it varies from 2 cm. at the back to one cm. at the front. From the size of this opening we assume that a handle was inserted. From the dimensions given it will be seen that the handle would have a wedge-shaped end similar to hafts used in our own tools. In addition to this perforation, there is a small lateral one passing from side to side through the middle of the larger. This has been formed by two drill holes, side by side, giving a perforation about 15 mm. by 8 mm. If we are correct in our assumption that a handle was inserted in the large perforation, then the smaller one is for the insertion of a pin or a lashing of some kind to hold the head of the hammer to its handle. While this may be an entirely erroneous interpretation of the specimen, its form, markings, etc., certainly suggest such use.

¹ Thalbitzer, William, "Ethnological Description of the Amdrup Collection from East Greenland" (*Meddelelser om Grønland*, vol. 28, Copenhagen, 1909), 448.

² Solberg, *ibid.*, Plate 7.

³ Boas, *ibid.*, 381, Fig. 175a.

⁴ Thomsen, *ibid.*, 393.

MATTOCKS.

A conspicuous object in the collection is the large heavy bone mattock with notched edges for lashing to a handle, a type familiar in collections from

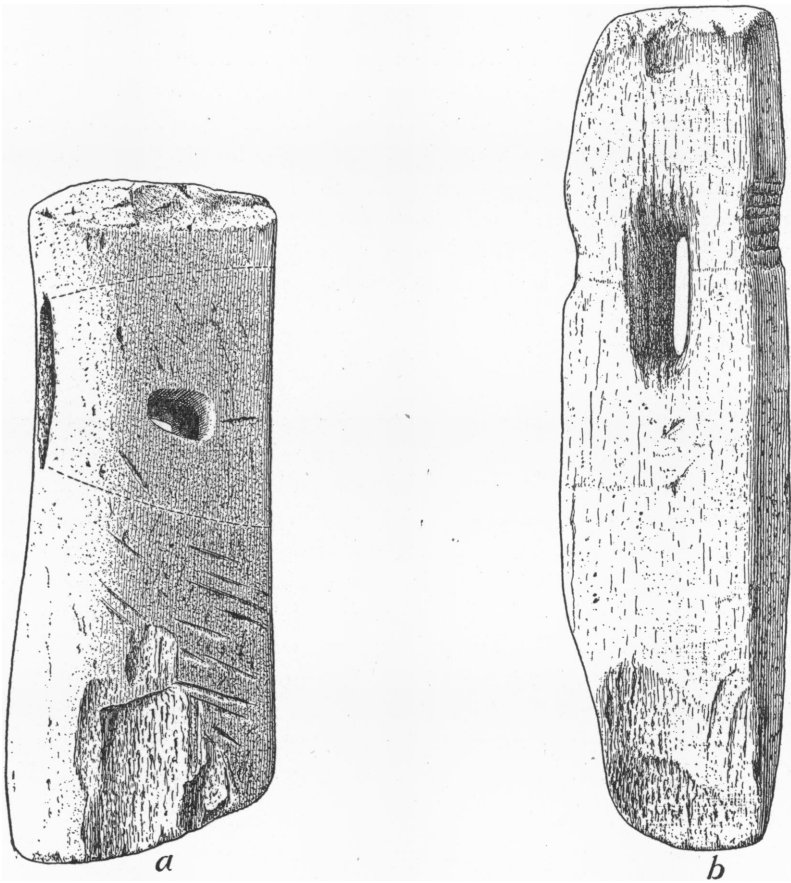


Fig. 20 (60.1-4393, 4395). A Maul Head and a Mattock. Length of *a*, 15 cm.

Hudson Bay and Alaska. All of the specimens found here are precisely similar to those from the older sites in Southampton Island figured by Boas.¹ Further description is, therefore, unnecessary. Similar mattocks were

¹ Boas, *ibid.*, 416, Fig. 214.

found at several of the sites in the vicinity of Etah. This fact, taken with the general wide distribution of this type to the west, indicates that it is one of the old and fundamental traits of Eskimo culture.

There are, however, three pieces in the collection resembling the mattocks just described, except that they are shorter and bear, near the hafted end, a perforation large enough to take a handle. One of these is shown in Fig. 20b. As may be seen from the drawing there are two slight notches on each side opposite the perforation, as if for lashing. In fact, there is a slight groove on the surface of the specimen passing from these notches into the perforation and out, precisely like one should expect from the long wear of the lashing. The manner of attaching this mattock or ax blade, as the case may be, is not clear. The form of the perforation leads one to doubt that the handle was inserted according to the European method while the tracings of lashing suggest that the perforation is merely for the sake of inserting the binding elements. However, this does not dispose of the case, which must be set down as one of the problems of the future.

SLEDGES.

We find in the collection one cross tree for a sledge, similar to specimens figured by Boas,¹ and several fragments of bone sled shoes. One of these is more than 40 cm. in length. All have the usual holes for attaching and one piece contains a number of wooden pegs still in place. The form, manner of drilling, etc., in these shoes does not differ from that described for Greenland sledges.² The materials in this case are bone. No ivory shoes were found in contrast to the collections from the other sites. Practically every site in the vicinity of Etah returned ivory sled shoes. These are of different pattern, varying from ten to twenty centimeters in length and joined one to the other by a pair of countersunk holes. All seem to be of recent manufacture. The inference is, therefore, that the type of sled used by the people of Comer's Midden, is the older West Greenland type, also found in East Greenland.

TOGGLES.

Toggles of the type used in dog harness were fairly numerous. The older, more weathered, specimens were of bone; the newer looking ones of ivory. There is nothing about them that is distinctive.

No swivels were observed such as are found around Hudson Bay.

¹ Boas, Franz, "The Eskimo of Baffin Land and Hudson Bay" (*Bulletin, American Museum of Natural History*, vol. 15, part 1, 1901), 38, Fig. 47.

² Thomsen, *ibid.*, 412-417.

KAYAKS

No parts of kayak frames or paddles were found, but there are a number of bone objects which seem to have served as paddle tips. Fig. 21 may be taken as the type. They vary in size from 8 to $1\frac{1}{2}$ cm. Several, including the smallest one, contained fragments of the wood to which they were

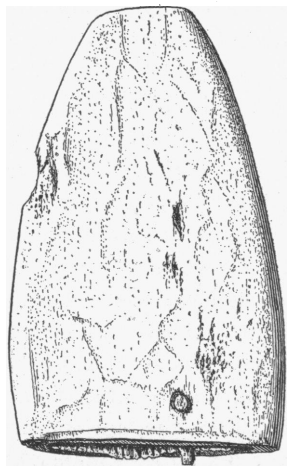


Fig. 21 (60.1-4407). Tip for a Kayak Paddle. Length of *a*, 8 cm.

attached. Thalbitzer,¹ illustrates the "model of an old-fashioned kayak paddle" which bears tips similar to the above. No such objects were found at the other sites.

BOWS AND ARROWS.

No indications of bows were observed, except one doubtful fragment of bone which resembles a part of one of the plates in a compound bow. On the other hand, arrows are in evidence. First, as to arrow-heads, it may be stated that no metal or stone heads were found, nor do any of the foreshafts show signs of having carried such points. All of the heads found are of antler or bone and complete in themselves. All have pointed tangs for insertion in the shaft bearing lateral spurs in pairs, but not placed opposite each other. As stated by Porsild and others, arrow-heads of this type from

¹ Thalbitzer, *Amassalik Eskimo*, 386, Fig. 91.

West and South Greenland often bear threads for screwing into the shaft. The Danish school of ethnologists have assumed that the lateral spurs occurring on the other specimens found in Greenland are rudiments of this same screw thread. It seems, however, more likely that the screw thread is a modern innovation suggested probably by European models, while since we find the spurs distributed entirely across the continent to Alaska we may assume this to be the older form and that it is not necessarily related to the threaded tang.¹

As to form, the bone heads from this collection resemble the two main Greenland types as enumerated by Thomsen² one with a long oval blade, the other with a single barb at one side. Though on Greenland heads of this character there are often several barbs, all the specimens from this site have but one. No indications of property marks, such as are numerous on Western Eskimo specimens, came to notice. There were, however, one or two slight attempts at decoration by incised lines.

Blunt heads for bird arrows were rather numerous, made both of wood and bone. Some were rather large and heavy. Since in almost every case the tangs or other attachments have been broken away, it is not clear how they were fastened to the shaft. There is, however, one complete specimen which indicates that the method was by splicing, a trait quite characteristic of Hudson Bay. This point is of some interest since when the Smith Sound Eskimo were met by Ross in 1818, the bow and arrow were absent, but are known to have been introduced later by Cumberland Sound Eskimo whence their use was common for a short period. According to Thomsen, all the arrow-heads of this period were joined to the shaft by the oblique form of splicing, which is, of course, the method employed by the Eskimo of Cumberland Sound and Hudson Bay.

It is interesting to note that our collections from the vicinity of Etah contain few arrow-heads and such as there are have been spliced in the above manner. One may infer, therefore, that they belong to this period of recent contact with the Western Eskimo. Hence, the arrow-heads from Comer's Midden and North Star Bay belong to a period when such implements were in use in Northwest Greenland. Further, since something of the same kind occurs in the old collections from Northeast Greenland and it is the form of arrow-head distributed from Hudson Bay to Alaska, and is also not entirely absent from collections around Hudson Bay and Cumberland Sound, we must consider its presence in Comer's Midden an indication

¹ Porsild, Morten P., "The Principle of the Screw in the Technique of the Eskimo" (*American Anthropologist*, N. S. vol. 17, no. 1, 1915); Laufer, Berthold, "The Eskimo Screw as a Culture-Historical Problem" (*American Anthropologist*, N. S., vol. 17, no. 2, 1915).

² Thomsen, *ibid.*, 404-405.

that the people occupying this site belonged to the older period of Greenland history.

In this connection it may be noted that there is one bone head for a metal blade which has the form of a figure in Thalbitzer.¹ It is very large for an arrow as is the one cited above.

BIRD AND FISH SPEARS.

A number of barbed pieces of various sizes, made of bone and antler, such as are used on bird spears and fish spears, were found. There is nothing about them that differs in any particular from those already described for Greenland and elsewhere. There are, however, two kinds of objects in the collection, all made of wood, which suggest a use as barbs for some kind of spear, but which we have not yet been able to identify. One of these is shown in Fig. 22. Precisely similar specimens were picked up at various places on the shore of North Star Bay and others from old house sites near Etah. They average about 6 cm. in length. In each case a portion of the base has been mortised out so as to form a shoulder, apparently for some kind of mounting. The remainder is notched as if for a binding cord. No objects of this kind have come to our attention, but they remind us of objects figured by Boas² which though of bone are of approximately the same size and of somewhat the same form. Professor Boas was unable to find any explanation for these, but Waterman³ found in a later collection from old house sites at Lyons Inlet, Hudson Bay, made by Comer in 1910, the mountings for these barbs, suggesting that they were in fact barbs for fish spears. As such, they differ radically from the barbs upon fish spears found in collections from living Eskimo. The method of attaching the object in Fig. 22 differs somewhat from that employed for the bone and ivory barbs noted by Waterman, but this may be due to the fact that they are of wood. Anyway, it seems certain that the wooden objects we have noted are similar barbs for fish spears. A number of the sites near Etah returned fragments of fish spear heads in which the barb was thrust through the side strip



Fig. 22 (60.1-4406a). Wooden Barb for a Fish Spear. Length, 5.5 cm.

¹ Thalbitzer, *Meddelelser om Grønland*, vol. 28, 366.

² Boas, part 2, 391, Fig. 185.

³ This series, vol. 4, part 2, 301.

precisely as observed upon spears in collections from the living Eskimo. No such parts were found in the midden where the above-noted wooden barbs appeared, nor did they occur in other sites yielding this same wooden barb. All this is consistent with the view that the specimens figured are barbs for fish spears.

The second problematical object, numerous examples of which were found in Comer's Midden and occasional examples at other sites near Etah,

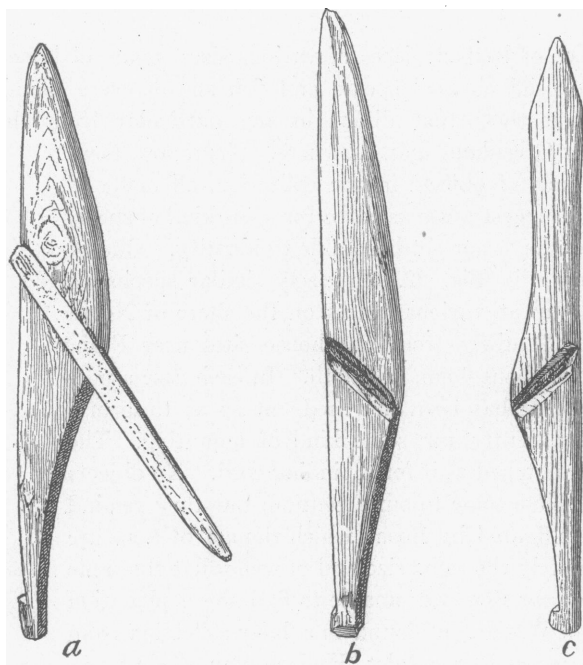


Fig. 23 (60.1-6691, 4406b, 4406c). Gull Hooks. *a*, Hudson Bay; *b* and *c*, Comer's Midden. Length of *a*, 10.5 cm.

is shown in Fig. 23b. They average about 12 cm. in length and are, without exception, made of wood. They are rather flat, though sometimes approaching a circular cross-section, and obliquely across the widest part is a groove of considerable depth. The tapering end is usually provided with a knob or, in some cases a kind of spur, while the opposite end is brought to a blunt point.

The only objects suggesting these are figured by Thomsen¹ as prongs

¹ Thomsen, Plate 17.

for fish spears. From the measurements given, they are slightly longer than the objects here described, though nothing is said of the oblique groove across their body. Otherwise, they have the form and character of the objects we are considering. Thomsen regards his specimens as peculiar since there have not come to his knowledge any prongs for fish or other spears that were made of wood. We hesitate to base any conclusion upon the peculiar resemblance between these objects from East Greenland and from Northwest Greenland, but if it should turn out that they had a similar use, we shall have one of the most suggestive parallels yet brought to notice.

On the other hand, Captain Comer took from a house ruin south of Wager River, west of Hudson Bay, the object shown in Fig. 23a. This one had a bone barb in the groove where it fits so snugly that it cannot be pulled out easily. This adds great interest to these objects since there can be no doubt as to the identity of this form with those from North Star Bay.

As to the use of this object, we are in doubt. It has been suggested that it is a fish hook, but Captain Comer was told by natives at Etah that it was an implement for taking gulls. The wood causes the hook to float and, if properly baited, will be gulped by a gull.

Now, though we may be in some doubt as to the function of the two kinds of objects just described, the significance of their distribution is clear. For the second (Fig. 23), we have identity between West Hudson Bay and Northwest Greenland and probable identity with Northeast Greenland. For the first (Fig. 22), we have a close similarity between West Hudson Bay and Northwest Greenland. All are absent in collections from the living Eskimo. The only fish spear reported that suggests the first form of barb, is one from Alaska figured by Nelson.¹ We have then another fine example of widespread identity in the earlier levels of Eskimo culture.

HARPOONS.

There are a large number of harpoon heads in the collection. All are of two general types, those represented by Fig. 24 and the more familiar type of harpoon which differs from the preceding in that the foreshaft rests in a closed socket. It will be noted that in the illustrated specimen the end of the foreshaft rests in an open socket held in place by lashing. A comparison of this type with specimens from old sites in Southampton Island shows a remarkable similarity. There is, however, one point of difference. A

¹ Nelson, E. W., "The Eskimo about Bering Strait" (*Eighteenth Annual Report, Bureau of American Ethnology*, part 1, Washington, 1896), 150, Fig. 42 and Plate 67.

number of Southampton Island specimens have lateral barbs of the original material, a feature also found in some East Greenland and West Greenland harpoon heads. No such barbs are found on any of the heads at Comer's Midden, though a few examples were picked up near Etah. As will be noted in the illustration, the harpoons of the first type fall into two groups, those having a point of bone, or in which the harpoon is made of a single piece, and those having detachable points of slate or metal. As may be inferred from previous statements, no stone or metal points were found; yet, the form of the groove for the point in most of these specimens suggests metal blades. All of the heads of the second type, none of which are figured here, had detachable points, presumably of metal. Their end barbs are of two forms, a single point, as in case of the other type (Fig. 24a) and a double

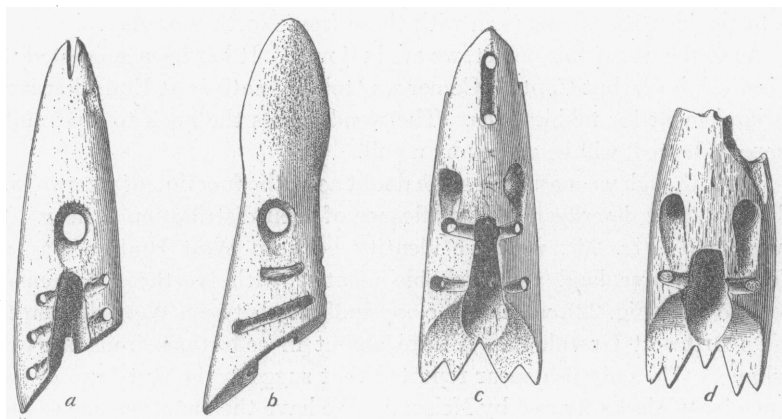


Fig. 24 (60.1-4416, 4430, 4418a-b). Harpoon Heads of Bone. Length of a, 8.2 cm.

or notched point such as is frequent on specimens from Hudson Bay and recent specimens from Smith Sound and elsewhere. For both types the material is almost universally bone. The few ivory heads returned are reasonably new and according to Captain Comer's notes were found near the surface. They are also almost without exception found among those of the second type.

It is generally assumed that the harpoon heads with open sockets, as in Fig. 24, are older than those with closed sockets. One reason for this inference is that this type prevails in the old sites at Southampton Island. This form is not conspicuous in collections from other parts of Greenland, harpoon heads here being almost exclusively those of the second, or more recent type. Whatever else this may signify, it is consistent with the assumption

that the lower levels of Comer's Midden are contemporaneous with the older sites at Southampton Island. Nevertheless, both types of harpoon occur in the Midden with equal frequency, so that it may be inferred that the two types were to some extent contemporaneous; but even in that case it must be assumed that the culture at Comer's Midden is reasonably old or, at least, old enough to show definite survivals of the older antecedent culture.

All of the heads so far considered are of a size to suggest their use for seals or similar animals. There is, however, one fragment of a much larger harpoon head which must have been for whaling. Unfortunately, we have only a portion of a specimen, but from this it appears to belong to our second type, those having a closed socket and a short double-pointed end barb. It differs from whale harpoons from western North America in the shortness, or stubbiness, of the end barbs, but in this respect resembles its companion sealing heads.

A few examples of retrieving points for darts or lances may be noted. These, without exception, are barbed on one side only and in most cases have two line holes. However, their forms are too much like the generalized Eskimo type to warrant a comparative statement.

A number of foreshafts and fragments of the same were observed, but these are of the ordinary type figured in my discussion of the Stefánsson collection.¹ A few sockets for the same were observed. There were no examples of the familiar Greenland type of joint in which a kind of tenon fits into the socket on the shoulder of the shaft. Examples of this were picked up at some of the Etah sites, but in every case lacked weathering and other marks of age. From the nature of the end sockets, we infer that the shafts were of wood, though no pieces of suitable size were recovered. Also the socket piece slipped over the end of the shaft and was not fastened by a tang or oblique splice.

There were no throwing boards. Neither were there any examples of the peculiar hinged harpoon head observed in Greenland collections. Among other missing objects may be mentioned the sealing stool.

LAMPS AND KETTLES.

Though there are many fragments of steatite vessels, these are not sufficiently complete to give us an idea of the original form. There is, however, a miniature lamp which is of the precise Smith Sound pattern as described by Boas.² Yet, the most interesting feature is a large stone slab

¹ This series, vol. 14, part 2, 428, Fig. 44.

² Boas, part 2, 440-441.

with ridges of cement around the edges, suggesting a lamp of the Southampton Island type. The shape of this piece also suggests the Southampton Island lamps. We may therefore, feel reasonably certain that this same type of built up lamp was known to the inhabitants of Comer's Midden. As to the type of kettle, we are not clear, though the fragments would indicate round or oval forms.

HOUSEHOLD UTENSILS.

Under this head are several fragments of small horn spoons, portions of wooden spoons, and fragments of vessels of wood. Unfortunately, the wooden objects are too fragile to make their forms clear.

There is also an example of the coopered tub, or vessel, represented by two incomplete staves. The groove for the bottom is intact and carries one or two wooden pins with which the attachment was made. There are also a number of bottoms for similar vessels in more or less complete condition, indicating that such tubs were circular in cross-section. Objects of this kind have been described both for West and East Greenland so that no further comment is necessary.

MISCELLANEOUS OBJECTS.

Among the many other objects deserving notice are numerous rims of drums or buckets, highly perforated by small drill holes. These are particularly numerous in the collections from Etah.

There are something over fifty pieces of worked wood. Most of these are mere fragments or discarded pieces, but among them we find a number of human figures of the usual conventional form. A few similar figures of ivory were found on the surface of the Midden. So far as can be observed, there is nothing in their characteristics to differentiate them from other Eskimo carvings in Greenland.

There are a few examples of drum handles and one possible fragment belonging to a cup-and-ball game.

Among the highly problematical objects are a few curious bracket-like forms of a size sufficient to hold a harpoon or lance shaft, but as we have seen nothing like these in any other collections and the ones observed seem to be unfinished objects, no further comment is necessary.

WORK IN WHALEBONE.

This completes the description of the most important objects in Comer's Midden with the exception of examples of work in whalebone. These are strikingly numerous and deserve to be described in some detail. For one thing, we have many fragments of notched and looped strands of whalebone, suggesting nets. As to the use of a whalebone net for seals or other game in West Greenland, we have no very definite knowledge. Thalbitzer and Porsild, however, are responsible for the statement that nets of whalebone were formerly in use in Greenland. It is certain that none have been used for many years. Of course, we cannot be sure that these fragments are parts of nets, but the manner of the knots makes it strongly probable. Another interesting object is what seems to be a drying rack formed by bending strands of whalebone and tying as shown in Fig. 25. Several examples of this were dug up.

There is one large piece of whalebone the size and shape of a sled shoe and perforated in a similar manner. Whether this is a correct interpretation of its use we cannot say.

Fig. 27 is a large knife-like object 42 cm. in length. According to Murdoch, the natives of Alaska have used whalebone for knives. Since the material will take a keen edge it may be inferred that the object shown here was used as a knife.

Fig. 28 is peculiar in that it has a perforation near the larger end. It is also notched as if for wrapping. As to its use, we have no conjecture.

Fig. 29 is evidently a toggle. Figs. 26a and 26c, are of unknown use. Among the many other objects may be mentioned two top disks, a carving representing a fish, part of a knife similar to the figured specimen and a nail, or skewer-like object, reminding one of the ivory pins used for closing wounds in seals. Lastly, in Fig. 26b we have a handle of an implement, probably a knife, which seems to have been made in imitation of an animal head.

Judging by the meager accounts of work in whalebone, this collection is somewhat unique. There was a great deal more in such a fragmentary condition that it could not be recovered. According to Captain Comer's observation, the greater part came from the lowest levels of the deposit, presumably belonging to the earliest period of occupation at this particular site. All of the pieces in the collection are greatly frayed and shredded, making it very difficult to do more than determine their general outlines; nevertheless, what remains shows great technical skill as, in fact, do all the objects from this deposit.

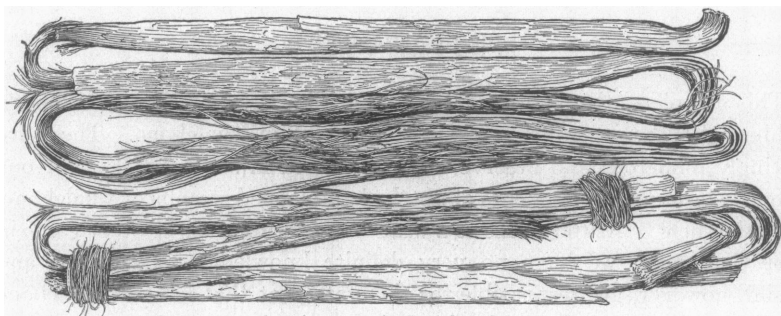


Fig. 25 (60.1-4445). Fragment of Whalebone Mat or Drying Rack. Length, 24 cm.

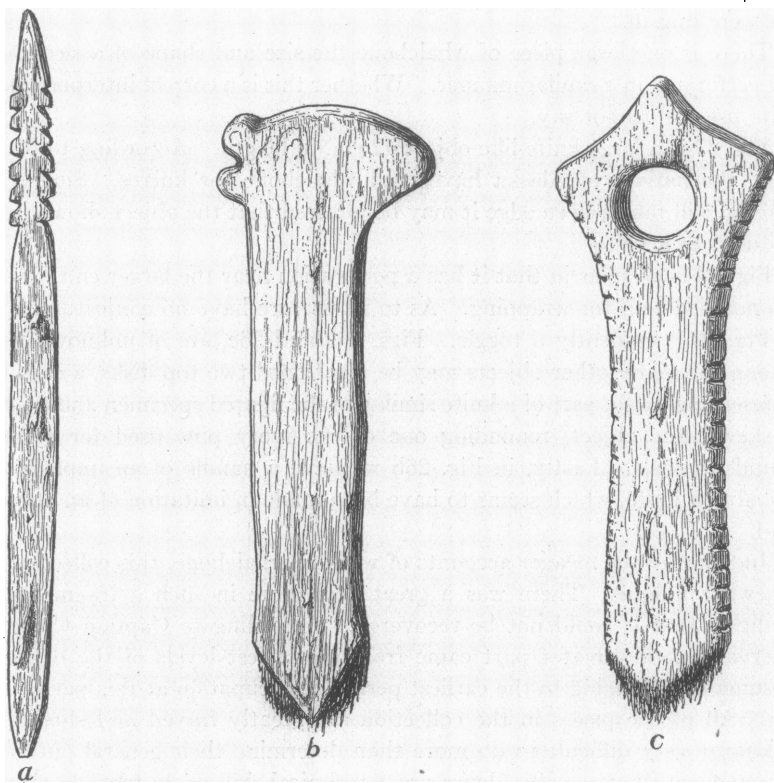


Fig. 26 (60.1-4401, 4455, 4437). Objects of Whalebone. Length of *a*, 13.5 cm.



Fig. 27.



Fig. 28.

Fig. 27 (60.1-4440). A Knife of Whalebone. Length, 42 cm.

Fig. 28 (60.1-4441). Unidentified Object of Whalebone. Length, 61 cm.

A few examples of whalebone were collected near Etah, the most conspicuous being an implement handle larger than, but otherwise similar to Fig. 26b.

As noted before, a large percentage of the objects from Comer's site are made of whalebone; this prominence of whalebone artifacts in contrast with the rarity of ivory, suggests that whaling was an important feature of the old Eskimo culture at North Star Bay.

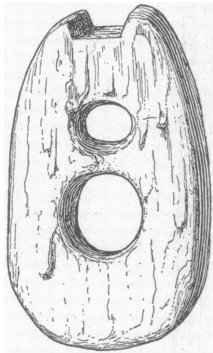


Fig. 29.

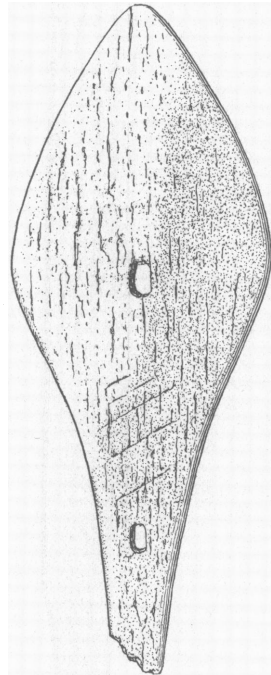


Fig. 30.

Fig. 29 (60.1-4456). Toggle of Whalebone. Length, 4 cm.
Fig. 30 (60.1-5092). A Lance Head. Length, 17.5 cm.

STONE AND BONE POINTS WANTING.

When we consider the time and care given to the search for sites and the number examined, it is difficult to escape the conviction that in their totality they present about all that is to be expected in future exploration. Hence, the rarity of stone and bone points indicates a metal culture contemporaneous with the period of occupation. Yet, this does not agree with

the evidence for a stone age around Disko Bay and southward. If the above conclusion stands, then we must assume that the Eskimo occupation of North Star Bay and the Etah district was relatively recent. We have searched all parts of the collection carefully for even the merest fragments of bone points. The only ones in evidence are a few one-piece harpoon heads with points of the original material. The only example of what may be considered a bone lance or spear head is Fig. 30 from near Etah, and this is of such unusual form that its significance is not clear.¹

DECORATED OBJECTS.

Ornamentation by incision or perforation was conspicuously absent in the midden. In fact, it is rare in all the collections since but three such

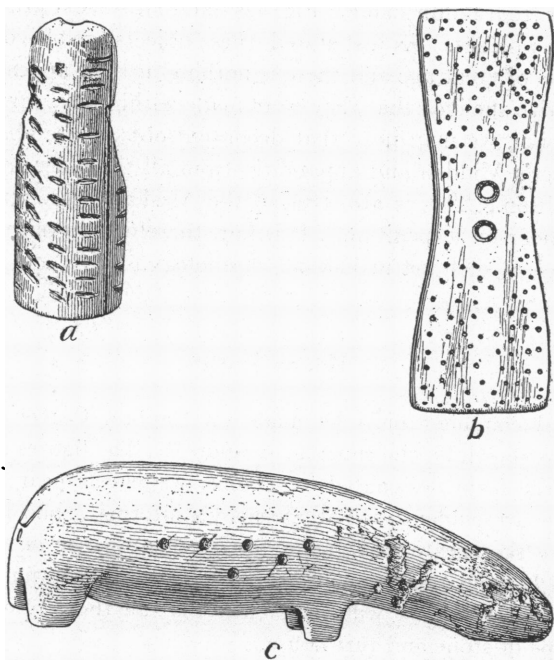


Fig. 31 (60.1-4675, 4678, 4701). Decorated Ivory Carvings, Etah. Length of *a*, 32 cm.

¹ As to the finding of this specimen Mr. MacMillan writes as follows:— It was found at an old igloo at Etah. All the old men agreed that it was a killing iron used in the capture of seal and walrus before the advent of iron.

objects were returned and these are of doubtful age. As previously stated, there are some examples of carving; from the midden there are eight human figures in wood and one surface piece, of ivory. Of other forms, there are no traces, except some new looking ivory figures, coming from the top of the deposit and a probable fish in whalebone. This, with the embellishment of Fig. 26b, exhausts the list. The other old sites at North Star Bay yielded no examples whatever.

On the other hand, some of the Etah sites gave a fair return in carvings, some in wood, but mostly in ivory. Here animal forms prevail in contrast to the preceding. The finish and technique is equal to that observed in modern collections from the natives of the vicinity. Also, the technique of the few midden carvings is equally high.

Turning now to decorated objects, the three previously mentioned were found in house ruins near Etah (Fig. 31a-c). Figs. *b* and *c* have been embellished by drilling, or dotting. Fig. *b* presents a technique precisely comparable to objects from Baffin Land. Fig. *a* is different since it presents notches in series, in two planes. As just stated, these objects are of ivory and without indications of great age and there is nothing in their appearance that is inconsistent with the idea that they were made within ten years.

In conclusion, we may note that decorated objects are absent from all parts of Comer's Midden and apparently from all the older sites examined by the expedition. This is also true of the Alaskan sites explored by the Stefánsson-Anderson Expedition. It is fair, therefore, to raise the question as to the place of such art in Eskimo chronology.

HOUSE PLANS.

No special comment need be made on Captain Comer's sketches of house plans as shown by the ruins he excavated. The figures give the type. All were of the form designated by Danish writers as pear-shaped. The double houses are evidently what Steensby's informant had in mind when she made the sketches appearing in his excellent paper on the Polar, or Smith Sound Eskimo.¹ A comparison of the other illustrations in this book with these plans of Comer will make clear that all these ruins were of the surviving type of stone and turf house.

Steensby has rather comprehensively reviewed the general distribution of Eskimo house types,² placing the center for the pear-shaped house at

¹ Steensby, H. P., "Contributions to the Ethnology and Anthropogeography of the Polar Eskimos" (*Meddelelser om Grønland*, vol. 34, Copenhagen, 1910), 323.

² Steensby, H. P., "An Anthropogeographical Study of the Origin of Eskimo Culture" (*Meddelelser om Grønland*, vol. 53, Copenhagen, 1916), 187-203.

Smith Sound. Its origin he considers recent, the more primitive and more widely distributed type being circular in groundplan, traces of which he thinks are to be found in Greenland. Comer did note a few such traces, but digging in them brought to light bottle glass and other traces of European trade. In his diary, he interprets these as sites for snowhouses or

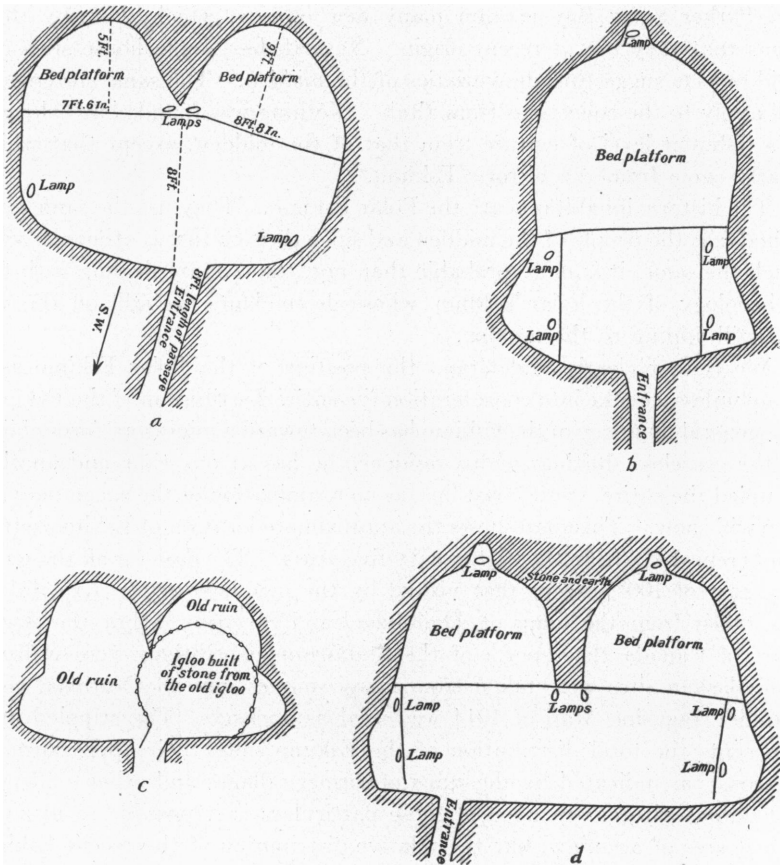


Fig. 32. Groundplans of Old Houses.

mere summer shelters. One or two such structures were found superimposed on ruins of the pear-shaped type. Thus, so far as Comer's observations go, the pear-shaped type is as old as any observed at North Star Bay or Etah. It appears, therefore, that so far as our field data go, this was the type of house at the time of first occupation.

RELATION OF COMER'S MIDDEN TO OTHER SITES.

Though we have continually referred to the finds from other sites, we have so emphasized those from Comer's Midden that a specific statement seems justifiable. The collections from North Star Bay, Saunders Island, and Parker Snow Bay contain many new objects, which show by their forms that they are of recent origin. Nevertheless, some house sites did yield objects suggesting the varieties of the midden. The same statements will apply to the collections from Etah. Nothing was found that belonged to a different level of culture from that of the midden, except that which clearly came from the historic Eskimo.

The historic inhabitants are the Polar Eskimo. They use the same type of house as the people of the midden and since their culture is otherwise very much the same, it is more probable than not, that we are dealing with the archaeology of the Polar Eskimo, whose descendants are still on the site and still adding to the midden.

We cannot clearly understand the position of the Polar Eskimo as a group unless we take into consideration the entire distribution of the Eskimo. The general tendency of the Eskimo has been toward a migratory form of life. In the ceaseless shiftings of his residence he has at one time and another occupied the entire Arctic coast line, as an examination of the accompanying map will show. This map shows the approximate location of Eskimo settlements reported within the past twenty-five years. The data for all the territory east of 100°, except that visited by the members of the Expedition, was taken from the maps of Thalbitzer¹ and Steensby.² For the Arctic coast of Canada the reports of the Stefánsson expeditions were utilized. The Alaskan sites were taken from many sources, but the National Geographic Magazine Map of 1914 was used as a check. The stippled area represents the total distribution of the Eskimo since their appearance on the coast, as indicated by the ruins of former villages and other evidences of Eskimo culture. In none of these particulars is it possible to attain a high degree of accuracy, but the relative distribution of the recent Eskimo population can be safely inferred.

The census of 1910 returned 14,087 Eskimo in Alaska, and the estimated number in Greenland is 11,790. The Canadian estimate is given as 1,300

¹ Thalbitzer, W., "A Phonetical Study of the Eskimo Language, based on Observations made on a Journey in North Greenland 1900-1901" (*Meddelelser om Grønland*, vol. 31, Copenhagen, 1904).

² Steensby, H. P., "An Anthropological Study of the Origin of Eskimo Culture" (*Saertryk af Meddelelser om Grønland*, vol. 53, Copenhagen, 1916).

for Labrador and 3,447 for the coast. Tabulating the population estimates and the number of settlements indicated on the map, we have the following:—

	Number of Settlements	Population
Alaska (1910)	112	14,087
Greenland (1904)	69	11,790
Labrador (1915)	7	1,300
Canada (1915)	81	3,447
Siberia (1907)	12	1,200
Total population		31,824

The settlements do not count as separate villages and camps, but rather as localized groups of villages. They cannot be given with great accuracy, yet their gross distribution is a safe index to the clustering of the population. As the data stand the most compact settlements are in Greenland and Labrador, while the least dense are those of the Canadian coast.

Since the large dots on this map represent the locations of villages and camps in recent years, they give us the approximate extent and density of Eskimo population during the past half century. But this does not give an adequate idea of the territory covered during the whole period of Eskimo occupation. This we have indicated by the stippled coast belt. While we do not maintain that every square mile of this territory was at some time or other lived upon by Eskimo, the reports of travelers make it probable that one cannot travel many miles in any direction within these limits without encountering traces of this culture. The preceding pages show the archaeological richness of the regions occupied by the Polar Eskimo, but this is strictly comparable to the experiences of Danish explorers in all parts of Greenland. Again, in the west, Captain Comer at Hudson Bay and Stefánsson still further west were continually meeting with traces of former inhabitants. That this should be the case is not strange, for the Eskimo must always keep to the coast for winter sealing. His expansion was, therefore, linear only.

The position of the Polar Eskimo is now clearer. While in recent years they stand alone as the most northerly outpost, either their immediate ancestors or some other group occupied successively the whole of the north coast. That their present position represents a great shrinkage of population may be doubted; it is more likely a matter of shifting habitation. But the whole of Greenland is marginal and so seems most likely to have received its Eskimo population but recently.

The most acceptable theory of Eskimo origin is that they expanded from a parent group in the Arctic Archipelago.¹ In any case, no great antiquity

¹ Steensby, *Origin of the Eskimo Culture*, 204–218.

can be assigned to their expansion into Greenland. Danish authorities are in general agreement that the occupation of West Greenland did not begin earlier than 1200 A.D. and there is some reason to believe that it was 1400 A.D. before they had a firm footing there. How long the shores of Smith Sound and other parts of Northwest Greenland have been peopled is not known. We now know it to be the home of a small group of Eskimo, first noted by John Ross in 1818. They were then and are now the most northerly settlement, on which account the Danes call them Polar Eskimo. Peary's repeated efforts to reach the Pole from this side brought these people to notice, making them the most widely known of any. Their history and cultural position have been carefully presented by Steensby.¹ At one period of their known career, they seem to have discarded the bow and the kayak, but later took them up again. In culture, they are nearer the Central Eskimo than West or South Greenland; in fact, they are so near the former in contrast to the latter, that we must suspect their recent arrival from the Arctic Archipelago. Yet, the geographical conditions are peculiar, since the Melville Bay district is uninhabitable in winter, thus cutting easy communication between the home of the Polar Eskimo and the northern outpost of the West Greenland Eskimo. This, of itself, might account for the closer parallels with Central culture. It is also one of the reasons for taking the close resemblances to Northeast Greenland culture as indicating a movement around the north shore. It may be then, that we are not justified in assuming the late arrival of Eskimo in Northwest Greenland, but that they retained the typical culture longer because less marginal. Yet, on general grounds, the whole movement into Greenland seems recent, so recent that the appearance of iron in the culture of these Eskimo is not surprising.

GENERAL DISCUSSION.

In summarizing the preceding pages one of the first points to strike the reader is the absence from Comer's Midden of certain well-known objects; for example, needle cases, skin-working tools, bows for drills, nozzles for floats, throwing sticks, blubber pounders, bird bolas, goggles and eye shades, sealing stools, etc. It may be inferred that this indicates their absence in the culture of North Star Bay, but such a conclusion is scarcely warranted since only a small section of the accumulated camp refuse was dug out and furthermore, it is chiefly the unusable fragments of things that we find. Thus, it seems unwise to assume that when a single object is wanting in the

¹ Steensby, *ibid.*, 268 *et seq.*

collection made, its use was unknown to the people in question. Yet, this objection would not apply to the case of ivory as a material, for if ivory was worked at all, slivers and fragments must certainly find their way into the débris in proportion to their relative number, unless it should be that a taboo against casting them out so near the sea operated in this case. Since ivory occurs scarcely at all in the lower parts of the heap and objects usually made of ivory are here made of bone and antler, such a possibility may be disregarded. Yet, except with respect to materials, negative evidence as to the use of specific objects should be disregarded. Again, some of these missing objects do occur at some of the Etah sites as stated under the proper heads. Since there is no evidence that some of these were not contemporaneous with the lowest layers of Comer's site, we may assume their absence at the latter as accidental. In view of these conditions, the important points in this discussion will arise from comparative studies.

In the preceding descriptions of objects found in Comer's Midden appear certain similarities to the older sites at Hudson Bay and again in Northeast Greenland. These similarities also hold, but to a less degree, for many of the sites examined around Etah. The collections made from all sites except Comer's Midden were in the main from old long-abandoned house sites. Naturally, mixed with them is surface material of more recent date, but this can be separated out without much difficulty and we have seen a strong tendency for this older Etah material to parallel the older levels of the stratified site discovered by Captain Comer. We assume, therefore, that all the older sites explored by this expedition are roughly contemporaneous.

As to their age, we must first of all consider the fact that stone tools are conspicuously absent and that signs of metal were in evidence at every turn, though but the faintest traces of iron and copper were met with. Nevertheless, in the older part of Comer's Midden, and even at certain obviously old sites near Etah we find a kind of knife haft, identical in form with the old stone age knife of Southampton Island, yet which must have carried iron blades. Since knives of this form were observed by early visitors to Smith Sound, the metal for which was assumed to be of meteoric origin, we are confronted with the possibility of considerable age. Unfortunately, close stratigraphic studies of Comer's site were not made, but it appears that the knives using iron of this character are from the lowest levels of the deposit. Higher up were those of a more recent type: viz., a long strip of iron set in a groove. The latter belong to the historic period when traders began to supply the Eskimo of Greenland with iron and other objects. As to the age of the former, we can but speculate. Yet, there is no reason for assuming a great interval. For aught we know, all of the sites

examined by the expedition are less than four hundred years old, but in that case some of them must certainly belong to the first century of that period. Naturally, if meteoric iron was in general use this period can be increased by several centuries.

Scandinavian authorities¹ on the Eskimo have carefully considered the significance of these facts. On the whole, they are rather puzzling, for we have on the one hand every indication of a respectable age and extensiveness for this iron culture and on the other, no satisfactory data as to native sources of supply. That some meteoric iron was used is considered certain, but that all of the older tools in the collections described here and similar ones in Scandinavian museums could have been supplied from meteoric sources is difficult to believe. Danish authorities have sought other sources and have put forth claims for telluric iron.² This, if substantiated, would put a new face upon the whole problem, for then there could be no objection to accepting the other consistent evidences of age attached to the sites in question. The use of iron would then be a natural development out of the stone age of Eskimo culture, influenced no doubt by their experience with copper west of Hudson Bay. Yet, Dr. E. O. Hovey, a geologist of the expedition, denies the presence of telluric iron in the Cape York-Smith Sound region, and makes it reasonably certain that the iron first used by the Polar Eskimo was of meteoric origin. He has been kind enough to contribute the following review of the case.

The Use of Meteoric Iron by the Polar Eskimo.—Dr. E. O. Hovey.

The so-called Cape York or Smith Sound tribe of Eskimo were discovered by Captain John Ross, R. N., in 1818 when he made what was practically a pioneer voyage across Melville Bay in quest of the Northwest Passage. He reported that these people whose very existence had not been suspected before except through the vague traditions of the Eskimo of southern Greenland, were using knives and harpoon points edged with bits of iron. Ross gathered from the natives that the metal had been obtained from a locality on the shore of Melville Bay just north of and near Bushnan Island. One of them, Meigack (My-ahq?) by name told him that the iron "was found in the mountain before mentioned; that it was in several large masses, of which one in particular, which was harder than the rest, was a part of the mountain; that the others were in large pieces above ground and not of so hard nature; that they [the people] cut it off with a hard stone, and then beat it flat into pieces of the size of a sixpence, but of an oval shape."³ The locality being some twenty-five miles back on the route which had been traversed, Ross was unable to visit it on account of the demands of his voyage, but he secured some of the knives, one of which, with a

¹ Thalbitzer, 483-492; Thomsen, 430-433; Solberg, 20-21, 54.

² Thalbitzer, 489.

³ John Ross, *A Voyage of Discovery*, 104. London, 1819.

cutting edge about seven inches long, is figured in his book. He surmised that the masses of iron were meteoritic in origin, an opinion which was confirmed by the celebrated English chemist, W. H. Wollaston, to whom the fragments were submitted on the return of the expedition and who determined the presence of nickel in the iron.

Rear Admiral R. E. Peary, U. S. N., states¹ that nearly every expedition since Ross has had for one of its objectives the discovery of the actual source of this iron, but none was successful in its quest. Even Baron N. A. E. Nordenskjöld, the Swedish explorer who collected the great masses of telluric native iron on the island of Disko, Danish Greenland, failed to reach the locality, when he went to Cape York in 1883 for the express purpose of finding the northern Eskimo iron in place. Thus was it left to Peary himself to be the first white man to see the mysterious masses from which the Smith Sound Eskimo got their precious metal from time immemorial, until the frequent visits of whalers and scientific expeditions and, finally, the establishment of the Danish trading station at North Star Bay kept up a supply of manufactured iron in comparative abundance. On 27 May, 1894, R. E. Peary with Hugh J. Lee and two Eskimo guides Tah-lah-ko-te-ahq and Kes-s'oo uncovered the snow from one of the iron masses forming the group of "Cape York" meteorites, and their actuality and true character were revealed. In 1895 Peary revisited the locality with the steamer "Kite" and brought away the two smaller of the three masses then known. He saw the largest of the three masses on this trip but was unable to make any attempt at its removal. He was there again in 1896 with the steamship "Hope," but his apparatus was too weak for the task of moving and loading the great mass and he was obliged to relinquish the task. Again in 1897 the "Hope" took the indefatigable Peary to Meteorite Island and this time he was successful in bringing away the prize. Some years later the three masses, known as Ahnighito, weighing about thirty-seven tons, the Woman about five thousand pounds, and the Dog about nine hundred pounds were acquired by the American Museum of Natural History and placed on public exhibition.

For many years these three masses were supposed to comprise the whole of the Cape York series, but the Eskimo knew of a fourth large mass and in the spring of 1913, Kood-look-tohq led the famous Danish ethnologist Mr. Knud Rasmussen to it. The following year Rasmussen took Mr. W. Elmer Ekblaw, geologist of the Crocker Land Expedition, to inspect and report upon the block, which lies on the mainland back of Bushnan Island about three thousand feet above the sea and about ten miles east of north of the area where the Peary group were found. Mr. Rasmussen has presented the find to the Royal University at Copenhagen and the mass will be secured after the war is over.

Like its fellows, this eight-ton mass was surrounded by bowlders of trap which the Eskimo had brought in the almost forgotten past to use as hammers in breaking off chips and slivers of iron for use in making knives and harpoons. Both Peary and Rasmussen describe the manner in which the Eskimo illustrated to them the process employed by their ancestors in winning the desired metal. Narrow edges or ridges of the masses were laboriously hammered on with the bowlders, until small flakes, about one centimeter in diameter were worked off and secured for insertion in grooves along the edges of bone or ivory implements and weapons. There can be no doubt, judging from these accounts, that the iron formerly in use by the Cape York or Smith Sound tribe was meteoritic in origin. Furthermore it seems highly improbable that

¹ *Northward over the Great Ice*, 554. New York, 1898.

these Polar Eskimo ever knew of or used the telluric native iron of Danish Greenland in making their implements. The tribe was so effectually isolated by the then practically impassable barrier of Melville Bay that its very existence was but dimly legendary among the Eskimo of southern Greenland, while the Polar people themselves thought that they were the only men in the world, prior to the arrival of Ross a century ago.

The Crocker Land Expedition secured from an Eskimo a small iron meteorite which was found near an ancient igloo site at Eskimopolis (Sverdrup's name) at the eastern end of Knud Peninsula, Ellesmere Land, in 1914. This is now in the American Museum awaiting complete description, but certain features that it shows make desirable a brief reference to it here. It is oval in shape, 9.8 cm. by 9.7 cm. by 4.6 cm. in size and it weighs 1660 grams. It has not been cut, etched, or analyzed yet, but the coarse Widmanstaetten lines shown on an etched surface prove that it is meteoric in character. The illustrations given in Fig. 33 show the opposite, nearly flat sides of the little mass, for which the name Ahk-po-hone is proposed. The artificial edges produced by hammering are clearly indicated in the figures.

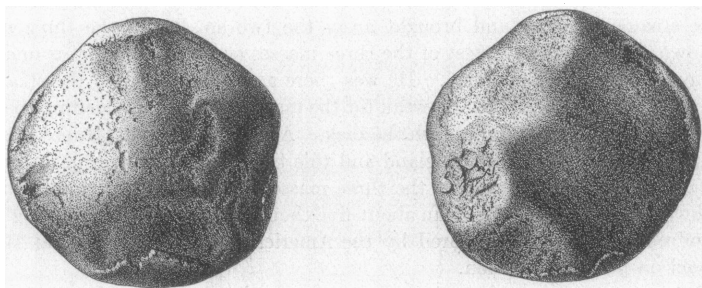


Fig. 33. Ahk-po-hone Meteorite (siderite). Eskimo Igloo Site, Knud Peninsula, Ellesmere Land. Shows effects of ancient pounding, probably for the winning of fragments for use in arming harpoon points, knives, etc. About $\frac{1}{2}$ nat. size.

We see then that the place of iron in Eskimo culture has, if anything, been more clearly defined by the finds of Captain Comer and the investigations of the other members of the Crocker Land Expedition. The problem is one of the most important in Greenland archaeology and calls for further systematic investigation on the ground. We must look to future Danish scholars for its solution.

Aside from this, the present investigation has rather emphasized the parallels formerly observed between old Northeast Greenland sites and those of Northwest Greenland. There are also parallels with older sites at Hudson Bay and westward. Thus, it appears that the archaeological problems of Greenland have taken such definite form that their early solution may be safely predicted. This solution will go a long way in revealing the early history of the Eskimo.



