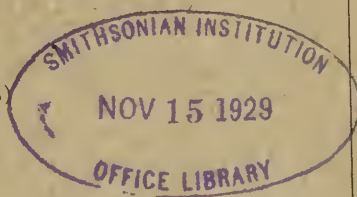


SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 81, NUMBER 14

PREHISTORIC ART OF THE ALASKAN ESKIMO

(WITH 24 PLATES)



BY

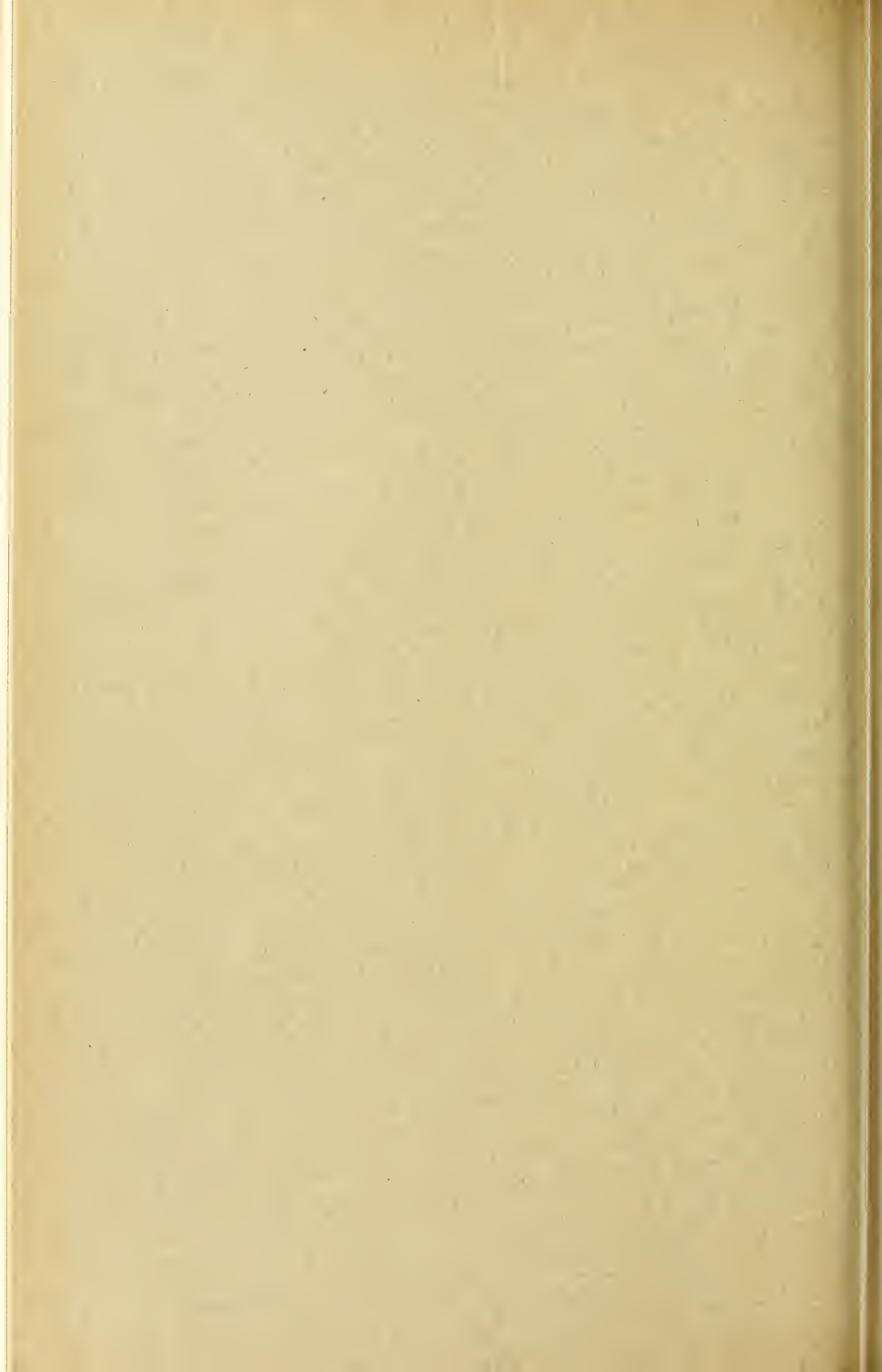
HENRY B. COLLINS, JR.

Assistant Curator, Division of Ethnology, U. S. National Museum



(PUBLICATION 3023)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
NOVEMBER 14, 1929



SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 81, NUMBER 14

PREHISTORIC ART OF THE ALASKAN ESKIMO

(WITH 24 PLATES)

BY

HENRY B. COLLINS, JR.

Assistant Curator, Division of Ethnology, U. S. National Museum



(PUBLICATION 3023)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
NOVEMBER 14, 1929

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

PREHISTORIC ART OF THE ALASKAN ESKIMO

By HENRY B. COLLINS, JR.,

ASSISTANT CURATOR, DIVISION OF ETHNOLOGY, U. S. NATIONAL MUSEUM

(WITH 24 PLATES)

INTRODUCTION

Until very recently information on the archeology of the American Arctic was limited practically to the descriptions by Wissler¹ and Boas² of a relatively small number of specimens collected by Stefansson, Comer, and others from northern Alaska, the Hudson Bay region, and northwest Greenland. The first systematic excavations in the eastern regions were those made in Baffin Land, Melville Peninsula, and northwest Greenland by Therkel Mathiassen for the Fifth Thule Expedition from 1922 to 1924. The publication in 1927 of the results of these important investigations afforded for the first time an adequate view of the archeology of a large section of Arctic America.³ This work verified the conclusions of Boas and Wissler that in earlier times there had been a closer similarity between the Eskimo cultures of Alaska and the eastern regions than exists at present. Mathiassen, however, with a much larger mass of material systematically excavated at a number of widely scattered sites, was able to go further and show that the similarities were so numerous and striking that the Thule culture, the name he gave to the ancient eastern culture, must have had its origin in Alaska.

In 1926 Dr. Aleš Hrdlička made an anthropological survey of the Alaskan Coast from Norton Sound to Point Barrow⁴ and in the same year Mr. Diamond Jenness inaugurated archeological work in the Bering Sea region by excavating at Cape Prince of Wales and on the

¹ Wissler, Clark, Harpoons and Darts in the Stefansson Collection. *Anthrop. Papers Amer. Mus. Nat. Hist.*, Vol. XIV, Part II, 1916.

Wissler, Clark, Archeology of the Polar Eskimo. *Anthrop. Papers Amer. Mus. Nat. Hist.*, Vol. XXII, Part III, 1918.

² Boas, Franz, The Eskimo of Baffin Land and Hudson Bay. *Bull. Amer. Mus. Nat. Hist.*, Vol. XV, Part I, 1901; Part II, 1907.

³ Archeology of the Central Eskimos. Report of the Fifth Thule Expedition, 1921-24. The Danish Expedition to Arctic North America in Charge of Knud Rasmussen, Ph.D., Vol. IV, Parts 1 and 2, Copenhagen, 1927.

⁴ Anthropological Work in Alaska. *Smithsonian Misc. Coll.*, Vol. 78, No. 7, pp. 137-158, 1927.

Little Diomedé Island.¹ As a result of these investigations it was shown that underlying the existing Eskimo culture of northern and northwestern Alaska there had been an earlier and in general more advanced culture which was marked especially by elaborately carved and ornamented objects of old ivory. The ancient style of art revealed by Hrdlička and Jenness was distinct and new, although some of the harpoon heads and foreshafts corresponded with the Thule types of the east.

In 1927 I conducted anthropological work in southwest and west Alaska with Mr. T. Dale Stewart of the United States National Museum, examining sections of the coast and islands from the Alaska Peninsula northward to the mouth of the Yukon.² This work consisted mainly of measuring the Eskimos and making collections of skeletal and cultural material. Although many old graves, village sites, and some few refuse piles were examined, no trace was found of the newly discovered ancient culture above referred to, which seems according to the present evidence not to have extended as a type south of St. Lawrence Island.

In 1928 I returned for a second season's work, and excavated on St. Lawrence and the small nearby Penuk Island, and later at Metlatavik on the Arctic coast just above Bering Strait.³ This work resulted in the collection of a large number of specimens that appear to be of particular interest as showing successive stages of art development in the newly revealed ancient Bering Sea culture. The detailed description of all this material will necessarily be somewhat delayed, but in order that the more important results may be made available as soon as possible it seems desirable to present in advance a brief description dealing with the art of St. Lawrence and Penuk Islands, together with a description of such additional examples of the old art from other Bering Sea and northern Alaskan sites as I have been able to obtain or have photographed.

¹ Archeological Investigations in Bering Strait. Bull. 50, Ann. Rep. for 1926, Nat. Mus. Canada, pp. 71-81, Ottawa, 1928.

² Ethnological Problems of Arctic America. Amer. Geogr. Soc., Special Publ. No. 7, Problems of Polar Research, pp. 167-175, New York, 1928.

³ The Eskimo of Western Alaska, Explorations and Field-Work of the Smithsonian Institution in 1927, pp. 149-156, 1928.

³ The Ancient Eskimo Culture of Northwestern Alaska. Explorations and Field-Work of the Smithsonian Institution in 1928, pp. 141-150, 1929.

The expense of the expedition was borne by Mrs. Mary Vaux Walcott, the Bureau of American Ethnology, and the American Association for the Advancement of Science.

Jenness has described some of the archeological material which he collected at Cape Prince of Wales and on the Little Diomedé as representative of what he has called the Bering Sea culture, and this designation will be followed in the present paper. Hrdlička, in a publication now in press, has also described the specimens he obtained in 1926. In addition, Mathiassen has recently published a description of several examples of the Bering Sea art which were in the collections of the Museum of the American Indian and in the National Museum at Copenhagen.¹ To Dr. George G. MacCurdy, however, belongs the credit for first calling attention to this unique style of Eskimo art some years before any archeological work had been done around Bering Strait and when there was no material with which to compare the single specimen that he found in the American Museum of Natural History.² This was an ivory object, identified as a whip handle,³ and bearing a decoration so different from anything known to the Eskimo that Dr. MacCurdy published a brief description of it in the *American Anthropologist*. In all, probably 30 objects showing the old Bering Sea decoration have been illustrated and described. Other examples of it are in various museums and private collections, and some of these will be described in the following pages.

OBJECTS REPRESENTATIVE OF THE OLD BERING SEA CULTURE

It will be understood that all of the objects to be described are of walrus ivory unless otherwise stated. In color they range from cream, through buff and brown, to a dark green or even black. This discoloration has resulted from the ivory having remained buried in the frozen ground for many years. An occasional artifact was shaped from a piece of mammoth ivory or old walrus tusk that had been washed up by the waves, but most of them were carved from the fresh walrus ivory and have since taken on their rich coloring.

On plate I are shown four harpoon heads embodying the features which may be regarded as typical of the most highly developed and apparently the oldest phase of the ancient Bering Sea art.

Plate I, *a-b*, is an exceptionally fine harpoon head owned by Messrs. Wilfred and Albert Berry of Seattle. Its provenience is not known except that it came from northern Alaska.

¹ Mathiassen, Therkel, *Some Specimens from the Bering Sea Culture*. Indian Notes, Museum of the American Indian, Heye Foundation, Vol. 6, No. 1, pp. 33-56, January, 1929.

² *An Example of Eskimo Art*, *Amer. Anthropol.*, Vol. 23, No. 3, pp. 384-385, 1921.

³ This appears, however, to be an adz handle. Cf. Mathiassen, 1929, p. 41.

The two heads, *c* and *e-f*, are also from northern Alaska, the exact locality unknown. They are in the Washington State Museum and I am indebted to Mr. F. S. Hall, Director of the Museum, and to the Messrs. Berry for the kind permission to figure their specimens. The heads are all of the closed socket type, with the line hole at right angles to the blade slit. The basis of the design consists of pairs of circles, at times somewhat elliptical, drawn free hand and surmounting low rounded elevations in such a manner as to suggest eyes on the head of a bird or mammal. There are two of these "heads," one at the terminal barb and another just above and in part overlapping it. In *c* there is a suggestion of a third "head" above the line hole. Plate 1, *e-f*, differs from the others in having a groove for a lateral blade on each side above the line hole. These harpoon heads are of the same form and style of ornamentation as one described by Mathiassen.¹ Besides the circles, which form the central motive, there is a graceful arrangement of lines, some deeply and some lightly incised, straight and curved, solid and broken or dotted. Small spurs are also attached to some of the lines and circles.

In plate 1, *d*, is shown an unusual harpoon head which I bought from an Eskimo on St. Lawrence Island. It was excavated from the old village at Sevuokok (Gambell) on the northwestern end of the island. Its ornamentation is of the same nature as the other three, although the careless scratching and unfinished appearance of the upper end distinguish it from most of the objects similarly decorated. There are also deep dots at the centers of the circles. In form, however, this harpoon head presents a number of anomalous features. The line hole, instead of being at the center, is placed at one side. The open socket is rounded instead of rectangular, and in position is more like what would be expected in a closed-socket type. Finally, the grooved band opposite the socket was cut after the decoration had been applied. These facts make it appear that the harpoon head was intended to have, and may originally have had, a closed socket, but that either in the drilling or subsequently while in use, a part broke away, leaving the socket exposed. In order that it might still be utilized the groove was then cut around the side and the foreshaft lashed on.

Figure 1 is a very interesting closed socket harpoon head from Plover Bay, Northeastern Siberia. It is of fossil mammoth ivory and is creamy gray in color in contrast to the usual brown of the old walrus ivory; it is badly pitted on the opposite side but enough of the ornamentation remains to show that the design was identical on both

¹ Indian Notes, Vol. 6, No. 1, fig. 13, *a*.

sides. In ornamentation it differs from those shown on plate 1 (except *d*) in having a dot within the elevated circles and in having two small cross-hatched areas on the terminal barb. The lines connected with the circles are also somewhat more finely incised and are applied with more precision. It differs from the first four specimens in having three barbs at the base instead of one, in this respect being similar to another type of the old Bering Sea harpoon head, examples of which are shown on plate 2.

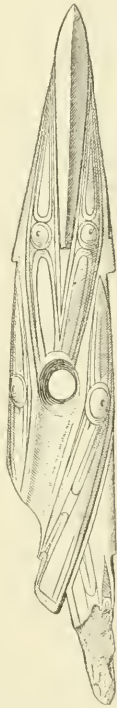


FIG. 1.—Closed socket harpoon head of fossil mammoth ivory from Plover Bay, Northeastern Siberia.

Plate 2, *e*, was collected by Mr. T. S. Scupholm from the deserted village of Kukuliak on the north side of St. Lawrence Island. It has an open socket for the foreshaft and rectangular slots for lashing. The line hole is parallel with the blade slit. On the terminal barb has been left a rectangular projection which gives it an appearance somewhat similar to figure 1. The central barb and two smaller ornamental remnants of barbs below it are features around which the decoration centers, and are to be compared with similar slight projections along the sides of *a*, *c*, and *e*, plate 1. The decoration consists of straight and curved lines, including very lightly incised broken lines. There

are no circles, but instead two (originally four) small eye-shaped designs at the center.

Plate 2, *a-b*, and *f*, are from the Washington State Museum; the exact localities from which they came are not known. The first is very similar in shape to *e*, the only difference being the more irregular outline of the terminal barb. The ornamentation is reduced to only a few simple lines.

Plate 2, *f*, is a small harpoon head of a peculiar type, of which four examples have been described previously: one by Wissler,¹ from Cape Smythe near Point Barrow; two by Jenness² from the Diomed Islands, and one by Mathiassen³ from Banks Island. The features common to harpoon heads of this type are three terminal barbs, the central one being the longest; a long open socket that reaches to about the center; small side blades of stone, either parallel or at right angles to the shaft socket; and most striking of all, where the slots for the lashing come to the surface on the upper side, a deep sunken area at either end of which is a circular perforation also for lashing. In the present specimen the upper perforation has been started from both sides but has not been drilled through. The decoration, which is very similar to the other specimens of the type described, consists of nucleated concentric circles and finely incised lines.

The decoration on *c-d*, also from the Washington State Museum, consists of straight and curved lines and concentric circles, but no dotted lines. It differs from the other two in having a rectangular sunken area around one side to hold the lashing in place, instead of a second slot through which it usually passed. There is also a smaller barb, undecorated, opposite the larger one.

In *g* and *h* are shown two undecorated heads from St. Lawrence Island owned by Mr. C. L. Andrews of Seattle. They have open sockets, no slit for an end blade, two and three terminal barbs, and on each side just above the line hole a deep groove for holding a side blade.

Plate 3, *b*, is a box handle, Washington State Museum collection, from northern Alaska. It is ornamented with four pairs of raised elliptical "eyes" with small holes sunk deep into the centers. They are separated and encircled by flowing lines.

Plate 3, *a*, is a similarly decorated box handle that I bought at Gambell, St. Lawrence Island, where it had been excavated. This

¹ Anthropol. Papers Amer. Mus. Nat. Hist. Vol. XIV, Pt. II, p. 410, 1916.

² Ann. Rep. for 1926, Nat. Mus. Canada, pl. XIII, *a*; and Amer. Geogr. Soc., Special Pub. No. 7, fig. 3, *c*.

³ Indian Notes, Vol. 6, No. 1, fig. 13, *b*. Probably not from Banks Island. See footnote, p. 36.

specimen is of bone and the five pairs of circular and elliptical "eyes" are not raised to the same extent as those on the smaller ivory handle but the elevations can be plainly felt by running the fingers over the surface.

Plate 4, *a*, is an object of unknown use from the Washington State Museum collection, reported to have come from Nelson Island. A similar specimen, from the Diomedes, is figured by Jenness.¹ The Washington specimen is of beautifully stained, creamy brown ivory and bears a comparatively simple ornamentation of circles, dots and straight lines, with a small unconnected figure made up of curved lines toward the end. The centers of the circles are small cylinders of ivory surrounded by rings of baleen. Two baleen discs were inserted above these on the upper side of the object. The two pairs of large circles and appended lines, together with the contour of the surface to which they are applied, produce an effect strongly suggestive of seal heads. There are two perforations on the lower side, and between these a deep, rounded notch, indicating that the object was intended to be lashed to something. The two heavy lines extending upward from the basal notch are deeply cut, leaving the lower edges of the seal heads slightly overhanging. The decoration on the opposite side is identical except that instead of the detached curved figure on the wing there are three concentric arcs.

Plate 4, *b*, is a similar, though cruder, object from St. Lawrence Island. It is owned by Messrs. Albert and Wilfred Berry of Seattle. It has no features suggestive of life forms like the preceding specimen, but like it has a deeply cut groove beginning at the notch. A single large circle near the center on each side, and a few small circles and slightly curved lines are the only ornamentation.

The specimen shown on plate 5 is the property of Rev. C. K. Malmin of Ketchikan, Alaska. It was found at Imaruk Basin, east of Teller, Seward Peninsula. The front end is carved to represent an animal's head, the long sharp canines indicating a carnivore. The ivory is mottled in rich shades of brown, cream, and gray. The principal design is placed at the center between the two large holes. This is divided into two parts by a deep, curving groove. The front design, ranging about the forward perforation, consists of rather deeply incised lines with occasional spurs and a curved petaloid figure within which is a small circle from which descend two short converging lines. This figure resembles the flat ivory hat ornaments, sometimes representing gulls' heads, used to decorate the wooden hunting

¹ Ann. Rep. for 1926, Nat. Mus. Canada, pl. XIII, *b*.

hats in Southwest Alaska. On the other side of the deep groove the design is continued by more lightly incised lines and a central ovoid figure outlined by small spurs and enclosing a small circle set between two pairs of short converging lines. The decoration is the same on the opposite side.

On the upper surface are two drilled holes 5 mm. deep representing the nostrils and further back two representing the eyes. There is a fifth hole near the end and two very shallow ones just back of the eyes. Beneath the nostrils and on the edge of the lower lip are a few slanting lines and spurs.

At the rear the upper part of the head is set off by a rounded curving ridge or lip, immediately above which is a deep groove. Above this are a few short lines and spurs, and below it on the curving handle-like rear portion is a simple pattern consisting of straight and curved lines, spurs and small circles at the inner angles of converging lines.

Of all the objects that have been described from the old Bering Sea culture this one is the most suggestive of the Northwest Pacific coast. It is also similar to the animal heads found so frequently in the Kuskokwim region of southwest Alaska (see pl. 21).

On plate 6 are shown two views of a remarkable object of unknown use, from Point Hope, collected in 1880 by Capt. E. P. Herendeen. This belongs with the class of objects described by Gordon¹ and Mathiassen.² It has two symmetrical, beautifully carved wings and a central section, in the base of which is a square excavation 15 mm. deep, probably for receiving a handle. The front or flat surface is the more elaborately decorated. Both wings are divided into three sections by deeply cut oblique lines, within which are placed nucleated concentric circles, four to each wing. The circles are slightly elevated with small round holes about 3 mm. deep at the centers. Tangent to each circle are two pairs of finely incised parallel or converging lines, while between these, on the outer arc of each circle, are three equidistant spurs. The design is completed by additional straight and curved lines, so placed as to accentuate and utilize to best advantage the angles and curves that give to the object its peculiarly graceful outline. The designs on the two wings are as nearly identical as is possible. The artist has achieved a pleasing effect by applying, even to the most minute detail, a perfect bilateral symmetry of form and

¹Gordon, G. B., *The Double Axe and Some Other Symbols*. The Museum Journal, Univ. of Penn., Vol. VII, No. 1, 1916, figs. 99, 100, 105, 106.

²Indian Notes, Vol. 6, No. 1, pp. 43-46.

design. In the top of the central wedge-shaped section between the wings is a narrow triangular incision 5 mm. deep. The circle at the center is the only one that is not raised.

Some of the more finely incised lines have been almost obliterated by wear, and at several places, especially at the end of one wing, the grain was defective and has chipped off, marring to some extent the design.

On the reverse the central portion is raised, or rather, the wings are cut down from it but at a sufficient distance so as to leave two flanges or shorter wings; through both of these are drilled oblique circular perforations 7 mm. in diameter. The ornamentation consists of lines and circles of the same general character as those on the opposite side, but they are much more worn down.

This masterpiece of Eskimo art could hardly have had a practical use; it was no doubt employed in some ceremony, probably connected with whaling, as Gordon suggested, or perhaps as a charm used by the boat captain to bring success in the hunt. I do not think it likely, however, that there is any genetic connection between this class of objects, found only in Alaska, and the well known prehistoric banner stones from the eastern part of the United States. It is true that this particular specimen and those figured by Gordon are somewhat similar to certain of the banner-stones, but, as will be seen later, this is only one of several forms that occur in Alaska, the others assuming shapes quite unlike anything known from the United States. Furthermore, the enormous area between Northwestern Alaska and the Great Lakes where no such objects are found makes it seem extremely improbable that the two classes of objects are related in origin.

On plate 7, *a-b*, are shown two views of a broken object of the type just described, with both wings missing. This was purchased in Seattle and the locality in Alaska from which it came is not known. It is very similar to the specimens from Point Barrow and East Cape described by Mathiassen.¹ The centers of the circles are 4 mm. in diameter and from 6 to 9 mm. deep, and may originally have had insets of some other material as in the object shown on plate 4, *a*. There are also five small nucleated circles, each set at the inner angle of two straight lines, to some of which are attached small spurs. The lines are closely applied, covering practically the entire surface. The decoration as a whole, with its combination of straight and curved lines, spurs, and circles, is of the same type as that shown on the three harpoon heads on plate 2, *c-d*, *e*, and *f*.

¹ Indian Notes, Vol. 6, No. 1, pp. 43.

In the base is an oval slot 21 mm. long and 15 mm. deep, which appears to have been cut rather than drilled. Slots of about the same diameter extend up through each flange and are connected near the center by a small circular perforation. At the top of the central projection is a long shallow notch which is a characteristic feature of these objects.

The broken harpoon socket piece shown on plate 7, *c*, was excavated at Gambell by Mr. Otto W. Geist, for the Alaska School of Mines. The decoration consists of nucleated circles connected by lines, the pattern being enclosed within a field set off by a deeply cut line. There was evidently a somewhat similar design on the other side of the shallow sunken band which encircles the object. The space between the two design elements at the bottom has been cut away, leaving the rounded ends in low relief, as was seen also on the harpoon heads shown on plate 1.

Plate 8, *a-b*, is an object of unknown use, collected at Point Hope by Henry D. Woolfe in 1885. It is of dark greenish-brown ivory and is carved to represent a seal. There is a slot at the back end 20 mm. long which continues on the underside for an additional 25 mm. This suggests a slot for a blade, but the central perforation, with grooves leading down to a flattened base, is evidently intended for attachment, in which case it is difficult to see how the object could have served as a knife or other cutting implement. The object is of particular interest, however, for the reason that, despite the absence of any etched designs, certain features of the outline are sufficient, quite apart from the patination, to show that it is a product of the old Bering Sea culture. Extending from below the neck to the middle of the back are two wide and deep grooves, the edges of which are bordered by lightly incised lines. The incision through the head is bordered in a similar manner. Around the ends of the grooves on the back is a somewhat deeply incised curving line bordered on one side by a ridge or lip. Such ridges, although more pronounced, may be seen on plate 5 and on plate 8, *c*. The eye is formed by a circular excavation 5 mm. in diameter set at the center of a large slightly sunken circular area. Freshly cut discs of wood and small black glass beads have been recently inserted in these cavities.

The broken object shown on plate 8, *c*, was purchased in Seattle; its provenience is not known. It is evidently part of a harpoon socket piece of the type illustrated by Mathiassen¹ from Point Hope and Kotzebue Sound. A round hole 6 mm. in diameter is drilled trans-

¹ Indian Notes, Vol. 6, No. 1, p. 39.

versely through the object, emerging at both sides immediately below the rounded projections at the somewhat constricted center. Cut into the sides and leading down from this perforation are two very narrow grooves similar to the groove in one of the specimens from Kotzebue Sound figured by Mathiassen. The rounded lip-like projection at the center may be compared with the raised border on the preceding specimen and the others first mentioned. The lightly incised lines forming the decoration have been almost entirely effaced on the two flat surfaces but still are faintly visible along the sides, though not in the photograph. The pattern consists of concentric circles with small cylindrical holes at the center 5 mm. deep. About these are continuous and broken lines and small spurs.

The objects shown on the preceding plates illustrate the various known forms of the ancient Bering Sea art. The features characteristic of this art may be outlined as follows: (1) nucleated circles and ellipses, usually concentric and often surmounting low rounded elevations; (2) the arrangement of these on certain objects so as to suggest the eyes of an animal; (3) deeply excavated centers to some of the circles, sometimes inset with discs of baleen or other material; (4) small circles at the inner angle of two converging lines; (5) spurs attached to the circles and lines; (6) straight and curved lines, singly or in bands, serving usually to accentuate the circles and fill in the vacant spaces; (7) finely incised broken or dotted lines; (8) an occasional checked or hachured area; (9) raised borders to grooves and rounded lip-like projections.

When we turn to consider the shapes and the surface elevations and depressions of the objects it is seen that they also form an important part of the decorative scheme. The notches in the wings of the specimen on plate 6, for example, are the beginning of the sections or panels into which the wings are divided and within which the lines and circles are so gracefully arranged. Similarly, the entire rounded end of the wing is set off by a curving line enclosing and unifying the design. The circles on the terminal barbs of the harpoon heads, such as those shown on plate 1, are placed in relation to the shape of the barb itself to suggest eyes, and the effect is repeated in the pair immediately above when a small triangular area is cut away, leaving a rounded and slightly elevated "nose." The same principle may be seen in the specimens on plate 4, *a*, and plate 7, *c*. In short, it may be said that the old Bering Sea art is marked by a profuse but extremely graceful application of lines, curves, and circles in such a way as to realize to the utmost, within the limits of the accepted patterns, the artistic possibilities of the surfaces to be covered.

The ivory specimens bearing ornamentation typical of the old Bering Sea culture are quite uniformly patinated and discolored.

It is natural to inquire as to the affinities of this new and distinctive type or phase of Eskimo art, which is apparently so different from that of the modern Eskimo. It has been suggested that it may be related to the art of the Northwest Coast Indians or the Amur tribes of north-eastern Asia. These are the two areas of highly developed art nearest the Bering Sea region and might naturally, therefore, be looked to as bearing some possible relationship to it. As Jenness has pointed out, however, the closest resemblance seems to be to Melanesia, with which there is no reason whatever to assume any relationship. I would suggest further that the resemblances here are more apparent than real. The old Alaskan pieces that most closely approach the Melanesian are those in which a series of circles or ellipses are separated and bordered by curving lines, giving to them a semblance of scroll work. It is important to note, however, that the circles are always complete and that the lines likewise are completely attached and never left with a free curving end.

With the two other regions in question, namely, the Amur and the Northwest Coast of America, I can again see no real resemblances. The art of the Amur tribes, with its ornate and highly conventionalized animal and floral forms, abounding in intricate spirals and panels of continuous curving figures in maze-like patterns, appears to me to be totally unlike the ancient art of the Bering Sea.

In the same way we will search in vain for any real resemblance to the peculiar art of the Northwest Coast. The Bering Sea art consists essentially of circles and lines, and the designs show no internal evidence of ever having been associated with realistic patterns, although carved representations of animals are not lacking (see pls. 5 and 8). The Northwest Coast art, on the other hand, is more solid and compact and, inextricably linked with totemic and other cultural concepts, is marked by symbolic and conventionalized representations of animal forms. The Bering Sea art is graceful and comparatively simple; the Northwest Coast art is heavy and complex. The only characteristic elements of Northwest Coast decoration that might be compared directly are the eye motives and the cross-hatched surfaces, for occasional oval figures with spurs attached, suggestive of eyes do occur in the old Eskimo art, and, infrequently, very small cross-hatched areas. The eye, however, is only a natural variant of the prevailing simple circle or ellipse, having resulted from the combination of this with another typical feature, the spur; while in the Northwest Coast the eye effect is produced by a continuous line enclosing a solid figure.

Boas regards the Northwest Coast eye as a development of the circle, and here arises an important theoretical point; for if it should be true that this highly important element in Northwest Indian art arose from a design which forms an even more important part of the old Eskimo art, we would have valid ground for considering that the art of the two regions was historically connected. But, assuming such a connection to have existed, there would still be no more reason for considering that the cultural impetus had been exerted from south to north than from the opposite direction. It must be remembered that the Eskimo culture under consideration is ancient; just how ancient, it is yet too early to say, but at any rate it is the oldest culture that has come to light in the extreme Northwest. It is, furthermore, closely related, apparently ancestral, to the very wide-spread Thule culture which, in early times, extended across north central Canada into Greenland, and which has been so thoroughly revealed through the recent researches of Mathiassen. On the other hand, there is no good reason for assigning an equal antiquity to the peculiarly local and highly developed art of the present tribes of the Northwest Pacific Coast.

It seems fairly evident, viewed solely from the ethnological standpoint, that certain culture traits now in the possession of the Alaskan Eskimo were derived from the Alaskan Indians. But this, along with a possibly similar condition in regard to physical type, may well have been of a secondary nature. At any rate, it does not seem possible at the present stage of our knowledge to point to any particular aspect of the *earlier* Eskimo culture that might be said, with any degree of certainty, to have been similarly derived.

In spite of the absence of any important specific resemblances between the art of the two areas, there still remains a vague, general similarity which may lead to the expectation that future archeological work may reveal an earlier stage of Northwest Coast culture closer to the ancient Eskimo culture of Bering Sea, or even, somewhere, a culture that may have been ancestral to both the Northwest Coast and Eskimo cultures. In this connection there is also the possibility that very important results might come from investigation of ancient sites in Southwest Alaska, or around Prince William Sound where Eskimo territory impinged on that of the Tlingit.

While it is difficult to trace true relationships of the newly found ancient Bering Sea culture with Indian tribes of America or tribes of northeastern Asia, it is plainly evident that there is an unbroken line of succession where such would be most expected, namely, in the Eskimo

territory of Alaska. With all its relative richness and undoubted superiority over the present Eskimo art there can be no doubt that the old art was the direct forerunner of the modern. At first glance there may appear to be little resemblance between the artistic and flowing ornamentation of the old Bering Sea culture and the familiar and much simpler designs employed by the modern Eskimo. But there are sufficient links to bridge the gap.

It would be possible, I believe, to trace the development of the old Bering Sea art into the modern if we had no more than the objects shown on plates 1 to 8, and those described by Jenness, Mathiassen, and Hrdlička. The transition would be somewhat sudden, it is true, and some of the designs might appear to be but little related. Fortunately, however, we now have additional data that throw light on a secondary stage of art development within the old Bering Sea culture. This new evidence makes it appear that the old Bering Sea art did not come to a sudden end, to be succeeded immediately by that of the modern Alaskan Eskimo, but that, on St. Lawrence Island at least, it entered upon a period of transition during which the designs became simpler, definitely foreshadowing the later Alaskan Eskimo art. Some of this material will be described in the following pages, and the conditions under which it was found, on Pujuk and St. Lawrence Islands, will be briefly outlined.

THE PUNUK ISLAND AND CAPE KIALEGAK VILLAGE SITES

The three small Pujuk Islands lie four miles off the southeast end of St. Lawrence Island. The largest island, on which the old village site is located, is slightly less than a half mile long and only a few hundred yards across at its widest point. The greater part of the island is covered with the usual tundra vegetation and is relatively flat, except for two rocky hillocks that rise suddenly from the southern side. To the west the island narrows and the tundra is replaced by a low sandy area covered with coarse grass. At the beginning of this sandy stretch, which is also the narrowest part of the island, is located the extensive kitchen midden which marks the site of the old village.

The last houses to be occupied were sunk into the top of the midden. They consisted of square excavations in which had been erected frameworks of whale bones and driftwood logs; there are 14 house pits besides numerous underground caches on the midden. The narrow tunnel-like entrances to the houses faced the sea, sometimes to the north, sometimes to the south. Of the logs which formed part of the framework scarcely any remain on the surface, but whale ribs and jaw bones are more plentiful.

The area covered by the Punuk midden is approximately 400 feet by 130 feet. The average depth is around 12 feet and the greatest depth, 16 feet. It is of particular interest to note that the lower parts of the midden are below the present beach level—at one place as much as six feet—and that at the very bottom were found houses and house entrances, six in number, all of which were below the reach of storm waves. The sinking of the land to this extent, together with the enormous accumulation of refuse, must undoubtedly indicate the passage of a considerable period of time. As a definite criterion of age, however, such a geological phenomenon is of questionable value at the present time, since there are not available any comparative data on recent subsidence and elevation in the Bering Sea region which might be interpreted in terms of years. The problem of the antiquity, at least the comparative antiquity, of the Punuk village site must rest mainly on cultural evidence.

To the west of the midden, near the end of the island, are four recent houses with roofs still partly intact, which were occupied up to about 40 years ago. It is not clear whether these were built by families who settled on Punuk after the abandonment of the main village or whether they were occupied by the last remnants of the original population.

Excavations were carried on at Punuk from June 23 to August 17, 1928. Assisting me were Mr. Harry E. Manca of Seattle and two, later three, Eskimos from St. Lawrence Island. Three of the recent houses toward the end of the island were excavated and two of the older houses on the midden, in addition to extensive cuts made through the refuse at various places. The midden sections and the two old house pits on the midden were taken down systematically, the material from the successive levels being kept separate.¹ Except for a surface layer which thaws out in summer, the ground is permanently frozen, making the work of excavation difficult and slow. The cuts were taken down in layers of a few inches, the process being repeated daily as the newly exposed frozen surface thawed by contact with the atmosphere.

The many specimens excavated from the midden village stood in striking contrast to the material from the three recent house ruins at the western end of the island. The latter yielded iron, glass, and only

¹In the following description of certain decorated objects from Punuk Island and Cape Kialegak, reference will not be made to the location and depth at which individual specimens were found, as this would only add unnecessary detail and call for a fuller description of the sites and method of excavation than is necessary at the present time, when the purpose is to describe only the art of the two sites.

modern types of artifacts of ivory, bone and wood, identical to those still being used on St. Lawrence or having been used there in recent years. At the old village, however, among the several thousand specimens excavated, there were only four small fragments of iron and two glass beads, although every inch of the soil was gone over with trowels. There was likewise not a single modern type closed socket harpoon head found, and the blades of the harpoons, lances, knives and adzes were all of slate. However, the presence of even these few pieces of iron and, more significant even, an occasional file mark on some of the specimens, indicates that at least during the later years of their stay on the island the people of the Punuk village were in possession of small quantities of European metal.

Late in July, I made a brief trip in an Eskimo whale boat to Cape Kialegak on the southeastern end of St. Lawrence Island where there was a deserted village with a kitchen midden even higher than the one at Punuk. The Kialegak people had occupied two villages; the older and smaller village was entirely prehistoric, judging from the objects dug from the midden, while the later and more extensive settlement only a few hundred yards distant had been established apparently at about the time of the abandonment of the earlier village and occupied until about 40 years ago. Proof of this was found in the midden, the lower levels of which yielded only ancient types of artifacts, including harpoon heads with open sockets and some with side blades, while in the upper levels, beginning at about 10 feet, were implements of the modern type accompanied by glass beads and numerous pieces of iron. The objects from the lower levels of the later village and all of those from the older site were of the types we had been finding at the old Punuk village. Cape Kialegak thus afforded valuable supplementary evidence, for the occupancy of the later village began at a period contemporaneous with Punuk but continued without break until recent years, whereas the old village on Punuk was abandoned at some unknown time within the proto-historic period and was succeeded, perhaps after a considerable interval, by the few recent houses at the end of the island.

This will serve as an outline of the conditions under which the specimens to be described were found and removed, and no further details of the procedure will be entered into at this time. Instead, discussion will be limited, with a few necessary exceptions, to the decorative designs on the objects themselves, to their relation with those previously described and those of the modern Eskimo, and to the bearing that they are believed to have on the larger problem of the

spread and relationships of early Eskimo culture in the Bering Sea and elsewhere.

On plate 9, *a*, *b*, *c* and *d*, are shown four fragmentary harpoon heads from Punuk and Cape Kialegak, the only specimens from these localities that belong, from their decoration, with the type of material illustrated on plates 1 to 8. Plate 9, *c* and *d*, are two closed socket harpoon heads, both water-worn to such an extent that the designs are almost obliterated. The harpoon head, *c*, has the same ornamentation as those shown on plate 1, but unlike them the blade slit runs parallel with the line hole. The circles are raised. Plate 9, *d*, in addition to being badly worn, shows evidence of having been trimmed down, the only part retaining the original decoration being that shown in the illustration. The remaining circle is elevated. This specimen



FIG. 2.—An ivory object of unknown use from Punuk Island.

was found at the base of the larger Kialegak midden. The two fragments, *a*, and *b*, also bear curvilinear decoration. These, as well as *c*, were found at depths of from three to ten feet in the Punuk midden.

With the exception of these four fragmentary specimens another and quite distinct type of decoration was found to prevail on Punuk and at Cape Kialegak. This occurs in such abundance and so nearly in isolation at these sites that it seems proper to refer to it as the Punuk type or phase of the old Bering Sea art. Plates 10 to 15 illustrate its various aspects. The exact distribution of the decorated objects from Punuk and Cape Kialegak is as follows: old curvilinear, 4 (those shown in pl. 9, *a-d*); Punuk type, 117; modern, 7; indeterminable, 13. The last group comprizes objects decorated so carelessly, or of which such a small fragment remains that it could not be determined whether they were of the Punuk or the modern type of ornamentation.

In figure 2 is shown an ivory object of unknown use found at a depth of 13 feet in the Punuk midden. It is thin and convex, and in

general shape is somewhat like the St. Lawrence Island wrist guard, although it has no slots or other openings through which a thong might pass except the handle-like loop at the top. This specimen is of particular interest in that the design combines features typical of the several stages of art in the Bering Sea region. The three petaloid figures are most suggestive of the older phase, while the deeply incised parallel lines in bands of four and the Y-shaped figure are characteristic of the Punuk and recent stages. The spurs attached to the lines and curves are common to all three stages, having been retained in the art of the Alaskan Eskimo from the earliest known times to the present.

Plate 10, *a-b*, represents an object of unknown use gracefully decorated in the style typical of Punuk. One wing is broken off. A complete specimen similar to this is shown on plate 13, *f*, from Cape Kialegak. In the present specimen there is a rectangular socket in the base 16 mm. deep which was made by drilling. From the socket a round hole 7 mm. in diameter extends through the base of each wing. The depression at the top of the central upright section and the socket at the base are features that were seen also in the object on plate 6. Lines terminating in dots, short converging lines enclosing dots, and small squares form the design, which is often found recurring in the Punuk style of the old Bering Sea art. The designs on the two sides are made continuous by the single connecting line that crosses over at the center of the wing on the inner side. The object from Point Hope¹ illustrated by Mathiassen is very similar in outline and practically identical as to the general style of ornamentation. In form it is intermediate between the present specimen and that shown on plate 6.

The two objects shown in *c-d* and *e*, plate 10, while not from Punuk Island or Cape Kialegak, are introduced for the reason that they represent a common St. Lawrence type and a variant of the class of objects illustrated by *a-b* of this plate, *a-b*, plate 6, and *a-b*, plate 7, and corresponding specimens described by Gordon, Jenness, and Mathiassen. In *c-d* are shown two views of one of these objects from St. Lawrence Island, purchased by Mr. H. W. Krieger. Like the specimen just described it has a basal socket and a small depression in the top of the central projection which, however, is joined to the wings. This socket is round and only 12 mm. in diameter, and in it is the broken end of the wooden shaft which probably formed its handle. The decoration on both sides consists of deeply and evenly

¹ Indian Notes, Vol. 6, No. 1, fig. 19.

incised straight and slightly curving lines, single or in bands of from two to four, with small spurs attached. Red ochre had been rubbed into the incisions and some of it still remains in place. The object shown in *e* differs only in minor details from the other. It came from Kukuliak, on the north side of St. Lawrence Island, and is owned by Mr. C. L. Andrews of Seattle.

These three specimens and the one on plate 6 seem to represent three rather widely variant forms of the same object. All have a basal socket, a central projection in the top of which is a shallow depression, and two wings, the latter especially being extremely variable as to size, shape, and position. My Eskimo workmen were unable to say definitely what had been the use of these objects, but one of them thought they might have been ornaments for the war helmets formerly used on St. Lawrence Island. However, I am more inclined to accept the explanation given by Gordon for the specimens he described—that they are charms used in ceremonies in connection with whale hunting. As to which of these forms is the oldest, the evidence seems to favor the type shown on plate 6. These bear the old Bering Sea curvilinear patterns, while the others are ornamented after the Punuk style, which, as will be shown later, appears without doubt to be more recent, at least on St. Lawrence, than the curvilinear. A further indication that the type shown on plate 10, *a-b*, is fairly recent is the fact that an unfinished specimen was found in the refuse from one of the last houses to be occupied on Punuk Island.

On plate 11 are illustrated a number of artifacts from Punuk and St. Lawrence Island bearing decorations typical of the Punuk style of art, with nucleated circles, straight or slightly curved lines, dots and spurs.

Plate 11, *a* and *b*, are two broken harpoon heads of the open socket type with slots for the lashing and with line hole parallel with the blade slit. This is the form of harpoon head most common on Punuk although a number of closed socket heads of a distinctive type, always ornamented, were also found. The decoration on the two specimens consists of lines extending from the barb toward the point, terminating in evenly inscribed nucleated circles, and similar lines, together with smaller cross lines and spurs, around the central line hole. The ornamentation of the upper portion, above the line hole, is the same on both sides; but on account of the open socket on the inner or under side, the decoration beneath the line hole is restricted almost entirely to the outer side.

The harpoon heads represented by *d* and *e* are of the same type as the two preceding. In *d* the circles are smaller and there are more

lines and spurs, while in *e* there are more circles on the barb than are necessary to balance the design.

These harpoon heads are intermediate in type between those bearing the curvilinear patterns such as illustrated on plates 1 and 2 and the modern, shown on plate 20. The open socket, flat shape, and rectangular slots for lashing are old; the decoration, although somewhat profuse, is more rigid and lacks the graceful flowing lines of the earlier period. A pattern of lines, circles, dots and spurs is never present on modern harpoon heads, although circles alone are found on a restricted type from the Nunivak-Kuskokwim region, and crude lines and triangles on others from the north coast of Alaska (see pl. 20). However, in shape as well as design these modern decorated harpoon heads differ essentially from the Punuk type.

In plate 11, *c*, is shown the end of a box handle simply decorated with the circle and dot, which might occur in either the Punuk or the recent period.

Plate 11, *f*, shows the upper end of a dart foreshaft from Kukuliak, St. Lawrence Island. In the top is a cavity 19 mm. deep and 12 mm. in diameter. The object has been used secondarily as a drill or reamer. The surface etching consists of lines, dots, circles and spurs.

In *g* is shown an object of unknown use. It is broken at one end, but the remaining decoration at this point, as well as the shape, suggests that there was originally a second wing similarly ornamented. The incisions are deeply and evenly cut and had been filled with red ochre. The design is made up of circles and spurs and straight or slightly curved lines, some of them forming bold Y-shaped figures. The opposite side is not ornamented.

The object illustrated by *h* is a wrist guard purchased at Gambell, St. Lawrence Island. The leather thong is modern. The design is very simple, consisting only of nucleated circles enclosed in panels formed by straight lines.

An ivory drill rest with a rather closely applied decoration of lines, dots, circles, and spurs is shown in *i*.

Comparison of the circles on the objects just described with those shown on previous plates reveals the significant fact that they are mechanically perfect as well as flat, while the circles and ellipses previously shown were usually raised above the surface and were always somewhat irregular, having been made free hand. The Punuk circles were engraved mechanically with an implement of some kind, probably a two-pointed compass of metal. The dots are usually from 2 to 3 mm. deep and the circles slightly less than 1 mm. The extreme pre-

cision of the cutting and the uniform depth and width of the lines, circles, and dots, give every appearance of having been produced with steel tools. On the other hand, no metal was found in the Punuk midden except four small fragments in the upper section. Furthermore, the great number of slate blades for harpoons, lances, knives, and adzes proves beyond a doubt that the Punuk people still depended on stone for their cutting, thrusting, and hewing implements, even though they may have possessed a few treasured tools of iron with which they decorated their ivory and bone implements. There is thus reason for believing that the Punuk settlement dates from the time when small quantities of European metal were first obtained through the Chukchi and Siberian Eskimo following the arrival of the Russians in Northeastern Siberia in the seventeenth century.

On plate 12 are illustrated eight specimens which differ from those on the preceding plate in that the decoration is made up of lines and dots instead of lines and circles.

In *a*, *b*, and *c* are represented three different types of harpoon heads bearing a similar ornamentation. The first two, *a* and *b*, have closed sockets, but *b* is flat and has the line hole parallel with the blade slit, while in *a* the line hole is at right angles and there is a sharp high longitudinal ridge on both sides above the line hole, as was seen also on plate 1. It is an interesting fact that every closed socket harpoon head found at the old sections of Punuk and Cape Kialegak was decorated, whereas the more common open socket heads were usually undecorated.

Plate 12, *c*, is of bone; it has an open socket, rectangular slots for lashing the foreshaft in place, and two deep slots for side blades. These were of shell and the lower parts are still in place. The slight projection brought about by cutting away a section of the edge at the end of the outer line below the lateral blade slots is a feature that was observed on several of the harpoon heads on plates 1 and 2.

The designs on *a* and *b* are in general very similar, despite the difference in shape of the two harpoon heads. Both have incised lines on the barb, around the line hole, and up toward the point. On *b* the dots are placed at the end of short lines while on *a* they are free; *a* also has spurs attached to the lines. The dots on *c* are connected with the lines, though not always at the ends as in *b*, and the spurs are shorter and more numerous than in *a*.

The object represented by *d* is broken at both ends and hollowed out like a spoon on the opposite side. The lines are more curved than those on the harpoon heads just described. The dots are almost 4 mm. deep and three of them pass completely through the specimen.

The terminal barb of a large closed socket whaling harpoon head is shown in *e*. The arrangement of dots and short lines within a long two-pronged figure is common on the smaller seal and walrus harpoon heads of Punuk and Cape Kialegak.

In *f* is shown an ivory object of unknown use decorated only on one side. The dots are somewhat more numerous than on most of the specimens. Two pairs of pronged figures enclosing four dots are attached to the central band where the sides gradually widen. Between these are six small dotted squares, such as are also found in modern Alaskan Eskimo art (see pl. 18, *a*).

In *g* is shown an object which may possibly have been one section of a double knife handle. The under side is flat and at the large end is a rectangular groove 33 mm. long, 7 mm. wide and 12 mm. deep, too large to serve as a slot for any but a very thick stone blade. A wide sunken groove extends around the surface for the purpose of lashing. There is a narrow rectangular perforation at the lower end. The decoration is a simple pattern consisting of a large triangle with two Y-shaped figures terminating in dots, three vertical lines with similar dots, and two plain oblique lines.

A very slender harpoon socket piece or foreshaft, probably for a toy harpoon, is shown in *h*. At the upper end is a small round hole 4.5 mm. deep for receiving the foreshaft or dart head. Somewhat above the center is a small rectangular perforation. The ornamentation consists of lines and spurs, the latter being attached only to the curved lines which enclose the pattern at both sides. Within these are three pairs of straight lines meeting at acute angles, with the lower ends coinciding with slight bulges along the sides.

Plate 13 illustrates seven artifacts from Punuk Island and Cape Kialegak on which the decoration is restricted to lines and spurs.

A closed socket harpoon head with blade slit parallel with the line hole is shown in *a*. The tip of the barb has been roughly cut off, leaving serrations having somewhat the appearance of inverted barbs. The lines and spurs are incised very deeply and still contain some of the red ochre with which they were formerly filled. In addition to the absence of circles and dots the pattern differs from those on the harpoon heads previously described in having a greater number of lines on the lower portion and in having short cross incisions at several places.

The second head, *b*, while an open socket type, has the same arrangement of blade slit and line hole and bears essentially the same decoration. It also has red ochre rubbed into the deep incisions.

The broken object shown in *c* represents a type of artifact of which five specimens are known thus far, three in the present collection and two in the collection of Mr. C. L. Andrews; one of the latter is shown on plate 14. In the present specimen there were originally five transverse perforations through which lines may have passed, a circular one at the center and each end, with two rectangular ones between. The rectangular groove at the end suggests that the object was attached to something by lashing. This groove was cut before the decoration was applied, for the lines stop just before reaching the edge. The surface rises gradually toward the center where there is a small cylindrical hole bordered by a circle and four long spurs. Around this inner circle are three larger rings, all with spurs attached, then two others which are not completed but which extend from the two central notches toward the ends; and finally, beyond the groove at the end—the other end is broken—a similar curve and three long spurs.

In *d* is shown another object for which I can suggest no use. It is slightly convex and has been broken and partly smoothed off at the larger end. At the smaller end is a circular hole which passes through the object. The two holes at the center are 6 and 8 mm. deep. Toward the large end is another hole in which is the broken end of an ivory plug and just beyond this still another which barely misses meeting one drilled from the under side. The decoration is confined to lines, with spurs, arranged in reference to the projecting and incurving outline. On the under side the decoration is simpler, consisting of a narrow band down the center which widens and, at the larger end, divides into two ladder-shaped figures.

It is unfortunate that so many of the objects most elaborately decorated have no analogies in modern Eskimo culture from which it would be possible to determine the purpose for which they were made. This applies also to the next specimen, *e*, a propeller-shaped object with two wings and on the under side a central projection through which is drilled a transverse circular perforation. The designs on the two wings are unconnected; they differ only in that there is an additional enclosing line on the left side. The under side is plain.

The small ornament, *f*, is of the type shown on plate 10, *a-b*. The slot in the base is round and 9 mm. deep and the central projection lacks the customary indentation on the top. The two wings are perforated near the base. The decoration will be seen to be practically identical with that of the other object as to outline, lacking only the dots and such additional lines as were made possible by the greater surface to be covered on the larger specimen. As in that case, the

design here is in two parts, one a connected line reaching to the tip of each wing and descending to the base, and another occupying the upright central projection, then passing up along the inner sides of the wings to continue on the opposite side in a similar but simplified design.

The object illustrated by *g* is flat on the bottom and is broken at one end, but from the design it may be judged to have come to a point as at the opposite end. The short cross lines in pairs, such as were observed on the harpoon heads, *a* and *b*, are here still more prominent. They divide into segments the space within the four long curving bands and serve to tie these together. There are also somewhat longer cross lines in the central panel, connected by a single straight line and enclosed at one end by a pair of lines that come to a point near the large circular perforation. This was drilled after the decoration was completed and passes through a double lined triangular figure similar to the one below.

On plate 14 is illustrated an object similar to the fragmentary specimen shown on plate 13, *c*. It is from Kukuliak, St. Lawrence Island, and is owned by Mr. C. L. Andrews. The five circular and rectangular perforations noted on the former specimen are visible here. At the center, instead of an elevation, is a circular depression. Within this are placed two roughly crescent-shaped figures which touch at the centers. Pendant from these are two short lines ending in dots, and in each crescent a central dot and a short cross line at the ends. Encircling the central concavity is a single line and beyond, in both directions, three additional curving lines. Between these are slightly curved triangular figures enclosing a central dot, their apices pointing outward, with the exception of the first one to the right which points back toward the center. On both sides of the triangles are single detached dots. The triangles on this object are very similar to those shown on plate 12, *d*.

The harpoon head shown on plate 15, *a*, has an open socket and as usual the line hole parallel with the blade slit. The incised lines forming the decoration are lightly applied. It has on each side two pairs of lines extending up toward the point and between these other lines that enclose the circular line hole in a narrow triangular pattern.

Plate 15, *b*, is a closed socket harpoon head with the upper end broken away. The blade slit appears to have run parallel with the line hole. The broken end of the foreshaft remains wedged in the socket. The decoration of lines and dots is quite similar to those on the harpoon heads shown on plate 12. The lines are still filled with red ochre.

In *c* and *d* are illustrated two interesting harpoon heads with en-

closed slots for lateral blades; *c* is of bone. It has an open socket and a bifurcated terminal barb; it is broken on the right side and may originally have had an additional smaller barb. The slot for the side blades passes completely through. An interesting feature—not shown in the photograph—is that on both sides along the sharp edge opposite and below the blade slot are additional grooves. The upper groove is 2 mm. deep and 17 mm. long and below it are two still smaller triangular depressions. All of these seem too shallow to have held stone or shell blades, and since there was originally a serviceable blade in the larger central slot these side grooves were probably only ornamental. The decoration consists of a few rather carelessly incised lines.

The harpoon head, *d*, has an open socket and a slot for side blades like *c*, and one of these, a semi-circular piece of slate with a sharp edge, remains in place. As in *c*, there are also two additional grooves on the sides opposite the blade slot, and these are so shallow that there can be no doubt but that they are ornamental. The decoration, while almost as meagre as on the preceding specimen, is more neatly applied. It consists of a pair of converging straight lines within which are two Y-shaped figures.

The three points to bird darts illustrated in *e*, *f*, and *g* are typical of Penuk Island and Cape Kialegak. The characters that mark the type are the three barbs on one side and two on the other; two lines down the center or just at the base of the barbs; a curving, sharpened base; a rectangular line slot near the barb; and two or three small notched projections along one edge near the base. This last feature is of especial interest since it is present as a decorative motive in modern Alaskan Eskimo art (see pl. 18, *c*).

In *h* is shown a piece of a box handle bearing a simple but pleasing pattern of large Y-shaped figures with dots at their bases, enclosed within two parallel lines.

In *i* is shown the end of an object of the type shown on plate 13, *c*, and plate 14. It bears a typical Penuk design of lines terminating in dots and with short cross lines forming small rectangular spaces.

The object shown in *j* is a fragment of an elaborate wrist guard from Gambell. If we may judge from a similar complete specimen from the same locality, this had a second wing curving in the opposite direction. While the lines follow the contour, the design is very similar to that of plate 13, *g*, except for the addition of long sharp spurs attached to the pairs of short cross lines.

Examples of carving in the round were extremely rare among the finds from Penuk Island. That these Eskimo were capable of excellent workmanship along this line, however, is shown by the remarkable

ivory figurine illustrated on plate 16. This represents a woman with long torso, prominent abdomen, pendant breasts and very short legs and forearms. An incision has been made in the left breast as if for suspension, and striations are seen across the upper arms and shoulders. The well defined curves, especially of the lower part of the body and the breasts, and the realistic treatment of the figure as a whole, produce an effect quite unlike that seen in the simple and stiffly conventional dolls of the modern Alaskan Eskimo. It is, however, somewhat similar to the armless dolls of the Ammassalik Eskimo.

More significant even than the scarcity of carving in the round was the total absence on Punuk of the pictographic art that is so characteristic of the modern Alaskan Eskimo. Etched realistic designs have not been found at any ancient Alaskan site so that this type of art must for the present be considered as recent.

RELATION OF THE PUNUK ART TO THE CURVILINEAR ART OF THE OLD BERING SEA CULTURE

We have seen on plates 10 to 15 a number of objects from Punuk and St. Lawrence Islands decorated in the manner characteristic of what it seems proper to call the Punuk phase of the old Bering Sea art, as represented at these localities. It shows significant differences from as well as resemblances to the older phase of this art as represented by the objects on plates 1 to 8 and those figured by Jenness, Hrdlička, and Mathiassen.

It will be observed first that both the Punuk and the older Bering Sea cultures abound in highly decorated objects of unknown use. Such are the winged objects shown on plates 6; 7, *a-b*; 10, *a* to *e*; 13, *f*; all of which are apparently related forms of the same class of highly variable objects, used most likely in whaling ceremonies or as individual charms.

One of the most striking differences between the prehistoric and modern Eskimo cultures in Alaska is found in the harpoon head. The only type used in Alaska at the present time has a closed socket. It often has also a small hole in the tip for a rivet which holds the blade in place; and often a slightly sunken area leading from the line hole to the base. The prevailing type of harpoon head from the old Alaskan sites lacks the last two features and has an open socket, with rectangular slots for lashing on the foreshaft. The harpoon heads from the old villages on Punuk Island and Cape Kialegak are without exception either of this open socket type or belong to a decorated closed socket type related in form to the old closed socket heads shown on plate 1.

In form, therefore, the Punuk harpoon heads belong with the old Bering Sea culture.

Very few other types of artifacts from old Bering Sea sites have been described, so there is as yet little with which to compare the bulk of the material collected at Punuk and Cape Kialegak. However, the resemblances to the old Thule culture of Canada and Greenland, to which it bears undoubtedly a close relation, and the corresponding absence of many modern Alaskan types, indicate beyond a doubt that the old Punuk and Cape Kialegak culture belongs almost entirely to the prehistoric phase, that is, to a period preceding the actual discovery of Alaska by the Russians.

A somewhat different condition is observed in regard to the ornamentation. While the forms of the objects themselves are distinctly ancient the decorations they bear depart radically from the ancient patterns and at times approach very closely the designs employed by the modern Alaskan Eskimo. First in importance, perhaps, is the circle and dot. In the old form this was seen to be always slightly irregular and often elliptical, showing unmistakably that it had been made free hand. In addition, it was usually raised above the surface. The circles of the Punuk period are not raised and are without exception perfectly round, having been made with a compass or bit, probably of metal. In some cases pairs of circles on the barbs and tips of harpoon heads still carry out the suggestion of eyes but the effect is greatly lessened by the addition of straight lines and the absence of the cuts and enclosing lines along the edges that in the older art combined to produce the appearance of an animal's head. Curved lines become much less frequent. Small checked or hachured areas and lightly incised broken or dotted lines are absent.

In addition to the compass-made circle and dot the Punuk art brings deeply incised straight lines, often in bands; pairs of short straight cross lines or single cross lines forming small squares or rectangles; long deeply-cut spurs in contrast to the more delicate and pointed spurs of the old art; the use of dots applied free or at the end of lines; bold Y-shaped figures, though not detached; and pairs of serrations on bird dart points occupying a raised border near the base.

Besides these specific features distinguishing the two art styles there is a marked difference in appearance due to technique. The old curvilinear designs were deftly applied; some of the lines were lightly etched while others, for contrast, were deeper. The impression received is that the artist exercised selective judgment as well as manual skill in the harmonious arrangement of the lines, curves and panels

that make up the composition. The Punuk art, on the other hand, shows no such discrimination. The lines are all uniform and usually quite deep. There is still a slight tendency to utilize the outline of the object for the enhancement of the design but not to nearly such an extent as in the older art. Designs are much more formal and rigid; on harpoon heads, for example, the relatively simple ornamentation is repeated almost exactly over and over again. The same adherence to convention is seen in many of the other objects, resulting in a fixed mechanical style, which though symmetrical and graceful in its simplicity, distinctly lacks the elasticity and exuberance that mark the finer products of the older Bering Sea culture as works of real art.

While the carving and surface decoration of the older objects bear evidence of high skill there is no reason why they should not be regarded as the result of cutting with stone tools. There is direct evidence, on the other hand, that metal was employed during the Punuk stage. The possibility that the evenly inscribed circles were made with a stone bit is extremely remote. The invariable uniformity in depth and width of the circles shows plainly enough that they could only have been produced by a very narrow, sharp and smooth instrument. The extreme precision of the other lines is evidence in the same direction. Reference has been made to the four fragments of iron found in the upper levels of the Punuk midden and to the file marks on a few of the artifacts. File marks are of more definite value as an aid to chronology than small fragments of iron, for the latter, even after eliminating the possibility of its being of meteoric origin, might still have reached its destination as wreckage, to be salvaged and utilized by the Eskimo. A file, however, could hardly have come into their possession in such a manner but must almost certainly have been obtained, even though indirectly, from a European or, possibly, Oriental source. With the Punuk midden yielding objects from top to bottom (along the outer edges only, however; the bottom of the midden at the center was not reached) showing decorations apparently made with metal tools and with an occasional specimen also showing file marks, we are forced to the conclusion, if the metal be regarded as European, that the Punuk settlement cannot be older than three hundred years; for it was toward the middle of the 17th century that the Cossacks began to penetrate Northeast Siberia, bringing metal which the Chukchi received and passed on in trade to the Siberian and Alaskan Eskimos. It is quite possible that the greater number of objects from the old Punuk site were carved with stone tools; certainly the hundreds of stone knife, harpoon, and adz blades found show that stone played an important part in their industries. The first few tools of

iron received may have been such prized possessions that they were used only for fine cutting and for decorating implements and ornaments.

It is somewhat difficult to reconcile the many outward evidences of antiquity at the old Punuk site with an age of only three hundred years. Even the houses on the top of the midden are now represented by nothing more than shallow levelled pits and fallen whale bones. Wood is absent to a conspicuous degree. The tremendous pile of refuse, reaching a total height of sixteen feet, and most significant of all, old houses at the very bottom of the midden and six feet below the reach of storm tides, would appear without doubt to be *prima facie* evidence of a considerable antiquity. If the metal could have reached Punuk Island from some Oriental source before the arrival of Europeans in eastern Siberia or in the North Pacific, it would be possible to allow an antiquity to the site more in keeping with its appearance. At present, however, this can be mentioned only as a possibility; it seems safer to consider the age of the Punuk site, at least provisionally, as not greater than three hundred years.

Whatever the age in years of the Punuk site it is without doubt later than the sites from which come the curvilinear art of the old Bering Sea culture. This is indicated by the difference in technique referred to and the fact that the Punuk ornamentation at times approaches very closely that of the modern Alaskan Eskimo.

Distribution affords further evidence. The old curvilinear art has been found at Point Barrow, Point Hope, Cape Prince of Wales, Northeast Siberia, the Diomed Islands, Imaruk Basin, St Lawrence Island, and one specimen is reported from Nelson Island. The Punuk type occurs on St. Lawrence and Punuk Islands and one example comes from Point Hope. While the few decorated specimens from mainland sites that have found their way into collections are of the old Bering Sea style, this need not mean that it is the only type present, for with the exception of Wales and the Diomedes we have no detailed first hand knowledge of any northern Alaskan sites. For the present, therefore, we must turn to St. Lawrence Island for anything like a comprehensive or comparative view.

The old curvilinear art has been found at Gambell on the northwestern end of the Island and at Kukuliak on the north side, with traces of it—four out of 141 decorated specimens—on Punuk Island and Cape Kialegak. The Punuk type prevails at Punuk Island and Cape Kialegak and appears to be much more common than the curvilinear at Gambell and Kukuliak. The explanation that appears to best fit these facts is that the northern and western St. Lawrence sites, such

as Gambell and Kukuliak, are older, having passed successively through the stage when the curvilinear art flourished, into that of the Punuk type, and finally into the modern. Punuk Island and Cape Kialegak, however, appear to have been settled either after or near the close of the curvilinear period, the occupancy continuing until recent years. This eastward movement would be in keeping with the reasonable assumption that the first settlements of Siberian Eskimo on St. Lawrence were made at the western end of the Island.

By any chance, could the Punuk art have coexisted with the curvilinear? In view of the distribution and considerations of technique this seems very unlikely. The presence of two contemporaneous art styles as distinct as these are, one consisting of deftly incised free hand circles, ellipses, curves and lines, and the other of cleanly cut, straighter, and more rigid designs evidently produced with metal tools, both, furthermore, purely decorative in character and both present on the same types of artifacts, would be a most unusual situation and one without parallel in Eskimo history. We must await stratigraphic studies at the western sites where the two types are known to be present before definitely settling the question of their chronological positions. But even assuming the two styles to have coexisted on St. Lawrence Island it would still be extremely difficult to account for the presence of only the single type at Punuk and Cape Kialegak, since according to all available evidence there has always been close intercommunication between the different villages on the Island. This exists today and that it existed formerly is indicated by the identity of much of the archeological material from one end of the Island to the other. It must certainly be regarded as significant that at Punuk Island, the only St. Lawrence site where intensive and systematic excavations have been made, there were found among the several thousand specimens, including 141 decorated objects, only four examples of the old curvilinear art and those fragmentary and water-worn; while at Gambell and Kukuliak the random digging of the Eskimos has brought to light a considerable number of objects decorated in both styles. The evidence, therefore, though not yet as direct and conclusive as might be desired, points plainly to the two art styles as representing different periods, with the curvilinear style as the older.

The question as to whether the Punuk style represents a purely local development on St. Lawrence Island must for the present remain unanswered. As to its being a firmly established type on St. Lawrence there can be no doubt; a greater number of specimens of the Punuk type have been found there than of the curvilinear. It is also significant

that only one example of it has been described from a site outside of St. Lawrence—the winged object from Point Hope described by Mathiassen. Thus, the present evidence seems to indicate that the Punuk style of art, if not entirely restricted to St. Lawrence Island, at least played a more dominant rôle there than elsewhere. We must have further knowledge of other old north Alaskan sites before the actual range of the Punuk style of ornamentation can be determined.

OBJECTS FROM PUNUK AND ST. LAWRENCE ISLANDS SHOWING MODERN DESIGNS

Reference has been made on page 17 to the finding of seven specimens in the old sections of Punuk and Cape Kialegak showing modern decoration. On plate 17 are shown six of these, together with two similarly decorated specimens from Gambell.

Plate 17, *a*, is probably one piece of a double knife handle. The decoration is thoroughly modern, consisting of two narrow bands containing alternating spurs, two small Y-shaped figures, and pairs of parallel lines. It should be mentioned perhaps that this specimen was found on the surface at the old village, where it might possibly have been lost by the later people who occupied the houses at the end of the Island within recent years.

Plate 17, *e*, represents a cord handle of modern type from Punuk Island. It is carved in the shape of a seal with a longitudinal hole through the base for receiving the line. Short straight lines are the only decoration.

In *f* is shown a wrist guard collected by Dr. Riley D. Moore at Gambell. It is of deeply stained ivory and bears the decoration of narrow bands and numerous alternating spurs generally applied to St. Lawrence wrist guards.

In *g* is shown another object from Gambell, the use of which is doubtful. It is decorated like the preceding specimen but with larger and more widely spaced spurs.

The object shown in *h* is a ferrule used on the end of the dog whip handle for disentangling the harness lines. The ornamentation of lines and spurs is carelessly applied.

The three bone tubes, *b*, *c*, and *d*, plate 17, from Punuk Island and Cape Kialegak, are probably needle cases. The simple decoration consists of encircling lines, spurs, and detached dots. A similar specimen was purchased which had been excavated from the old village at Gambell. Assuming these tubes to have been used as needle cases, it will be observed that they are practically identical with those

in use by the present Eskimo of the Yukon-Kuskokwim district. Two of these modern needle cases are shown for comparison on plate 18. We seem to have evidence in the St. Lawrence and Punuk specimens of a definite association between a certain ornamental type and a particular class of objects. The same simple ornamentation was found on a few additional specimens, some of which are shown on plate 17, but the bone tubes represent the only class of objects in which every example bears this simplified modern decoration. Its presence at the old sites shows that at a comparatively early period the designs that we think of as characteristic of the modern Eskimo were already established, although submerged or overshadowed by the more elaborate designs typical of Punuk. It is merely a simplification of these designs, however, and not something apart, for spurred lines and dots are among the constant features of the Punuk style.

On plate 9, figure 3, is shown the upper part of an old needle case of different form excavated at Gambell. It is of especial interest in connection with Boas' interesting study of needle cases¹ and Mathiassen's recent references thereto.² Boas concluded that the flanged tubular needle case of the Norton Sound region in Alaska and the winged needle case of the eastern Eskimo were derived from the same origin: "It seems to me very plausible that the Alaskan type and the Eastern type represent specialized developments of the same older type of needlecase, and that the flanges and diminutive knobs of the Alaskan specimens are homologous to the flanges and large wings of the Eastern specimens." Furthermore, he showed conclusively that the animal heads and human figures found on some of the Alaskan specimens were secondary adaptations of the original flanges and knobs: "The conclusion which I draw from a comparison of the types of needlecases here represented is that the flanged needlecase represents an old conventional style, which is ever present in the mind of the Eskimo artist who sets about to carve a needlecase. The various parts of the flanged needlecase excite the imagination of the artist; and a geometrical element here or there is developed by him, in accordance with the general tendencies of Eskimo art, into the representation of whole animals or of parts of animals. In this manner small knobs or the flanges are developed into heads or animals." Mathiassen questioned the validity of this view

¹ Boas, Franz. *Decorative Designs of Alaskan Needlecases: A Study in the History of Conventional Designs. Based on Materials in the U. S. National Museum. No. 1616, Proc. U. S. Nat. Mus., Vol. XXXIV, pp. 321-344, 1908.*

² *Archeology of the Central Eskimo, Vol. II, pp. 92-97.*

and concluded that "The Alaskan type seems to be a very locally restricted, special form, which has hardly anything to do with the origin of the winged needle case." On the other hand he considered that the Alaskan type of needle case in human form was the prototype of the winged needle case of the East. As evidence of this he points to two ancient needle cases of a modified winged type from Point Barrow, one of which has on each wing two oblique lines which "are apparently intended to indicate the hands bent in front of the body." The interpretation of these lines as hands is extremely doubtful. No single feature of the two needle cases suggests the human form and as for the pairs of oblique lines, they may be compared much more readily with the similar oblique lines on the lower parts of the flanges of many of the Alaskan specimens. The significant point, however, is that these two Point Barrow needle cases are in reality intermediate between the winged needle case of the East and the Alaskan flanged needle case, and not, as Mathiassen has supposed, between the winged case and the Alaskan case in human form. Comparison of the three types will, I believe, bear this out. The upper portions of the Point Barrow specimens are widened out like the Alaskan forms although there are no distinct flanges. The bands and spurred lines are known to both regions but their arrangement is more suggestive of the Alaskan cases. The "wings" are of the Eastern type but are much longer and narrower than in the typical Eastern needle case.

In the fragmentary needle case from Gambell, plate 9, figure 3, we have a modification of the Point Barrow type still further in the direction of the Alaskan flanged type. The general shape is that of the Alaskan case except that there are no flanges at the enlarged end; the bands with alternate spurs are common to both types; the two long incurving lines down the sides are the same as those on the Point Barrow specimens but they do not contain "wings." I consider that the Point Barrow and Gambell needle cases furnish further and conclusive evidence of the relation between the Alaskan and Eastern needle cases as demonstrated by Boas. It appears to me also that we may have here a possible explanation of the origin of the Eskimo needle case. The Gambell form may have been the prototype from which developed on the one hand the restricted Alaskan form with its flanges and knobs and on the other the Eastern form with its prominent projecting wings, the Point Barrow specimens representing an early stage in the development of the winged type. I do not care to stress this hypothesis, however. The Gambell type might as reasonably have been derived from the Point Barrow type, having retained the long incurving lines while losing the wings. Whatever the expla-

nation may be, it now seems very probable that the origin of the needle case when fully traced, will be found to be in Alaska; and that whatever form it may have had originally it was not a human or animal form, the occurrence of which among the Eskimo, as Boas has shown, can so often be attributed to the strong tendency of the artist to enliven and vary his handiwork by the occasional replacement of existing simple or geometric elements by life forms.

RELATION BETWEEN THE ANCIENT AND MODERN ART OF THE BERING SEA REGION

The objects illustrated on plate 18 are from Nelson's collection of modern Alaskan Eskimo material and are included to show certain designs of the Punuk period that have continued in use to the present time.

Plate 18, *f* and *g*, are the two needle cases previously referred to from the Kuskokwim and the lower Yukon, respectively. They are shown for comparison with the old needle cases from St. Lawrence and Punuk Islands illustrated on plate 17.

An animal carving from Bristol Bay is shown in *a*. Opposite rows of six oblique lines suggest the ribs while the seven small squares with enclosed dots are no doubt supposed to represent the vertebral column. Squares of this kind were also seen on plate 12, *f*, from Punuk, but they were not employed in a manner to suggest a realistic meaning.

In *b* is shown the under side of a woman's hair ornament from Agiukchugumut, to the south of Nelson Island. Like the preceding specimen it has a row of small squares but no dots. This is a fairly common design among the Alaskan Eskimo; it is to be compared with similar designs from Punuk shown on plates 10, *a-b*, and 15, *i*.

Plate 18, *c*, is a bodkin from Sledge Island. Two of the edges are carved with a series of notches or serrations in the tops of seven small elevations. This is the principal decorative motive on the lower end of bird dart points from Punuk, plate 15, *e, f, g*. Other modern examples are given by Hoffman,¹ plates 37, 5; 38, 4; 39, 3-4; and by Nelson,² plate XLIII, 23; and figure 20.

In *d* is shown a woman's workbag fastener and bodkin from the lower Yukon. It is introduced here to show the continuation among the modern Eskimo of the familiar decoration of lines with spurs attached. It should be compared with many objects of both the Punuk and the curvilinear stages shown on previous plates.

¹ Hoffman, W. J., *The Graphic Art of the Eskimo*. Rep. U. S. Nat. Mus., 1897.

² Nelson, E. W., *The Eskimo about Bering Strait*. 18th Ann. Rep. Bur. Amer. Ethnol., 1899.

Another workbag fastener, from Norton Sound, is shown in *e*, on which the decoration is restricted to bands of parallel lines. Similar designs were observed on specimens from the Punuk period shown on plate 10, *c-d*, and figure 2.

On plate 19 are illustrated additional objects from the modern Alaskan Eskimo showing typical designs that occur also in the Punuk stage. It is of considerable interest to note that in the modern material from St. Lawrence Island there are very few decorated objects of any kind, so that in order to find modern examples with which to compare the old art of St. Lawrence we must turn to the Alaskan mainland. This poverty of decoration on St. Lawrence is paralleled on the Asiatic side of Bering Strait, where the Yuit, the Siberian kinsmen of the St. Lawrence Islanders, also exhibit a striking deficiency in art. The reduction of the modern St. Lawrence Island and Siberian Eskimo to such a low artistic level can perhaps be best explained as the result of a relatively late Chukchee influence. The Eskimo of the Alaskan mainland, practically free from such influence, have merely retained a more abundant residuum of the highly developed ancestral art common to the entire region.

Plate 19, *a*, *b*, and *c*, are three objects from the modern St. Lawrence Eskimo, collected by Dr. Moore. The first, *a*, is a broken wrist guard with decoration similar to the one shown on plate 17, *f*, but with the addition of pronged figures to the lines and spurs. The two small bird figures, *b* and *c*, are simply ornamented with dots.

In *d* and *e* are illustrated a workbag fastener and belt buckle from the Kuskokwim region collected by Nelson, showing the well known nucleated concentric circles which are directly comparable to the compass-made circles of the Punuk period. It will also be observed that the centers of the circles, as is so often the case, have wooden insets. This is a feature that was also observed in the old curvilinear art, but which was not present on any of the objects from Punuk or Cape Kialegak.

Plate 19, *f* and *g*, are two modern specimens from Norton and Kotzebue Sounds, on which the spurs within the bands are so evenly applied as to make the uncut space between them appear as a continuous zig-zag.

On plate 20 are illustrated six modern harpoon heads showing the nature of ornamentation applied to these objects by the modern Alaskan Eskimo. By far the greater number of modern harpoon heads are undecorated, in contrast to the old specimens which often bear elaborate designs.

The large whaling harpoon head of bone, *a*, is from Point Hope. It bears a simple ornamentation of lines and spurs arranged about

the line hole in the manner characteristic of the Point Hope region, and likewise of Punuk, though the decoration on the harpoon heads from the latter locality is much more elaborate.

The two smaller harpoon heads, *b* and *c*, from Point Barrow, are simply decorated with lines, and on *b*, small hachured triangles. Red pigment has been rubbed into the incisions.

In *d* is shown a small harpoon head from Nunivak Island. It has a three pronged barb and a decoration of two concentric circles with spurs attached. Nunivak Island and the neighboring mainland are the only localities where circles and dots are applied to harpoon heads at the present time.

The small bone harpoon head shown in *e* is from the Semidi Islands, south of the Alaska Peninsula. Across one barb and extending obliquely up toward the center is a decoration consisting of a narrow band enclosing six small lines.

In *f* is shown a bone harpoon head excavated at Metlatavik, 22 miles above Cape Prince of Wales. On both the upper and lower sides is an elongated depression bordered by two lines, the outer one continuing to the base where it follows the bifurcated barb. Immediately above the line hole are two small grooves 5 mm. long, one on each side, which from the position and shape may be regarded as representing ornamental remnants of grooves for side blades.

Two modern seal dart foreshafts from Southwest Alaska, carved to represent the sea otter, are illustrated on plate 21. These are introduced for the purpose of comparison with the ancient ivory object on plate 5 and the somewhat more recent foreshaft shown on plate 9, figure 2. These two modern foreshafts illustrate the well-known tendency of the Eskimo of the Bristol Bay-Nunivak region to utilize life forms for the embellishment of their implements and weapons. An animal with open mouth and exposed teeth is a favorite decoration applied to the foreshaft of the seal dart. In *a* the eyes and nostrils are small cylindrical plugs of baleen, but in *b* they are merely shallow depressions filled with a bluish clay.

Plate 9, figure 2, represents the foreshaft for a light dart. This was bought at Teller, Seward Peninsula, and was reported to have been excavated on one of the Diomedes. It is $8\frac{1}{2}$ cm. long, but the lower end is missing. There is a circular perforation on the lower side for holding a thong, and in the forward end a circular hole 8 mm. deep for the dart head. The projecting ears are suggestive of a land mammal but the curves about the head suggest the gills of a fish. Apparently there was no intention to clearly represent any particular animal. The discs forming the eyes are of baleen. The object is a rich chocolate

brown but the ornamentation shows no direct relation with the old Bering Sea art with the exception of the spurs bordering the curving lines. The decoration is also of neither the Punuk nor the modern type. It may be that it represents an intermediate stage of art on the Diomedes between the old curvilinear and the modern. On the other hand it may be largely the result of individual fancy and have little or no significance as an art type. Its shape, however, is of more importance, and along with the older object shown on plate 5, might be taken to indicate a closer connection in early times between the art of Bering Strait and Southwest Alaska, or even, as was suggested before, to point to a possible ancient connection between the Bering Strait region and the Northwest Pacific Coast. I would again stress, however, that these few specimens are wholly inadequate from either the standpoint of numbers or of closeness of form and design, to afford more than a suggestion that future archeological investigations may reveal more dependable evidences of such a possible contact. If no such evidence should be forthcoming the realistic and symbolic art of Southwest Alaska could no doubt be safely regarded as the result of comparatively late Indian influence that furnished life motives around and within which these Eskimos continued to employ the geometric elements they possessed in common with the Alaskan Eskimo to the northward.

Comparison of the decorative art of the Punuk period with that of the modern Alaskan Eskimo reveals numerous striking similarities as well as certain important differences. On plates 18 and 19 are shown examples in which individual designs have been carried over without change. However, these designs are differently applied on the modern objects. The decorative elements are usually detached, or, if connected, are repetitive. The decorated objects of the Punuk period, on the other hand, are generally marked by a certain continuity of design. This may be observed on practically all of the typical Punuk examples, whether as on plate 12, where the lines and dots are somewhat sparingly applied, or on plate 13, where the lines and spurs cover all of the available surface.

The three principal elements in Eskimo art: the spurred line, the Y figure, and circle and dot are seen to have been present, though usually in different form, in either or both the curvilinear stage of the old Bering Sea culture and the succeeding Punuk stage. The spurred line is a common feature to both stages; the Y figure does not appear in the earlier curvilinear art but in the more angular art of the Punuk period it is a common design although it differs from the modern pronged or Y figure in being larger and in being connected with a unit

design; whereas in the modern art it usually rises from a base line and stands detached. The nucleated circle occupies a most important place in the decorative scheme of early Eskimo art. It was shown to occur in the old Bering Sea culture as a slightly irregular, often elliptical figure, engraved free hand and apparently with stone tools. It then follows in the Punuk stage as a perfectly symmetrical, cleanly cut circle, made with a compass or bit which almost certainly was of metal. In the modern art it is made in exactly the same way, although it is usually represented as a more or less detached element instead of an integral part of a connected design as in the old curvilinear and Punuk stages.

The distribution of the circle and dot design in Northwestern America has recently been studied by Dr. Leslie Spier and Miss A. Dorothy Smith.¹ The following statement is made: "This has often been looked on as a typical Eskimo decoration. But we are able to show by its distribution that it is more clearly characteristic of the Indians of the northwest, with only a limited distribution among the Eskimo." In conclusion, the following statement is made: "In western Alaska the great elaboration of the dot and circle into a series of concentric circles numbering frequently five and six may be dependent upon iron tools. The extreme regularity of the circles speaks for the likelihood of the use of bits of various sizes. This, however, does not solve the problem of the simple nucleated circle which is probably older and, together with the alternate spur design, the basic unit from which the elaborate decorations are made. Two reasons can be given for this view. First, it is simple and possible to accomplish with stone implements. Second, in its simple form as a single dot and circle it has a wide and fairly continuous spread down the Pacific coast, and a wide if sporadic distribution in Eskimo territory. If the Alaskan decoration had been imitated, we would expect to find some similar examples elsewhere."

The principal value of such studies of spatial distribution lies in the light they may be able to throw on the problem of the origin and spread of culture traits when more dependable data revealing a direct time sequence are lacking. In the present case there was some justification for regarding the circle and dot in Alaska as derivative, in view of its greater spread among the Indian tribes to the southward and in the absence of conclusive archeological evidence to the contrary. Considered in the light of recent archeological developments in Alaska, however, the validity of this conclusion can no longer be upheld.

¹ The Dot and Circle Design in Northwestern America. *Journ. Soc. Americanistes de Paris*, XIX, pp. 47-53.

There is now clear evidence of the antiquity of the circle and dot design in northwestern Alaska where it is seen to have formed the basic element in a very old art style. There is, on the other hand, no evidence of the antiquity of the design over the wide area outside of Alaska where it is now found except possibly at certain sites excavated by Harlan I. Smith in British Columbia and Washington.¹ The antiquity of these finds was regarded as questionable, however, Smith being of the opinion that the design in this region was relatively recent. Wherever the circle and dot may have originated, among the Alaskan Eskimo at least it was indigenous, having developed from an earlier Alaskan culture. That this earliest known form of the Eskimo circle and dot may have had its origin to the southward is, of course, possible, but there is at present no evidence pointing in that direction.

The various elements that enter into the composition of the designs of the old curvilinear Bering Sea art, the later Punuk stage, and the modern have been examined. In order that these three stages may be directly compared the observed resemblances and differences are given below in tabular form. A + sign indicates the presence and a - sign the absence of a feature.

	Curvilinear Stage	Punuk Stage	Modern
Free hand circles.....	+	-	-
Compass made circles.....	-	+	+
Elliptical figures	+	-	-
Raised circles and ellipses.....	+	-	-
Circles suggesting a pair of eyes.....	+	+	-
Circles between converging lines.....	+	-	-
Small plugs at centers of circles.....	+	?	+
Curved liplike projections.....	+	-	-
Curving lines	+	+	Rare
Short cross lines.....	-	+	+
Broken lines	+	-	-
Deeply cut lines.....	+	+	+
Lightly cut lines.....	+	Rare	-
Lines in straight bands.....	-	+	+
Dots within circles.....	+	+	+
Dots at ends of lines.....	-	+	-
Dots detached	-	+	+
Straight and oblique spurs.....	+	+	+
Alternate spurs	-	Rare	+
Hachured areas	+	-	+
Y figure	-	+	+
Small squares or rectangles.....	-	+	+
Ornamental serrated edges.....	-	+	+
Red pigment rubbed in lines.....	?	+	+

¹ Archeology of the Yakima Valley. *Anthrop. Papers Amer. Mus. Nat. Hist.*, 6, Pt. 1, 1910, p. 131.

Archeology of Lytton, British Columbia. *Mem. Amer. Mus. Nat. Hist.*, 2, Pt. 3.

Of the 24 features listed above, the presence or absence of 19 among the three culture stages can be clearly recognized. The groups into which these are divided are as follows: from the old curvilinear alone, 6; from the Punuk stage alone, 1; common to all three stages, 3; to the old curvilinear and Punuk stages, 1; to the Punuk and the modern, 7; to the old curvilinear and the modern, 1.

The quantitative arrangement of such elements gives of course an imperfect picture of actual resemblances and differences, due to the varying value of the elements treated and the necessity of restricting it to the detached, objective elements of the art style considered apart from the total decorative scheme. There is also the difficulty that minor changes and gradations, which are of importance in revealing the interrelations of the several culture stages, cannot be adequately expressed. Nevertheless, it serves to emphasize the point brought out previously, that the Punuk phase of the old Bering Sea culture, while still characterized by the ancient types of implements and weapons, shows in its decorative art a closer relation to the modern Eskimo than to the preceding curvilinear stage of the old Bering Sea culture. On St. Lawrence Island, at least, it represents a transitional stage between the richer curvilinear art and the modern art of the western Eskimo. Its possible distribution beyond St. Lawrence and the place it may have had in the sequence of ancient Eskimo cultures elsewhere cannot be determined until more information is available on northern Alaskan sites.

RELATION OF THE OLD BERING SEA CULTURE TO THE BIRNIRK CULTURE OF NORTHERN ALASKA AND THE THULE CULTURE OF CANADA AND GREENLAND

One of the most important problems that arises in connection with the ancient Bering Sea culture is to determine its range and relationship to ancient Eskimo cultures elsewhere.

According to the rather scanty evidence available, the ancient Bering Sea culture appears to have extended from St. Lawrence Island and the northeastern coast of Siberia eastward beyond Bering Strait to Point Barrow, and typical harpoon heads have been found as far west as the Kolyma River. For the Point Barrow region we have Wissler's description of harpoons and darts collected by Stefansson in 1912, and in addition the later Van Valin collection from the same region. From Wissler's¹ paper and from Mathiassen's² references

¹ *Anthrop. Papers Amer. Mus. Nat. Hist.*, Vol. XIV, Pt. II, 1916.

² *Indian Notes*, Vol. 6, No. 7, p. 52.

to the Van Valin collection it is seen that the decorated artifacts from the Point Barrow region are of the type illustrated here on plates 1 to 8. More important than the decorative art in this instance, however, is the presence of a certain form of harpoon head, called by Mathiassen the Birnirk type, which appears to be characteristic of the oldest sites around Point Barrow. These harpoon heads have open shaft sockets and rectangular slots for lashing, but the features that most strikingly set them apart are one or more side blades of stone and two or more obliquely placed terminal barbs. At Birnirk, which from Stefansson's other data is regarded as the most ancient of the sites about Point Barrow, this harpoon head is the dominant type; at Cape Smythe, the next oldest site, it is also found but in association with later forms of harpoon heads and other artifacts; at the site of the modern Point Barrow village it is rarely found. Mathiassen considers that the Van Valin collection from near Point Barrow represents a still earlier period.

Jenness does not mention finding true Birnirk heads at Wales or the Diomedes, but in a plate illustrating the evolution of the harpoon head in northern Alaska he places it as the oldest form.¹ The finds at Penuk Island and Cape Kialegak bear out this interpretation, though in a somewhat indirect manner. I was not so fortunate as to obtain a direct sequence of harpoon types at either of these sites except that the modern closed socket harpoon head was found invariably restricted to modern ruins and the upper levels of the later Kialegak midden. Comparatively few Birnirk type heads were found, but it is significant that all of these came from the lower levels of the middens. It is also of interest to note that, while the great majority of the harpoon heads from these two sites were of ivory, only one of the Birnirk type was of this material, the others being of bone; and further that the only other bone harpoon heads found were very thin open socketed forms, with no blade slit and usually with an irregular or obliquely placed terminal barb, features all suggestive of the Birnirk heads, lacking only the side blades and the bifurcated or trifurcated barb. Of three Birnirk type heads purchased at Gambell two were of bone and one of ivory. It appears, therefore, that we have here a fairly definite association between material and form, the Birnirk and a possible immediate derivative type being of bone. The presence of these bone harpoon heads, restricted to the lower levels of sites yielding otherwise only those of ivory may be regarded as presumptive evidence in favor of their being one of the oldest if not the oldest type of

¹ Ann. Rep. for 1926, Nat. Mus., Canada, pl. XII.

harpoon head represented on St. Lawrence Island as well as on the Arctic coast of Alaska. The occurrence of the Birnirk type in practical isolation at the ancient sites around Point Barrow would seem to favor the view that these sites were older than the St. Lawrence sites where the type is associated with other forms. This cannot be stated with any degree of certainty, however, until it is possible to make more comprehensive comparisons between the material from the several sites.

To the east of Alaska, in Northern Canada, Baffin Land and Greenland, are found the ruined settlements of Eskimo who preceded those occupying the same regions today and whose culture has been so thoroughly described by Mathiassen. The ancient culture represented at these sites he has designated as Thule, from the locality in north-western Greenland where it was first found. Concerning the origin of the Thule culture and its relation to other Eskimo groups, Mathiassen makes the following statement:

When going through the elements of the Thule culture we have time after time had occasion to observe the close connection which apparently exists between the Central Eskimo Thule finds and certain groups of Western Eskimos, especially their most Arctic sub-groups at Pt. Barrow and East Siberia. That in former times there has here been a very close and intimate connection cannot be doubted. The question is then merely whether the migration has proceeded from the central regions towards the west or vice versa, whether the Thule culture has originated in the central regions or the western regions. As has already been stated, the Alaska culture has, in many respects, remained at a more primitive, more original stage than the culture in the central and eastern Eskimo regions. Now the question is whether in the time of the Thule culture too it did this or whether the opposite is the case. . . . In the Central Eskimo finds there are elements the prototypes of which we only know from the western regions and which consequently must have come from there; thus these are types which must have developed in the west from earlier forms and which have only wandered eastwards in their later form, where we now find them in the Thule culture. . . . We must therefore imagine that the Thule culture, with all its peculiar whaling culture, has originated somewhere in the western regions, in an Arctic area where whales were plentiful and wood abundant, and we are involuntarily led towards the coasts of Alaska and East Siberia north of Bering Strait, the regions to which we have time after time had to turn in order to find parallels to types from the Central Eskimo finds. There all the conditions have been present for the originating of such a culture, and from there it has spread eastwards right to Greenland, seeking everywhere to adapt itself to the local geographical conditions. And it can hardly have been a culture wave alone; it must have been a migration.¹

The evidence that leads Mathiassen to this view is, I believe, clear and convincing, and there can be no doubt that the interpretation advanced is in the main correct.

¹ Archeology of the Central Eskimo, Vol. II, pp. 183-184.

Comparison of the decorated objects and harpoon heads of the Thule culture with similar material from the new collections from old Bering Sea sites appears to throw additional light on the time relations involved. Comparatively few examples of decorative art are included in the Thule finds, and what there is shows but little resemblance to the ancient Alaskan art. It is, however, very similar to modern Alaskan art. Lines, spurs, the Y figure, and the dot are the geometric elements represented; the circle was not found. Most significant, however, is the presence in the Thule culture of a few crude examples of realistic etchings of animals and objects.¹ This type of art has never been found at an ancient site in Alaska, although it is a most characteristic feature of modern Alaskan Eskimo art. The Thule culture, therefore, with an art style very close to that of the modern Alaskan Eskimo can hardly have been older than the ancient Bering Sea culture which dates from a time when realistic art apparently had not yet appeared. A possible explanation of the origin of the realistic or graphic art of the modern western Eskimo might be that it was derived from the Thule culture through a return migration within the past few centuries, subsequent to the original eastward spread of the Thule culture. In this way could be explained the absence of realistic art at the old Alaskan sites and its presence at the old Thule sites to the eastward. But even if the realistic art of the Thule culture should be assigned a greater antiquity than in the western regions, the origin of the geometric art found at the same Thule sites would remain to be explained. It has been shown that the ancient Bering Sea art embodied the principal basic elements that are found in the simplified geometric art of the modern period—and of the Thule culture; the geometric art of the west, therefore, can be adequately explained as a local growth and there is no necessity in looking for its source elsewhere.

Among the harpoon heads from Thule sites there are many that show features known in the western regions only from a comparatively late period. First, it will be noted that even at the oldest Thule sites drilled holes for the lashing of the foreshaft are found, whereas Jenness finds this type of lashing to be later at Bering Strait than the use of rectangular slots. It is also late on St. Lawrence Island, and while it appears not to have been a common type, there is one example in the National Museum collection having an iron blade and a small peg at the upper end for holding it in place. On Punuk Island only one harpoon head with drilled holes was found, and this again

¹ Archeology of the Central Eskimo, Vol. II, pp. 120-125.

had a small hole for a peg at the upper end and a triangular line hole with groove leading to the base. This head was found at a depth of about three feet, but inasmuch as it was just below the wooden floor of a house it might possibly have fallen into that position while the house was still occupied.

The small peg for holding the blade in place is also an important feature. It is common in modern harpoon heads from Alaska and eastern regions and also from the Thule culture (see Mathiassen, Vol. I, p. 25 and pls. 39, 40, and 67,) but is not found at the ancient Alaskan sites.

Decoration when present on the Thule harpoon heads is restricted to plain Y-shaped figures about the line hole, with an occasional enlargement of the figure into a triangular hachured area (see Mathiassen, Vol. I, pls. 1, 37, 69, and 72). In Alaska designs of this simple type are found only on recent or moderately old harpoon heads from the Arctic coast (see pl. 20; and Wissler, figs. 7, 8, and 21).

Mathiassen describes certain Thule harpoon heads that have ornamental remnants of side blades, which he regards as an indication that they represent survivals of an earlier Alaskan form with side blades of full size. An additional example of residuary or ornamental side blade grooves is found in the small harpoon head illustrated on plate 20, *f*, excavated at Metlatavik, 22 miles north of Bering Strait. The material recovered from this site included iron and glass beads, showing that the settlement was probably not more than 200 years old. This example of residuary side blade grooves from a late Alaskan site may be regarded as further confirming the explanation advanced by Mathiassen for the Thule harpoon heads showing the same feature.

I am at present inclined to regard as also recent in Alaska the small ivory bird figures that are found in considerable numbers at the Thule sites. These were also numerous in the later Cape Kialegak midden and in the recent houses on Punutuk Island, but in the Punutuk midden, where much more excavating was done, only four were found. Furthermore, none that I have seen from other St. Lawrence or Alaskan sites has had the deep patination that always marks the ivory objects of the oldest Bering Sea period.

Of the features last named, drilled holes around the sockets of harpoon heads for lashing on the foreshaft, small pegs at the tip for holding the blade in place, and the ivory bird figures, may, like the realistic etchings, have had their origin in the east and been carried to Alaska by a late wave of migration. The important point to note, however, is that even though such features as these were derived from the Thule culture, they were nothing more than late additions

to the already highly developed Bering Sea culture. The Bering Sea culture appears without doubt to be the older culture. The Thule culture originated as a direct outgrowth from the other and whatever traits it may in turn have disseminated to the westward were late and had nothing to do with the origin of the Bering Sea culture as a whole.

Jenness speaks of a definite Thule stage in Alaska but also regards it as relatively late: "The writer may hazard an opinion, based, it is true, on evidence not altogether sufficient, that there were Eskimos living south of Bering Strait before the Thule culture established itself in Arctic Alaska whose culture attained a level as high as, or higher than, any known today and whose influence reached as far to the north as Point Barrow."¹

We have seen that Mathiassen in his Thule report recognized that the Thule culture was derived from Alaska. In his later publication, however, he discusses the relation between the Thule culture and the ancient culture represented at Birnirk, near Point Barrow, and concludes that the former is the more ancient: "Are the Birnirk or the Thule harpoon heads the older? . . . The simple shape and the geographic distribution speak in favor of the Thule heads being the older, the side blades (found only as remnants on Thule heads) and partly the patination speak in favor of the Birnirk heads."² The range of the Thule harpoon heads is then discussed and the following statement is made: "This seems to indicate that at a certain period these harpoon-heads were in use from East Siberia to Greenland. But in northern Alaska this continuous chain was broken and the Birnirk heads took their place; the Van Valin collection is from a period very close to the time this change occurred; later on we have the development indicated by the names Birnirk—Cape Smythe—Point Barrow, until we reach the recent culture stage. If the pure Thule culture has to be included in this chain it must be as the *oldest* link. Thus the Thule harpoon-heads must be older than the Birnirk heads."³

As to the first statement, that "the simple shape and the geographic distribution speak in favor of the Thule heads being the older," it seems to me that recent archeological discoveries in the North show above all else that the sequences that can as yet be traced in Eskimo culture have been in the line of simplification or even degeneration (especially in regard to art) and not of the development of simple into more complex forms. The further back Eskimo culture is traced the more intensified and complex it is seen to become. This observed

¹ Amer. Geogr. Soc., Special Publ. No. 7, pp. 170-171.

² Indian Notes, Vol. 6, No. 1, p. 52.

³ Indian Notes, Vol. 6, No. 1, p. 54.

tendency and the reasons previously given for considering the Bering Sea culture as more ancient than the Thule culture, appear to me to be quite sufficient to show that the point raised by Mathiassen, namely, that the simple shape of the Thule heads is an indication of their being older, is on the contrary another indication of their being later.

The attempt to place the Thule culture as earlier than that represented at Birnirk or any other ancient Alaskan site meets with the difficulty that certain characteristic features of the Thule culture are found in Alaska only as late developments or accretions. Typical Thule harpoon heads were found in abundance on Punuk and St. Lawrence Islands, but accompanying these were other types not known from the Thule culture, such as those with multiple barbs and real side blades which, according to stratigraphic evidence, appear to be the oldest of all. This seems to be the general situation in the vicinity of Bering Strait. Wherever sizable collections have been made, the harpoon heads appear in numerous forms, including the various Thule types, the closed socket highly ornamented heads, and those with multiple barbs and side blades, but never, unless at a fairly recent site, are there found harpoon heads with drilled holes for lashing, bone pegs through the upper end, and simple Y figures or hachured decoration about the line hole, such as belong to the Thule culture. According to the available evidence, therefore, the Thule culture of the East appears to have been derived from the ancient Bering Sea culture after the latter had become firmly established on the Islands and mainland of Alaska and Siberia about Bering Strait, to the eastward as far as Point Barrow, and to the westward possibly to the Kolyma. The possibility is recognized, however, that certain later features in Alaska may have been the result of a westward or return migration or of less direct Thule contact subsequent to the original eastward movement of the Thule culture.

In the foregoing review we have examined the art of the ancient Bering Sea culture, the features that distinguish it from the later Punuk phase on St. Lawrence Island, and its relation to that of the present Alaskan Eskimo and the extinct Thule culture of the East. Since it seems clearly to have antedated the Thule culture, the oldest of which we have definite knowledge in the eastern regions, it may be said to represent the oldest known stage of Eskimo culture. It is far from being a primitive culture, however. It is, on the contrary, the most highly developed culture especially in art, that has appeared in the Arctic or sub-Arctic regions; and its discovery, instead of clarifying the problem of the origin of Eskimo culture as a whole, has

only resulted in showing that we must go much further back before that origin is revealed.

The earlier stages leading up to the old Bering Sea culture are as yet unknown; to bring these to light is the most important immediate task that awaits archeological research in the Arctic. Hrdlička and Jenness, whose researches in 1926 brought to light the first definite evidences of this ancient Eskimo culture, are inclined to look toward Siberia as the most likely place of its origin. Jenness says: "We seem justified, therefore, in concluding that the shores and islands of Bering Sea were at one time the home of a distinct and highly developed Eskimo culture, a culture marked by special types of harpoon-heads and other objects that in many cases show the most skilful workmanship, marked too by a very original art, partly geometrical and partly realistic, that suggests in some of its features contact with the Indians of the northwest coast of America, although its roots more probably lie in northeastern Asia."¹

While it is too early yet to speak with any assurance on this important point, the evidence at hand attests the reasonableness of such a view. The close relation which has always been recognized between the St. Lawrence Island Eskimo and those of northeast Siberia is seen to have extended far back into the past. St. Lawrence Island, due perhaps to peculiarly favorable environmental conditions, was certainly one of the principal centers at which this old culture flourished, although from the scanty knowledge we have of the archeology of the Alaskan Arctic coast it seems that an equally high development may have taken place around Point Hope. The still more fragmentary data available from northeast Siberia show that the old Eskimo culture existed there also, not only within the restricted area occupied by the present Asiatic Eskimo, but far beyond this, even to the Kolyma River. The enormous and practically unknown stretch of coast from Indian Point northward to East Cape and thence westward to the Kolyma seems the most likely region in which to search for the beginnings of the ancient Bering Sea culture, which in its later stages produced in Alaska an Eskimo culture of unparalleled richness, gave rise to the highest Eskimo culture of the eastern regions, the Thule culture, and formed the basis of the existing culture of the Eskimo of Alaska and Siberia.

¹ Ann. Rep. for 1926, Nat. Mus. Canada, p. 78.

EXPLANATION OF PLATES

PLATE 1

- a-b*, Harpoon head, northern Alaska. 13.8 cm. long. Owned by Messrs. Albert and Wilfred Berry.
- c*, Harpoon head, northern Alaska. 9.4 cm. long. Washington State Museum.
- d*, Harpoon head, Sevuokok, St. Lawrence Island. 10.5 cm. long. Cat. No. 344580, U. S. Nat. Mus.
- e-f*, Harpoon head, northern Alaska. 15.2 cm. long. Washington State Museum.

PLATE 2

- a-b*, Harpoon head, northern Alaska. 9.8 cm. long. Washington State Museum.
- c-d*, Harpoon head, northern Alaska. 9.1 cm. long. Washington State Museum.
- e*, Harpoon head, Kukuliak, St. Lawrence Island. 10.2 cm. long. Cat. No. 341205, U. S. Nat. Mus.
- f*, Harpoon head, northern Alaska. 6.2 cm. long. Washington State Museum.
- g*, Harpoon head, St. Lawrence Island. 6.8 cm. long. Owned by Mr. C. L. Andrews.
- h*, Harpoon head, St. Lawrence Island. 9.5 cm. long. Owned by Mr. C. L. Andrews.

PLATE 3

- a*, Box handle of bone, Sevuokok, St. Lawrence Island. 21.7 cm. long. Cat. No. 344566, U. S. Nat. Mus.
- b*, Box handle of ivory, northern Alaska. 13 cm. long. Washington State Museum.

PLATE 4

- a*, Ivory object, Nelson Island. 18 cm. long. Washington State Museum.
- b*, Ivory object, northern Alaska, 14.3 cm. long. Owned by Messrs. Albert and Wilfred Berry.

PLATE 5

- Ivory object, Imaruk Basin, Seward Peninsula. 10.5 cm. long. Owned by Rev. C. K. Malmin.

PLATE 6

- Ivory object, Point Hope. 20.5 cm. long. Cat. No. 42927. U. S. Nat. Mus.

PLATE 7

- a-b*, Ivory object, broken, Alaska. 7 cm. long by 5.5 cm. high. Cat. No. 344675, U. S. Nat. Mus.
- c*, Part of harpoon socket piece, Sevuokok, St. Lawrence Island. 14.8 cm. long. Alaska Agricultural College, Fairbanks.

PLATE 8

- a-b*, Ivory object, Point Hope. 13.6 cm. long. Cat. No. 76680, U. S. Nat. Mus.
c, Part of harpoon socket piece. Alaska. 8.7 cm. long. Cat. No. 344676, U. S. Nat. Mus.

PLATE 9

- FIG. 1. *a*, Terminal barb of harpoon head, Punuk Island. 3.1 cm. long. Cat. No. 343225, U. S. Nat. Mus.
b, Middle section of harpoon head, Punuk Island. 3.5 cm. long. Cat. No. 344038, U. S. Nat. Mus.
c, Harpoon head, Punuk Island. 11.1 cm. long. Cat. No. 341164, U. S. Nat. Mus.
d, Harpoon head, Cape Kialegak, St. Lawrence Island. 7.7 cm. long. Cat. No. 342878, U. S. Nat. Mus.
- FIG. 2. Upper end of dart foreshaft, northern Alaska. 8.5 cm. long. Cat. No. 344674, U. S. Nat. Mus.
- FIG. 3. Upper end of ivory needle case, Sevuokok, St. Lawrence Island. 5.8 cm. long. Cat. No. 344543, U. S. Nat. Mus.

PLATE 10

- a-b*, Ivory object, Punuk Island. 9 cm. high. Cat. No. 343141, U. S. Nat. Mus.
c-d, Ivory object, Alaska. 6.5 cm. long by 8 cm. wide. Cat. No. 344677, U. S. Nat. Mus.
e, Ivory object, Kukuliak, St. Lawrence Island. 5.1 cm. long. Owned by Mr. C. L. Andrews.

PLATE 11

- a*, Harpoon head, Punuk Island. 7.1 cm. long. Cat. No. 344034, U. S. Nat. Mus.
b, Harpoon head, Punuk Island. 7 cm. long. Cat. No. 343945, U. S. Nat. Mus.
c, End of box handle, Punuk Island. 8.8 cm. long. Cat. No. 343199, U. S. Nat. Mus.
d, Harpoon head, Punuk Island. 9.1 cm. long. Cat. No. 344021, U. S. Nat. Mus.
e, Harpoon head, Cape Kialegak, St. Lawrence Island. 10 cm. long. Cat. No. 342962, U. S. Nat. Mus.
f, Upper end of dart foreshaft, Kukuliak, St. Lawrence Island. 7.7 cm. long. Cat. No. 344601, U. S. Nat. Mus.
g, Ivory object, Punuk Island. 10.8 cm. long. Cat. No. 343370, U. S. Nat. Mus.
h, Wrist guard, Sevuokok, St. Lawrence Island. 10 cm. long. Cat. No. 342744, U. S. Nat. Mus.
i, Drill rest, Punuk Island. 13.7 cm. long. Cat. No. 343427, U. S. Nat. Mus.

PLATE 12

- a*, Harpoon head, Punuk Island. 8.5 cm. long. Cat. No. 343215, U. S. Nat. Mus.
b, Harpoon head, Punuk Island. 9.1 cm. long. Cat. No. 343162, U. S. Nat. Mus.
c, Harpoon head, Cape Kialegak, St. Lawrence Island. 9.7 cm. long. Cat. No. 342961, U. S. Nat. Mus.
d, Ivory object, Punuk Island. 8.1 cm. long. Cat. No. 343716, U. S. Nat. Mus.
e, Base of harpoon head, Cape Kialegak, St. Lawrence Island. 8.8 cm. long. Cat. No. 342877, U. S. Nat. Mus.

- f*, Ivory object, Puduk Island. 17.2 cm. long. Cat. No. 343229, U. S. Nat. Mus.
g, Part of knife handle, Puduk Island. 15.8 cm. long. Cat. No. 343230, U. S. Nat. Mus.
h, Harpoon foreshaft, Puduk Island. 14.5 cm. long. Cat. No. 343231, U. S. Nat. Mus.

PLATE 13

- a*, Harpoon head, Puduk Island. 9.1 cm. long. Cat. No. 344110, U. S. Nat. Mus.
b, Harpoon head, Cape Kialegak, St. Lawrence Island. 7.1 cm. long. Cat. No. 342875, U. S. Nat. Mus.
c, Ivory object, Puduk Island. 14 cm. long. Cat. No. 343372, U. S. Nat. Mus.
d, Ivory object, Puduk Island. 16.2 cm. long. Cat. No. 343228, U. S. Nat. Mus.
e, Ivory object, Puduk Island. 15.6 cm. long. Cat. No. 343371, U. S. Nat. Mus.
f, Ivory object, Cape Kialegak, St. Lawrence Island. 4.4 cm. long. Cat. No. 342876, U. S. Nat. Mus.
g, Ivory object, Puduk Island. 12 cm. long. Cat. No. 343613, U. S. Nat. Mus.

PLATE 14

- Ivory object, Kukuliak, St. Lawrence Island. 14.2 cm. long. Owned by Mr. C. L. Andrews.

PLATE 15

- a*, Harpoon head, Cape Kialegak, St. Lawrence Island. 11.1 cm. long. Cat. No. 342993, U. S. Nat. Mus.
b, Harpoon head, Puduk Island. 8 cm. long. Cat. No. 344062, U. S. Nat. Mus.
c, Bone harpoon head, Puduk Island. 8 cm. long. Cat. No. 343160, U. S. Nat. Mus.
d, Harpoon head, Puduk Island. 7.4 cm. long. Cat. No. 343213, U. S. Nat. Mus.
e, Bird dart point, Puduk Island. 9 cm. long. Cat. No. 343173, U. S. Nat. Mus.
f, Bird dart point, Puduk Island. 8.6 cm. long. Cat. No. 343172, U. S. Nat. Mus.
g, Bird dart point, Cape Kialegak, St. Lawrence Island. 12.5 cm. long. Cat. No. 342991, U. S. Nat. Mus.
h, Piece of box handle, Puduk Island. 10.2 cm. long. Cat. No. 343681, U. S. Nat. Mus.
i, Broken ivory object, Puduk Island. 5.5 cm. long. Cat. No. 343076, U. S. Nat. Mus.
j, Piece of wrist guard, Sevuokok, St. Lawrence Island. 7.3 cm. long. Cat. No. 344530, U. S. Nat. Mus.

PLATE 16

- Ivory figurine, Puduk Island, 11.7 cm. long. Cat. No. 344107, U. S. Nat. Mus.

PLATE 17

- a*, Part of knife handle, Puduk Island. 10.2 cm. long. Cat. No. 344683, U. S. Nat. Mus.
b, Bone needle case, Puduk Island. 5.1 cm. long. Cat. No. 343472, U. S. Nat. Mus.

- c*, Bone needle case, Punuk Island. 7.2 cm. long. Cat. No. 343955, U. S. Nat. Mus.
d, Bone needle case, Cape Kialegak, St. Lawrence Island. 5.5 cm. long. Cat. No. 343017, U. S. Nat. Mus.
e, Cord handle, Punuk Island. 5 cm. long. Cat. No. 343956, U. S. Nat. Mus.
f, Wrist guard, Sevuokok, St. Lawrence Island. 8.7 cm. long. Cat. No. 280385, U. S. Nat. Mus.
g, Ivory object, Sevuokok, St. Lawrence Island. 9.7 cm. long. Cat. No. 344525, U. S. Nat. Mus.
h, Ferrule for dog whip, Punuk Island. 4.6 cm. long. Cat. No. 343430, U. S. Nat. Mus.

PLATE 18

- a*, Ivory object, Bristol Bay. 9.8 cm. long. Cat. No. 168626, U. S. Nat. Mus.
b, Hair ornament, Agiukchugumut, south of Nelson Island. 3.7 cm. long. Cat. No. 37008, U. S. Nat. Mus.
c, Bodkin, Sledge Island. 12.4 cm. long. Cat. No. 45339, U. S. Nat. Mus.
d, Workbag fastener, Lower Yukon. 12.6 cm. long. Cat. No. 48870, U. S. Nat. Mus.
e, Workbag fastener, Norton Sound. 12.5 cm. long. Cat. No. 33285, U. S. Nat. Mus.
f, Bone needle case, Lower Kuskokwim. 8.6 cm. long. Cat. No. 36787, U. S. Nat. Mus.
g, Bone needle case, Lower Yukon. 12.2 cm. long. Cat. No. 48604, U. S. Nat. Mus.

PLATE 19

- a*, Wrist guard, Gambell, St. Lawrence Island. 8.2 cm. long.
b, Bird figure, Gambell, St. Lawrence Island, 4.6 cm. long.
c, Bird figure, Gambell, St. Lawrence Island, 2.9 cm. long.
d, Workbag fastener, Lower Kuskokwim. 16.3 cm. long. Cat. No. 176225, U. S. Nat. Mus.
e, Belt buckle, Lower Kuskokwim. 6.4 cm. long. Cat. No. 37332, U. S. Nat. Mus.
f, Box handle, Kotzebue Sound. 8.6 cm. long. Cat. No. 48562, U. S. Nat. Mus.
g, Bodkin, Norton Sound. 12.4 cm. long. Cat. No. 43837, U. S. Nat. Mus.

PLATE 20

- a*, Harpoon head, Point Hope. 22.4 cm. long. Cat. No. 201058, U. S. Nat. Mus.
b, Harpoon head, Point Barrow. 10.8 cm. long. Cat. No. 56616, U. S. Nat. Mus.
c, Harpoon head, Point Barrow. 8.2 cm. long. Cat. No. 56611, U. S. Nat. Mus.
d, Harpoon head, Nunivak Island. 7.6 cm. long. Cat. No. 339598, U. S. Nat. Mus.
e, Harpoon head, Semidi Islands. 6.5 cm. long. Cat. No. 72547, U. S. Nat. Mus.
f, Harpoon head, Metlatavik, Seward Peninsula. 6 cm. long. Cat. No. 342617, U. S. Nat. Mus.

PLATE 21

- a*, Dart foreshaft, Alaska Peninsula. 21.5 cm. long. Cat. No. 127766, U. S. Nat. Mus.
b, Dart foreshaft, Lower Kuskokwim. 21.4 cm. long. Cat. No. 38442, U. S. Nat. Mus.

PLATE 22

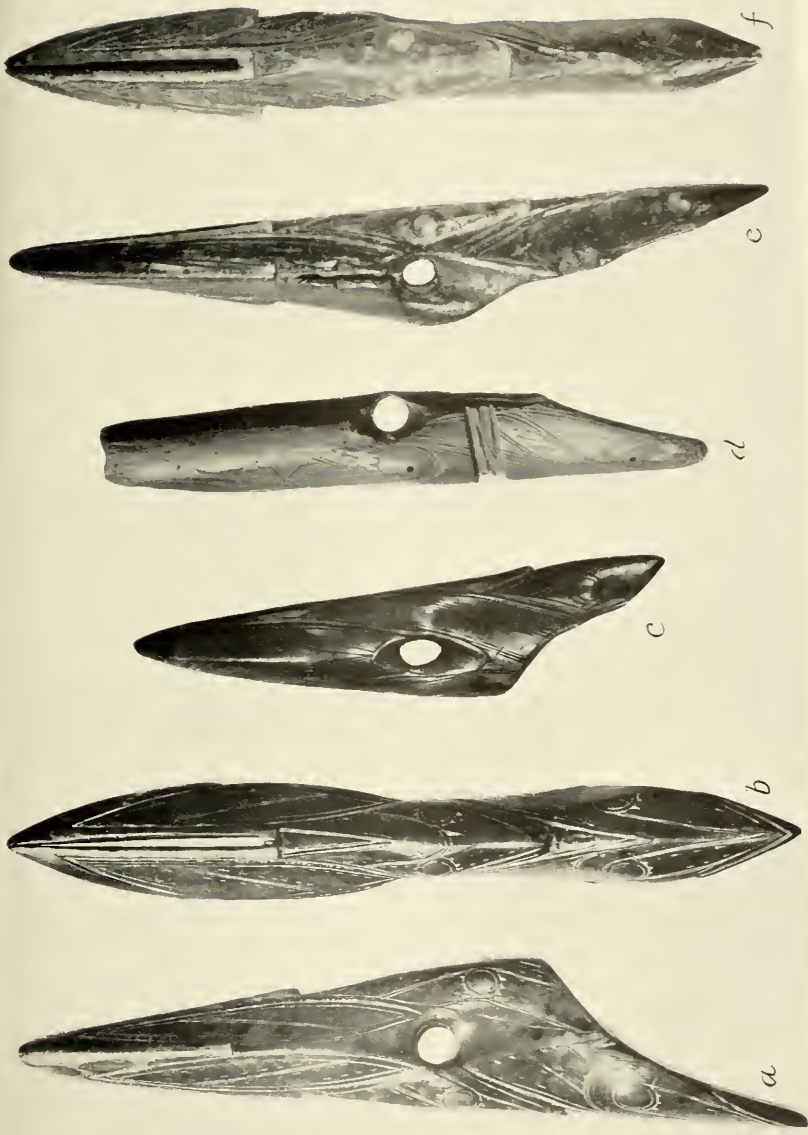
- FIG. 1. View of the Punuk Island midden. Excavation along the outer edges showed that it extended as deep as six feet below the present beach line. Total height 16 feet.
FIG. 2. Excavation in House No. 3. Punuk Island, recent, showing skeleton and partially exposed wooden floor.

PLATE 23

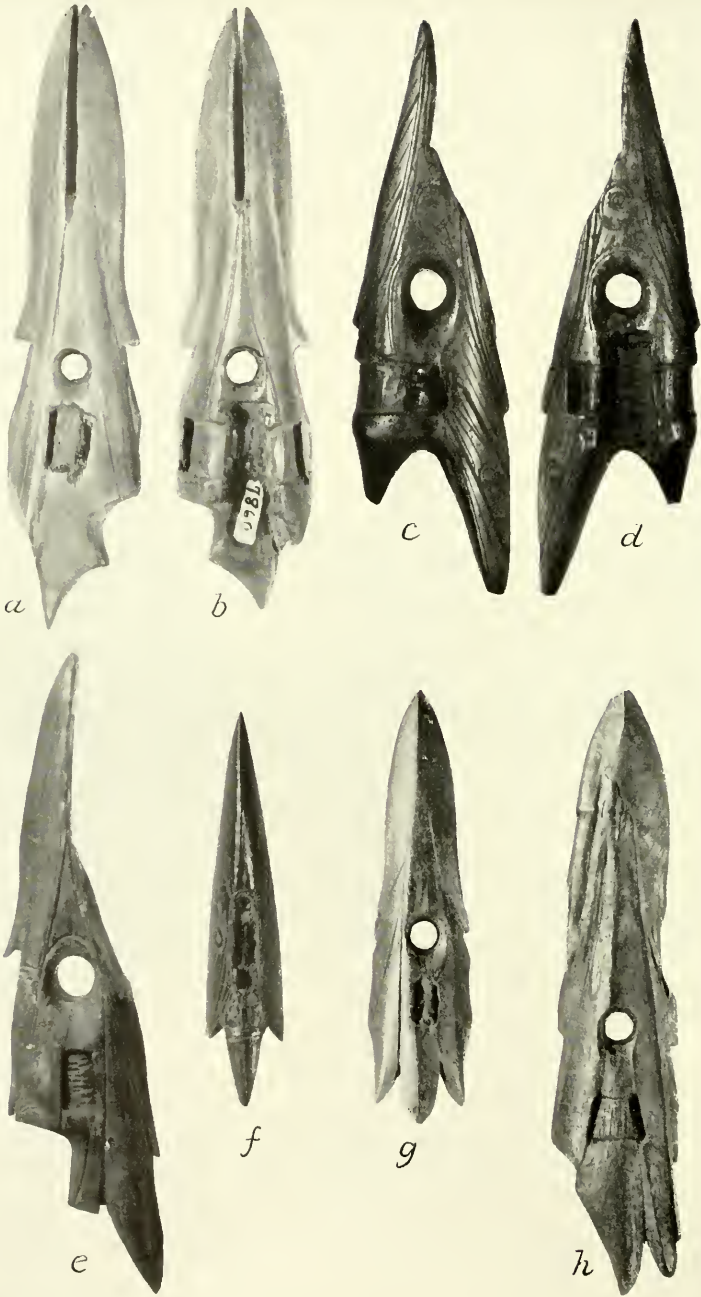
Section of the Punuk Island midden at Cut B, showing timbers and whalebones of an old house at bottom, now six feet below reach of storm tides.

PLATE 24

Recent house ruin at Cape Kialegak, St. Lawrence Island. Framework of drift-wood logs and whale ribs and jaws. Abandoned 50 to 60 years ago.



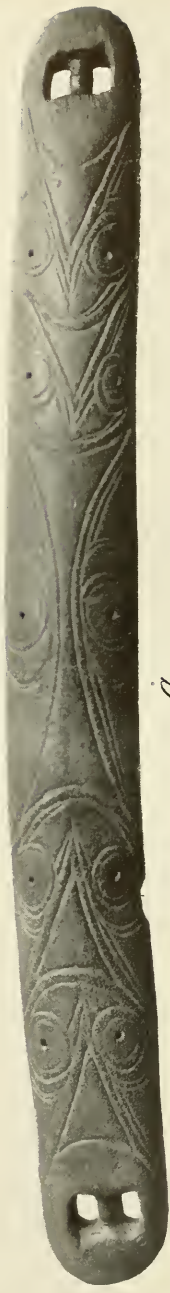
Harpoon heads of walrus ivory.
(For explanation see pages 3-4 and 18.)



Harpoon heads of walrus ivory.
(For explanation see pages 5-6 and 48.)

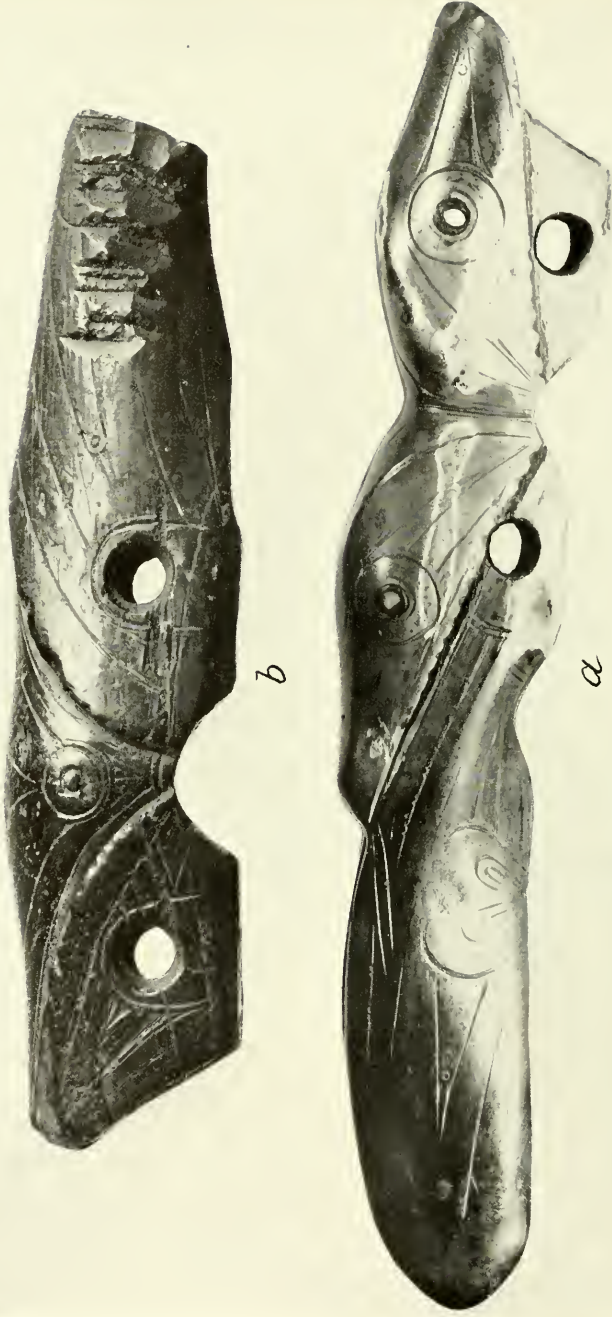


b



a

Box handles of bone and ivory.
(For explanation see pages 6-7 and 48.)



Ivory objects of unknown use.
(For explanation see pages 7 and 48.)



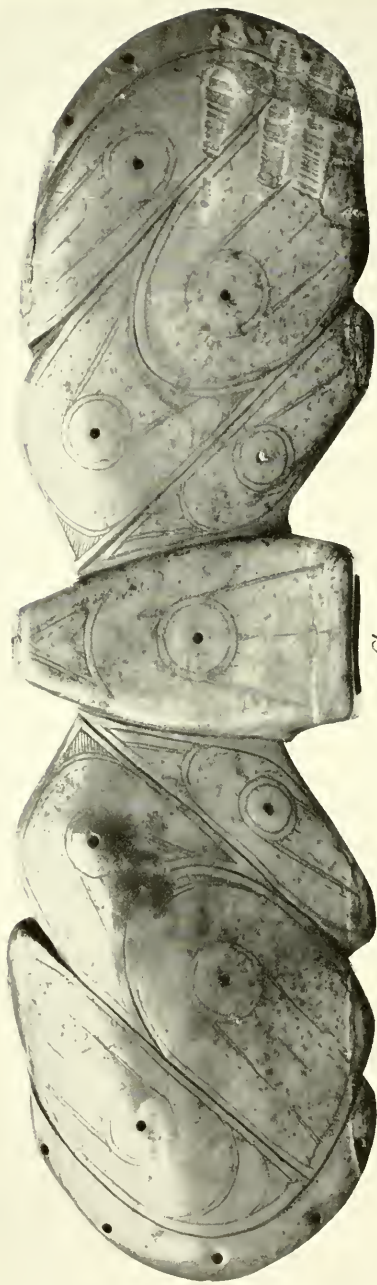
a



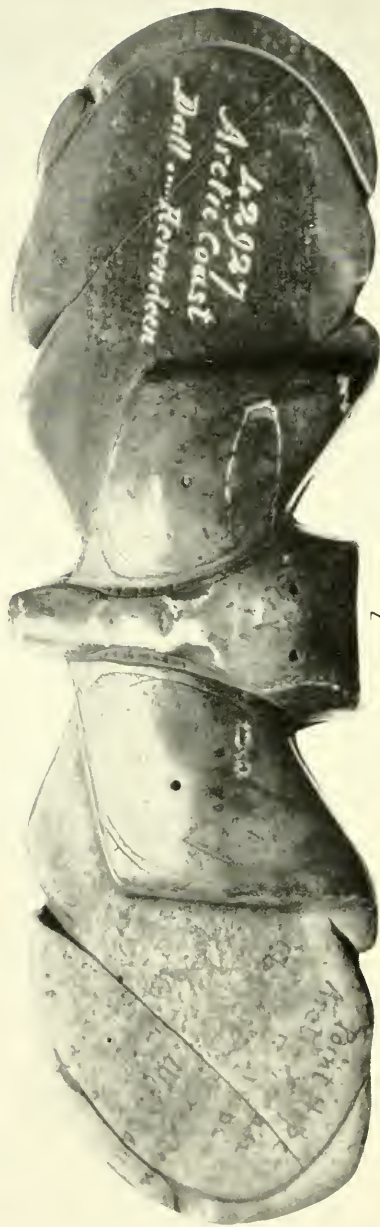
b

Ivory object carved to represent an animal's head.

(For explanation see pages 7-8 and 48.)



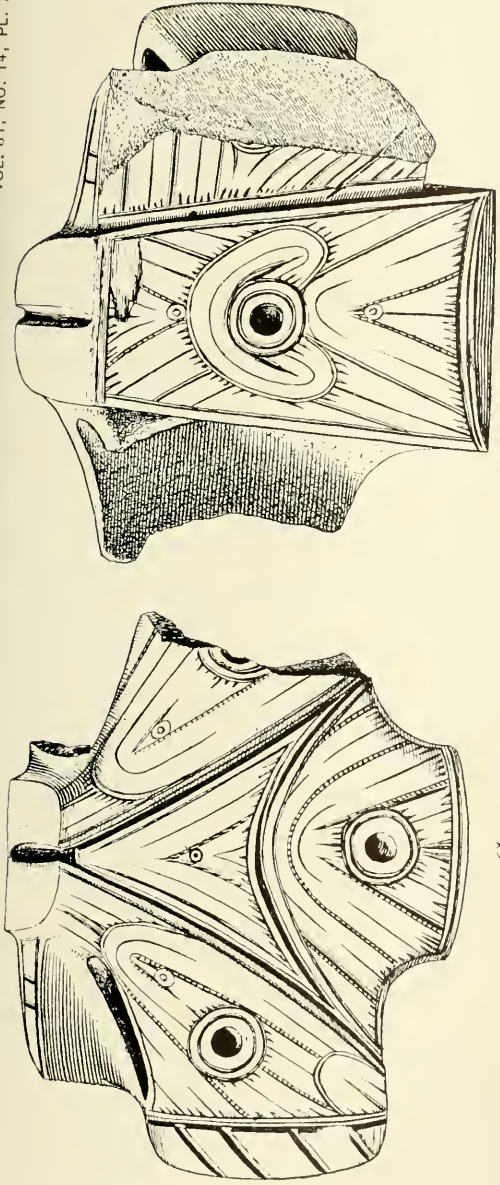
a



b

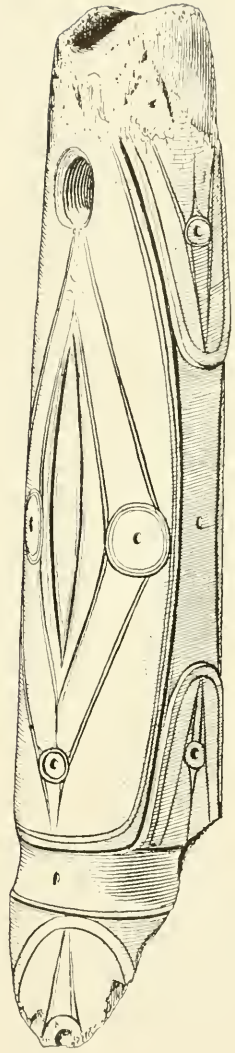
Ivory object of unknown use.

(For explanation see notes 80 and 48.)



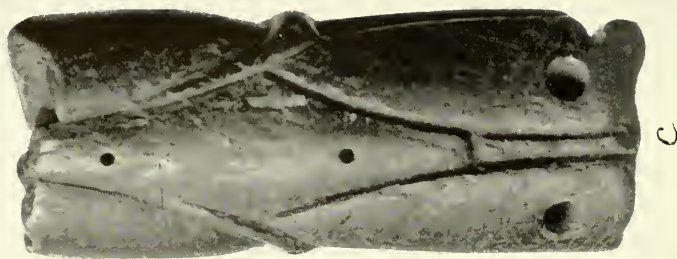
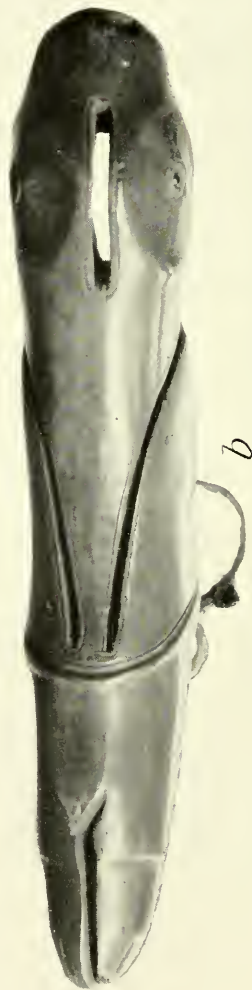
a

b

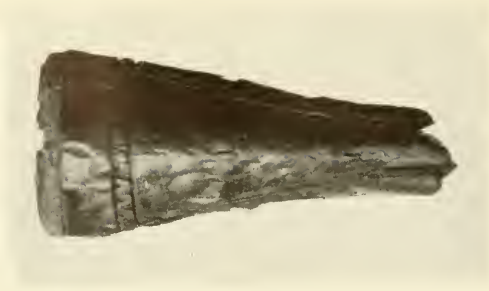
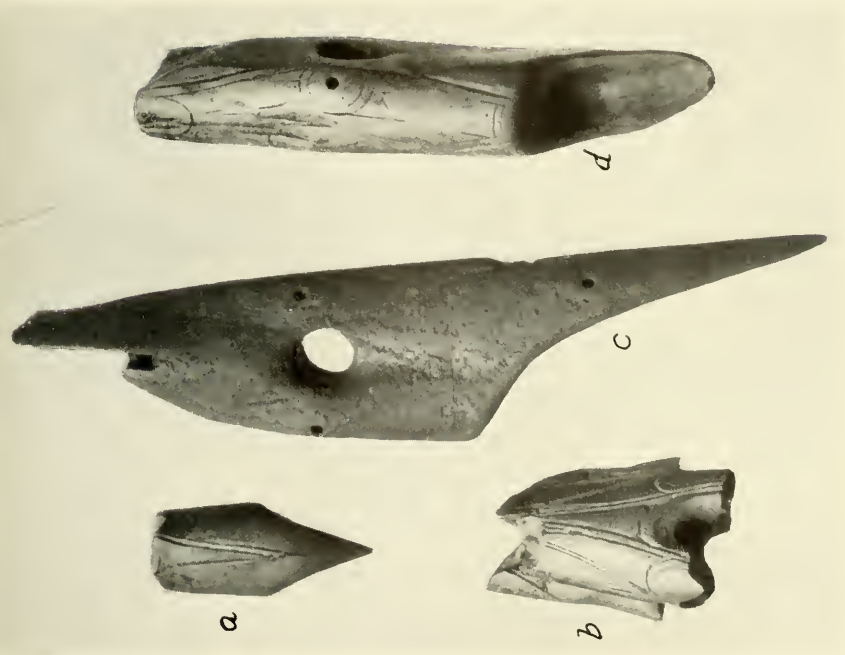
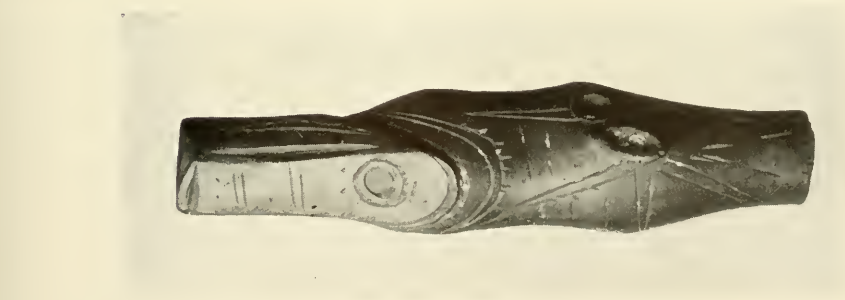


c

Broken ivory object of unknown use, and part of ivory harpoon socket-piece.
(For explanation see pages 9-10 and 48.)



Ivory object carved to represent a seal and part of ivory harpoon socket-piece.
(For explanation see pages 10-11 and 49.)



Ivory harpoon heads, dart foreshaft and needlecase, all fragmentary.
(For explanation see pages 17, 32, 36 and 49.)



e



c



d

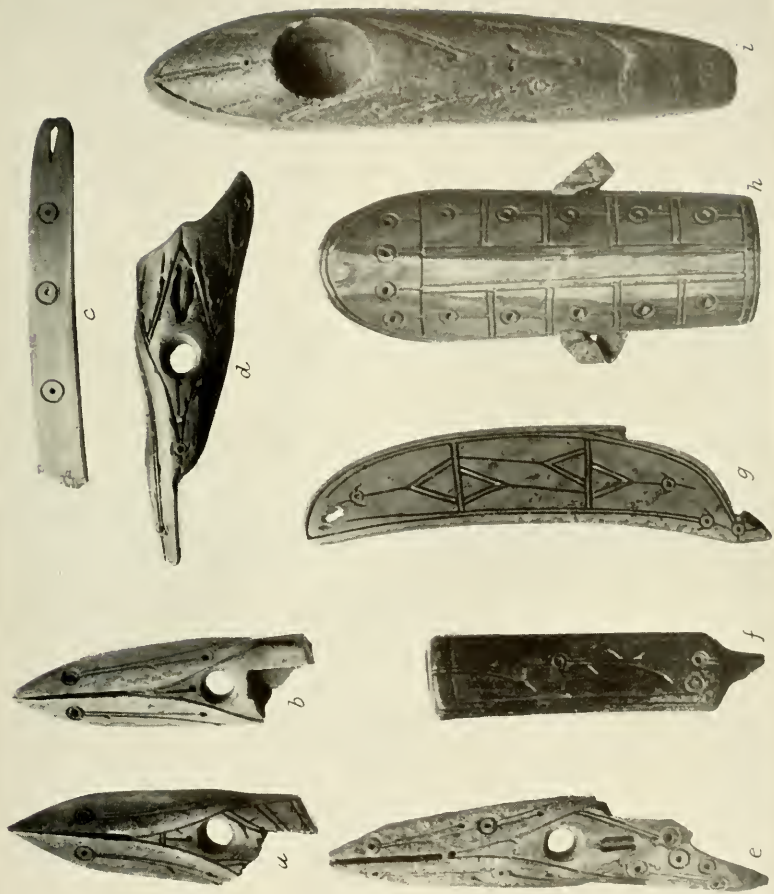


a

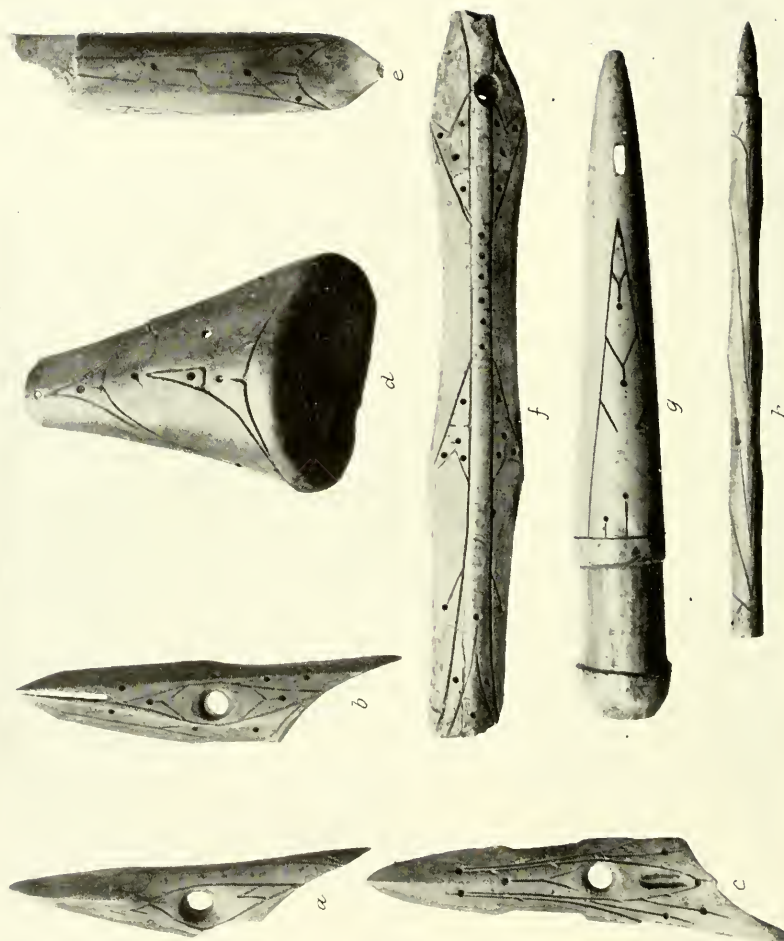


b

Ivory objects of unknown use.
(For explanation see pages 18-19 and 49.)

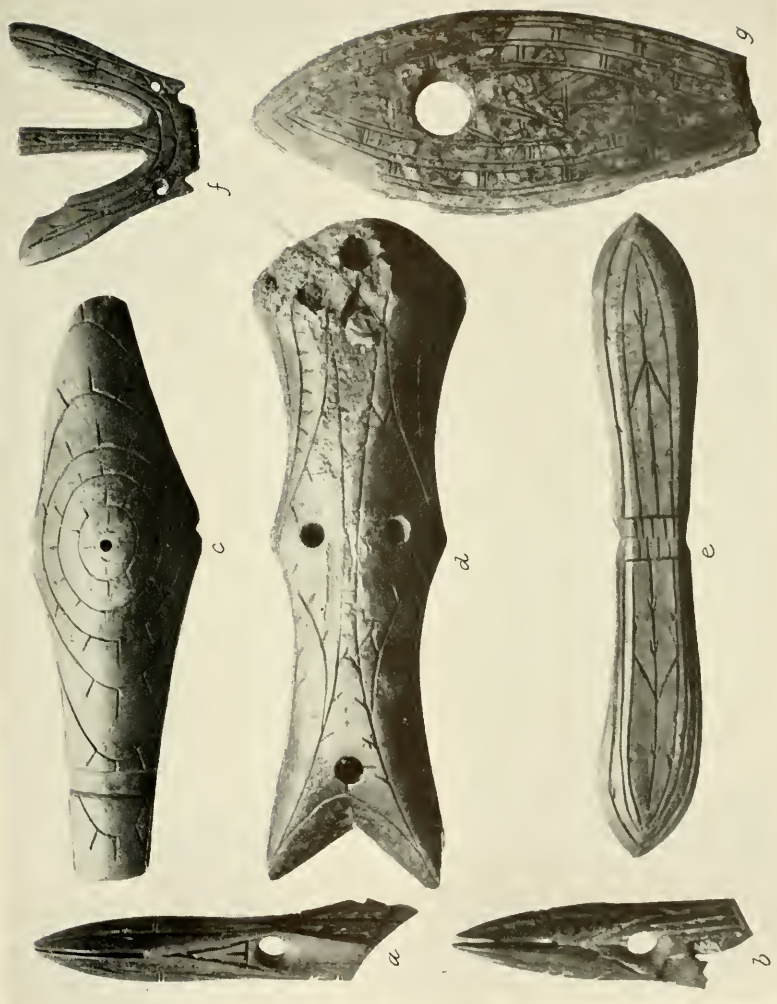


Ivory objects from Punuk and St. Lawrence Islands.
(For explanation see pages 19, 20 and 49.)

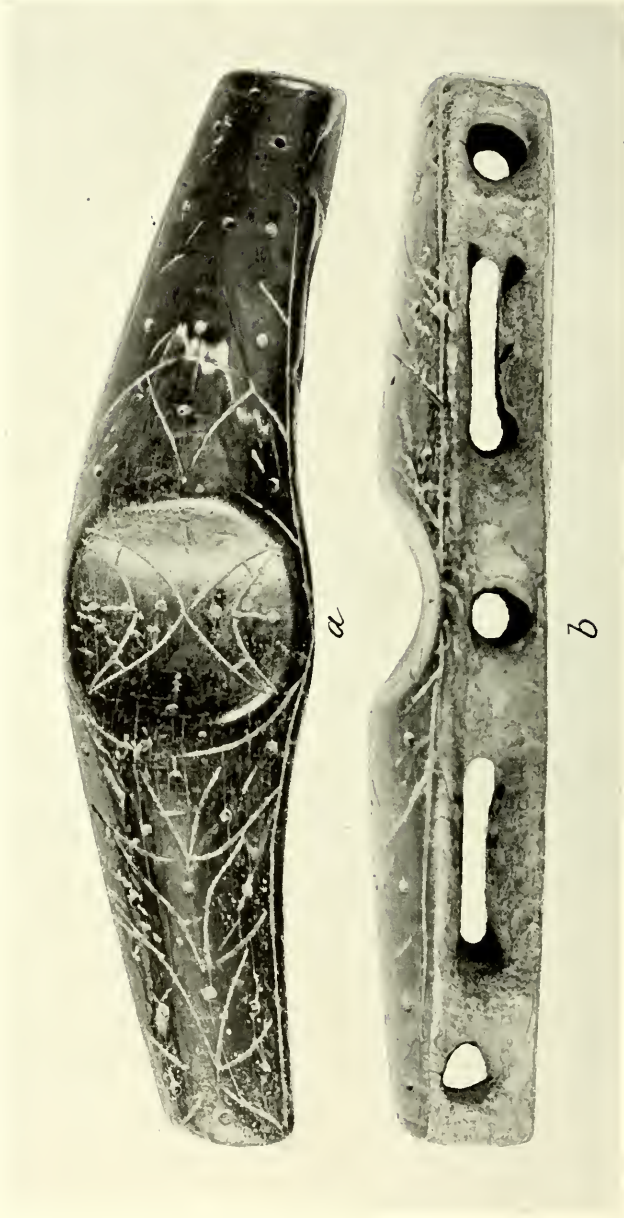


Ivory and bone objects from Pumiuk and St. Lawrence Islands.

(For explanation see pages 21-22 and 49.)

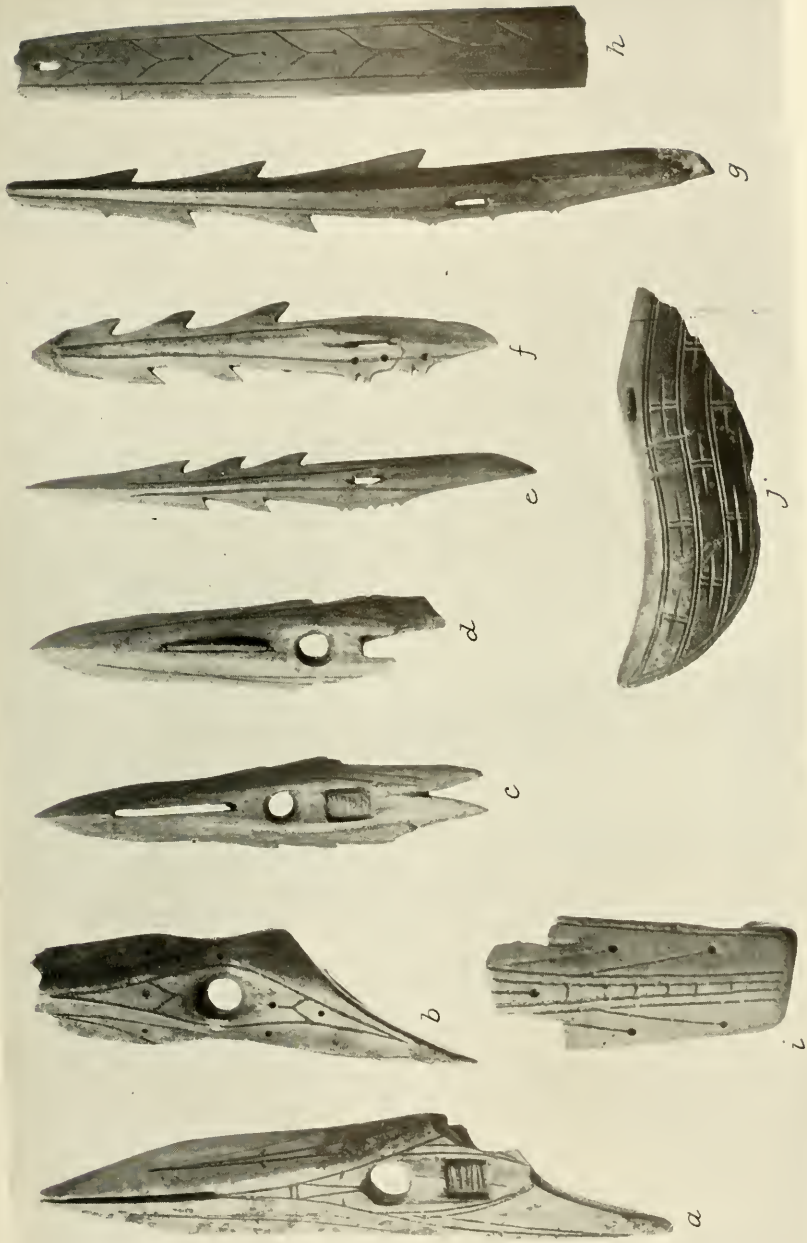


Ivory objects from Punuk and St. Lawrence Islands.
(For explanation see pages 22-24 and 50.)



Ivory object of unknown use from Kukuliak, St. Lawrence Island.

(For explanation see pages 24 and 50.)



Ivory objects from Punuk and St. Lawrence Islands.

(For explanation see pages 24-25 and 50.)

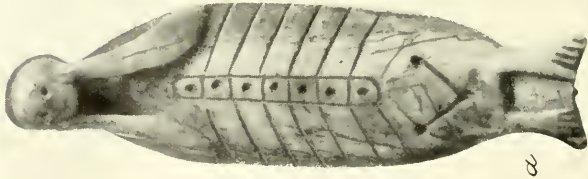


Ivory figurine from Punuk Island.
(For explanation see pages 25-26 and 50.)



Ivory and bone objects from Punuk and St. Lawrence Islands.

(For explanation see pages 31-32 and 50.)



a



b



c



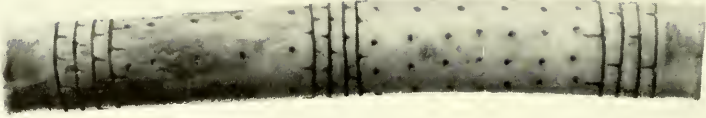
d



e

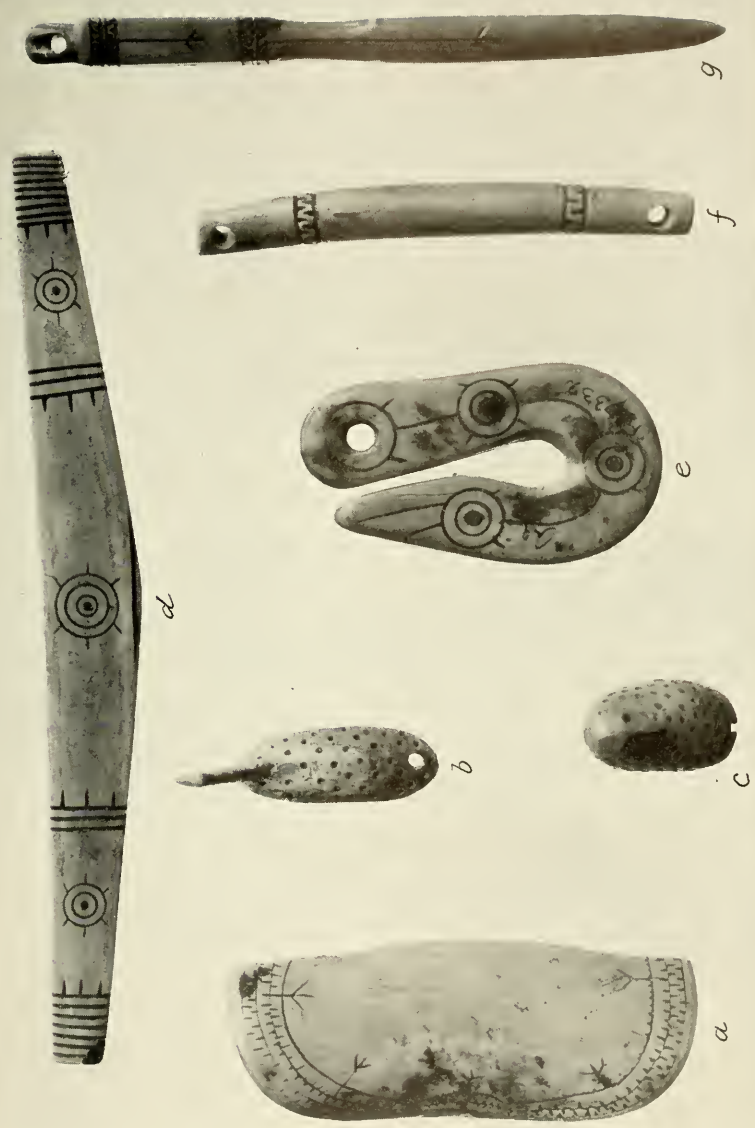


f

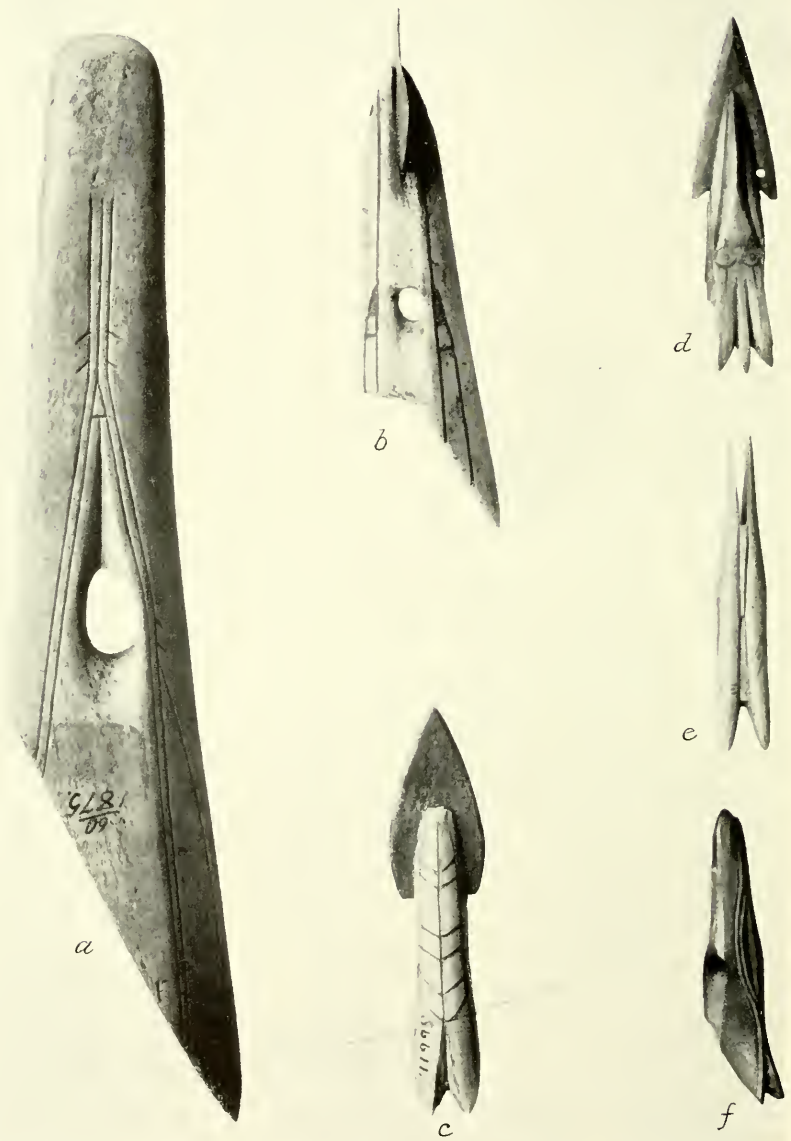


g

Modern Alaskan Eskimo objects of ivory and bone.
(For explanation see pages 34-35 and 51.)



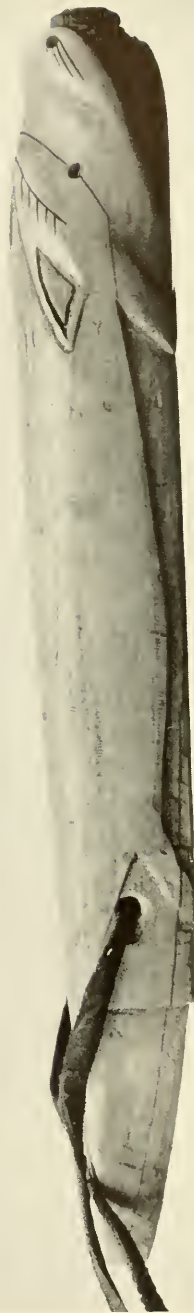
Modern Alaskan Eskimo objects of ivory.
(For explanation see pages 35 and 51.)



Modern Alaskan Eskimo harpoon heads of bone and ivory.
(For explanation see pages 35-36 and 51.)



a

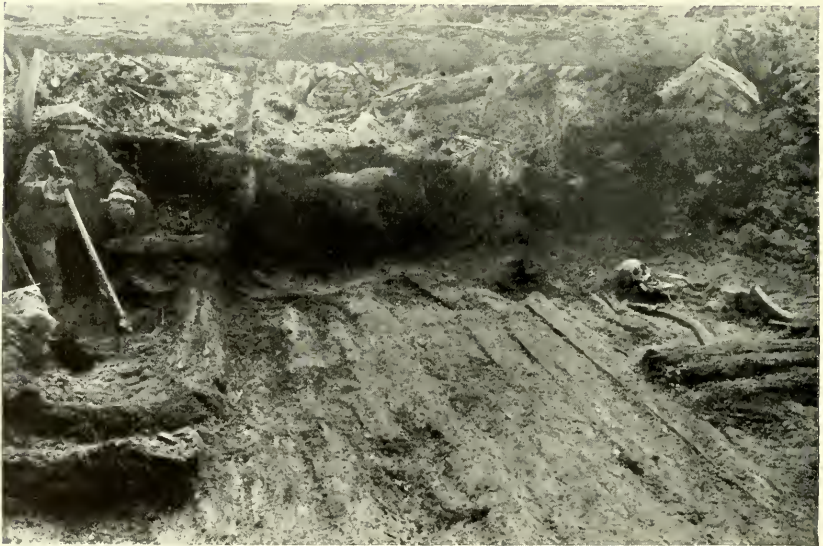


b

Modern seal dart foreshafts of ivory carved to represent the sea otter.
(For explanation see pages 36 and 52.)



1



2

Excavations on Punuk Island.
(For explanation see pages 14-16 and 52.)



Section of Punuk Island midden.
(For explanation see page 52.)



Recent house ruin at Cape Kialegak, St. Lawrence Island.

(For explanation see page 52.)