ANTHROPOLOGICAL PAPERS
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

VOLUME XXXVII, PART IV

ESKIMO PREHISTORY: THE OKVIK SITE ON THE PUNUK ISLANDS

By Froelich G. Rainey

By Order of the Trustees
of
THE AMERICAN MUSEUM OF NATURAL HISTORY
New York City
1941

THE AMERICAN MUSEUM OF NATURAL HISTORY

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INTRODUCTION

After the famed Fifth Thule Expedition to northern Canada in 1922–1924 Knud Rasmussen observed that "the surest means of ascertaining the origin of Eskimo culture is that of archaeological investigation."[1] He emphasized the rich archaeological possibilities in the Arctic and urged international coöperation in this promising field. Therkel Mathiassen, a member of that expedition, had discovered an ancient "Thule" type of Eskimo culture in the northern Hudson Bay region which preceded the historic type in the central Arctic from the Mackenzie River to northern Greenland, giving a new impetus to the study of the chronological relations of Arctic culture forms. Diamond Jenness, at the same time,[2] emphasized the need and importance of archaeological research for the ultimate solution of the century-old discussion of the origin of this highly specialized and homogeneous culture which had stimulated so much interest among anthropologists. He made good the claims for archaeology by announcing the discovery of two more ancient forms of Arctic Eskimo culture—one named Dorset from a site on Cape Dorset in southern Baffin Land[3] and the other termed an ancient "Bering Sea Culture" from the discovery of elaborately ornamented ivory specimens in the Bering Straits region. In 1926 both Jenness[4] and Aleš Hrdlička[5] collected several objects of this ancient Bering Sea type, initiating a search for a site specifically representative of this third form of prehistoric Arctic culture. Jenness believed that both the Dorset and Bering Sea types preceded Mathiassen's Thule stage.[6]

Several abandoned village sites in the Aleutian Islands,[7] in north Alaska,[8] on Southampton Island,[9] and in Greenland[10] had been excavated prior to these investigations of the 1920's, but the published accounts were little concerned with the chronological relations of specific culture forms which would have a direct bearing upon the origin and development of Eskimo culture as a whole. However, they did show that in prehistoric as well as in historic times the same two distinct ecologic zones existed within the area of Eskimo culture: one, which may be termed the Arctic coastal zone in the area of sea ice; another, the sub-Arctic zone south of the maximum extension of heavy sea ice, in southern Alaska and Greenland.[11] Subsequent investigations have not altered this original observation that there are at least two very different patterns of Eskimo culture which apparently are determined by dissimilar environments in the Arctic and sub-Arctic, and which, at least in Alaska, are very ancient. A third ecologic zone is that region occupied by Eskimo people with an inland form of culture which has been most clearly defined by Kaj Birket-Smith in his description of the Caribou Eskimo[12] of the Barren Grounds northwest of Hudson Bay; but a similar type of inland Arctic culture occurs also in north Alaska. The prehistory of the inland zone is unknown, since no archaeological research has been carried on in that region.

The discoveries of Mathiassen, Jenness, and Hrdlička gave a new historical perspective to the Eskimo field and inspired an interest in archaeological research which has increased in recent years. In 1926 Otto Geist[13] began investigations for the University of Alaska in the Bering Sea region which have continued until the present time, primarily on St. Lawrence and the Punuk Islands. In 1928 Henry Collins[14] began investigations for the United States National Museum also on St. Lawrence and Punuk Islands, but later at Point Barrow with James Ford, and on Cape Prince of Wales. Meanwhile Aleš

[1] Rasmussen, 1928, 179.
[2] Jenness, 1928a.
[3] Jenness, 1925.
[4] Jenness, 1928b.
[5] Hrdlička, 1930.
[6] Jenness, 1933, 387, 394.
[7] Pinart, 1875; Dall, 1878; Jochelson, 1925.
[8] Wissler, 1916.
[9] Boas, 1901, 1908.
[10] Thomsen, 1917; Wissler, 1918.
[11] Steensby, 1916.
[12] Birket-Smith, 1929.
[13] Geist and Rainey, 1936.
[14] Collins, 1935.

Hrdlička[1] carried on several seasons of research on Kodiak Island in the sub-Arctic area; Edward Weyer worked at Port Möller, Alaska;[2] and Frederica de Laguna began work at Cook Inlet[3] which was later continued with Kaj Birket-Smith in Prince William Sound.[4] In the eastern Arctic Jenness and Wintemberg continued studying Dorset culture remains from Baffin Land south as far as Labrador,[5] and Newfoundland, while Therkel Mathiassen,[6] Helge Larsen,[7] and Erik Holtved[8] completed intensive research along almost the entire coast of Greenland. The most recent investigations (1939) are those of the writer, in collaboration with Helge Larsen and Louis Giddings at Point Hope, and again on St. Lawrence Island, in Alaska.[9]

This coöperative research by representatives of several institutions in the United States, of the Canadian National Museum, and of the Danish National Museum, as urged by Rasmussen, has amply demonstrated the rich possibilities predicted for archaeology and has made it possible to reconstruct a long record of cultural development in the Arctic.

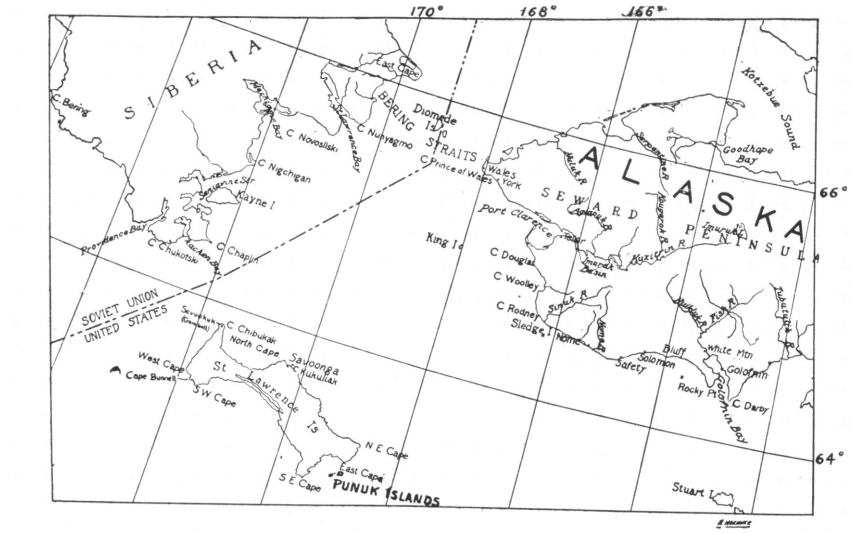
In the Arctic coastal zone, extending from northeastern Siberia through Alaska north of the mouth of the Yukon and along the Canadian Arctic coast to northern Greenland, the several forms of an Arctic coastal Eskimo culture so far reported can be correlated. In the sub-Arctic zone of Alaska, however, along the coast between the mouth of the Yukon and the mouth of the Copper River, the prehistoric, like the historic culture types, represent a specialized or modified Eskimo culture which cannot be correlated specifically with any stage of development in the Arctic proper. In southern Greenland the sub-Arctic culture is now known to have been derived from an Arctic type in relatively recent times. But the lack of archaeological research in the inland Eskimo region of northern Canada and Alaska leaves their relation to other forms of Eskimo culture somewhat uncertain.

At the present time, therefore, no complete definitive study of the origin of Eskimo culture can be made on the basis of archaeological research. The chronological relation of Alaskan Arctic and sub-Arctic culture types is not known; the age of inland and coastal cultures of the central area is debated;[10] moreover, no systematic excavations have been made in northeastern Siberia, a region which must be investigated before any conclusive study of the Arctic Eskimo can be completed; and, finally, still older stages of Eskimo culture in north Alaska, recently reported, emphasize the conclusion that prehistoric development in the Arctic proper is only partially known at present.

This account of the Okvik site on the Punuk Islands in northern Bering Sea is concerned essentially with the description of one more form of an Arctic coast culture and its relation to other types which have been described in detail in the same ecologic zone. The site was discovered by Otto Geist in 1931 and partially excavated in 1934 by Geist and Ivar Skarland. Since that time Eskimo from St. Lawrence Island have dug there each summer in search of "fossil" walrus ivory which they use in carving salable ivory objects. The large collections of implements obtained by them at the site have been purchased by the University of Alaska. But it was not until the summer of 1939 that the significance of the site was clearly recognized, when Louis Giddings of the University of Alaska found a site of the same age on St. Lawrence Island under circumstances which make it possible to determine the relative age of the material. Unlike most archaeological sites in the Eskimo region, the Okvik deposit could not be recognized on the surface, and its discovery was largely a matter of chance. Since then other ancient sites not visible on the surface have been discovered, strengthening the conclusion that the earliest records of Arctic Eskimo are yet to be found.

[1] Hrdlička, 1935.
[2] Weyer, 1930.
[3] De Laguna, 1934.
[4] Birket-Smith and de Laguna, 1938.
[5] Wintemberg, 1939, 1940.
[6] Mathiassen, 1930, 1936.
[7] Larsen, 1934, 1938.
[8] Holtved, 1938.
[9] Rainey, 1941.
[10] Mathiassen, 1930c.

This paper is purely an exposition of data concerning the Okvik type of Arctic Eskimo culture which can be used in a detailed study of Eskimo prehistory. Neither analysis of archaeological work in the Arctic nor reconstructions of prehistoric culture development are attempted. In conclusion, however, I have set up a working hypothesis, in the form of a tentative classification of Arctic culture forms thus far described, which defines a point of view and which can be used as a point of departure in later and more detailed studies of culture development in the Arctic.



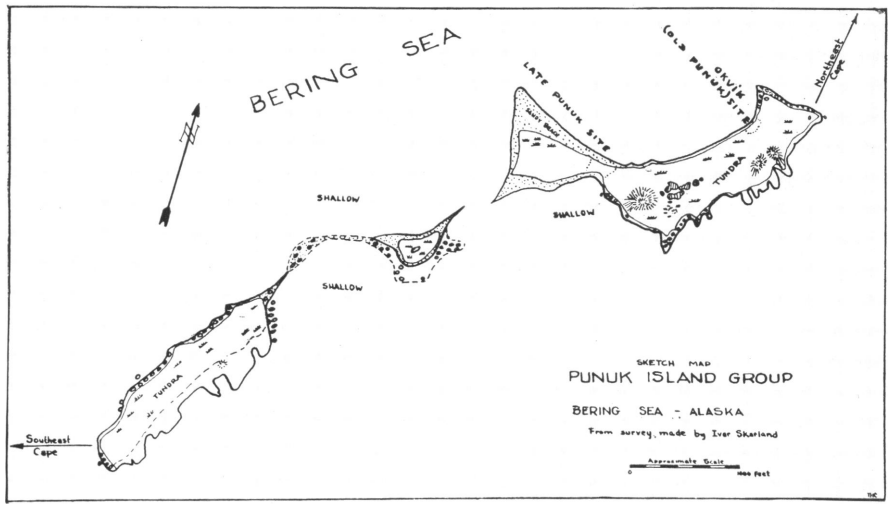


Fig. 1. Sketch Map of Punuk Island Group.

THE PUNUK ISLANDS

This chain of three small islands, less than two and one-half miles in length, lies in Bering Sea just four miles off the eastern end of St. Lawrence Island and about one hundred eighty miles south of Bering Straits (Fig. 1). In a walrus skin boat powered by a small out-board engine Eskimo can pass from the Punuk Islands along St. Lawrence to the Siberian mainland in approximately twenty hours without losing sight of land, if the weather is clear. With a fair wind a sailing umiak may accomplish the same trip in about twice the time. The American mainland, however, some one hundred forty miles northeast of the Punuk group, lies far beyond the range of native craft, which after some sixty hours afloat will become water-soaked, loosen up, and sink. These circumstances explain the close association between Siberian and St. Lawrence Eskimo who, speaking precisely the same dialect, carry on yearly trade visits and an exchange of ideas, while there is no contact between the people of the islands and those of the American mainland.

When Henry Elliott called at the Punuk Islands in 1874[1] there was a permanent winter village on the northernmost island, but in the severe winter of 1879–1880 these people, like almost the entire population of St. Lawrence, died of starvation or disease. Although Siberian Eskimo migrated to St. Lawrence, and with the few families remaining there established a sturdy population, Punuk remains uninhabited to the present day. Eskimo hunters from the other settlements call there each summer in search of walrus, seal, and the "fossil" walrus ivory for which these islets are so famous.

Physically, the Punuk Islands are like detached fragments of large St. Lawrence, with the same green, tundra-covered slopes and the same rocky shores, at some points rising to abrupt sea cliffs, which harbor myriads of nesting migratory birds. The Punuk Islands, however, are much lower, and rise no more than two to three hundred feet above the sea. Excavations indicate that the shore of the largest, at least, is now sinking, but that this subsidence follows an ancient rise, because a now partly submerged village site rests on old sea bottom. Plant life is that of the northern Bering Sea tundra; the ground is wet and spongy with a growth of thick grass and moss even on the steepest slopes. The monotony of this deep green tundra is broken only by dark gray boulders. Three great pillars of stone, like ruined fortresses, make striking landmarks for those approaching by sea.

The Punuk Islands are today one of the best walrus hunting grounds in Bering Sea, and native hunters seldom return from them without a load of walrus meat. Occasionally, huge walrus herds "haul up" on the north shore of the largest island in such numbers that many are crushed by the sheer weight of others crowding over them in their progress from sea to shore. Great deposits of walrus ivory, not all found in midden refuse, indicate that this condition has continued for centuries and explain the presence of large prehistoric native settlements on these minute and barren islands. Since walrus meat is the most highly prized food of the present St. Lawrence natives, one may even wonder why such a food supply has been abandoned, except for chance visits or an occasional hunting party. Several species of seal and an occasional sea-lion are also taken along these shores, but whales appear to be more common off Gambell on northwestern St. Lawrence. The migratory birds such as eider ducks, auklets, murres, puffins, and cormorants which nest in the sea cliffs are among the chief summer foods of all Bering Sea island people. In 1934 about five hundred young cormorants, a delicacy even to European tastes, were taken within a fortnight on one of the Punuk Islands alone. The Arctic fox, whose pelt is the chief commercial product of many northern Alaska Eskimo, is found on these islands as on St. Lawrence, but the number is so limited by space that no native considers a winter trapping camp

[1] Elliott, 1887.

there worth while. Judging from Elliott's description of the "Poonook" village in 1874 and from the vast amount of ivory excavated there by the present natives, it is the excellent walrus hunting which explains the existence of a native village on these islands in both historic and prehistoric times.

Although the Punuk Islands lie about three and a half degrees (242 miles) below the Arctic circle, physical environment and climatic conditions were much the same for the Punuk Eskimo as for the Eskimo groups on the Alaska mainland north of the Arctic circle. This is explained by the fact that in winter pack-ice moves south, blocking the shores of the Islands for some eight months of each year and thus providing the same ice-hunting conditions as those along the Arctic coast. The clearest weather and the best winter hunting occur when a north wind holds the pack-ice against the north shore. Foul weather, with fog and storms, accompanies the south winds which bring warmer air masses into contact with the cold ones over northern Bering Sea. During summer there is, therefore, much rain, fog, and wind. The mean temperature is so low that many snowbanks remain on St. Lawrence through the entire year. Mean temperatures for the year at two villages on St. Lawrence Island (taken from three-year records) are given as 22.5° and 23.1° Fahrenheit. The highest recorded temperature during the three-year period was 67° and the lowest −31°.

In one respect the physical environment of the Punuk and St. Lawrence Eskimo determines a very significant difference between their culture and that of the mainland Eskimo. Since the former were an insular people, they had no direct access to the caribou or reindeer of the mainland. Reindeer skins and horns were undoubtedly obtained from Siberian natives by trade. It was not until 1900 that reindeer were introduced on St. Lawrence Island. (Since that time, the seventy reindeer imported have increased to an estimated ten thousand.) Unlike the mainland Eskimo, therefore, this island people were forced to depend entirely upon sea mammals, fish, and birds, a circumstance that determined a different emphasis in the food quest which is reflected in the material culture as represented in the archaeological collections.

THE EXCAVATIONS

In 1931 Otto Geist of the University of Alaska observed some evidence of a midden deposit on the northeast shore of the largest and most northerly of the three Punuk Islands, about one-half mile east of a large village site excavated by Henry Collins of the United States National Museum in 1928. No ruins, mounds, or depressions were visible on the surface, but the vegetation at this point had a slightly greener cast and some bone refuse was scattered on the beach. Since Eskimo from St. Lawrence Island customarily visited the Punuk Islands each summer in search of "fossil" ivory to be used in carving, Geist suggested that they investigate this section of the coast on their next trip. The same year, old Ataaka from Savoonga, following this suggestion, discovered a veritable mine of beautiful dark brown ivory in such quantities that a "Gold Rush" to the Punuk Islands was started by many ivory hunters from the present native villages at Savoonga and Gambell on St. Lawrence. In the collection of ivory made by Ataaka, Geist noticed certain dark brown ivory implements engraved with elaborate designs unlike anything he had seen in the Eskimo region. It was impossible to control the mass attack of natives launched by Ataaka's discovery but, following the next best course, Geist discontinued his excavations at Kukulik on St. Lawrence Island and accompanied several boat loads of Eskimo on a voyage to Punuk.

That summer, 1931, the natives excavated several hundred pounds of the now famous dark brown ivory which they prefer for their carvings. Geist directed the diggings as much as possible and purchased all implements found in the refuse deposit for the University of Alaska. A large collection of such implements was obtained; but since this method of excavation naturally left much to be desired, Geist determined to return later with his own crew for a thorough and systematic excavation.

Only after three years, in the summer of 1934, was such an expedition possible. At that time, accompanied by Ivar Skarland, also from the University of Alaska, and a native crew from Savoonga, Geist returned to the Punuk Islands for systematic investigation of the site. The results of that expedition and the collections obtained are the main consideration in the following account.

The Eskimo had no name for this newly discovered deposit which subsequently was referred to as "Old Punuk," to distinguish it from the large village excavated by Collins on the same island. Systematic excavation proved that the "ivory mine" was a remnant of a large village, composed of the usual midden débris, but containing no house structures. Geist and Skarland, verifying Collins' contention[1] that the surface of the island was subsiding in relation to sea level, believed that the bulk of the "Old Punuk" village had been washed away and that only the inland edge of the midden refuse remained. Judging from the position in relation to sea level, it must have been occupied long before the village excavated by Collins. The lower levels of Collins' village contained the remains of what he has called the Punuk Stage of prehistoric culture in Bering Sea. Although the collections from Geist's Old Punuk site were recognized at once as representing a prehistoric culture very different from that of Collins' later village, as well as from those discovered on St. Lawrence Island, its age and relation to other culture types in Bering Sea remained unknown. With the expectation that remains of the same type would eventually be found in other sites, thereby determining the chronological position of the "Old Punuk" settlement, a detailed account of the 1934 investigations was delayed.

The Eskimo, not being at all concerned about the significance of the Old Punuk site, continued to organize ivory hunting expeditions to Punuk each summer in conjunction with walrus hunts and visits to the cormorant rookeries, until today Punuk brown ivory carvings decorate the curio shops of the West Coast from Nome to San Francisco. In the meantime, the

[1] Collins, 1937a, 28.

excavation for a meat cache at Savoonga on St. Lawrence unearthed two ivory harpoon heads of Old Punuk type with the peculiar Old Punuk decorations and at a site known as Kitneapaluk natives from Gambell found elaborately decorated objects obviously carved by the same people. In 1937, while continuing at Kukulik the University program of investigation initiated by Otto Geist, I purchased another collection of specimens excavated at the Old Punuk site during that and preceding summers. Such purchased collections might be of little value were it not that the distinctive style of carving and the unmistakable color of Old Punuk ivory aid in identifying its place of origin.

This same year, with the publication of Collins' report on his excavations at Gambell on St. Lawrence Island,[1] we had, at last, the key to the age and significance of Geist's Old Punuk village. Among and below the floor stones of a house in the most ancient site excavated at Gambell, the Hillside site, Collins found a few ivory objects decorated in a style which differed from the elaborate Old Bering Sea art represented in the oldest cultural remains at Gambell and Kukulik. Because of the stratigraphic position of the objects and the relative simplicity of design, he recognized this art form as an early stage in the development of the sophisticated Old Bering Sea art, and described it as Old Bering Sea Style 1. We agree that this is precisely the same as that style of decoration on hundreds of specimens from the "Old Punuk" site, a conclusion verified by Collins who examined these collections now at the University. Nevertheless, the small number of specimens in the Hillside site at Gambell and certain other considerations to be discussed in the body of this report left our conclusions regarding the Punuk Island site still somewhat uncertain, so that the final report was again delayed pending further developments.

In the summer of 1939 after a joint University of Alaska-Danish National Museum expedition to Point Hope, Alaska, I returned to St. Lawrence Island to continue systematic excavation at the Punuk site which, according to the natives, was by no means exhausted. Judging from the 1934 excavations there was little chance of determining the chronological position of this settlement by additional excavation, since the deposit was isolated from any other site of known age, but additional knowledge of the trait-complex represented might substantiate the theory of its relative age already advanced. The natives, learning by radio of the intended expedition, obligingly organized their own. In August I arrived at Savoonga, from the north, simultaneously with four large boat loads of St. Lawrence natives *returning* from Punuk Island, after an unusually successful "preliminary" expedition in which they had accumulated one of the largest collections from the old site ever obtained. It was with mixed sentiments toward these men that I again purchased their collection at a steadily ascending price. Persistent bad weather and a change in the schedule of Coast Guard ships calling at the islands made it impossible for me to carry out the intended Punuk expedition of 1939, but one of our party, Louis Giddings, remained on St. Lawrence to continue other research. The problem was solved by his discovery of a new site at Gambell, in October, 1939. It is now possible, in the following account, to proceed with assurance to describe the material first discovered in 1931.

In a brief announcement of the Punuk Island discovery published in *Natural History* for October, 1937,[2] the site and the culture there represented were termed Old Punuk, a name we have continued to use for some time in reference to the material. Thus, it is with some misgivings that I now describe it under the name Okvik. Justification for the change of name lies in the interests of clarity, since Punuk has been used by Henry Collins to describe the "Punuk stage" of prehistoric Bering Sea culture which succeeds the Old Bering Sea stage in this region. We now know that the ancient culture on Punuk Island precedes the Old Bering Sea stage, as described by Collins, and to give the sequence of periods as Old Punuk, Old Bering Sea,

[1] Collins, 1937a.

[2] Rainey, 1937.

Punuk would certainly be confusing. Okvik is a name suggested by St. Lawrence Eskimo. It means "many walrus hauled up on land," or, by inference, "place where many walrus haul up," a particularly suitable designation, since this site contains more walrus ivory than any other so far excavated, indicating that great walrus herds came ashore there many centuries ago as they do today.

Excavations of 1934 at the Okvik Site

Remains of native settlements are found on all three islets in the Punuk group. Near the center of the largest island (Fig. 1) are the ruins of houses occupied in 1874; just east of these are the prehistoric houses and the midden deposit excavated by Collins in 1928. This latter, a very extensive deposit, which has a surface measurement of four hundred by one hundred thirty feet and a depth in some sections of sixteen feet,[1] represents a long period in the history of Punuk preceding its final abandonment. Along the slight elevation in the center of the same island is a series of meat caches or storage pits dug into low, artificial mounds. None of these structures, which normally contain at least a few implements, has been excavated, so that their age is unknown. Some depressions in this series of storage pits may be house sites. South of these meat caches, near the shore, are two habitable caves which are also unexplored.

On the central and smallest island, surrounding a water hole, are several graves, now overgrown and almost imperceptible. These are marked by rings of stones like those on Kukulik Mountain and near Gambell on St. Lawrence Island. None was excavated. There is evidence of no very extensive refuse on the southern and lowest island, but some refuse was observed by Geist. Since the Okvik site was unrecognized for many years, it is possible that additional and perhaps even older deposits can be found on this island.

Ataaka's exploratory digging which discovered the Okvik site was done on the beach in the bight of the north shore, less than half a mile east of the historic Poonook village. Native excavations during the same year were carried on along the same rocky beach in the immediate vicinity. Many of the implements found by them were under and among surf-beaten boulders in sand and gravel which had been washed and rolled by sea water. All deposit along the beach was eroded by the surf and many implements washed out here were beached again several hundred yards toward the west. Most of the native digging since 1931 has been along the beach and among the barrier boulders where the refuse has been thawed by the sea. Thus most of the specimens were already displaced by natural circumstances; the destructive "pot hunting" of the Eskimo has not been as unfortunate as it would have been in an undisturbed village or midden deposit.

Geist's systematic excavation in 1934 was begun on the beach in a section partially dug by natives and continued up the slope through tundra-covered soil and into undisturbed, frozen deposit. Chief objectives were the discovery of undisturbed house ruins and midden refuse in which stratigraphic work could be done.

After fixing a base line along the shore, Geist marked off a trench seventy-two feet long and twelve feet wide which was divided into six sections twelve feet square. In this first cut the soil was thawed by the sea, and most of the refuse had been displaced, so that stratigraphic work was of no significance. Many of the characteristic dark brown and elaborately engraved implements were found from the surface down to the gravel or clay base of the deposit forty to fifty-two inches below, among large boulders and in sea-washed soil. There were no house ruins.

In a second cut of the same size, parallel to the first on the inland side, Geist passed well into frozen tundra where the midden had neither been disturbed by native digging nor by the surf. Here the débris was removed in levels so that the exact depth of all specimens could be recorded. The maximum depth of culture refuse was approximately seventy-two inches, but on

[1] Collins, 1937b, 28.

the inland side of the cut the depth decreased to from twenty to thirty inches. Below the refuse was a layer of clear beach sand which in some places rested upon dense clay, in other places on gravel. In the substratum of beach sand were many unworked walrus tusks and skulls, a condition also observed in excavation at the great midden of Kukulik on St. Lawrence. The culture refuse, like that in other sites of the island group, contained large numbers of walrus, seal, and bird bones, large stones, and sandy soil discolored by organic decay. But this deposit, unlike the others, contained very little wood and no house ruins whatever. After completing the second cut Geist concluded that he had been working through débris at the inland edge of an ancient village site of which the larger sea side part had long since disappeared in the sea. This condition of a changing shore line is not unusual in Bering Sea and along the Arctic coast. Much of the large midden at Kukulik has been cut away in recent years as well as much of that at Point Hope on the Arctic coast. At other places, however, the shore line has been advancing toward the sea, as, for example, at Gambell, St. Lawrence Island, where a great spit has been built out nearly a mile since the time of the earliest known settlement.

Artifacts were found throughout the seventy-two inches of culture refuse at Okvik, but there was a noticeable concentration of such material at a depth of only twenty to thirty inches. The same types of implements, however, were found at all levels, from the substratum of beach sand to the tundra surface. The same peculiar style of decoration, engraved upon most of the ivory and bone implements, appeared on specimens throughout the deposit. Since there was no noticeable variation in implement types and, above all, no change in the specific style of ornamentation from the surface to the base of this midden refuse, we may conclude that it was deposited during a single culture stage or period of settlement. Ivory implements were by far the most common, but there were also potsherds, slate, flint, baleen, bone, and a few wooden artifacts.

It is unfortunate that no house structures were found. With a collection of artifacts representing a new and unusual type of Eskimo culture, we might expect a somewhat different form of house structure which would have a bearing upon the origin of Eskimo dwellings in general. It is possible, of course, that house ruins may still be found, even though the cuts made in 1934 and all the random digging of the natives have never exposed such remains. (Yet, all of the native ivory hunters have at some time or other worked with University of Alaska or United States National Museum expeditions and would certainly recognize a house ruin, no matter how disintegrated it might be.) Fortunately, therefore, the house site of the same age discovered at Gambell on St. Lawrence in 1939 now makes it possible to describe dwellings of the Okvik period, if not those of the original site.

Excavations of 1939 at Gambell on St. Lawrence Island

The plan for continued research on St. Lawrence was primarily concerned with the absolute dating of Eskimo sites by the tree-ring method. This had been begun during the preceding winter in connection with the large collections from Kukulik excavated by Geist in 1931–1935 and by the writer in 1937. Log house structures made of driftwood carried into Bering Sea from the wooded valleys of central Alaska by the Yukon River have made it possible to link tree-ring studies in the Eskimo region with those already developed in the interior. To obtain datable wood, then, was Louis Giddings' chief objective in his excavations of September and October of 1939, but the search for the Okvik type of material, in association with other sites, was also to be continued. Similar material had been reported in the lower part of the most ancient (Hillside) site excavated at Gambell by Collins, and some specimens of the same kind had been excavated by the natives at a site known as Kitneapaluk and purchased by Geist in 1932. After three weeks' work at Kukulik, Giddings moved to the western end of St. Lawrence to make several test ex-

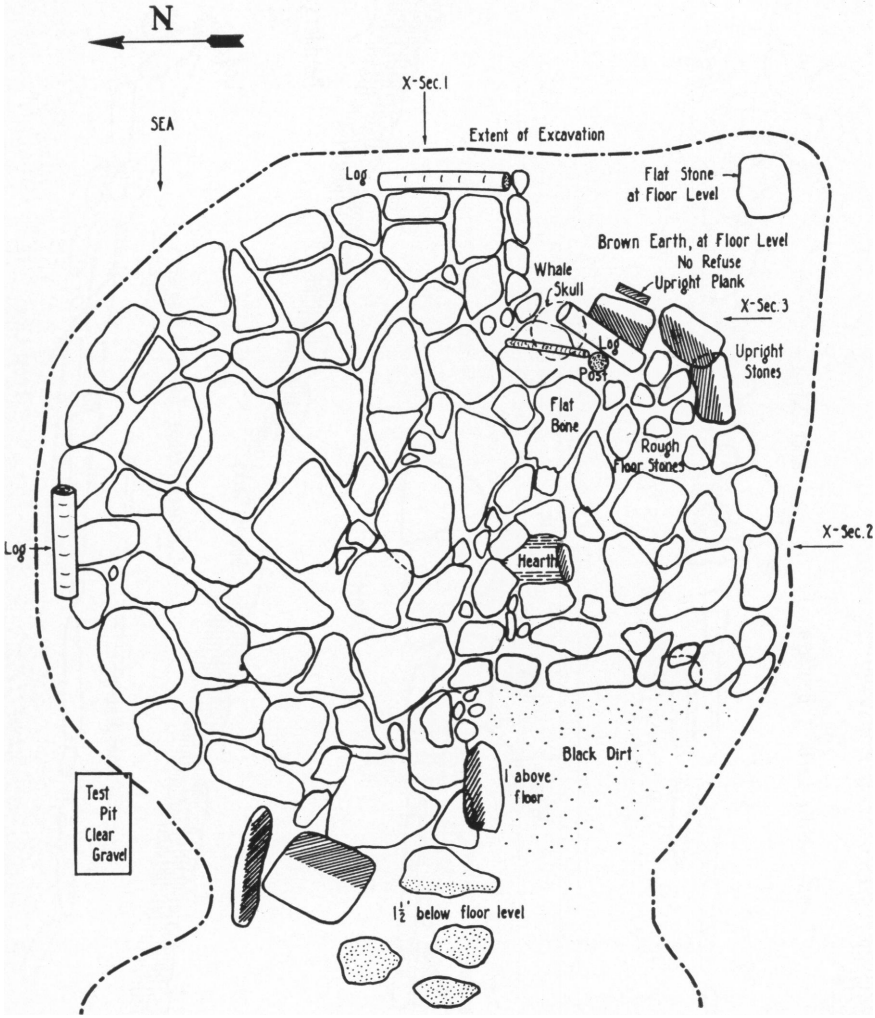


Fig. 2. House Floor at Hillside Site, Gambell, St. Lawrence Island. Excavation by Louis Giddings.

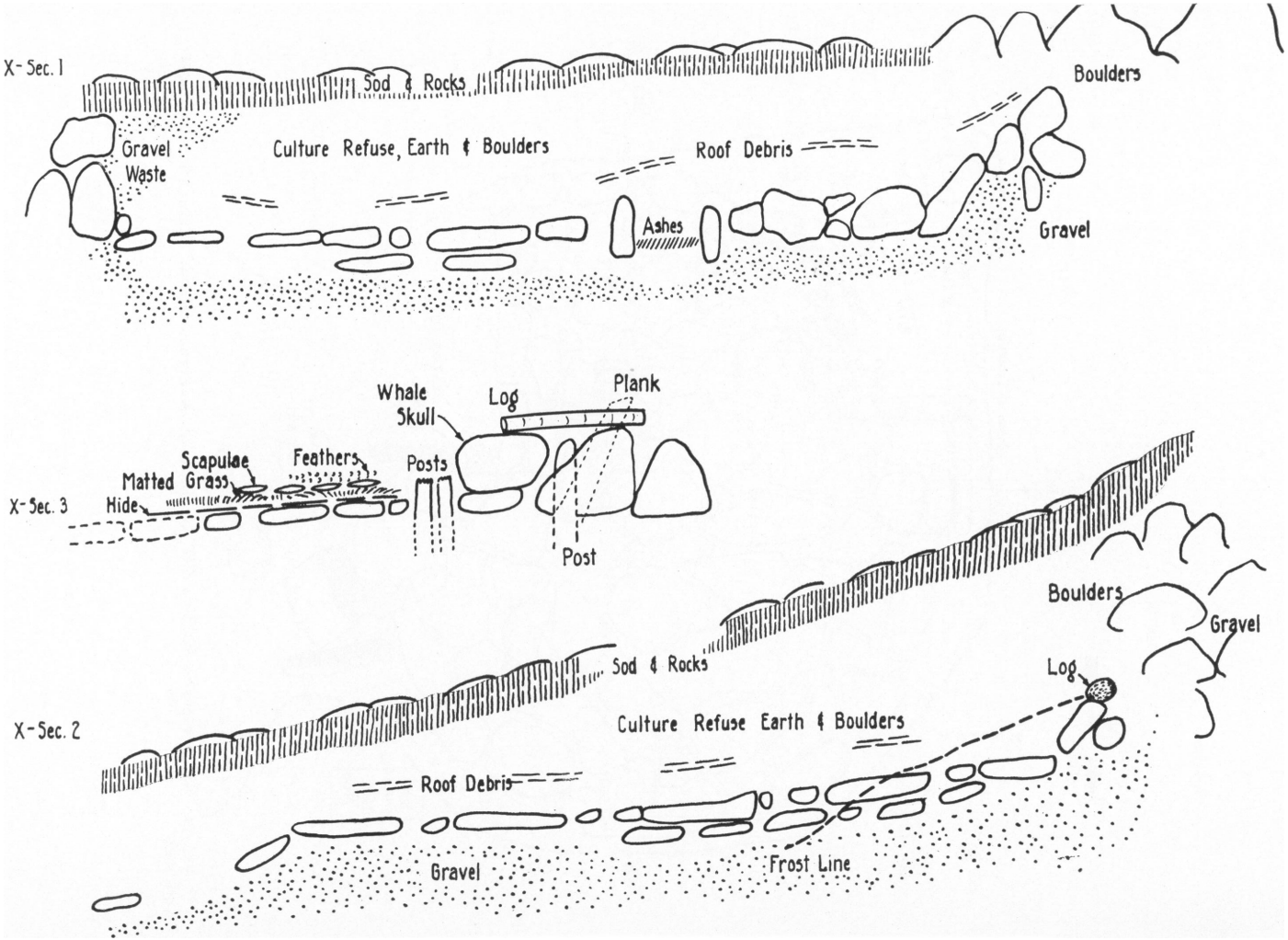


Fig. 3. Diagrams of House at Hillside Site, Gambell, St. Lawrence Island. Excavation by Louis Giddings

cavations at Kitneapaluk, twenty miles south of Gambell. Later, he returned to Gambell and excavated a series of pits and test trenches along the abrupt hillside north of the house sites uncovered there in 1930–1931 by Collins, hoping to find undisturbed ruins of the Okvik stage as well as datable house logs.

The relative ages of the several abandoned sites near the present village of Gambell have been determined by their position with respect to the shore line.[1] Ancient house sites found on the hillside where Giddings made these test cuts would necessarily be older than any so far discovered in the series of sites extending from the base of the hillside out along the gravel spit, which has been gradually built up by the sea, to the present native settlement at the end of the spit. Many flint tools, a class of implements characteristic of the older culture stages on St. Lawrence, were found in these cuts, but very little additional culture refuse. In one test pit, however, near a great rock slide which had moved down the very steep slope at this point, about four feet below the surface, he struck what appeared to be a stone floor.

At this point an extensive excavation was made which soon uncovered the floor of a large round house approximately eighteen feet in diameter (Fig. 2). The floor was made of large flat stones neatly arranged over a relatively flat space on the hillside and was, for the most part, intact. Nothing of the walls remained, unless some of the many large boulders found in the débris above the floor may at one time have been part of them. Two log fragments (Fig. 3) found at the edge of the floor do not appear to be part of the wall structure. The only indication of an entrance passage (Fig. 3) was in a very unusual position on the upper or inland side of the house, not toward the sea, but it is possible that the rock slide had long since carried away that part of the house which contained the entrance. The structure which may be the entrance (Fig. 3, Section 3) includes a plank, three upright posts, a whale skull, and large boulders in an arrangement which suggests a covered passageway, but its position facing the steep embankment would be extremely awkward unless one descended to the floor level from above.

The fragments of decayed wood which appeared in a stratum well above the house floor may be débris of the roofing structure; the many strips of baleen found below this stratum and upon the house floor itself may also have been part of the roofing material. Only the inner (hillside) part of the house structure remained permanently frozen (Fig. 3) and consequently most of the wood, baleen, or skin used in the structure must long since have disappeared.

The hearth, marked by upright stones surrounding a pit of ashes, is a peculiar feature of this house which is not reported for other house structures excavated on St. Lawrence Island. Another unusual feature is a mat or platform (Fig. 3, Section 3) composed of a layer of skin, one of matted grass, another of walrus scapulae, and above this a layer of feathers. The mat, lying directly on the stone floor, just inside of the upright post, was about two feet wide and six feet long.

Although little more than the floor stones of this house remained, it is possible to conclude that it was a permanent subterranean or semi-subterranean structure, roughly circular in outline, and that it contained an open hearth for heating or cooking. The materials used in the walls and roofing are unknown, but at least some timbers in the form of logs, poles, and planks were utilized. It is probable that whale bones, boulders, and sod also formed part of the structure.

One of the two houses excavated by Collins on the same hillside about one hundred yards south and somewhat lower down the slope is described[2] as a rectangular, log-walled structure with a stone-paved floor and an entrance passage. The other (House 1) apparently also had a stone-paved floor, but the form could not be determined. All of the house structures excavated at Kukulik and at the series of Gambell sites have been de-

[1] Geist and Rainey, 1936, 32; Collins, 1937a, 32.

[2] Collins, 1937a, 39.

scribed as square or rectangular, with walls made from logs, stones, or whale bones. The only round houses so far reported, which resemble the characteristic Thule type of house in the eastern Arctic, are the house described above and one other excavated by Giddings in 1939 at the Kitneapaluk site, twenty miles south of Gambell.

Artifacts found in the thick layer of débris on the house floor number approximately nine hundred fifty. The majority (570) are stone tools including chipped flint implements (112), polished slate blades (256, including fragments), flaked slate objects, whetstones, adze blades, and rubbing stones. There were also about one hundred ninety wooden objects, one hundred twenty potsherds, forty-four bone and ivory objects, and twenty-four baleen implements.

For some reason the bone and ivory objects in the deposit were very much decayed, many being recognized by no more than a brown paste or smudge, but among the forty-four intact specimens are ten with engraved designs, all in the characteristic Okvik style. Furthermore, practically all these bone and ivory objects are precisely the same as types found in the Okvik site on the Punuk Islands. There are six harpoon heads (all decorated), three of Okvik Type A, two of Okvik Type B (Figs. 5 and 6); harpoon ice picks (Fig. 11, No. 10); a blubber scraper (Fig. 21, No. 6); float plugs (Fig. 12, No. 6); side prongs for bird spears (Fig. 13, Nos. 8, 10); arrowheads (Fig. 14, No. 1); sled runners (Fig. 16, No. 1); a sled cross-piece (Fig. 16, No. 5); and mattocks or picks (Fig. 22, No. 2).

The stone implements, although much more numerous here than in the Okvik deposit, include not only all the types found there but additional types, such as the concave scrapers of chipped flint found by Collins[1] in the Old Bering Sea houses on the hillside near Gambell. Several types of wooden implements and potsherds are common to all three sites.

One peculiar trait represented here has been reported from only one other site on St. Lawrence Island (Miyowagh).[2] This is the technique of painting wooden objects with decorations in black on a red background. Seven wooden shafts (probably dart shafts) were painted a dull ocher red and then ornamented with bands, lines, and dots in black paint. Other than black bands, the most striking design element is |·|, occurring as a single unit. This black-on-red painting of wooden objects recalls the black-on-red painted bowls and trays made at present by Eskimo of Nunivak and Nelson islands in the sub-Arctic area, but here realistic designs are also included.

It is clear that this large house on the hillside at Gambell represents the same culture stage as the Okvik deposit on the Punuk Islands. Its position indicates that it is older than the houses excavated by Collins on the same hillside. The collections obtained in it explain the presence, among and below the floor stones of the later houses, of a few decorated objects of the Okvik style described by Collins as representing an Old Bering Sea Style 1. In the later houses excavated by Collins, the majority of decorated specimens were in the typical elaborate curvilinear style of the Old Bering Sea Stage proper, while the few specimens decorated in the simpler Okvik style (Old Bering Sea Style 1) were found primarily at the base of the deposit. In the house excavated by Giddings and at the old site on the Punuk Islands all decorated specimens are in the Okvik style. There is not a single example of the more elaborate, curvilinear art.

These excavations of 1939 at Gambell are, then, the conclusive link in the chain of evidence determining the chronological relation between what is described here as the Okvik Stage and what Collins had defined as the Old Bering Sea Stage on St. Lawrence Island. A detailed description of the collections made in 1939 will not be included here, but will be reserved for a later report to be concerned with investigations on eastern St. Lawrence, in particular at the site known as Kitneapaluk.

[1] Collins, 1937a, Pl. 41, Figs. 21–26.

[2] Collins, 1937a, 174.

THE COLLECTIONS

The method of describing the Okvik collection utilized in this paper is based upon a peculiar circumstance in the study of Eskimo prehistory. The present Eskimo in northern Bering Sea and along the Arctic coast, even after the adoption of many European contrivances, retain so much of their aboriginal material culture that most implements excavated from prehistoric sites are recognized at once by native workmen as only slightly varying forms of tools still made and used by them. Exceptions occur, of course, in certain unidentified objects which have no parallel in modern times, but the bulk of all archaeological collections can be described on a functional basis very much as one would describe an ethnographic collection.

Since many archaeological as well as ethnographic collections from the Arctic area in Alaska, Canada, and Greenland have now been published, most readers will be familiar with the use of the characteristically Eskimo artifacts and also with the descriptive terminology. Under these circumstances, I believe that lengthy descriptions of types or unusual specimens need not be included, and that the following abbreviated method of presentation will fulfil the purpose required and eliminate a great deal of repetition.

In the following description all specimens are grouped into classes, each of which includes all the objects used for a specific purpose, as, for example, harpoon heads, men's knife handles, and sled runners. Many of the classes are then divided into sub-classes or specific types which are determined by the particular form or style; for example, the several types of harpoon heads, etc. It should be observed that there is rarely any doubt about the use of the objects described so that the separate classes in the system of classification have considerable validity, but the subdivision into specific types is largely a matter of the writer's personal opinion as to significant characteristics.

With the description of each class and specific type of implement its distribution in relation to each of five stages of Arctic Eskimo culture is given by reference to three detailed publications describing previous investigations in this area. Mathiassen's report (cited as M) of his excavations at Naujan off Repulse Bay (northern Hudson Bay)[1] defines a Thule stage of prehistoric Arctic Eskimo culture; Collins' report (cited as C) of his work at Gambell on St. Lawrence[2] describes in detail two stages termed Old Bering Sea and Punuk; Geist and Rainey's report (cited as G and R) of the excavations at Kukulik on St. Lawrence[3] defines two more stages referred to as Late-Prehistoric[4] and Modern. Three additional types of Arctic Eskimo culture have also been reported, one known as Birnirk[5] associated with an old site near Point Barrow, Alaska; another termed Dorset[6] which is known from old sites in the eastern Arctic extending from northern Greenland through Baffin Land to Labrador and Newfoundland; and finally, the Ipiutak culture which was discovered at Point Hope, Alaska, in 1939.[7] However, no detailed description of these three culture types has been published, and no adequate study of their correlation can be made at present.

It has been observed above that the basic pattern of Eskimo culture in the sub-Arctic area, in prehistoric as well as modern times, differs widely from the common Arctic pattern; for that reason this distributional study is limited to the northern region in the belief that the interrelation of the southern and northern regions, in Alaska at least, must be known in more detail before a comprehensive study of the whole can be attempted.

In Greenland the work of Mathiassen, Larsen, and Holtved has shown that all forms of Eskimo culture known there are derived from the Thule type in the Hudson Bay region, and thus in this study of distribution no reference is necessary to spe-

[1] Mathiassen, 1927.
[2] Collins, 1937a.
[3] Geist and Rainey, 1936.
[4] The term, Late-Prehistoric, is equivalent to the term Recent-Prehistoric used in the publication by Geist and Rainey, 1936.
[5] Mason, 1930.
[6] Jenness, 1925.
[7] Rainey, 1941.

cific Greenland forms, such as those found at Inugsuk.[1]

The following description includes 1404 specimens from the Okvik site. All but sixty-eight of these were excavated in 1931 and 1934. The latter were selected from those purchased from native ivory hunters in 1937 and 1939 because they are, for the most part, precisely the same or only slightly varying examples of specific types excavated at Okvik and are decorated in the same style. The total purchased collection from this site has not been included because there is always some question as to whether the specimens are actually from the deposit described here, or from some other nearby refuse on the island. The bulk of the material is in the Museum of the University of Alaska, but a representative collection of types is being sent to the Danish National Museum in Copenhagen.

[1] Mathiassen, 1930b.

THE COLLECTIONS

FIGURE 4

HARPOON HEADS

Harpoon Heads. 217 specimens; 208 ivory; 9 bone; 185 decorated with characteristic Okvik designs; 160 complete enough to be classed in five major (common) types (A, B, C, D, E) and five minor (rare) types (1–5) in the order of frequency of occurrence; classified on the basis of those fundamental features of Eskimo harpoon heads, termed blade slit, foreshaft socket, line hole, lashing slots or grooves, spurs, and barbs; specimens ranging from rough blanks to heads lacking blade slit or foreshaft cutting.

Distribution: In all stages.

Type A, Style 1: 60 specimens (Fig. 4); ivory; 58 decorated with characteristic Okvik design; open foreshaft socket; slot with opposing groove for lashing; blade slit parallel to axis of line hole; multi-pronged spur extending out from left or right of open socket; *thin;* knife-like edges; normally broad groove above line hole. (Single notched spur on No. 2 is unique; it is cracked and repaired.) As a whole, Type A, Style 1 heads have a specific type of incised decoration contrasting with that on Type A, Style 2.

Distribution: Old Bering Sea (C: Pl. 24, Figs. 15–23); Punuk (C: Pl. 28, Figs. 8–14); Thule (M: Pl. 1, Figs. 6–10).

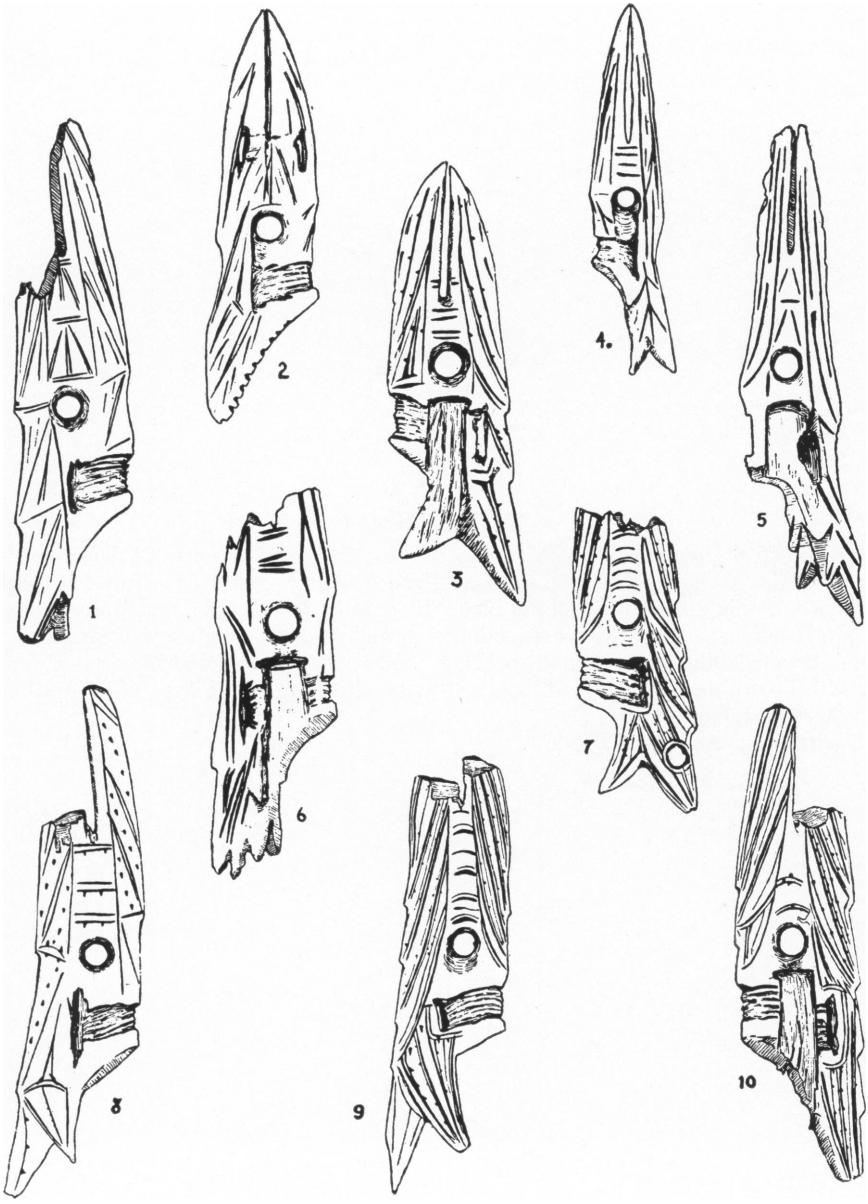


Fig. 4. Harpoon Heads. Length of No. 1, 10.7 cms.

FIGURE 5

HARPOON HEADS

Harpoon Heads, Type A, Style 2. 26 specimens; 24 ivory; 2 bone; 25 decorated with characteristic Okvik designs; the same as Type A, Style 1, with open foreshaft socket, slot and opposing groove for lashing, blade slit parallel to line hole, multi-pronged spur; but *thick;* almost square in cross-section; normally four to eight-pronged spur; one (No. 4) retains a flint blade; small specimen (No. 1) is unique; a specific type of decoration with broad, deeply engraved lines contrasts with the specific type of decoration on Type A, Style 1, heads.

Distribution: As Type A, Style 1.

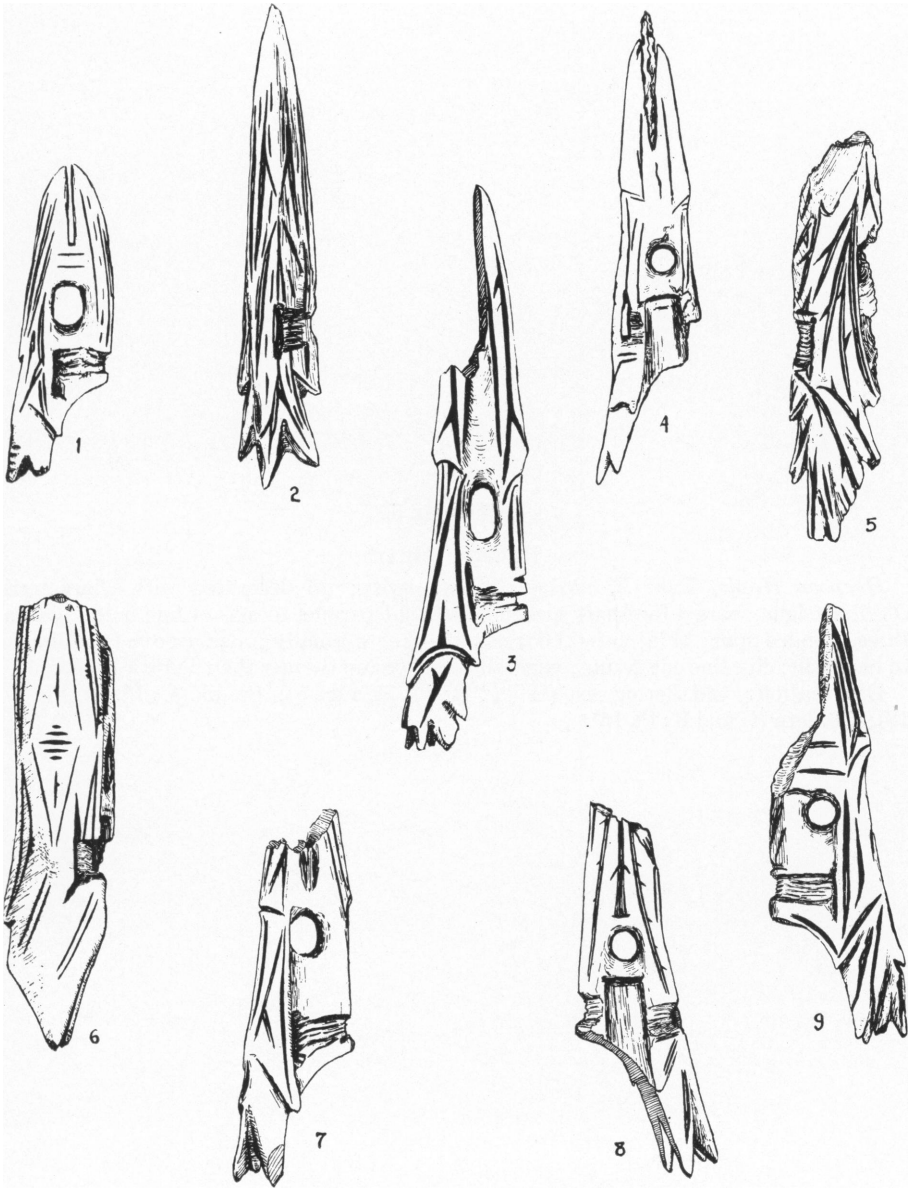


Fig. 5. Harpoon Heads, Type A, Style 2. Length of No. 1, 6 cms.

FIGURE 6

HARPOON HEADS

Harpoon Heads, Type B. 26 specimens; ivory; 25 decorated with characteristic Okvik designs; closed foreshaft socket; blade slit parallel to axis of line hole; normally three-pronged spur; thin; lateral edges knife-like; normally broad groove from line hole to blade slit; fine line engraving; generally smaller and thinner than Type A heads.

Distribution: Old Bering Sea (G and R: Pl. 71, Fig. 5); Punuk (C: Pl. 70, Figs. 17, 18); Modern (G and R: Pl. 15).

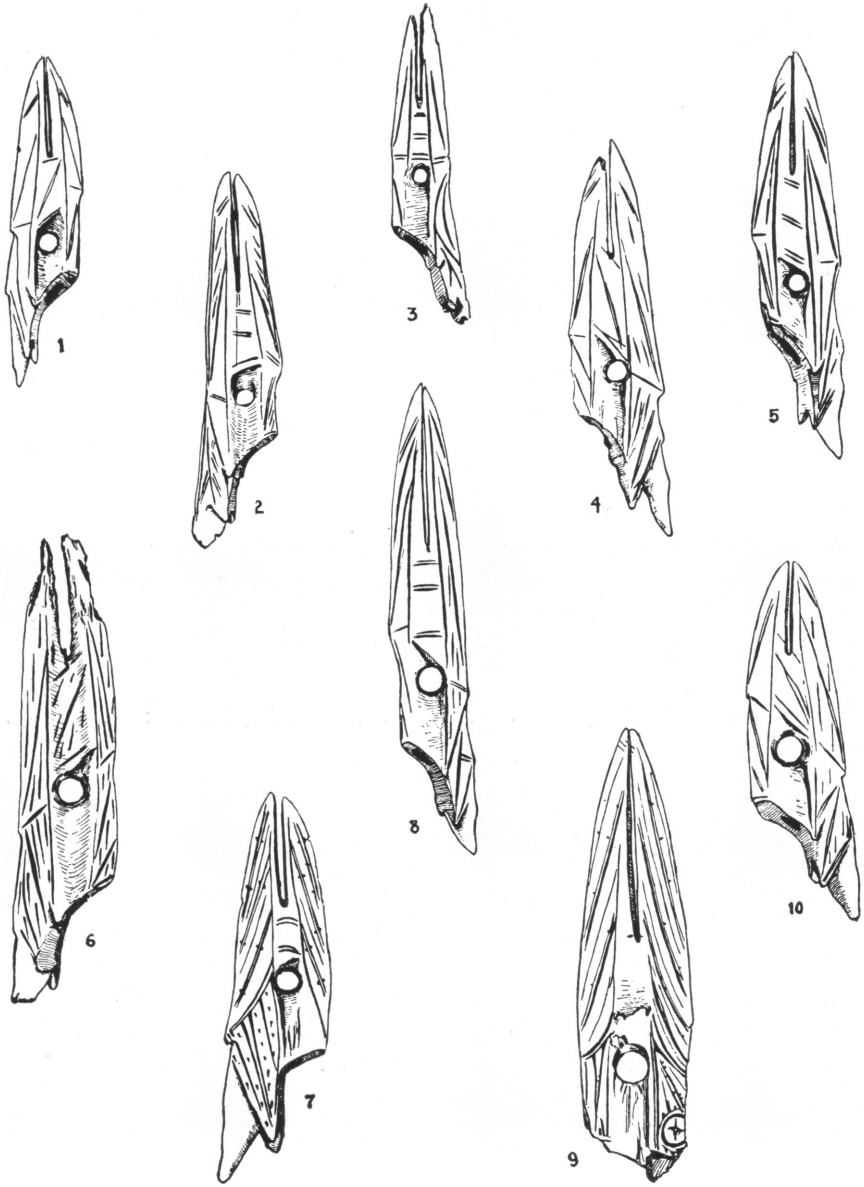


Fig. 6. Harpoon Heads, Type B. Length of No. 1, 6.5 cms.

FIGURE 7

HARPOON HEADS

Harpoon Heads, Type C. 18 specimens; 18 ivory; 18 decorated with Okvik designs; open foreshaft socket; slot and opposing groove for lashings; blade slit at *right angles* to line hole; multi-pronged spur; *thick;* almost square in cross-section at the line hole; normally deep, broad, heavy engraving; one (No. 1) is unique with barb-like termination of blade slit; the same as Type A, Style 2, except for blade slit (at right angles rather than parallel to line hole).

Distribution: Old Bering Sea (C: Pl. 23, Fig. 9); Punuk (G and R: Pl. 68, Figs. 12–16).

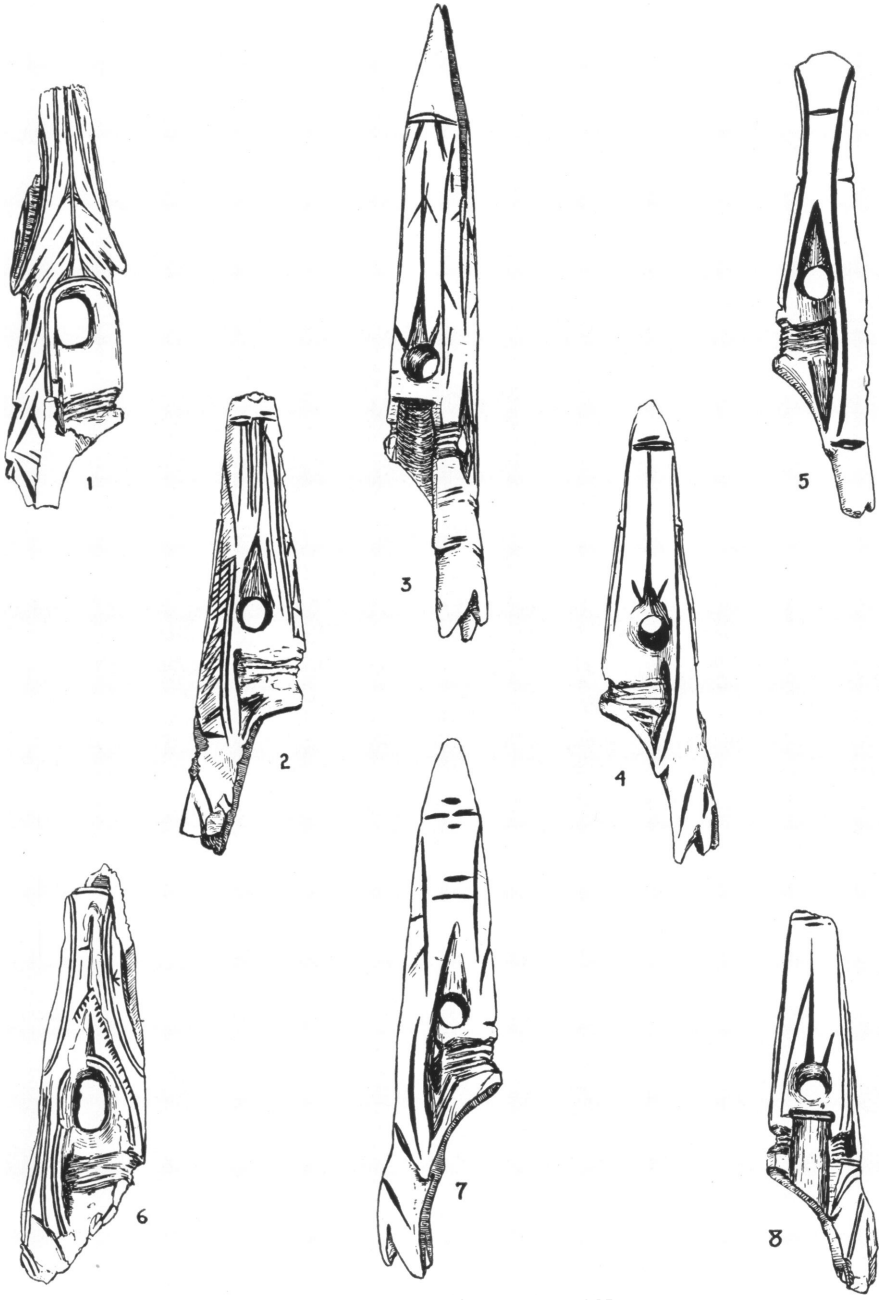


Fig. 7. Harpoon Heads, Type C. Length of No. 1, 7.5 cms.

FIGURE 8

HARPOON HEADS

Harpoon Heads, Type D. 14 specimens; 12 ivory; 2 bone (Nos. 3 and 5); 14 decorated in Okvik style; closed foreshaft socket; blade slit at right angle to line hole; multipronged spur; the same as Type B except for blade slit (at right angles rather than parallel to axis of line hole).

Style 1: 12 specimens; extremely small size (salmon harpoon?) (Nos. 1–7).

Style 2: 2 specimens; normal size for seal or walrus harpoon heads (No. 8).

Distribution: Old Bering Sea (C: Pl. 26, Figs. 17, 18); Punuk (C: Pl. 70, Figs. 21–23); Thule (M: Pl. 2, Fig. 1); Modern (G and R: Pl. 18, Fig. 1).

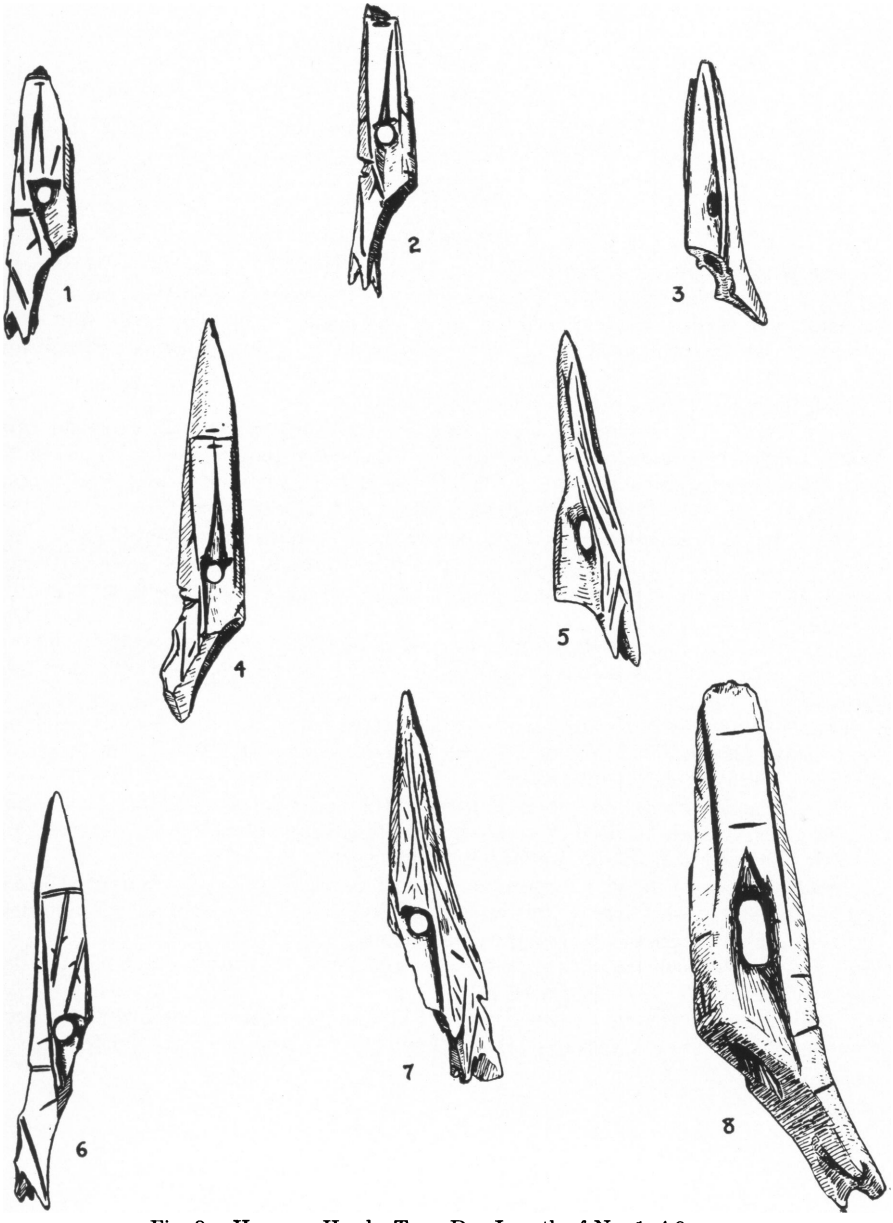


Fig. 8. Harpoon Heads, Type D. Length of No. 1, 4.9 cms.

Figure 9

Harpoon Heads

Harpoon Heads, Type E and Rare Types. 1–4. Type E: 6 specimens; 4 ivory; 2 bone (No. 2); three decorated with Okvik designs; open foreshaft socket; slot and groove for lashing; side blades set in opposing grooves parallel to axis of line hole; flint blade remaining in two specimens (Nos. 1, 2); multi-pronged spurs; resemble the Birnirk types.

Distribution: Old Bering Sea (C: Pl. 24, Figs. 5–6).

5. Rare Type 1: 2 specimens; ivory; engraved in characteristic Okvik style; open foreshaft socket; slot and groove for lashing; blade slit parallel to round line hole; three slender, sharp spurs extending out from base of foreshaft socket; extremely small; salmon harpoon (?); like those used in modern times on Nunivak Island.

6. Rare Type 2: 1 specimen; ivory; decorated in Collins' early Punuk style; open foreshaft socket; slots for lashing; blade slit parallel to round line hole; simple spur extending outward below open foreshaft socket; approximates later Punuk types and is probably intrusive.

7. Rare Type 3: 1 specimen; ivory; no engraving; open foreshaft socket; slots for lashing; no blade; bifurcated spur extending outward below foreshaft socket; light color and probably intrusive.

8. Rare Type 4: 3 specimens; ivory; undecorated; open foreshaft socket; slots for lashing; blade slit parallel to round line hole; single spur; resembles Punuk types and later Thule Type 3; probably intrusive.

9. Rare Type 5: 1 specimen; bone; undecorated; open foreshaft socket; no lashing slots or grooves; blade slit parallel to line hole; single spur; precisely the same as Late-Prehistoric (Type B) at Kukulik; undoubtedly intrusive.

10. *Whaling Harpoon Head.* 1 specimen; ivory; fore part of head apparently broken and then cut off between base of blade slit and line hole; decorated in characteristic Okvik style; lightly engraved curved and spurred lines.

Unidentifiable Harpoon Head Fragments. 40 specimens; 39 ivory; one bone; 36 decorated in Okvik style. (Not illustrated.)

Unfinished Harpoon Heads. 16 specimens; 15 ivory; one bone; 3 decorated in Okvik style; probably one Type A, one Type B, one Type D, one Type E. (Not illustrated.)

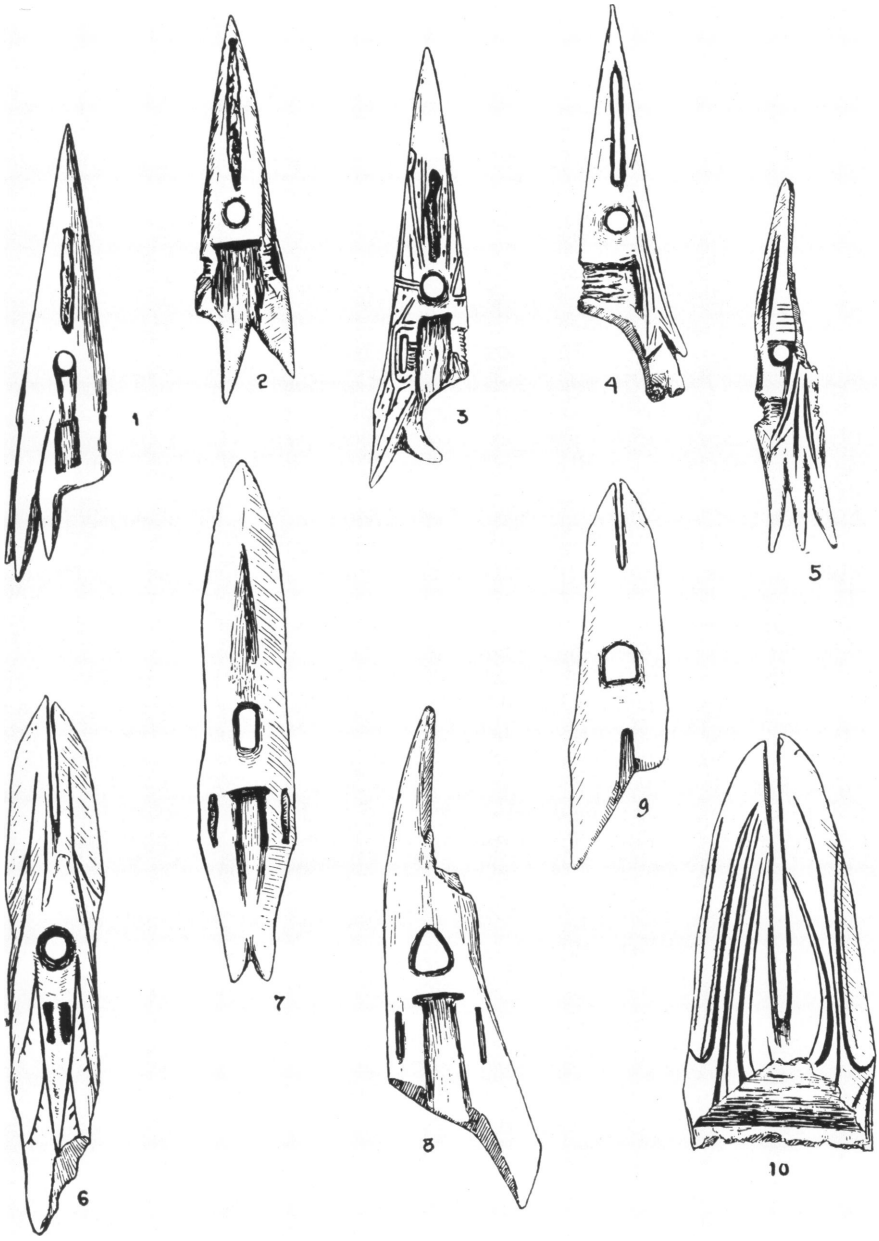


Fig. 9. Harpoon Heads, Type E and Rare Types, Whaling Harpoon Head, Unidentifiable Harpoon Head Fragments, and Unfinished Head. Length of No. 1, 8.8 cms.

FIGURE 10

HARPOON SOCKET PIECES

Harpoon Socket Pieces (Foreshaft Receivers). 13 specimens; ivory; 9 decorated; 7 large specimens undoubtedly used with seal or walrus harpoons; 6 small specimens which might be classed as dart socket pieces except that many harpoon heads and foreshafts in the collection are extremely small and probably would require small socket pieces.

Distribution: In all stages.

1–2. Type 1: 2 specimens; purchased from Eskimo in 1937, but obviously from excavated site (characteristic decorations); opposing rectangular slots for hafting on shaft; round pits on opposing surfaces (ornamental plugs remaining in one); not reported from other Eskimo sites.

3. Type 2: 4 specimens; very short, wedge-shaped and roughened butt end for hafting; ridge-like stops on lateral edges of butt end.

4. Type 3: 1 specimen; bell-shaped head for socket; slender restricted shaft with shoulder; wedge-shaped and roughened butt end for hafting; three round pits (probably for ornamental plugs) in shaft and in bell-shaped head. Not reported from other sites.

5. Type 4: 1 specimen; broken and possibly used for another purpose; deep slit in shaft for hafting.

6. Type 5: 1 specimen; small and slender; may be dart socket piece; notched and beveled butt end for hafting. The remaining four socket pieces are approximately the same size, but partly broken away; actual type uncertain; may also be dart socket pieces.

7. Purchased from natives in 1937; said to be from site, but this is not certain since ornamentation is not characteristic.

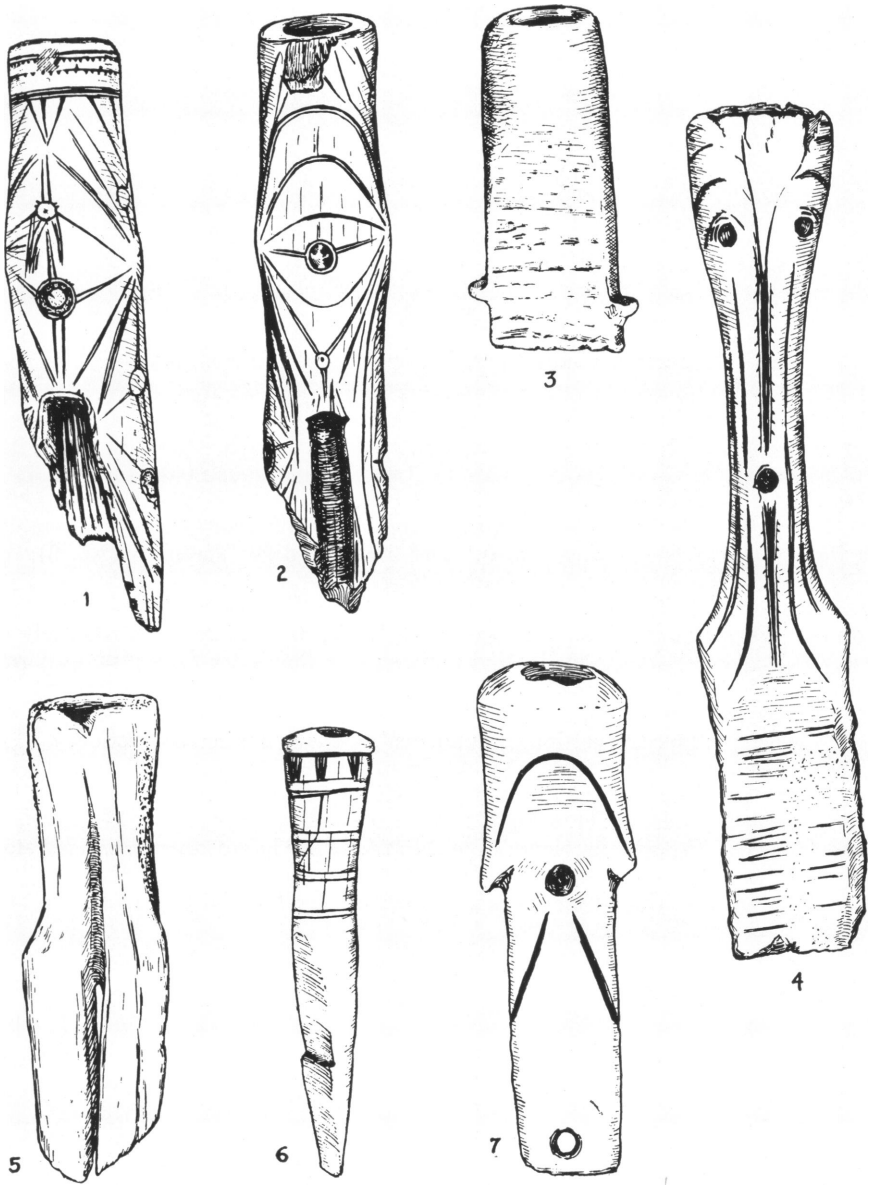


Fig. 10. Harpoon Socket Pieces. Length of No. 1, 11.1 cms.

FIGURE 11

HARPOON FORESHAFTS, FINGER RESTS, AND ICE PICKS

1–7. *Harpoon Foreshafts.* 21 specimens; 21 ivory; 4 decorated; (Nos. 2, 4); blunt pointed butt end; slender pointed fore end; line hole a narrow slit nearer butt than fore end; normally oval to round in cross-section, rarely rectangular; great variation in size from very small (No. 3) to very large (No. 1); two with rectangular butt end (No. 5).

Distribution: In all stages.

8–9. *Finger Rests for Harpoon Shafts.* 2 specimens (?); ivory (one, No. 8, may be a peg for the end of a throwing board). Definitely identified specimen (No. 9); high; curved; concave base; triangular hole for lashing.

Distribution: In all stages.

10–13. *Harpoon Ice Picks.* 31 specimens; ivory; 6 decorated; 18 relatively complete, 12 fragments; much smaller and more slender than later types; tangs normally conical and rough.

Distribution: In all stages.

10. Type 1: 12 specimens; long; round, oval, or triangular in cross-section.

Distribution: Old Bering Sea (C: Pl. 32, Fig. 6).

11. Type 2: 5 specimens; short, flat, blade-like with shoulder.

Distribution: Thule (M: Pl. 4, Fig. 2).

12. Type 3: 2 specimens; long; round to triangular in cross-section; ridge stop at base of conical tang.

13. Type 4: 1 specimen; long, wedge-shaped tangs; short, flat point.

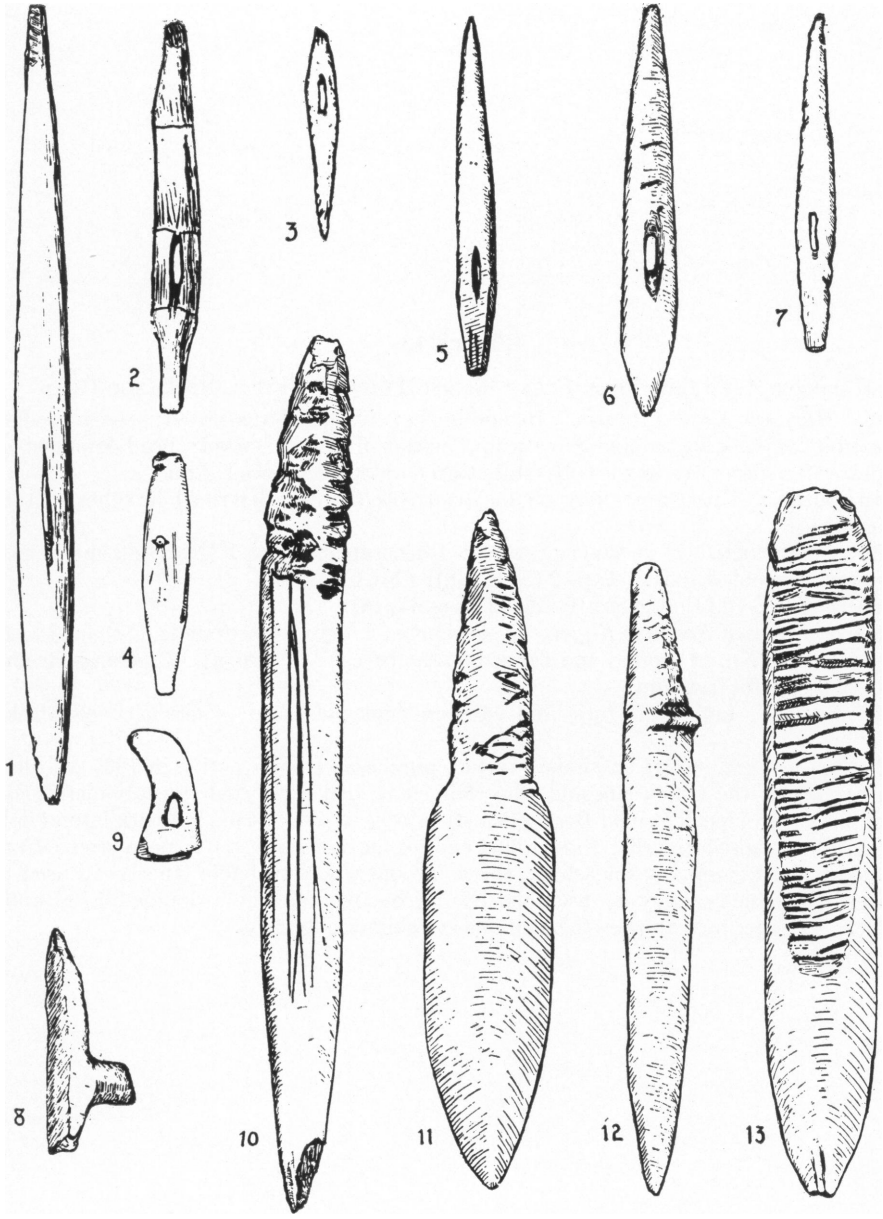


Fig. 11. Harpoon Foreshafts, Finger Rests for Harpoon Shafts, and Harpoon Ice Picks. Length of No. 1, 15.8 cms.

FIGURE 12

HARPOON HEAD CLEANERS, FLOAT PLUGS, HARPOON RESTS, AND LANCE HEAD

1–3. *Harpoon Head Cleaners.* 10 specimens; ivory; 1 decorated; sharp wedge-shaped bit for cleaning ice and snow from harpoon foreshaft socket; head knobbed or perforated for suspension at the belt; still utilized by St. Lawrence Eskimo.

Distribution: Uncertain; may be the boot sole crimper described in other culture stages.

4–9. *Float Plugs.* 11 specimens; ivory; 1 decorated; Type 1 (No. 9), 2 specimens; large, rough, spool-shaped. Type 2 (Nos. 4–8); (No. 6) largest.

Distribution: Old Bering Sea (C: Pl. 32, Figs. 17, 18).

10–11. *Harpoon Rests for Kayak.* 5 specimens; ivory; 4 decorated; U-shaped rests with stems; 3 (No. 11) round and flanged at the base for fastening; 2 rectangular and perforated base for fastening.

Distribution: Late-Prehistoric and Modern (not published—University of Alaska collections).

12. *Lance Head.* (?) 1 specimen; ivory; purchased from a native in 1937 who had been digging at the Okvik site and who claimed he had excavated the specimen there; design, however, resembles Old Bering Sea style in part; deep blade slit with lateral hole for pin fixing blade in the slit; forked butt end for hafting upon shaft; deep groove from pin hole to butt, probably for a line; this is probably a detachable lance head used in killing the disabled quarry as described by Nelson, but may be a double-bladed knife handle. The specimen appears to be unique in Eskimo collections.

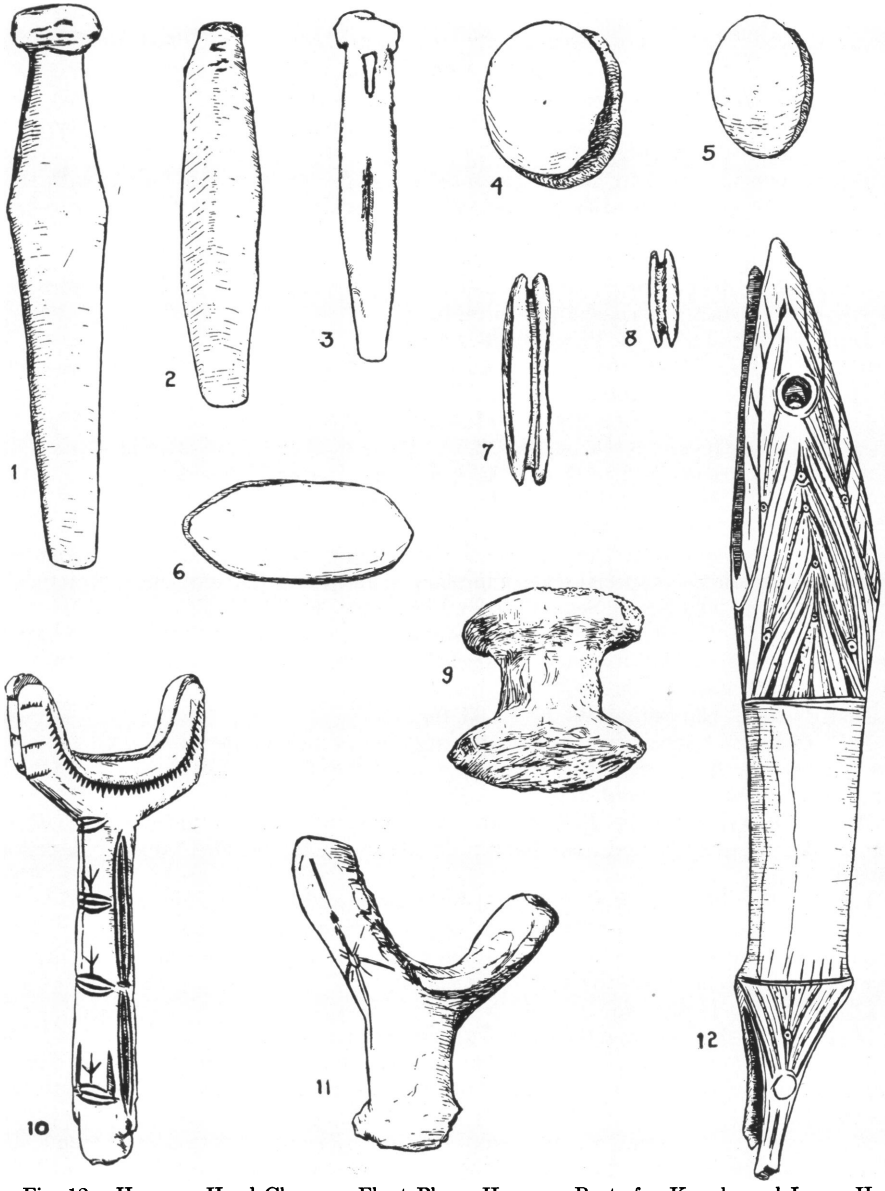


Fig. 12. Harpoon Head Cleaners, Float Plugs, Harpoon Rests for Kayak, and Lance Head. Length of No. 1, 10.5 cms.

FIGURE 13

DART HEADS, PRONGS FOR BIRD DARTS AND FISH SPEARS, AND PEGS FOR THROWING BOARDS

1–7. *Dart Heads.* 26 specimens; ivory; 16 decorated; may have been used for seal darts, end prongs for bird darts or on fish spears; 16 fragments of undetermined type.

Distribution: In all stages.

1–4. Type 1: 6 specimens; 4 decorated; straight, multi-barbed points with slotted line hole near blunt conical tang; normally rectangular in cross-section; one 6-barbed specimen is triangular; one (No. 1) has two line holes.

Distribution: Old Bering Sea (C: Pl. 29, Fig. 5).

5. Type 2: 5 specimens; undecorated; large, heavy points with one or more barbs; slotted line hole near edge of shaft; conical tang.

Distribution: Thule (M: Pl. 2, Fig. 8).

6–7. Type 3: 2 specimens; one decorated; multi-barbed; elliptical in cross-section; slotted line hole; flat, pointed tang.

Distribution: Old Bering Sea (C: Pl. 33, Figs. 1–5); Punuk (C: Pl. 74, Figs. 1, 2); Late-Prehistoric (G and R: Pl. 54, Figs. 3, 4); Modern (G and R: Pl. 21, Fig. 4).

8–11. *Side Prongs for Bird Darts.* 19 specimens; ivory; 18 decorated.

Distribution: In all stages.

8–9. Type 1: 10 specimens; curved; round in cross-section; multi-barbed; barbs directed toward and away from shaft; slotted lashing hole; curved beveled tang for insertion in shaft slot. A special style of incision on all specimens; only one complete.

Distribution: Old Bering Sea (C: Pl. 33, Figs. 6–9); Thule (M: Pl. 41, Fig. 13).

10. Type 2: 7 specimens; straight; square in cross-section; two or more barbs directed toward and away from shaft; chisel-shaped tang topped by a knob-like projection to hold the prong away from shaft.

Distribution: Old Bering Sea (C: Pl. 33, Fig. 1).

11. Type 3: 1 specimen; (fragment) large heavy prong (probably used for cormorants); curved; one or more thick barbs directed toward shaft; like those used in modern times on St. Lawrence Island.

12–13. *End Prongs for Fish Spear.* 3 specimens; ivory; undecorated; straight slender points with two and three barbs; slotted line hole; beveled tang for insertion in slotted shaft.

Distribution: Specific type Modern at Kukulik (G and R: Pl. 21, Fig. 2).

14–15. *Center Prongs for Bird Darts or Fish Spears.* 2 specimens; ivory; undecorated; one long slender point notched along one edge; line hole near tang; one short slender point notched on both edges, on line hole.

Distribution: In all stages.

16–17. *Pegs for Throwing Boards.* 5 specimens; ivory.

16. Type 1: sharp-pointed pin with one flat surface to be lashed against throwing board with sharp hooked point against butt end of the dart when placed on the throwing board.

17. Type 2: 4 specimens; plug-shaped objects like those found at the end of the shaft channel in throwing board from the recent period at Kukulik; these recent specimens usually have a sharp point on the edge of the disc which engages the hole at the end of the shaft.

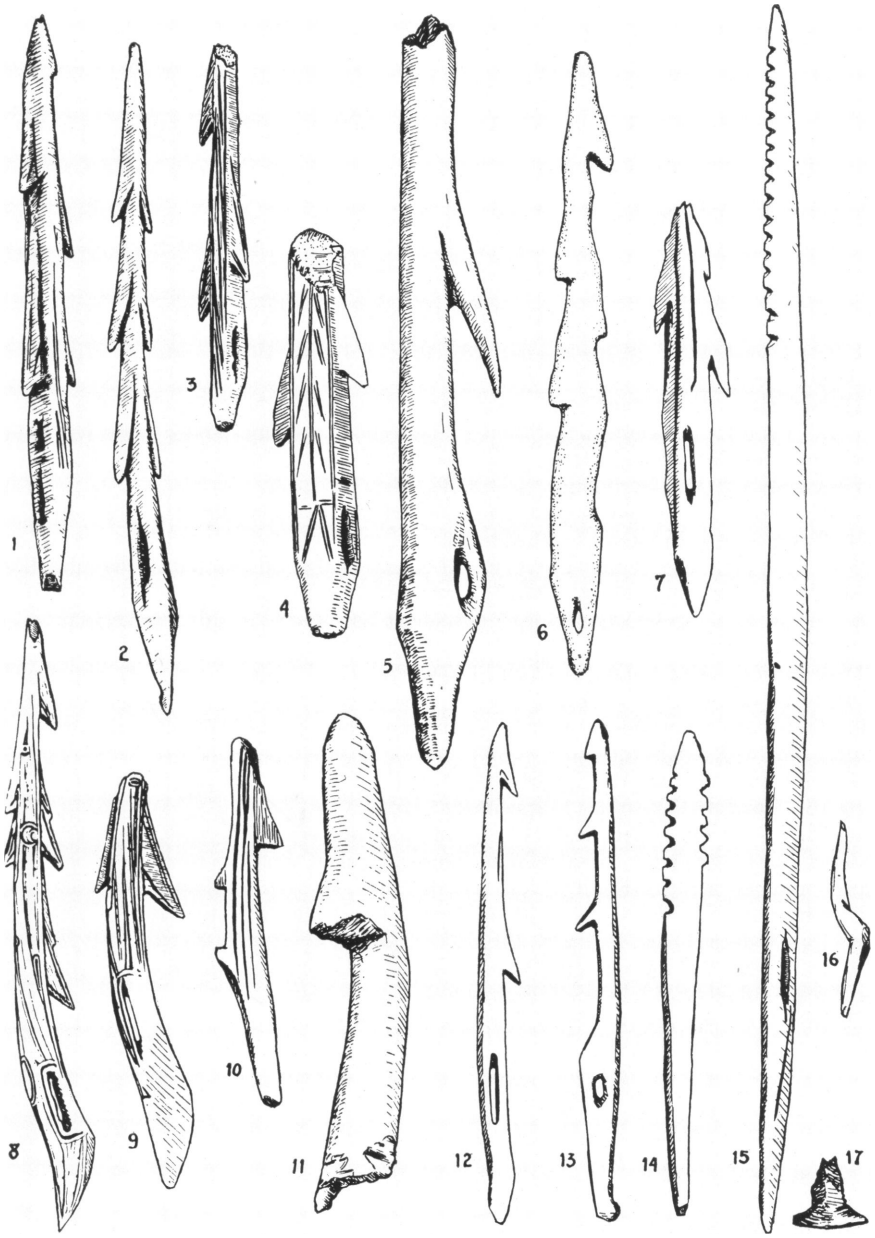


Fig. 13. Dart Heads, Side Prongs for Bird Darts, End Prongs for Fish Spears, Center Prongs for Bird Darts or Fish Spears, and Pegs for Throwing Boards. Length of No. 1, 11.5 cms.

Figure 14

Arrowheads

1–9. *Arrowheads.* 28 specimens; 20 ivory; 8 bone; 16 decorated; 6 fragments of undetermined types.

Distribution: In all stages.

1–3. Type 1: 8 specimens; all bone; blade slit; two long slender barbs lying close to shaft; sharp-pointed conical tang.

Distribution: Old Bering Sea (C: Pl. 34, Figs. 3, 4).

4–5. Type 2: 3 specimens; all ivory; short points with blade slit; two short, sharp barbs lying close to the shaft; conical tang.

6–7. Type 3: 4 specimens; ivory; all fragmentary, but probably resemble Type 2 except for absence of blade slit; (No. 7) very small, is unique.

8. Type 4: 2 specimens; ivory; two short barbs on one side; triangular in cross-section; conical tang.

Distribution: Old Bering Sea (C: Pl. 34, Fig. 7); Punuk (C: Pl. 74, Fig. 7); Late-Prehistoric (G and R: Pl. 54, Fig. 6).

9. Type 5: 1 specimen; ivory; single short barb; diamond-shaped cross-section; conical tang with ridge stop.

Distribution: Thule (M: Pl. 8, Fig. 6).

10–16. *Bird Arrowheads.* 11 specimens; ivory.

10–13. Type 1: 4 specimens; oblong blocks with a round socket in the base for hafting on a shaft; two have three petaloid figures in relief; one has three engraved petaloid figures, and one is undecorated.

Distribution: Punuk (C: Pl. 74, Figs. 12–13); Late-Prehistoric (G and R: Pl. 52, Fig. 11); Modern (G and R: Pl. 21, Fig. 7).

14–16. Type 2: 7 specimens; blunt pointed heads with a conical tang; one (No. 14) has three petaloid figures in relief like those on Type 1 heads.

Distribution: Punuk (C: Pl. 74, Fig. 11).

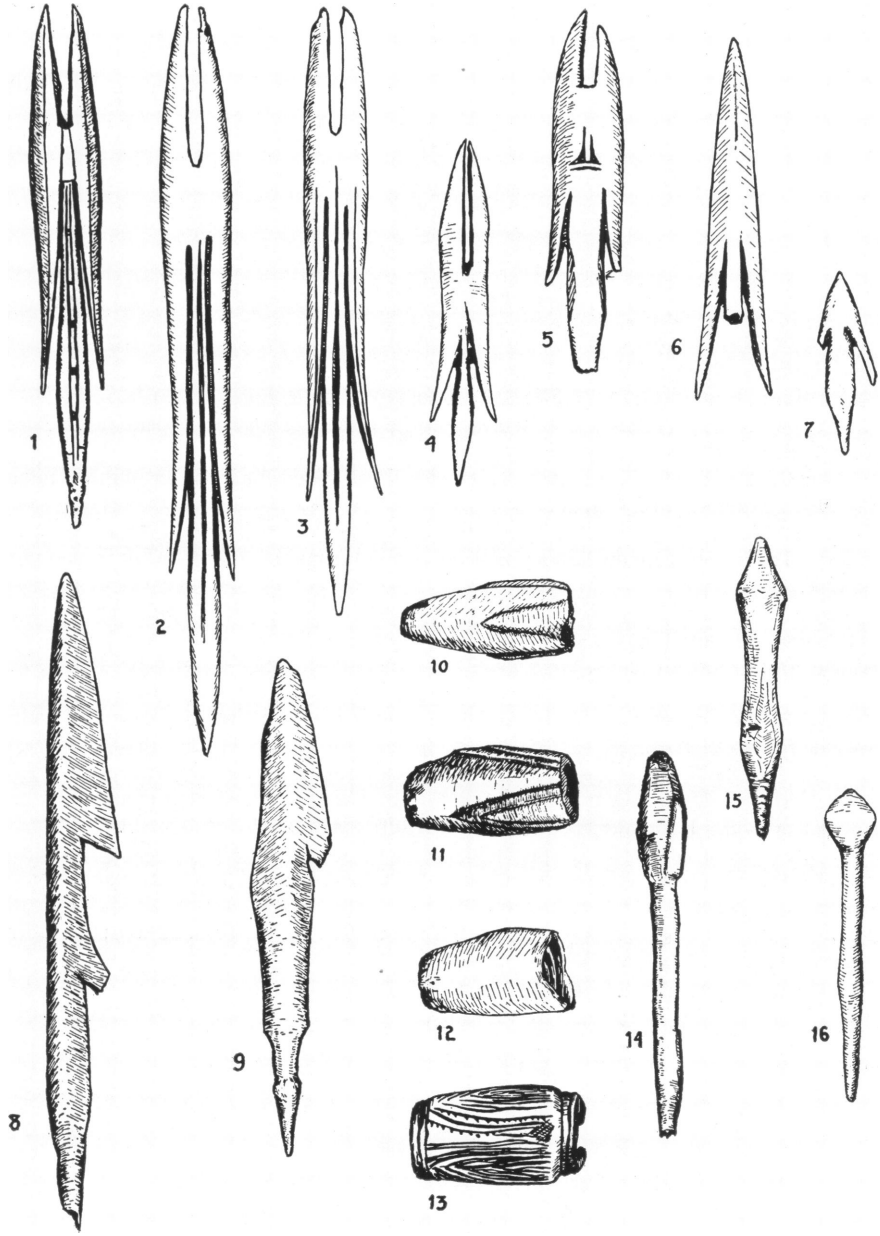


Fig. 14. Arrowheads. Length of No. 1, 10.5 cms.

FIGURE 15

BARBS FOR SALMON SPEARS, FISH HOOKS, FISH HOOK BARBS, AND FISH LINE SINKERS

1–4. *Barbs for Salmon Spears.* 7 specimens; ivory; undecorated.

Distribution: Punuk (C: Pl. 75, Fig. 19); Thule (M: Pl. 12, Figs. 10–18).

1–3. Type 1: 4 specimens; notched face to be lashed against the spear prong; long slot for lashing; the usual widely used type.

4. Type 2: 2 specimens; uncertain identification; might be meat or blubber hooks, but like Mathiassen's Pl. 12, Fig. 16.

5–7. *Fish Hooks.* 3 specimens; two ivory; one bone.

5. Type 1: ivory; broken shank; type of barb uncertain, but probably in one piece with shank.

6. Type 2: bone; complete; shank perforated for line; block at lower end with three slots for three small barbs.

Distribution: Punuk (C: Pl. 75, Figs. 4, 5); Late-Prehistoric (G and R: Pl. 54, Fig. 9).

7. Type 3: ivory; tomcod hook like those used in modern times; perforated walrus tooth with two inset barbs.

8–11. *Fish Hook Barbs.* 4 specimens; ivory; all uncertain identification. No. 9 for fish hook shank of Type 2, but much larger. No. 8 may be a salmon spear barb or a meat hook; Nos. 10–11 may be barbs from fish or bird spears.

12–14. *Fish Line Sinkers.* 4 specimens; ivory; one decorated; oblong blocks of ivory with perforations at each end; all are of different shapes, but approximately the same size.

Distribution: Old Bering Sea (C: Pl. 36); Punuk (C: Pl. 75, Figs. 12–13); Late-Prehistoric (G and R: Pl. 42, Fig. 10).

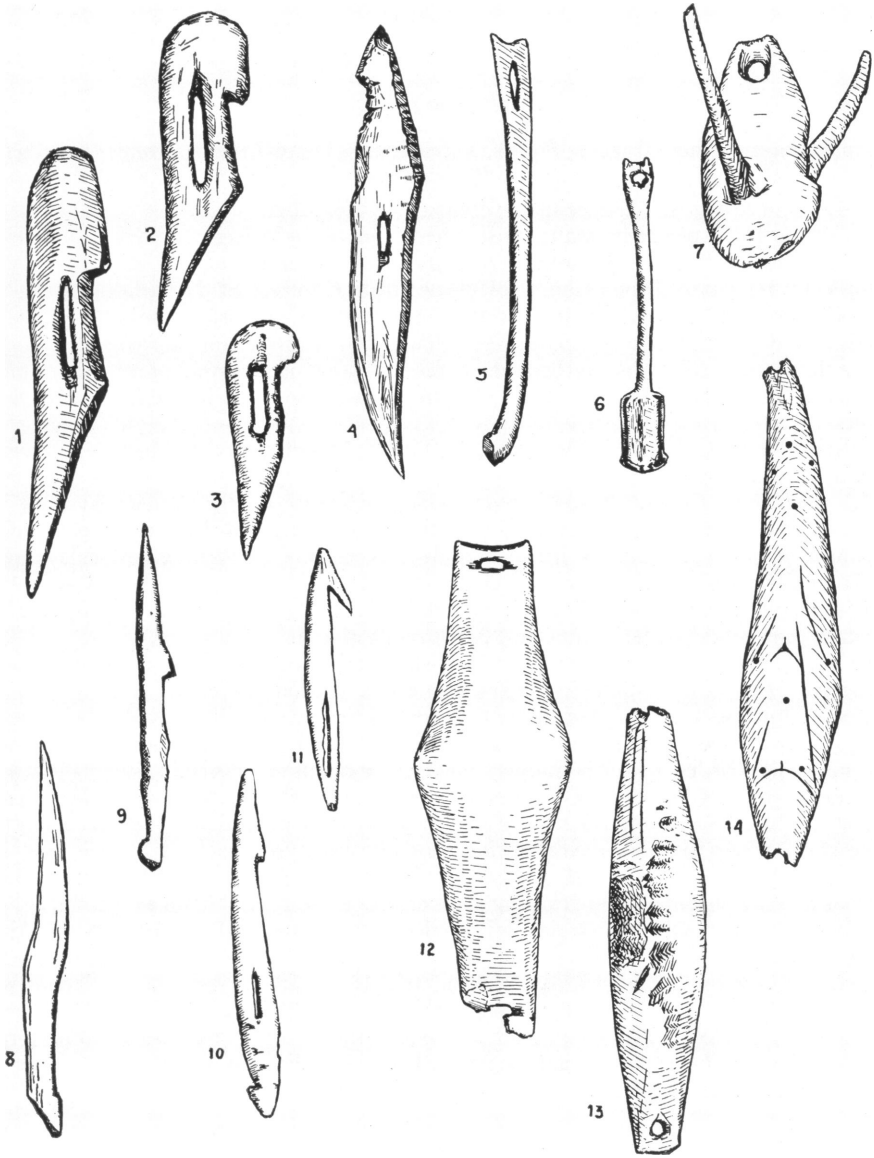


Fig. 15. Barbs for Salmon Spears, Fish Hooks, Fish Hook Barbs, and Fish Line Sinkers. Length of No. 1, 9.1 cms.

FIGURE 16

SLED RUNNERS, CROSS-PIECES, SHOES, AND ARCHES, DRAG-LINE HANDLES, AND BALEEN TOBOGGANS

1–4. *Sled Runners.* 27 specimens; ivory; one decorated.

1. Type 1: 1 specimen; walrus tusk with flattened lower edge; groove on upper edge for cross bar; with large perforation directly below it; notch at one end; like Collins' (1937a, Pl. 44, Fig. 4) Type 1 from the Hillside Site at Gambell, St. Lawrence Island.

2–4. Type 2: 26 specimens; flat; thin; rounded runner surface on lower edge; normally round perforation near upper edge below notch or groove for the cross bar; 5 specimens (like No. 4) have slots rather than holes for fastening the cross bars. Like Collins' Type 2 from the Hillside Site; 3 have lashing holes with a slot in the fore end near the peak.

Distribution: Old Bering Sea (C: Pl. 45, Fig. 3); Modern (not published—University of Alaska collections).

5. *Sled Cross-Pieces.* 8 specimens; bone; straight or slightly curved bars with notched and roughened ends for lashing to the grooves in the sled runners; no specimen is complete, but No. 5 must be nearly complete since some roughening for the lashing appears on the broken end.

Distribution: Old Bering Sea (C: Pl. 50, Fig. 3); Thule (M: Pl. 13, Figs. 10, 11); Modern (not published—University of Alaska collections).

6. *Sled Shoes.* 1 specimen; ivory; Y-shaped in cross-section; with holes in the curved fore end for lashings which fixed the shoe to a wooden runner.

7–9. *Sled Arches.* 8 specimens; 3 ivory; 5 bone; one decorated; bow-shaped; rough groove or notch at each end for fastening; perforations in outer edge of bow; 4 specimens like No. 8; No. 7 is unique; one is a fragment of uncertain type; these probably are arches used across the front end of a sled to which the traces or towing lines are attached (like Nelson Pl. LXXVI, Fig. 1); those with several perforations like No. 9 suggest end pieces to which several towing lines or traces were attached.

10. *Drag Line Handles.* 2 specimens; ivory; uncertain identification; probably used as handles on a line when dragging meat either on the ground or on a sled.

Distribution: Late-Prehistoric and Modern (not published—University of Alaska collections).

Baleen Toboggans. One complete baleen strip 18 1/2 inches long and 2 inches wide, with 9 round perforations, and 7 fragments of perforated strips are probably cross-pieces for a toboggan like those used in modern times. Two bundles of unperforated baleen strips may be parts of such toboggans also. (Not illustrated.)

Distribution: In all stages.

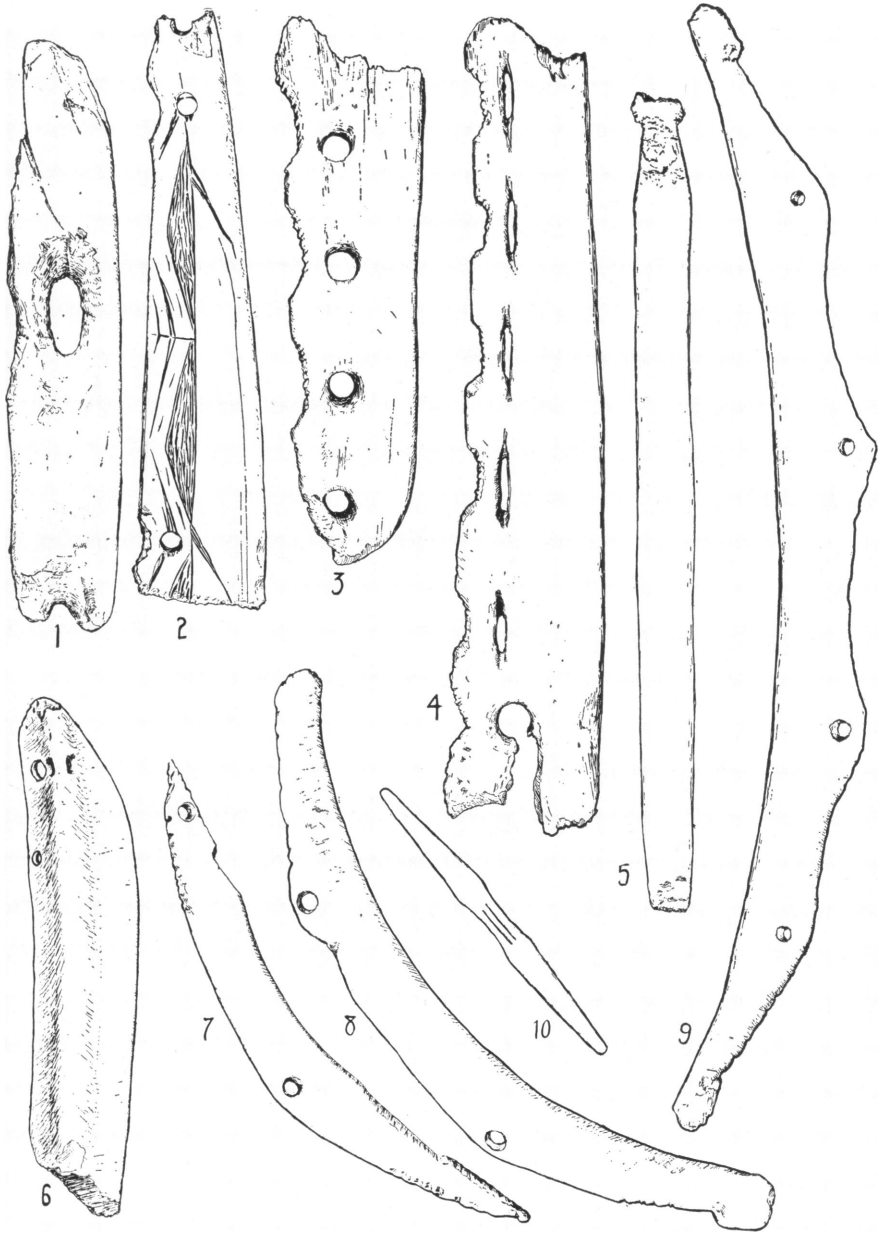


Fig. 16. Sled Runners, Sled Cross-Pieces, Sled Shoes, Sled Arches, Drag-Line Handles, and Baleen Toboggans. Length of No. 1, 23 cms.

FIGURE 17

BOAT HOOK BARBS, ICE CREEPERS, AND SNOW GOGGLES

1–8. *Boat Hook Barbs.* (Also described as meat and blubber hooks); 20 specimens; ivory; 9 decorated.

Distribution: In all stages of western Eskimo culture.

1–2. Type 1: 2 specimens; large thick barbs for hooks used with the umiak; rectangular blocks with 5 and 6 perforations for lashing to the shaft; grooved inner surface.

Distribution: Old Bering Sea (C: Pl. 35, Fig. 6); Punuk (C: Pl. 79, Fig. 12).

3–4. Type 2: 9 specimens; small flat barbs for hooks used with the kayak; slot and hole for lashings.

Distribution: Old Bering Sea (C: Pl. 35, Fig. 1); Modern (G and R: Pl. 23, Fig. 8).

5–6. Type 3: 4 specimens; as above, with one hole and a notched tang for lashing.

Distribution: Old Bering Sea (C: Pl. 35, Fig. 5); Late-Prehistoric (G and R: Pl. 54, Fig. 29).

7–8. Type 4: 2 specimens; as above, with two and three holes for lashings; 3 unclassified fragments probably are of this type.

9–11. *Ice Creepers.* 3 specimens; 2 ivory; one bone; one decorated.

Distribution: Old Bering Sea, Punuk, Late-Prehistoric, Modern (G and R: Pl. 23, Figs. 14–16).

9. Type 1: Broad flat bone piece with three holes for inset pegs; two lashing holes at each end connected by sunken groove.

Distribution: Old Bering Sea (C: Pl. 37, Fig. 3); Punuk (C: Pl. 75, Fig. 25).

10–11. Type 2: Narrow strips of ivory with a row of small points on the lower surface (6 points on one, 3 on the other); holes for lashing at each end. No. 10 is decorated with typical design.

Distribution: Punuk (C: Pl. 75, Fig. 24); Late-Prehistoric (G and R: Pl. 44, Fig. 9).

12. *Snow Goggles.* 1 specimen (excavated by natives in 1939) characteristic Okvik engraving; round eye holes stand in sharp contrast to the usual eye slits of snow goggles found at other sites in the Arctic.

Distribution: Old Bering Sea (C: Pl. 58, Figs. 1, 2); Punuk (C: Pl. 79, Fig. 11); Thule (M: Pl. 29, Fig. 3); Late-Prehistoric (G and R: Pl. 56, Figs. 9, 10); Modern (not published—University of Alaska collections).

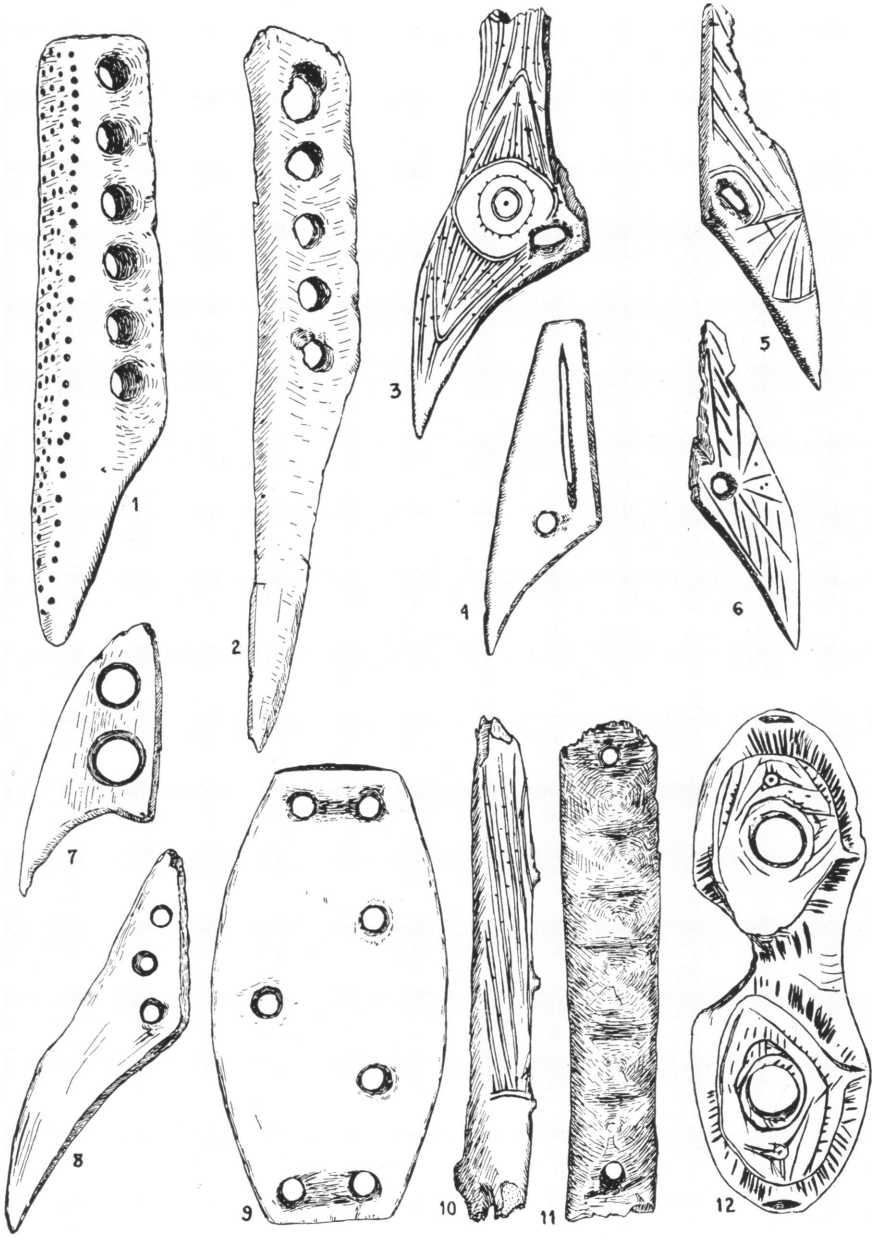


Fig. 17. Boat Hook Barbs, Ice Creepers, and Snow Goggles. Length of No. 1, 12.2 cms.

Figure 18

Men's Knife Handles and Knife Sharpeners

1–13. *Men's Knife Handles.* 32 specimens; 29 ivory; 2 bone; 1 wood and ivory composition; 4 decorated.

1–4. Type 1: 15 specimens; 2 bone; 1 decorated (No. 2); termed, whittling knife, antler chisel; composite handle with two pieces slit at one end, lashed together to form an end-socketed handle; only one (No. 1) has blade slits at both ends; those with broad slits indicate stone blades (No. 4); those with very narrow slits suggest metal blades (Nos. 1–3); one (No. 2) with curved slit also indicates a metal blade. One (No. 4) has suspension hole at butt end.

Distribution: Old Bering Sea (C: Pl. 38, Figs. 6, 7); Punuk (C: Pl 78, Figs. 4, 5); Thule (M: Pl. 22, Figs. 1–4); Late-Prehistoric and Modern (not published—University of Alaska collections).

5–7. Type 2: 9 specimens; ivory: like Type 1, except that the handle is cut in one piece; long slit from blade socket made it possible to spring open the handle, insert blade and fix it partly by tension; one complete knife (No. 5) has slate blade with one chipped cutting edge and one flat polishing edge; one (No. 7) has a chisel-shaped butt end (one side broken away above chisel); 5 specimens with thin blade slits suggest metal blades.

8. Type 3: 1 specimen: ivory; deep blade slot at one end; hole for suspension at butt.

Distribution: Old Bering Sea and Punuk (C: Pl. 38, Fig. 8); Thule (M: Pl. 17, Fig. 10).

9. Type 4: 2 specimens; ivory; decorated; broad, flat handles with side blades (may be woman's knife); one retains polished slate blade like woman's knife blade; the one not figured has a larger blade slit (no blade) and lacks the scalloped outer edge.

10. Type 5: 1 specimen; ivory; decorated; very small; thin, broad; deep slot for side blade (may be woman's knife handle).

11. Type 6: 1 specimen; composite specimen with wooden handle with ivory blade stop set in groove; Nos. 12–13 are ivory blade stops for wooden handles of this type (may be woman's knife handle).

14–15. *Knife Sharpeners.* 2 specimens; young walrus tusks perforated at butt end; carried by men and used to sharpen knife blades.

Distribution: Old Bering Sea and Punuk (C: Pl. 38, Fig. 14); Late-Prehistoric (G and R: Pl. 54, Fig. 24); Modern (G and R: Pl. 22, Fig. 12).

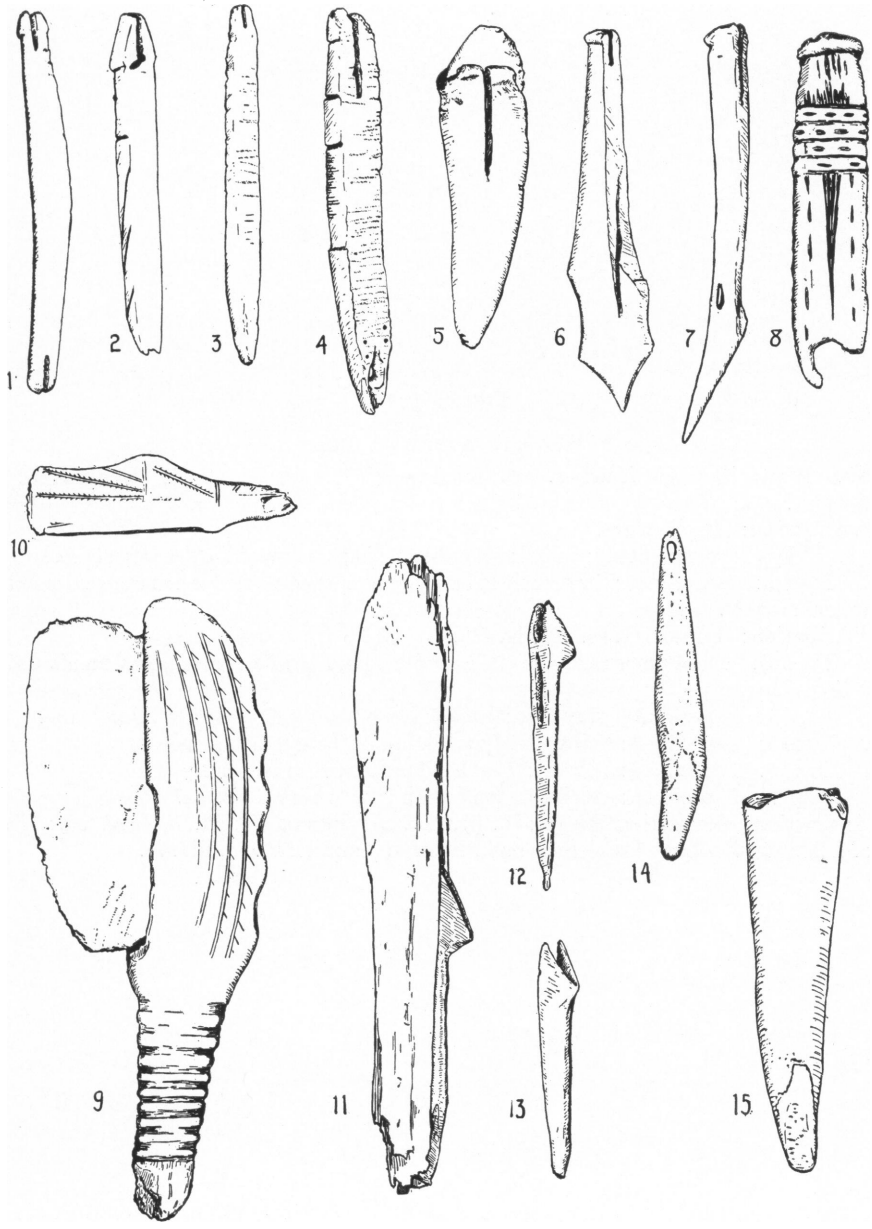


Fig. 18. Men's Knife Handles and Knife Sharpeners. Length of No. 1, 10.5 cms.

FIGURE 19

WOMEN'S KNIFE HANDLES

1–9. *Women's Knife Handles.* 10 specimens; 9 ivory; 1 wood; 6 engraved; all semi-lunar.

Distribution: In all stages.

1–3. Type 1: 4 specimens; small; deep blade slit; curved ridges on both faces.

4. Type 2: 1 specimen; larger; large perforation at one end for ornamental pendant (now broken out).

Distribution: Punuk (C: Pl. 78, Fig. 11).

5. Type 3: 1 specimen; small; thin; with short handle; resembles men's knives with side blade.

6. Type 4: 1 specimen; very thin; broad; deep blade slit; hole for fixing blade.

7. Type 5: 1 specimen; thick; shallow blade slit; hole for suspension.

8. Type 6: 1 specimen; narrow; bird head ornament at one end.

9. Type 7: 1 specimen; thick wooden handle; slate blade in place.

Distribution: Old Bering Sea (C: Pl. 51, Fig. 2); Punuk (C: Pl. 78, Fig. 10); Thule (M: Pl. 23, Fig. 7); Late-Prehistoric and Modern (G and R: Pl. 55, Fig. 7).

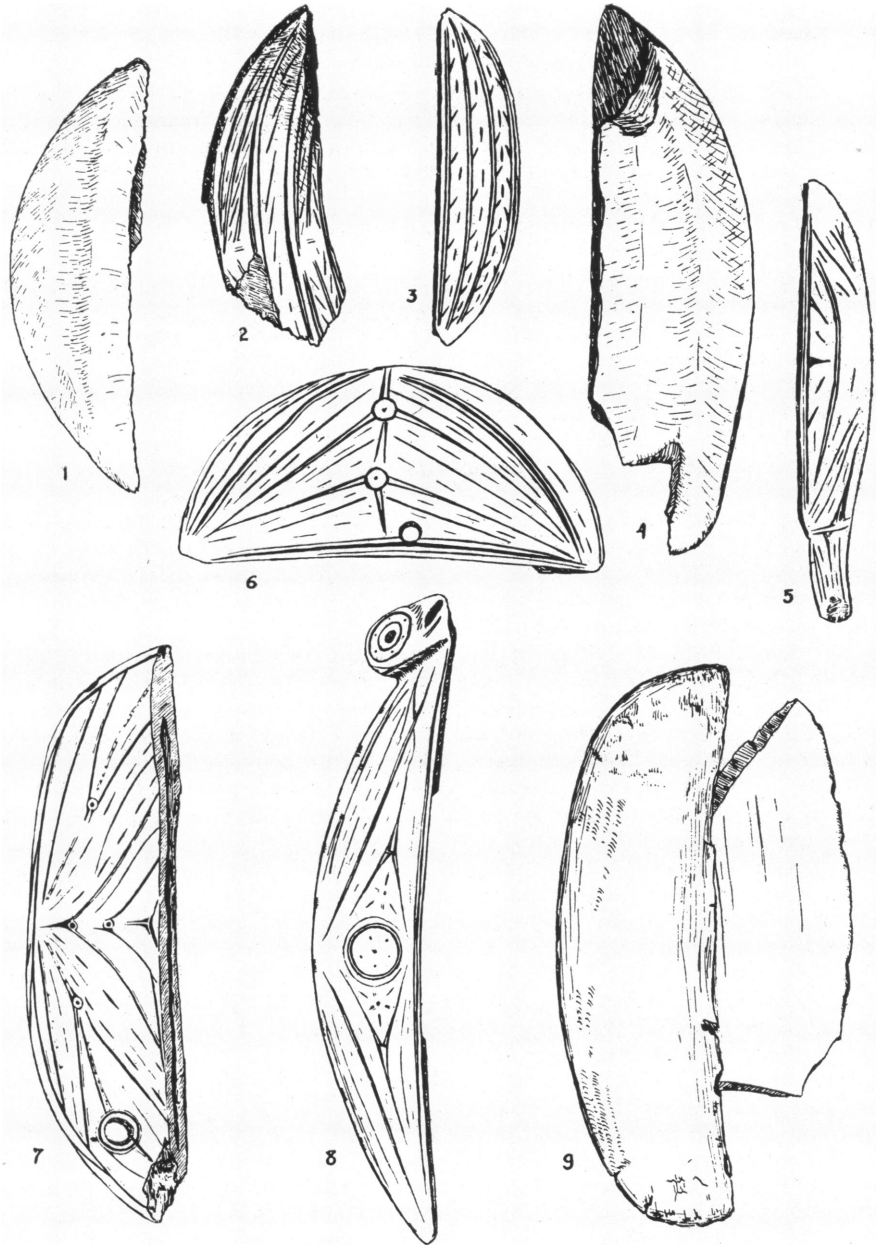


Fig. 19. Women's Knife Handles. Length of No. 1, 8.3 cms.

FIGURE 20

AWLS, REAMERS, MARLIN SPIKES, DRILLS, ADZE HEADS, SNOW BEATER, STONE FLAKERS, AND WICK TRIMMERS

1–3. *Awls, Reamers, Marlin Spikes.* 67 specimens; 10 bone; 57 ivory; one decorated; slender sharpened implements made from bone and ivory fragments; No. 1, one of the largest and the most finished, is probably a marlin spike; some in this class may be parts of arrowpoints. No. 3 may be a bow sinew twister.

Distribution: In all stages.

4–5. *Hand Drills.* 11 specimens; 8 ivory; 3 bone; 2 decorated.

Distribution: In all stages.

4. Type 1: 10 specimens; thick, oblong, finger grip, short sharp point; two of these are made from broken points of harpoon heads.

5. Type 2: 2 specimens; flat curved finger grip with a short sharp point.

Distribution: In all stages.

6. *Bowdrill Point.* 1 specimen; ivory; short shaft with rectangular bit at each end; to be used with wooden drill shaft.

Distribution: In all stages.

7–8. *Drill Mouthpieces.* 5 specimens; ivory; 2 engraved; curved groove for gripping with the teeth; socket for upper end of the drill shaft.

Distribution: Old Bering Sea (C: Pl. 30, Fig. 2); Punuk (C: Pl. 82, Figs. 37–40); Thule (M: Pl. 22, Fig. 14).

Drill Rests for the Hand. Illustrated with the wedges (Fig. 22, No. 6); 7 specimens.

Distribution: Old Bering Sea (C: Pl. 46, Fig. 18); Punuk (C: Pl. 80, Fig. 5); Late-Prehistoric and Modern (G and R: Pl. 23, Fig. 13).

9–10. *Adze Heads.* 2 specimens; ivory; both the shoe-shaped type with broad slot for shaft fitted in with mortise and tenon joint; a heel for lashings; and a toe with a broad flat surface against which the blade was lashed. No. 9 has the toe broken away; a broad flat body between hafting slot and blade face; holes for lashings. No. 10 has a heel made up of two ear-like appendages; a very narrow body between hafting slot and blade face; a long slot for haft lashings; this specimen was purchased from a native in 1937 who had been excavating at the Okvik site. There is, then, some question regarding its actual connection with the site.

Distribution: Punuk (C: Pl. 78, Figs. 20, 21); Late-Prehistoric (G and R: Pl. 43, Fig. 7). (Some form of adze head occurs in each stage.)

11. *Snow Beater or Knife.* 1 specimen; ivory; uncertain identification; blade with hole and notch for hafting.

Distribution: Punuk (C: Pl. 79, Fig. 4–6); Thule (M: Pl. 13, Fig. 15); Late-Prehistoric (G and R: Pl. 44, Figs. 1, 2); Modern (G and R: Pl. 23, Fig. 19).

12–15. *Stone Flakers.* 19 specimens; 5 ivory; 14 bone.

Distribution: In all stages.

12–13. Type 1: 16 specimens; curved rib segments with a blunt point at one end; a blunt point or wedge-shaped bit at the opposite end.

Distribution: Old Bering Sea and Punuk (C: Pl. 48, Figs. 11–20); Thule (M: Pl. 34, Fig. 9); Late-Prehistoric and Modern (not published—University of Alaska collections).

14–15. Type 2: 3 specimens; ivory; decorated; handles with a long slot for a point; like those described by Murdoch (p. 288) as in use at Point Barrow in historic times.

Wick Trimmers. 11 specimens; bone; split rib segment used for trimming the moss-wick on seal oil lamps; the same as modern implements. (Not illustrated.)

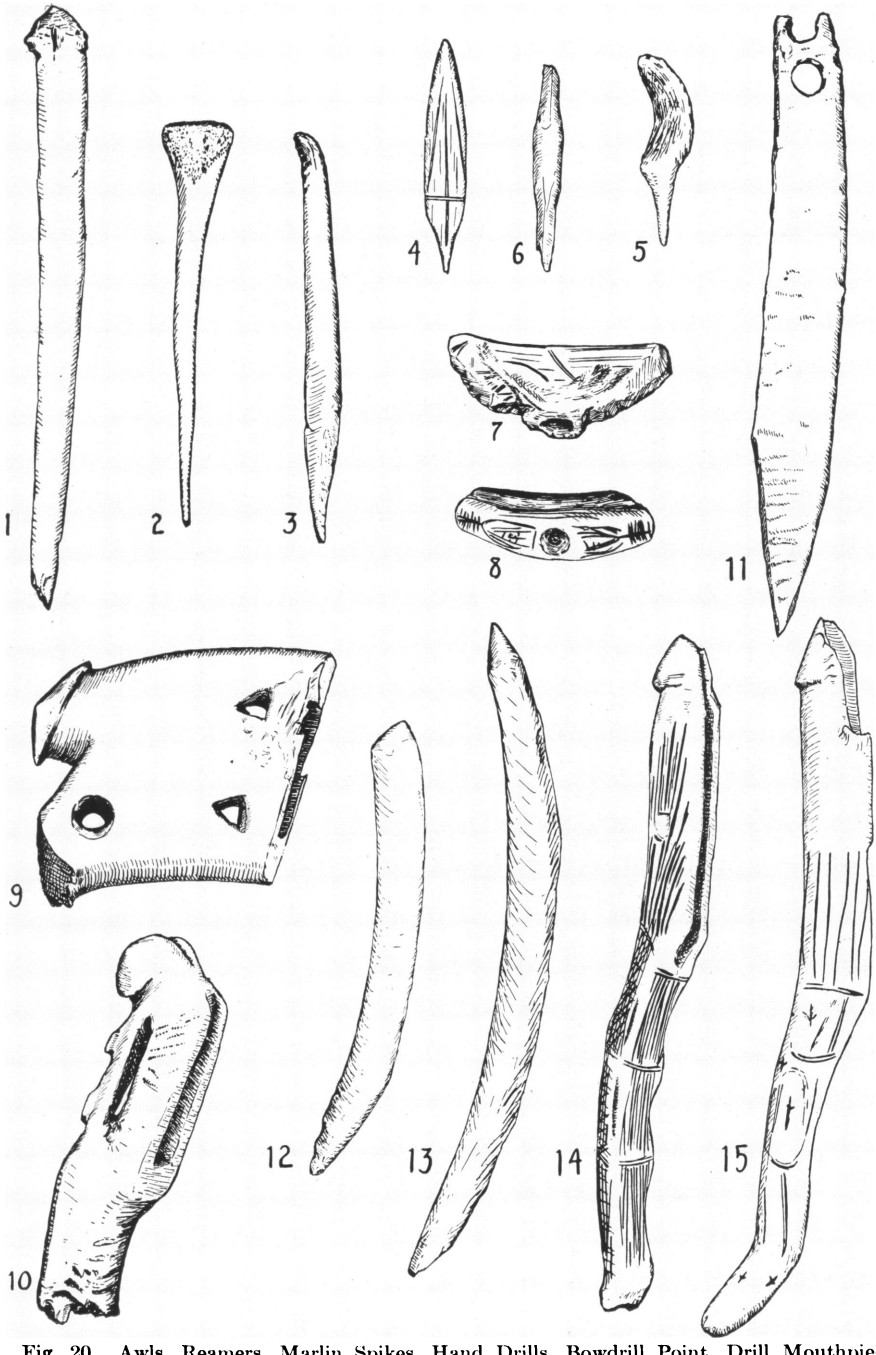


Fig. 20. Awls, Reamers, Marlin Spikes, Hand Drills, Bowdrill Point, Drill Mouthpieces, Drill Rests for the Hand, Adze Heads, Snow Beater or Knife, Stone Flakers, and Wick Trimmers. Length of No. 1, 16.5 cms.

FIGURE 21

BLUBBER OR FAT SCRAPERS AND CUPS

1–8. *Blubber or Fat Scrapers.* 26 specimens; 25 ivory; 1 bone; 20 decorated.

Distribution: In all stages.

1–5. Type 1: 16 specimens; oval, spoon-shaped; sharp scraping edge along two sides; occasionally along ends as well; No. 2 is perforated at each edge and has two raised eye-like (nucleated) bosses near one end. No. 5 is the smallest; No. 3 one of the largest; 5 are fragmentary.

Distribution: Old Bering Sea (C: Pl. 51, Fig. 11); Thule (M: Pl. 53, Fig. 1); Late-Prehistoric (G and R: Pl. 44, Fig. 3); Modern (G and R: Pl. 23, Fig. 3).

6–7. Type 2: 8 specimens; trough-shaped; open at both ends; two sharp scraping edges; cut from the base of a walrus tusk; 3 perforated for suspension, one (No. 7) has round sockets in one raised end; a "snout-like" appearance.

Distribution: Old Bering Sea (C: Pl. 17, Figs. 1, 2); Punuk (C: Pl. 78, Fig. 12); Late-Prehistoric (G and R: Pl. 44, Fig. 4); Modern (G and R: Pl. 23, Fig. 4).

8. Type 3: 2 specimens; 1 ivory; 1 bone; 1 decorated spoon with handle and deep cup-shaped head; like recent St. Lawrence spoon-scrapers; the one not illustrated is made from bone; it is complete with a long, narrow trencher-shaped head.

Distribution: Thule (M: Pl. 28, Figs. 13, 14); Late-Prehistoric and Modern (not published—University of Alaska collections).

9–11. *Cups.* 4 specimens; ivory; 2 decorated; one (No. 10) has a handle resembling a bird's tail; the opposite edge is broken away; holes for suspension at opposite edges; No. 11 (and a second specimen like this) is a deep vase-shaped cup with holes at opposite edges near the lip. No. 9 is one side of what was probably a small cup of the same shape (holes for suspension).

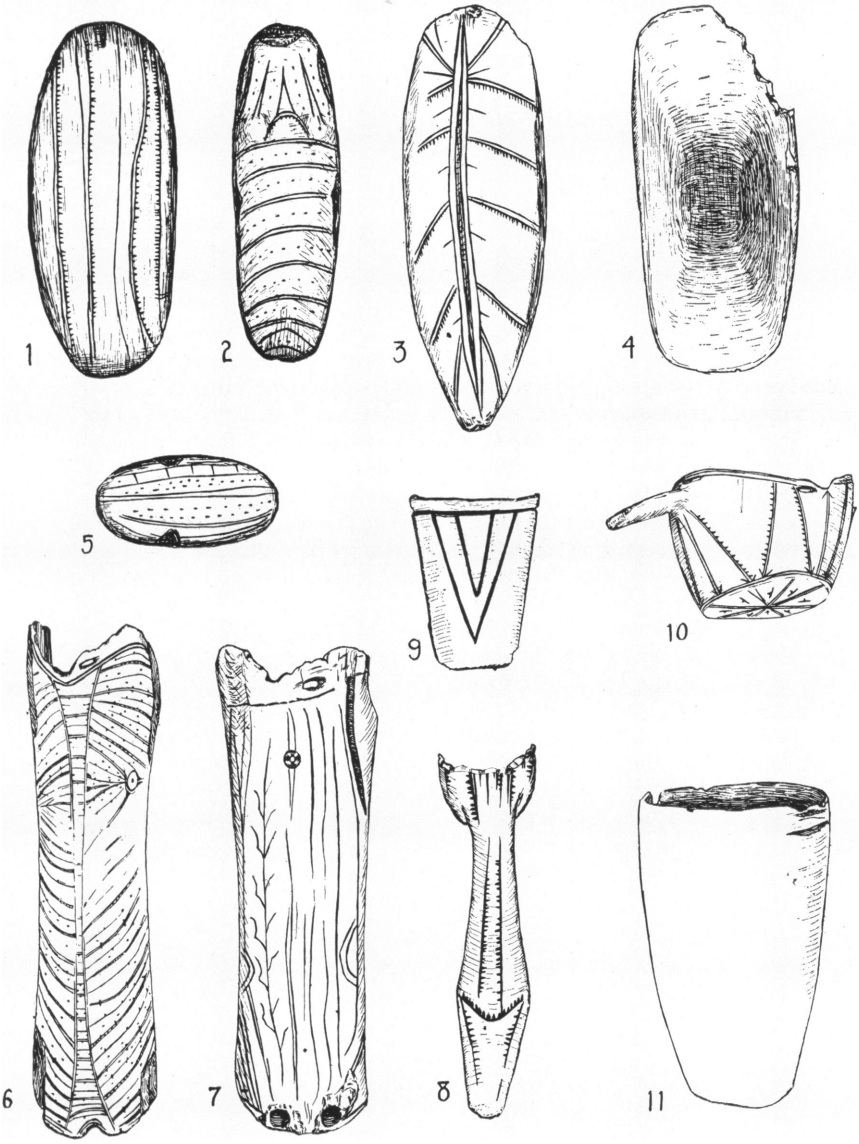


Fig. 21. Blubber or Fat Scrapers and Cups. Length of No. 1, 10.5 cms.

FIGURE 22

PICKS, MATTOCKS, WEDGES, AND SHOVEL HEADS

1–5. *Picks and Mattocks.* 44 specimens; ivory; one decorated; walrus tusks with sharpened or wedge-shaped point; grooved at the butt end for hafting.

Distribution: In all stages.

2, 4. Type 1: 32 specimens; two broad grooves opposite a flattened face for the haft.

Distribution: Old Bering Sea (C: Pl. 49, Figs. 3, 4).

3. Type 2: 8 specimens; as above, but with three lashing grooves.

1. Type 3: 2 specimens; as above, but with single lashing groove.

5. Type 4: 2 specimens; as above, but with broad flat notch on one side of the curved tusk for the haft; the same as the modern pick (described as an ivory ax, G and R; see below).

Distribution: Late-Prehistoric and Modern (G and R: Pl. 22, Fig. 8).

6–7. *Wedges.* 42 specimens; 41 ivory; 1 bone; 3 decorated (No. 7); seven have been used as drill rests for the hand (No. 6).

Distribution: In all stages.

8–9. *Shovel Heads.* 3 specimens; made from walrus scapulae; four and six round perforations for hafting; there are 6 large shovel heads made from walrus scapulae trimmed only along the cutting edge (like G and R: Pl. 24, Fig. 7; C: Pl. 50, Fig. 6); in the random collection obtained in the vicinity of the site and, therefore, not definitely associated with it.

Distribution: Late-Prehistoric and Modern (G and R: Pl. 23, Fig. 6).

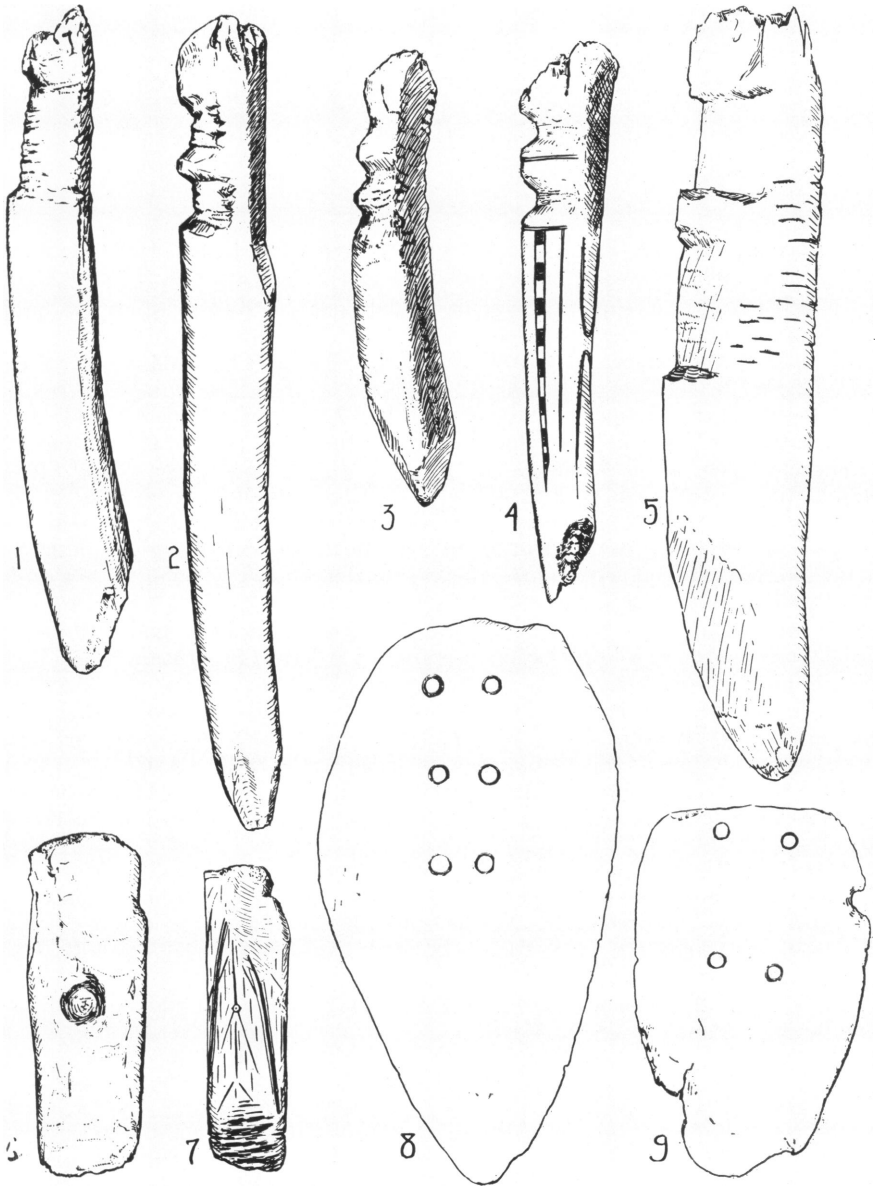


Fig. 22. Picks, Mattocks, Wedges, and Shovel Heads. Length of No. 1, 27 cms.

Figure 23

Needle Case, Needles, Fasteners, Buttons, Pendants, Rings, Ornaments, and Plugs

1. *Needle Case.* 1 specimen; ivory; decorated; one side broken away; two projections on one side separated by broad depression.

Distribution: Old Bering Sea (C: Pl. 17, Fig. 5); Punuk (C: Pl. 65, Fig. 2); Thule (M: P1. 52, Fig. 2).

2–5. *Needles.* 20 specimens; 19 ivory; 1 bone; 2 with an eye hole (No. 5); 1 with eye hole partly cut (No. 4); the majority are very slender and pointed at both ends (No. 3); some may be broken arrowpoints.

Distribution: In all stages.

6–10. *Belt, Bag, or Box Fasteners.* 6 specimens; ivory; 3 decorated; 3 hooks (Nos. 6–7); two slotted for fastening (Nos. 8, 10); one small perforated ring with a flat base (No. 9); No. 8 has the ends carved to represent animal heads.

Distribution: In all stages.

11–12. *Buttons.* 3 specimens; ivory; two decorated; flat and round with one concave, one convex surface; concave surface is barred for fastening to garment.

Distribution: In all stages.

13–16. *Pendants.* 5 specimens; ivory; 4 decorated; drop-shaped or conical objects with a perforation in the tip.

Distribution: Punuk (C: Pl. 82, Figs. 8–9); Thule (M: Pl. 30, Figs. 1–15).

17–20. *Rings.* (Use unknown) 5 specimens; ivory; 3 like Nos. 17–18 may be beads; Nos. 19–20 with slot in one end, hole in the other, may have been fitted on the end of a shaft.

Distribution: Thule (M: Pl. 23, Fig. 14).

21. *Ear or Hair Ornament.* 1 specimen; ivory; small disc with a hook; most of the hook is broken away; like modern St. Lawrence Island hair ornament.

Distribution: Punuk (C: Pl. 82, Figs. 18, 22); Late-Prehistoric (G and R: Pl. 54, Fig. 31).

22–23. *Plugs.* 2 specimens; ivory; like wound plugs, but apparently too small.

Distribution: Punuk (C: Pl. 82, Fig. 21).

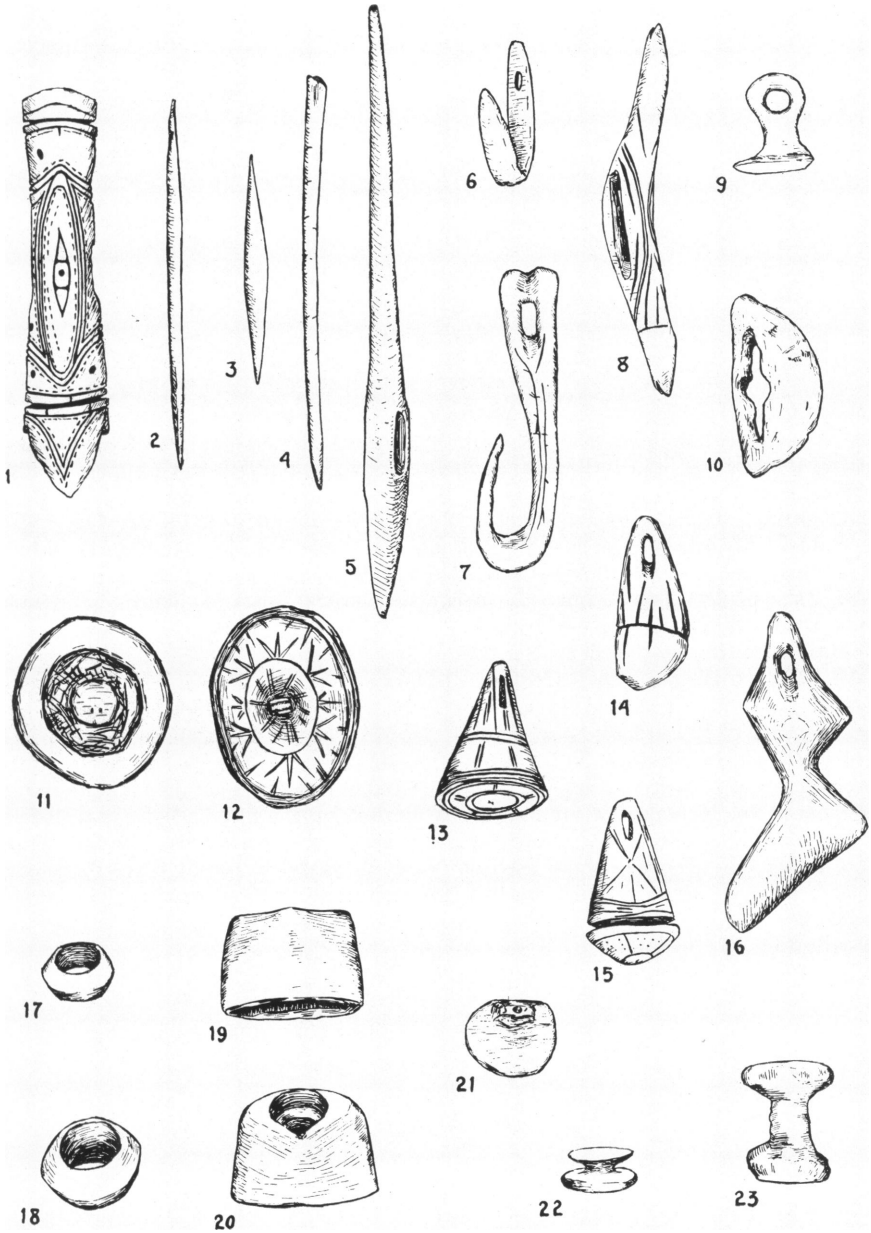


Fig. 23. Needle Case, Needles, Belt, Bag, or Box Fasteners, Buttons, Pendants, Rings, Ear or Hair Ornaments, and Plugs. Length of No. 1, 7.6 cms.

FIGURE 24

ORNAMENTS AND TOYS

1–4. *Chain Link Ornaments.* 5 specimens; ivory; 3 engraved; No. 1 has a carved block at one end resembling a bird head. No. 2 resembles a trace buckle for a dog harness, but may be too light to be used as such. (See Thule phase trace buckle in M: Pl. 14, Fig. 7.)

Distribution: Old Bering Sea (C: Pl. 12, Fig. 10); Punuk (C: Pl. 82, Figs. 10, 29, 37); Late-Prehistoric (G and R: Pl. 42, Fig. 11); Thule (M: Pl. 33, Fig 1); Modern (not published—University of Alaska collections).

5–6. *Ornamental Attachments.* 2 specimens; ivory; carved figures representing human faces at the end of a plug-like block.

Distribution: Punuk (C: Pl. 82, Fig. 20).

7–16. *Toys.* 12 specimens; 11 ivory; 1 bone; 2 engraved; Nos. 7–8 sled runners, 3 specimens; No. 9 boat paddle, 1 specimen; Nos. 10–11 socket pieces for harpoon shaft, 2 specimens; No. 12 foreshaft, 2 specimens; No. 13 a harpoon head with a closed socket and no blade slit, 1 specimen; No. 14 a drum handle, the outer edge of flange is engraved, 1 specimen; No. 15 a carved hand or flipper probably from an animal or human carving, 1 specimen; No. 16 is part of an arch probably used on the fore end of a toy sled (like Fig. 16, No. 8); one specimen. No. 10 may not be a toy, but a socket piece for an arrow with a detachable head like those used on Nunivak Island in recent times for shooting sea otter; many small socket pieces of this type occur in collections from the Late stage at Kukulik.

Distribution: In all stages.

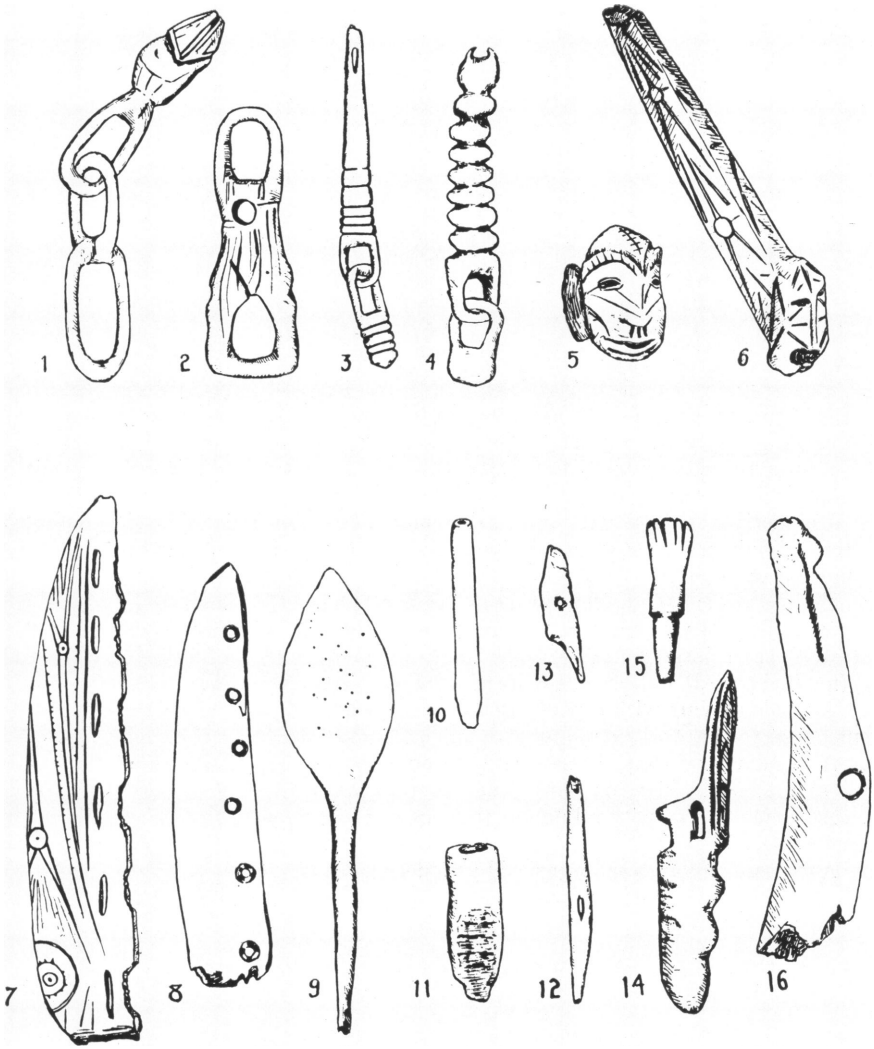


Fig. 24. Chain Link Ornaments, Ornamental Attachments, and Toys. Length of No. 2, 5.6 cms.

FIGURE 25

CARVED ANIMAL FIGURES

1–8. *Carved Animal Figures.* 10 specimens; ivory; all were probably attached to some implement.

Distribution: In all stages.

1. Dog or polar bear head with open mouth and exposed fangs; a broad deep slot to the base of the throat; a groove about the base of the neck; a bone or ivory plug remains in one of the eye sockets.

2. Dog or polar bear head; hollow; with slots for eyes; slots below the muzzle, and slots at each side in the throat.

3. Unidentified animal with eyes and snout suggesting animal heads engraved on Old Bering implements; engraved design around eyes and over muzzle; eye sockets probably plugged originally.

4. Walrus head; thin hollow structure back of the head is penetrated by three round holes; nostrils and whiskers are engraved on the muzzle. A second walrus head (not illustrated) has a large ring extending out from the base of the neck. A third walrus head (not illustrated) is a crude carving made from the end of a tusk.

5. A whale carving with a perforation near the tail end, with engraved eyes, nostrils, and mouth at the head which resembles a human face.

6. A flat diamond-shaped piece with a convex back; eye sockets; resembles the engraved animal head designs on Old Bering Sea specimens.

7. A broken handle with a knob at the base resembling a bird head; possibly a snow beater handle.

8. A toy seal similar to those carved by modern Eskimo.

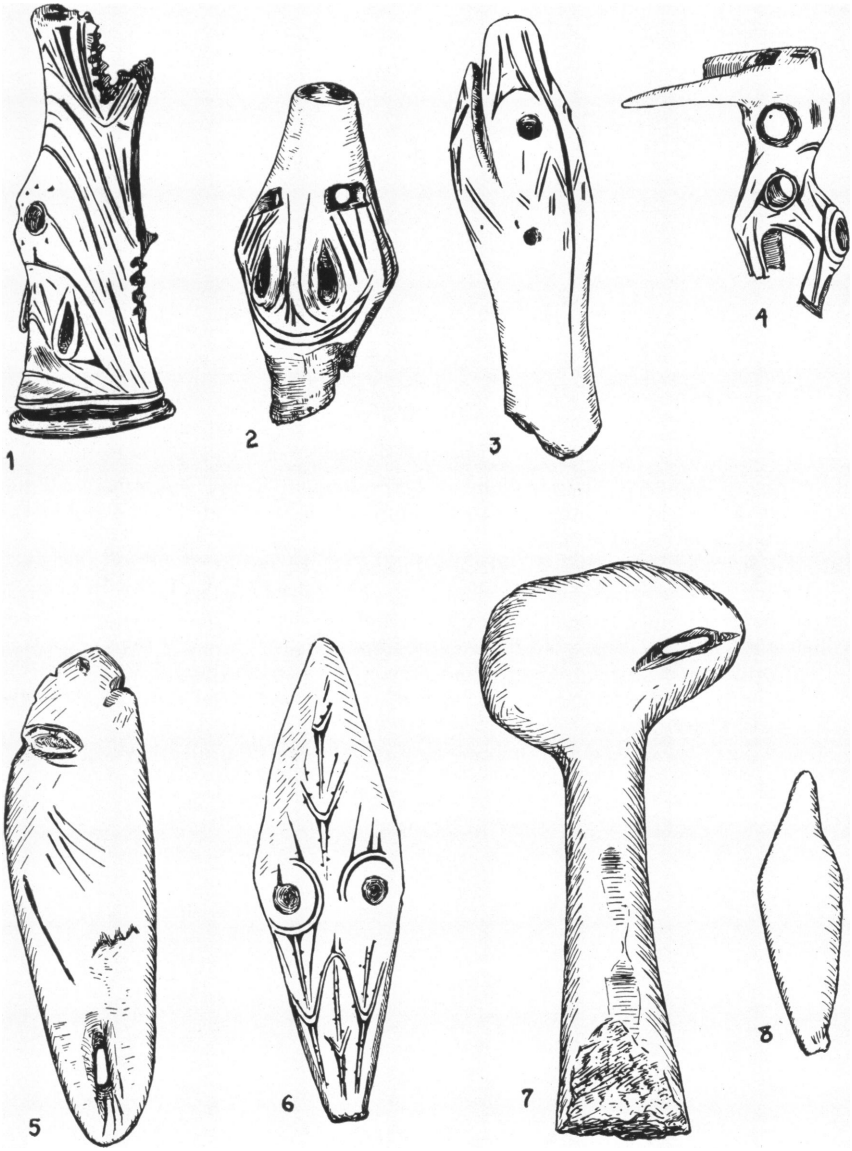


Fig. 25. Carved Animal Figures. Length of No. 1, 7.9 cms.

FIGURE 26

WINGED FIGURES

1–8. *Winged Figures.* (Use unknown) 5 specimens; ivory; engraved; all have a socket in the base and two wings; the three complete specimens also have a slot at the top which does not penetrate to socket.

Distribution: Old Bering Sea (C: Pl. 20); Punuk (C: Pl. 68).

1. Has trifurcated wings and two slots in the central triangular body; it is engraved on one surface only, like a specimen from the Hillside Site. There is another specimen (not illustrated) slightly larger, but of the same form.

2. The broken specimen apparently had a secondary pair of wings also.

3. A secondary set of wings on the central section engraved with eye-like figures; there is a small arch below the "eyes."

4. One wing of the central section broken away; the central projection is an arch.

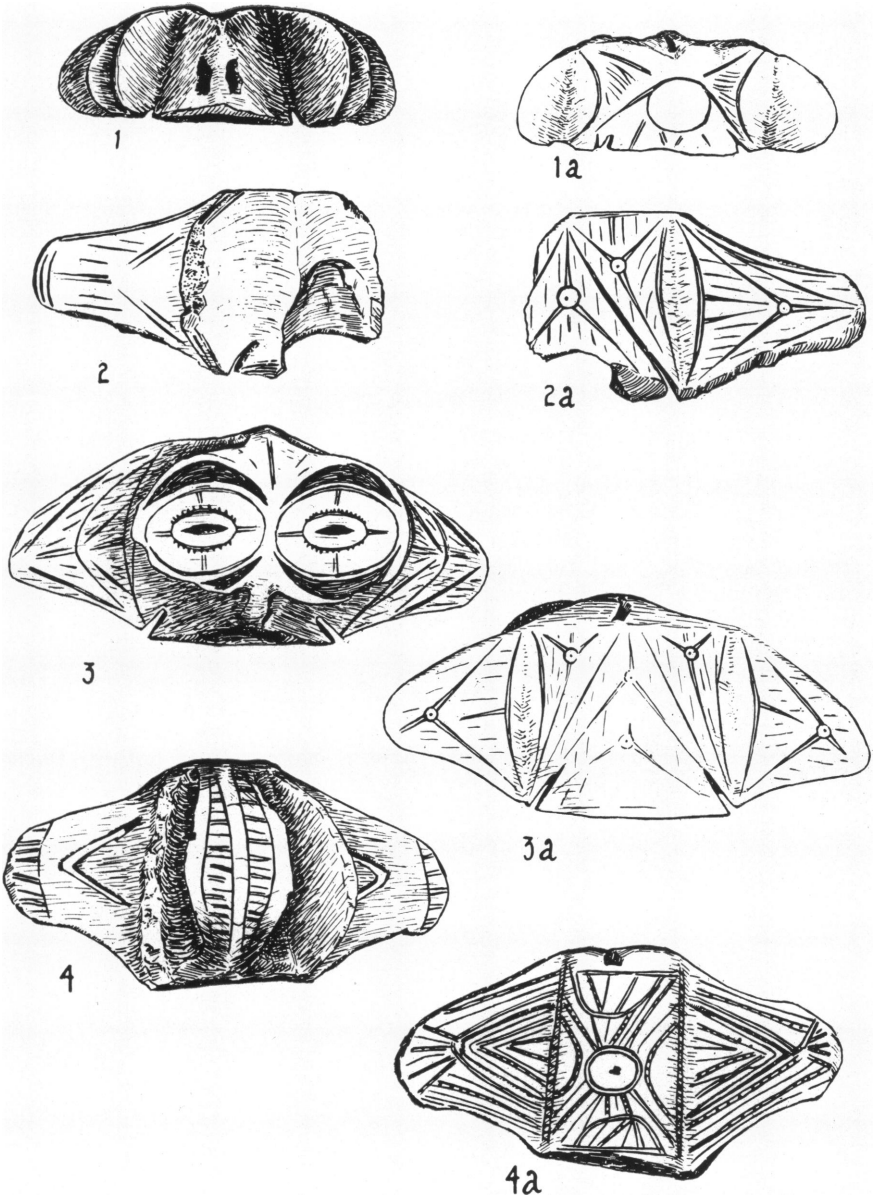


Fig. 26. Winged Figures. Width of No. 1, 6.6 cms.

FIGURE 27

CARVED HUMAN FIGURES

Carved Human Figures. 45 specimens (at least six additional human figures of this kind excavated by the natives in 1939 were purchased by officers on the United States Coast Guard Cutter); 44 ivory; one wood; 15 with torso engraved; normally only the head is carved with care; the body is simply a rectangular block sometimes engraved with a geometric design; exceptions are (Fig. 27) with arms in relief; (Fig. 29, No. 1) with legs and rudimentary arms; and two other specimens (not illustrated) with lower limbs carved in the round. There are 8 torsos without heads and 6 heads without torsos. Three were purchased from natives in 1937, two in 1939.

1–2. The Okvik Madonna (face and side view). A unique specimen in the collection which is the finest example of Okvik ivory carving. It probably represents a female figure holding a child (the female sex organ is clearly represented). Apparently the lower limbs have been broken away. Arms and hands are carved in low relief and the entire torso is engraved with bands of incised lines. Another figure like this, but with the head broken away was purchased by Commander F. A. Zeusler, United States Coast Guard, in 1939. The elongate head and nasal bridge are characteristic of Okvik figurines, but the curious twisted smile does not occur in other carvings.

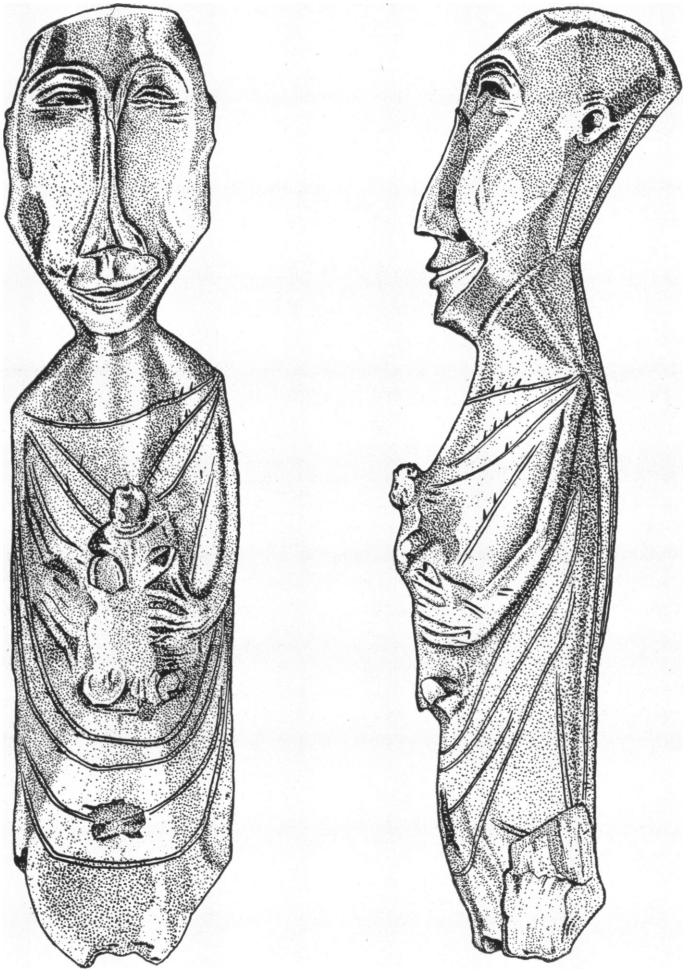


Fig. 27. Carved Human Figure. Length, 16.7 cms.

FIGURE 28

CARVED HUMAN FIGURES

The Largest Figures. 6 ivory; 1 wood.

1. No engraving on the torso; engraved eyebrows; rows of punctures below the eyes and engraved lines on the upper and lower lip suggest tattoo markings or face painting.

2. Torso without head; 4 surfaces of the torso engraved.

3. No engravings on the torso; punctures at the inner end of the eye slits suggesting a cross-eyed person. This figure is probably unfinished.

4. A unique specimen; short, fat, head with enormous "jowls," ears in low relief. This may be a phallic symbol (see Mathiassen, 1931, 107, Fig. 35; Pl. 5, Fig. 9).

5. Torso without head; geometric designs on all surfaces; triangular figures extending from the nipples to the shoulders resemble triangular pieces of white reindeer skin sewn into parkas worn by Eskimo of north Alaska at the present time. Hands and arms are engraved on each side of the torso.

6. Torso without head; curvilinear designs over entire body; deep, broad groove across lower part of the body; used as a drill rest for the hand.

7. The crudest figure; made from wood. The same kind of figures are used by St. Lawrence Eskimo in certain ceremonies connected with whale hunting.

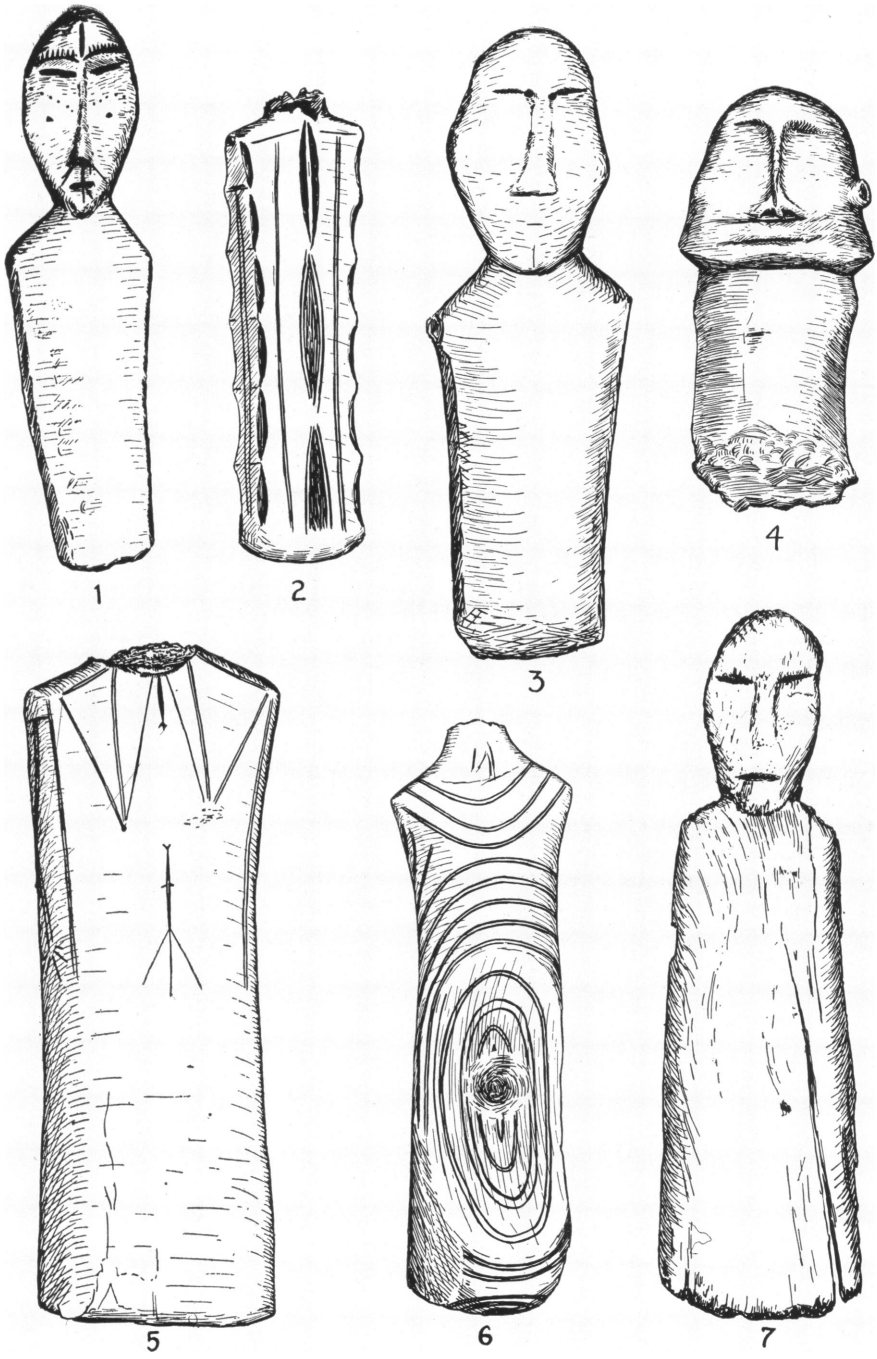


Fig. 28. Carved Human Figures. Length of No. 1, 15.3 cms.

Figure 29

Carved Human Figures

Carved Human Figures. Ivory.

1. The only complete figure with lower limbs and rudimentary arms carved in the round; irregular, scratchy lines engraved over the entire body.
2. A head broken from a torso; engraved eyebrows; the characteristic long, thin head and nose.
3. A head broken from a torso; two faces (?) one above the other on an extremely long, narrow head.
4. A flat mask-like object; complete and not broken from a body; the back is concave; two low arches at the back and base of the chin and an eye hole back of the forehead indicate that the figure was suspended or fastened to something. Small pebbles in the eye slits suggest eye balls or pupils; three vertical lines under each eye suggest tattoo markings or face painting.
5. A head broken from a torso; no engraving; a protruding monkey-like muzzle.
6. A head broken from a torso; engraved eyebrows; a prominent chin.

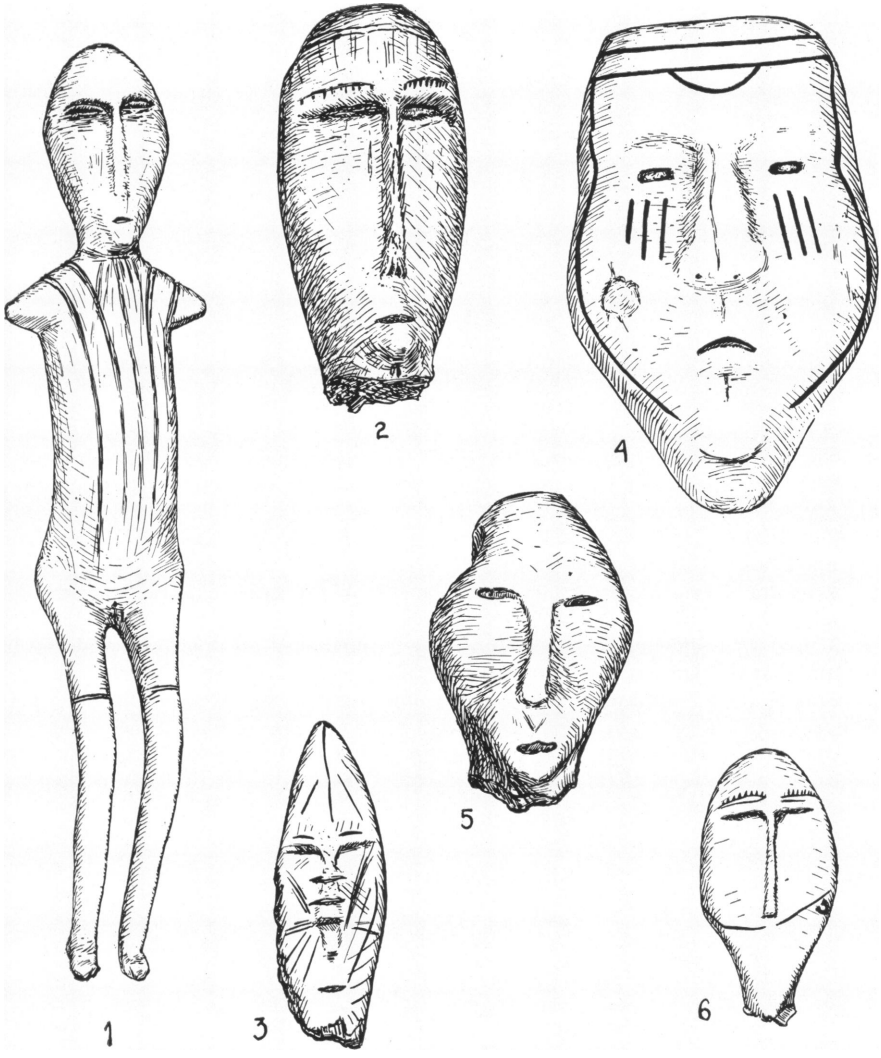


Fig. 29. Carved Human Figures. Length of No. 1, 17.5 cms.

FIGURE 30

CARVED HUMAN FIGURES

The Smallest Specimens. Ivory.

1. Fragmentary; engraved eyebrows and tattoo markings.
2. The smallest complete figure; engraved eyebrows; a cross is engraved on the chest and on the back.
3. Engraved eyebrows and tattoo markings; engraved lines on both surfaces.
4. Engraved eyebrows; rows of punctures across the cheeks; engraved design on the front only.
5. Parallel lines engraved on both surfaces resemble engravings on wooden figures from Cape Dorset (Dorset culture stage).
6. A unique specimen; face carved on the side of the usual flat, rectangular block; engraved torso.
7. A face with scowling features; the body is roughened and perforated at the base suggesting that the figure was attached to something.
8. Fragmentary; apparently lashed to something; engraved eyebrows and tattoo markings.
9. Engraved sections extending down from the peaked head to the cheeks suggest bobbed hair. An eyelet at the back of the peaked head indicates that it was suspended or fastened to some object.

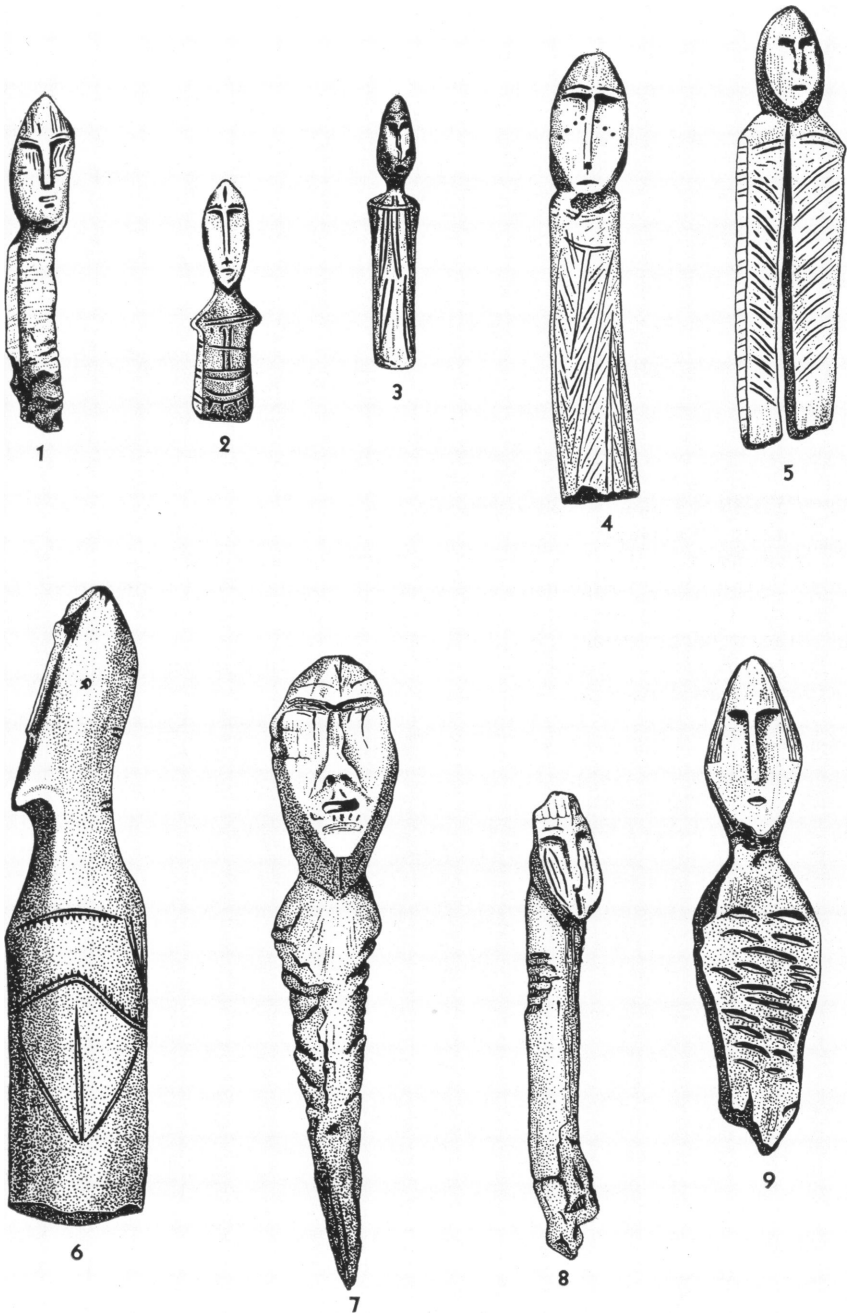


Fig. 30. Carved Human Figures. Length of No. 1, 6.2 cms.

FIGURE 31

POLISHED SLATE BLADES

1–9. *Polished Slate Blades.* 33 specimens.

Distribution: In all stages.

1–3. *End Blades for Men's Knives.* 8 specimens; with tang and asymmetrical cutting edges; presumably hafted like modern butcher's knife; No. 1 is the largest, No. 3 the smallest. One very large blade of this type was found complete with a wooden handle. (See wooden specimens, Fig. 33, No. 7.)

4. *Harpoon Blades.* 1 specimen definitely identifiable; triangular; no tang.

Distribution: In all stages.

5–7. *Knife, Harpoon, or Lance Blades.* 6 specimens; with tang and symmetrical cutting edges; No. 5, the smallest, may be a harpoon blade; Nos. 6, 7 are probably lance or knife blades.

Distribution: In all stages.

8–9. Women's Knife Blades: 7 specimens; oval to rectangular blades with one cutting edge; No. 8 is the smallest, No. 9 one of the largest.

Distribution: In all stages.

Unidentifiable fragments of polished slate blades; 11 specimens. (Not illustrated.)

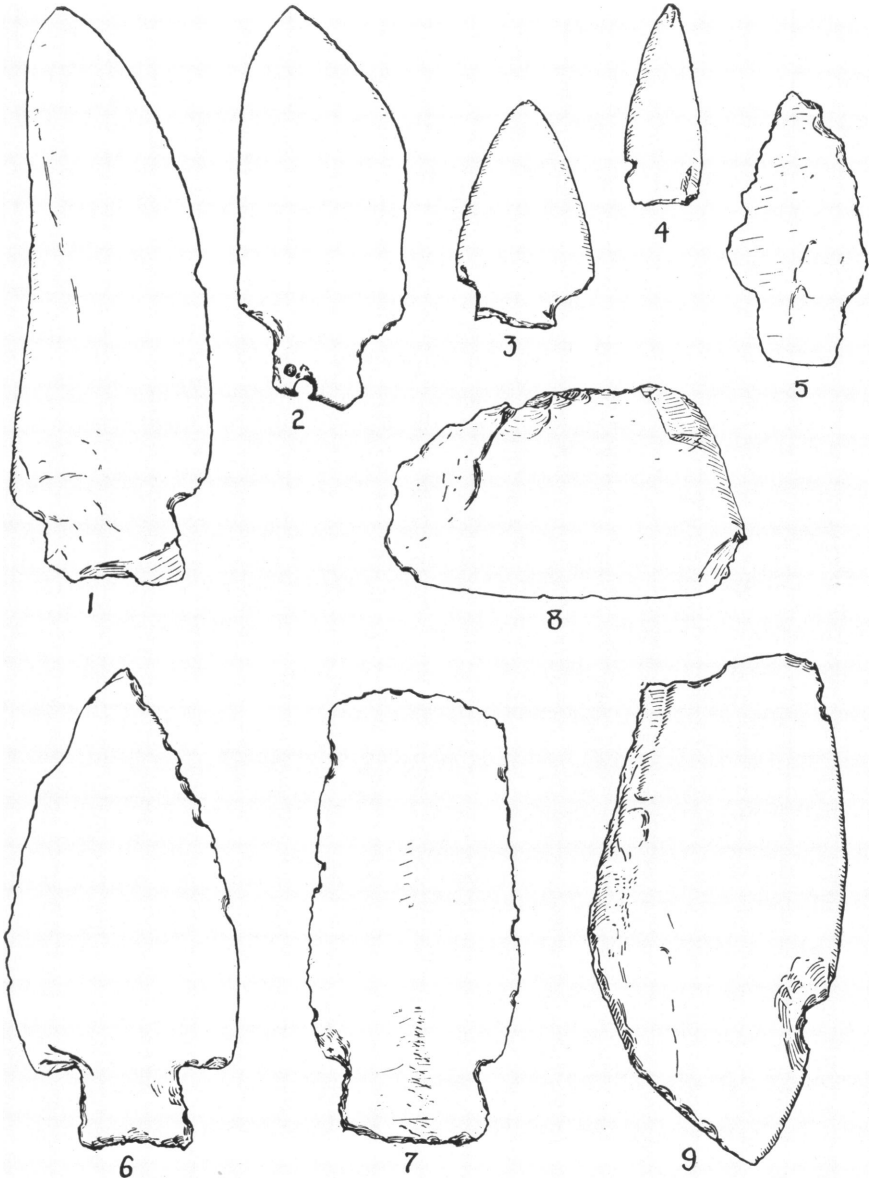


Fig. 31. Polished Slate Blades, End Blades for Men's Knives, Harpoon Blades, and Knife, Harpoon, or Lance Blades. Length of No. 1, 11.5 cms.

FIGURE 32

FLAKED SLATE BLADES

1–5. *Flaked Slate Blades.* 50 specimens; probably unfinished blades or rejected flakes; No. 1, a harpoon blade; No. 2, harpoon or knife blade; No. 3, lance blade; No. 4, a blank or scraper; No. 5, a scraper.

Distribution: Old Bering Sea (Pl. 40, Figs. 8, 20, 21); Late-Prehistoric (G and R: Pl. 49, Fig. 5); Modern (G and R: Pl. 34, Figs. 1–3).

6. *Flaked Slate Blade with Four Rubbed Edges.* 1 specimen, like those from the Old Bering Sea sites at Gambell described by Collins (1937a, p. 149).

7–14. *Chipped Chert and Jasper Implements.* 12 specimens; presumably finished implements.

Distribution: Old Bering Sea (C: Pl. 40, Figs. 13–17; Pl. 42, Figs. 1–10); Thule (M: Pl. 7, Figs. 14–16; Pl. 19, Figs. 1–3).

7. Harpoon blade or arrowpoint (no tang): 1 specimen.

Distribution: Old Bering Sea (C: Pl. 40, Figs. 14–16).

8–9. *Knife Blades.*

Distribution: Old Bering Sea (C: Pl. 40, Fig. 13); Thule (M: Pl. 19, Figs. 1–3).

10. *Knife Blade or Drill.*

11. *Broken Lance Blade or Knife.*

12. *Side Scraper.* Retouched on two edges.

13–14. *End Scrapers* (jasper). Retouched on one end.

Distribution: Old Bering Sea (C: Pl. 42, Figs. 4–7).

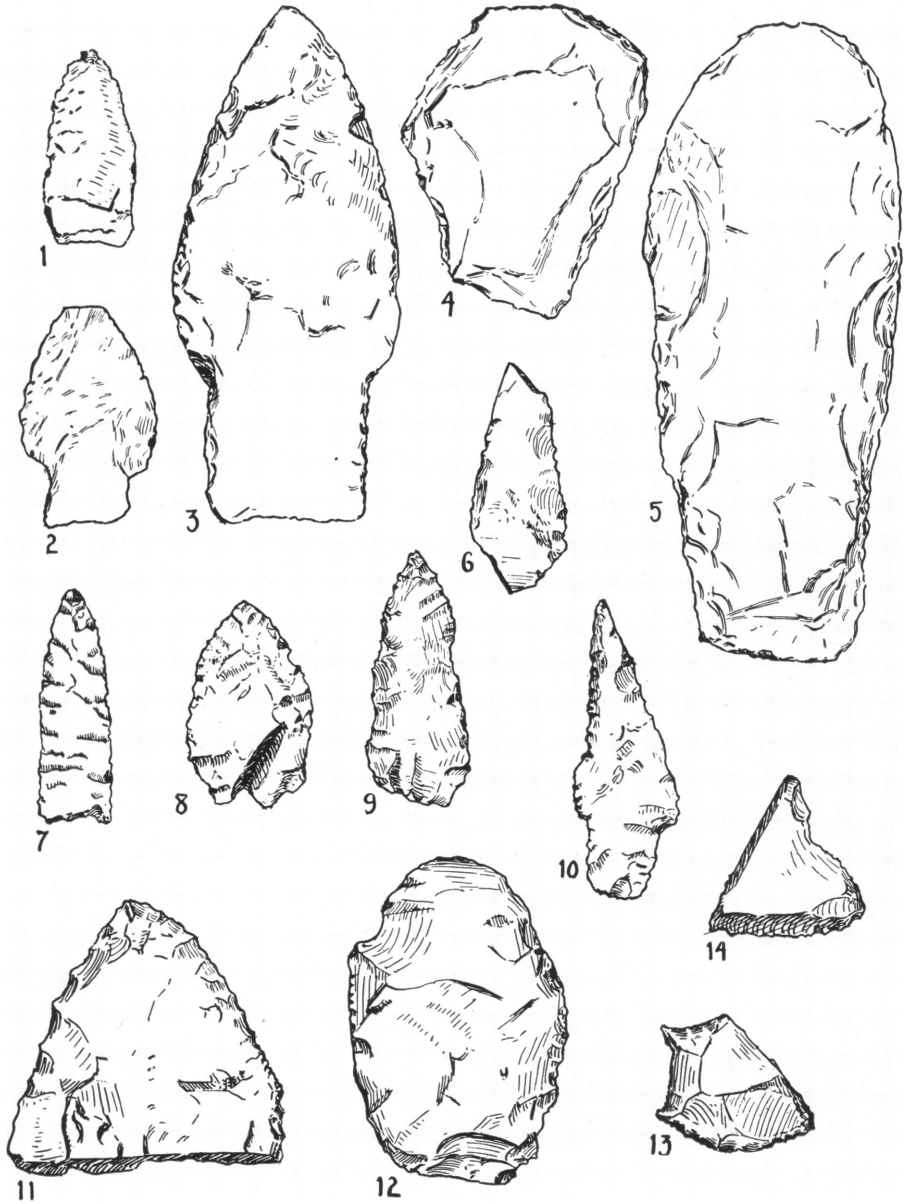


Fig. 32. Flaked Slate Blades, Flaked Slated Blade with Four Rubbed Edges, Chipped Chert and Jasper Implements, Knife Blades, Broken Lance Blade, Side Scraper, and End Scrapers. Length of No. 1, 3.8 cms.

FIGURE 33

STONE IMPLEMENTS

1–4. *Adze Blades.* 9 specimens; roughly flaked blades with (normally) a polished cutting edge; triangular to rectangular in shape; normally basalt.

Distribution: In all stages.

1. Beveled edge, polished on both faces.

2. Polished, chisel-like cutting edge (partly broken away).

3. May be the adze-like scraper as described by Collins for the Old Bering Sea sites at Gambell.

4. Unique; trapezoidal; rubbed slate; 4 cutting edges.

5–8. *Whetstones.* 13 specimens; sandstone and basalt.

Distribution: In all stages.

5. Four-sided; sandstone; rectangular; the most common type.

Distribution: In all stages.

6. Diamond-shaped; 6 rubbing surfaces; unique.

Distribution: Modern (G and R: Pl. 34, Fig. 11).

7. Six rubbing surfaces; sandstone.

Distribution: Old Bering Sea (C: Pl. 43, Figs. 1–4).

8. Seven rubbing surfaces; sandstone.

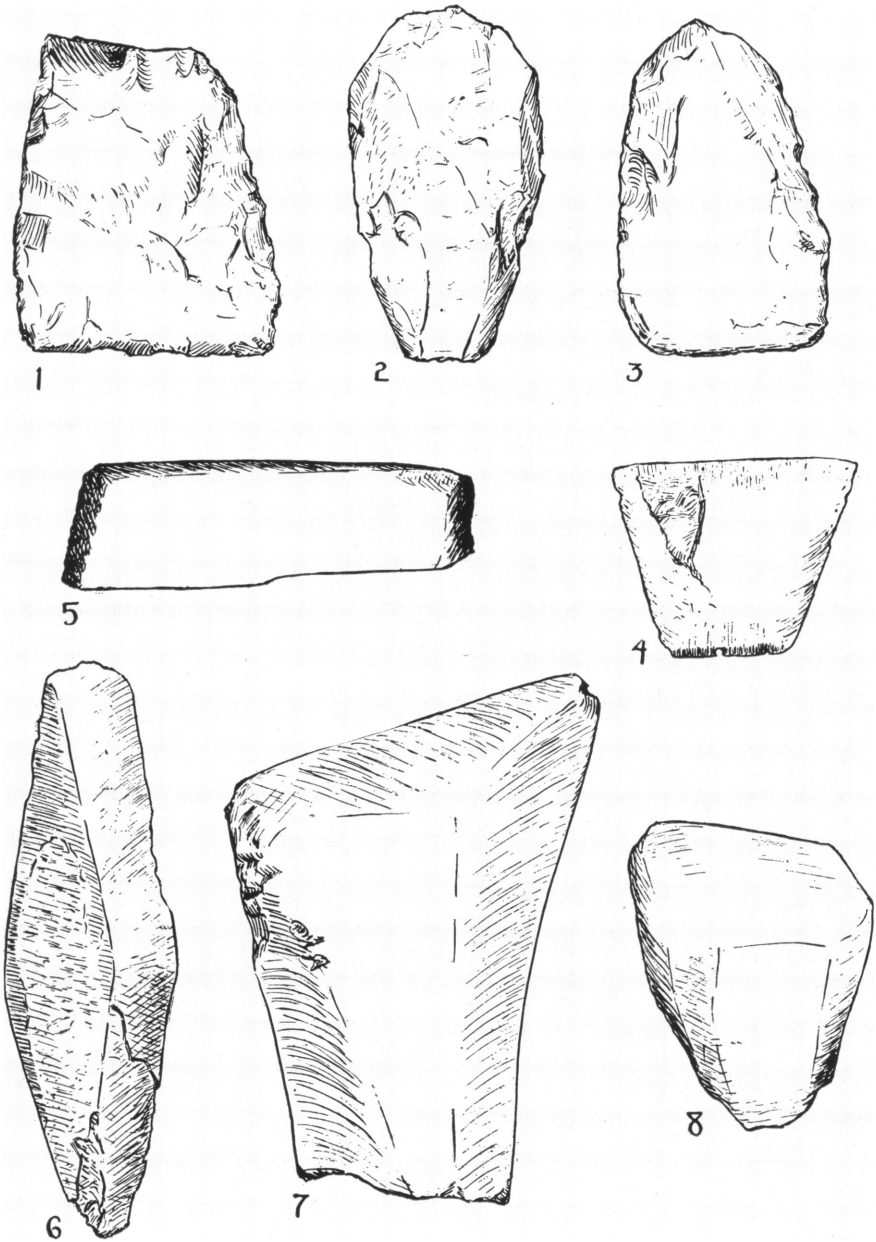


Fig. 33. Adze Blades and Whetstones. Length of No. 1, 6.1 cms.

FIGURE 34

WOODEN OBJECTS, POTTERY, AND BALEEN

Wooden Objects. 69 specimens.

1–2. *Bucket Bottoms.* 4 specimens; 3 oval like No. 1; one round (No. 2); unlike recent and modern specimens, all lack the beveled edge which fits in a groove in the rim. No. 1 has a wooden peg in a slot near the rim. No. 2 has six perforations some of which retain pieces of baleen lashing.

Distribution: In all stages.

3. *Wooden Bowls or Trays.* 9 specimens; all small fragments.

Distribution: In all stages.

4–5. *Shovel Handles.* 2 specimens; curved edge and opposing notches for lashing against the curved inner surface of walrus shoulder blade shovels; these handles fit the large shovel heads (not illustrated), not the small heads like those on Fig. 22, Nos. 8, 9.

6. *Bow.* 1 fragment; the central section with a thick round hand grip; the same type as bows found in recent and modern deposits at Kukulik.

Distribution: In all stages.

7–8. *Knife Handles.* 3 specimens; one is illustrated on Fig. 18, No. 11; No. 7 has a deep end slot which contains the tang of a broad double-edged slate blade; the tang is broken in two parts. No. 8 has a very deep end slot; it has been used as a drill bearing.

9. *Dart Shafts.* 6 fragments approximately the diameter of that figured; some are round, others slightly oval in cross-section.

Distribution: In all stages.

10. *Firedrill Shaft.* 1 specimen; the upper and larger end is smooth and charred.

Distribution: In all stages.

11–16. *Unidentified.* No. 12 may be a hand lance shaft; No. 13 may be a part of a harpoon shaft broken at a splice; No. 14 may be a small lance shaft or a knife handle; there are three slender shafts like this with a slot in the end. No. 15 appears to be part of a wooden shovel head; No. 16 may be part of a box or bucket.

Pottery. 72 sherds; 18 with "cord impressed" (?) outer surface (like those from Hillside Site figured by Collins, 1937a, Pl. 52); six with check stamped design like those from Norton Sound and Nunivak Island described by Collins (1928, 255). No sherds with wick ledge like the modern lamps; no sherds with perforated lugs like those in modern cooking pots; probably fragments of round or oval cooking pots and lamps (without wick ledge). (Not illustrated.)

Distribution: In all stages.

Baleen. 3 bundles of strips (unworked?); 8 perforated strips probably used as cross-pieces for baleen toboggans; one perforated hook-like object; one broad strip, possibly a fragment of a baleen bucket. (Not illustrated.)

Distribution: In all stages.

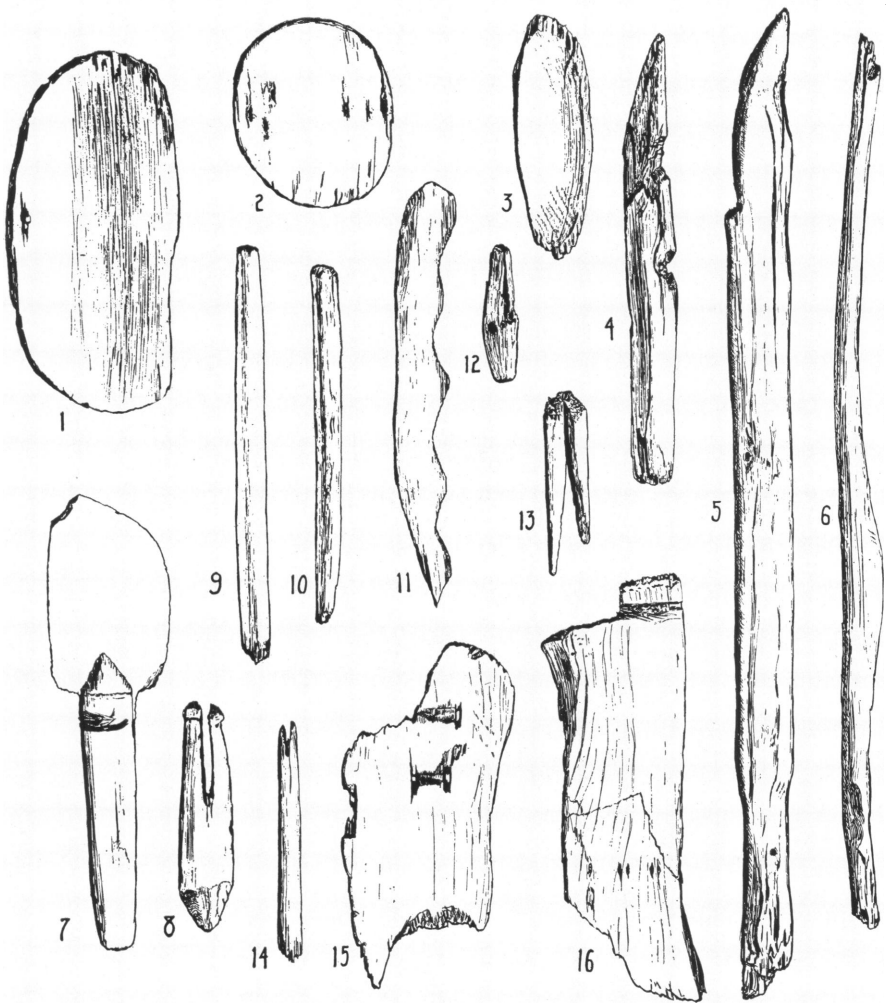


Fig. 34. Bucket Bottoms, Wooden Bowls or Trays, Shovel Handles, Bow, Knife Handles Dart Shafts, Firedrill Shaft, Pottery, and Baleen. Length of No. 1, 21 cms.

FIGURE 35

UNIDENTIFIED IMPLEMENTS

Unidentified Implements. 19 specimens; 17 ivory; 2 bone; 6 decorated.

1–3. 11 specimens; 2 bone; 9 ivory; perforated, heart-shaped objects; apparently lashed against an edge. Probably heads of stone flaking hammers like those used in north Alaska in historic time.

Distribution: Hillside Site, Gambell (C: Pl. 30, Figs. 18–20).

4. Complete, except for one broken hole; a concave base suggesting lashing to an edge or a shaft.

5. A cleat with one end broken away; lashing holes connected by a groove; a second specimen, the same but for the notch in the end (decorated), and broken at the same place; was purchased from a native in 1937; said to be from the Okvik site.

6. A deep groove encircles the round head; the same engraved design on both surfaces. May be an arrow straightener.

7. A flat, forked object; possibly a dart rest for a kayak.

8. Elliptical ivory ring with a tang; an outer groove encircles only part of the ring; there are two fragments of similar objects.

9. Possibly a foreshaft for a dart, or a bird arrowhead; a V-shaped socket in the head; eyes and eyebrows engraved on one side give the impression of an animal head with the mouth open; this was purchased from a native in 1937; said to be from the Okvik site.

10. Possibly a broken dart or arrowhead, or a foreshaft; the petaloid figure in relief is like those on bird arrowheads (Fig. 14, Nos. 10, 11, 14).

11. A hook; possibly used as a trigger for a trap.

12. A flat, tubular-shaped ivory object with a series of perforations encircling one end; probably a mounting.

13. A small ivory object bifurcated at one end and socketed at the other; may be a socket piece for a light dart or arrowshaft.

14–16. Ivory objects; no indication of use; note engraved face on No. 16.

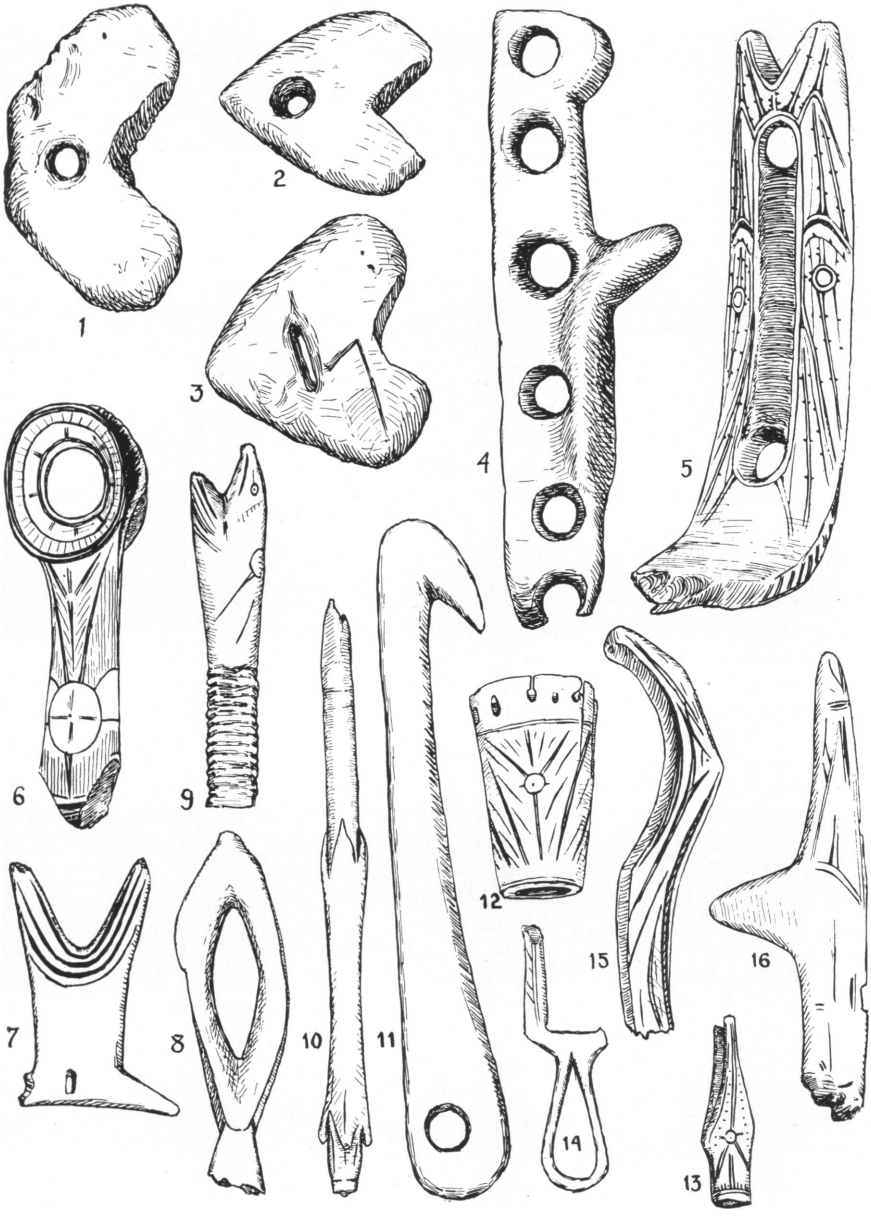


Fig. 35. Unidentified Implements. Length of No. 4, 12.2 cms.

Figure 36

Unidentified Fragments

Unidentified Fragments. 203 specimens; 184 ivory; 19 bone; 53 decorated with engraved designs; 11 probably fragments of projectile points; 10 probably butt ends of ice picks; 5 probably harpoon head fragments.

1. Possibly a foreshaft for a whaling harpoon; broken at a line hole; triangular in cross-section; engraved.
2. Wedge-shaped at both ends; line hole near one edge; a foreshaft (?).
3. Engraved ivory arch; possibly a box handle.
4. Possibly a snow beater handle; there is a second specimen like this.
5. End of a walrus tusk showing the method of cutting ivory; there are 6 tusks cut in the same manner.
6. A shaft segment; triangular in cross-section; engraved.
7. A shaft segment; triangular in cross-section; two slots meet in the center; the engraving is a unique design.
8. One side of a small ivory tube; finished ends.
9. Part of a slender ivory ring.
10. Probably the trigger from a set-trap; there was a square perforation in the shank.
11. Possibly the body of a carved human figure; the same pattern engraved on both sides.
12. Thin curved segment with elaborate engraving.

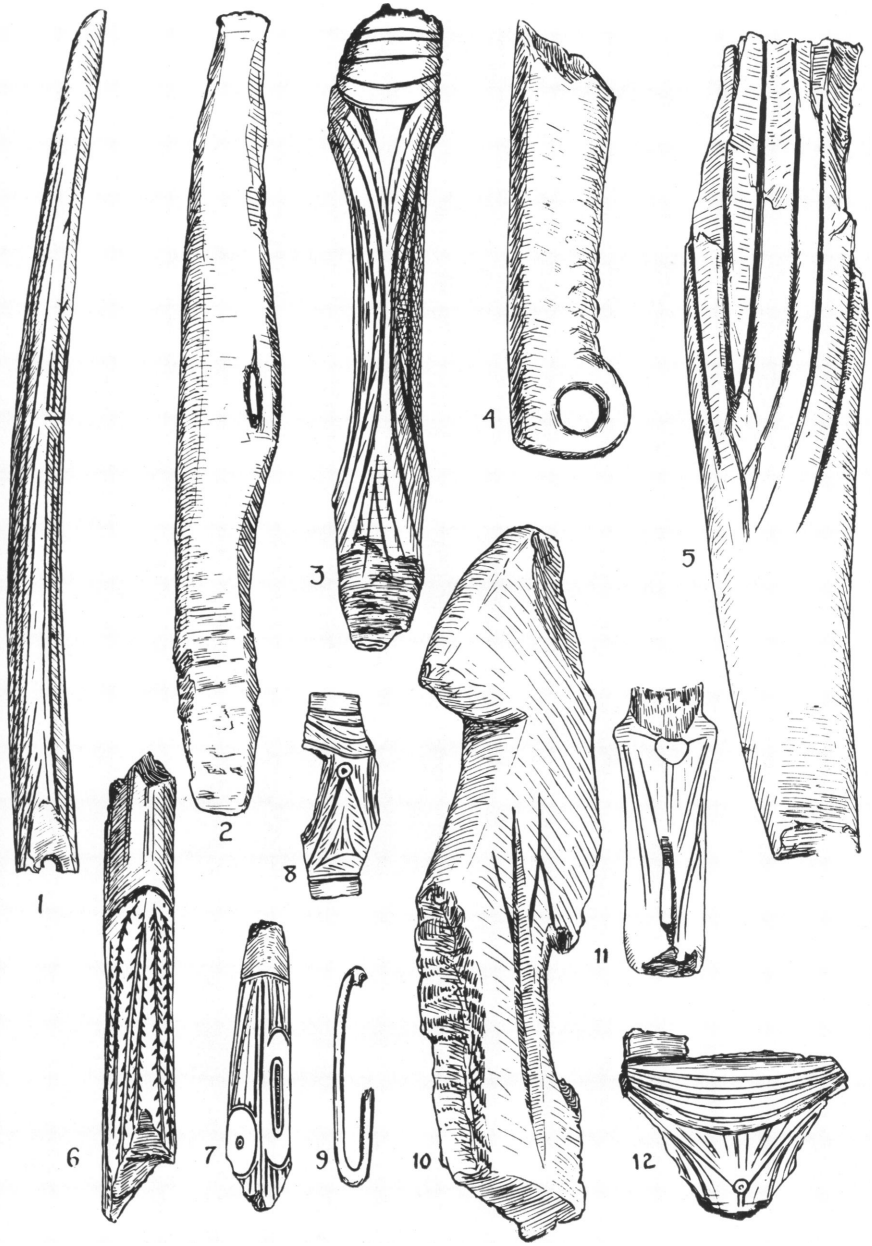


Fig. 36. Unidentified Fragments. Length of No. 1, 17 cms.

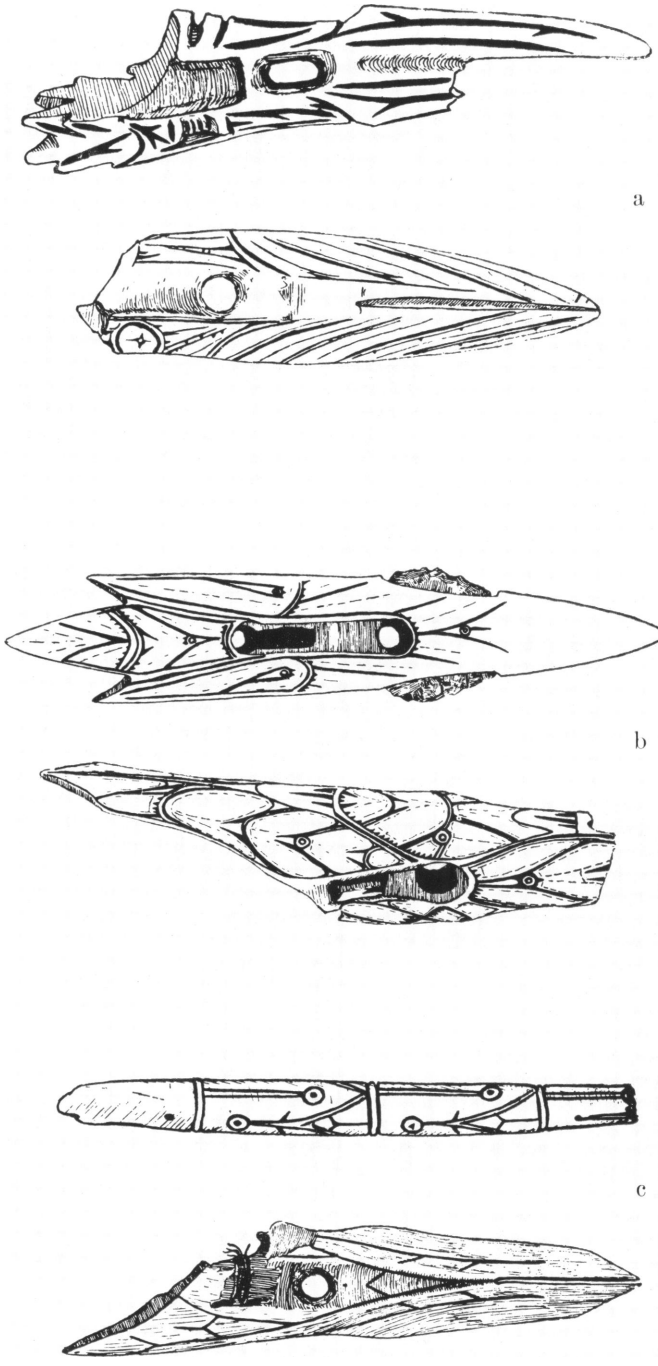


Fig. 37. Decoration of Harpoon Points: a, Okvik; b, Old Bering Sea; c, Punuk. Length of No. 1, 10.2 cms.

CORRELATIONS

The preceding description of the Okvik collection has presented 1404 ivory, bone, stone, pottery, and baleen implements grouped in sixty-four significant classes and seventy-eight sub-classes or specific types. The classification is based on the function of implements as determined by their similarity to those made and used by the present Eskimo. Broken up into elements or single culture traits in this manner, description and correlation are simplified, but the total complex or culture pattern presumably represented by this collection of tools is obscure. As observed above, a significant correlation between this Eskimo culture type and others which have been defined and published must depend upon a comparison of culture complexes as a whole, not merely upon comparison of discrete, independent elements. Therefore, to integrate the classes and types, a summary of the collections will follow. Here all implements used in hunting are described as part of that trait complex, all those used in transportation as another, those used in the household as another, etc. Grouped in reference to a certain pattern of activity, the significance of objects like float plugs or sled runners is made clear. In the accompanying correlations with other Eskimo culture types the degree of relationship is determined with more reality than is possible by statistical analysis of the presence and absence of single elements.

Some general conclusions regarding the culture of the Okvik people may be drawn from an examination of the collection as a whole. For example, the number of ivory implements (1026 in a total of 1404 specimens), although probably exaggerated to a certain extent by the inclusion of sixty-eight purchased specimens (thirty harpoon heads), obviously indicates a great dependence upon walrus meat for food as well as upon walrus ivory for the manufacture of technical apparatus. The extensive use of ivory is further emphasized by the fact that all the complete and more complex implements, excepting one type of arrowhead, are normally made from ivory rather than from bone. It is clear that the material culture of the Okvik people was largely based upon the walrus. If we may judge from the important part played by seals, whales, or caribou in the intellectual life of living Eskimo in other regions who depend primarily upon these animals, the walrus must have had a tremendous significance in Okvik intellectual culture.

We may also conclude from the large number of carved and engraved objects (463 in a total of 1125 bone and ivory specimens, including all worked fragments and unfinished pieces) that the Okvik people had developed not only a remarkable craftmanship, but a very unusual interest in these techniques. The astonishing preoccupation with carving and engraving is emphasized when we observe that there are, among the sixty-two classes of bone and ivory objects, some decorated pieces in each of forty-three classes, and that among the two hundred and one finished harpoon heads, one hundred eighty-five are engraved. The skill in carving and engraving is also reflected in the form and finish of all bone and ivory objects. Compared with the rather coarser, heavier, and much cruder implements made in historic and modern times, these Okvik, like Old Bering Sea specimens, suggest a technically more advanced and more sophisticated culture than that of subsequent Eskimo people. Since there seems to be a tendency, among human beings in general, to elaborate, ornament, and refine their tools and implements during periods of little technical change, and to simplify during periods of rapid change, this Okvik collection may reflect merely a period of cultural isolation or one where the technique had achieved a temporary stability. A crude, heavy harpoon head like those used on St. Lawrence today will probably take as many, if not more, walrus than one of the artistic heads illustrated. These complex and beautifully made implements, nevertheless, do portray a highly developed Eskimo culture which is by no

means formative or primitive, even though it is the earliest known in Bering Sea.

Sea Mammal Hunting

One of the most characteristic traits of all Eskimo is the complicated apparatus they use in hunting sea mammals. It may be said that this aspect of their material culture most specifically distinguishes it from that of all other people in the New World. The basis of this specialized hunting technique is the toggle-headed harpoon, a really complicated mechanism made up of several elements which vary in form and style from one region to another. Where the various parts of the harpoon assembly are found in an archaeological site they represent not only a particular material trait, but a whole pattern of activity. Thus eight classes of objects found at Okvik (harpoon heads used for seal and walrus, heads used for whales, socket pieces, foreshafts, finger rests, ice picks, float plugs, and harpoon rests for the kayak) make it possible to describe for the Okvik people a hunting technique which is characteristically Eskimo, and very much the same as that employed in historic times everywhere in the Arctic Eskimo region.

These eight classes of objects show that the Okvik people had the familiar toggle-headed weapon with the detachable foreshaft, the ivory socket for the foreshaft, wooden shaft, ivory finger rest for propelling the shaft, ice pick at the butt end for testing the thickness of the ice or chopping a hole, and a skin float fastened by a line to the detachable head and thus acting as a drag to the captured animal; that they hunted seal and walrus on the ice and in open water with kayaks; and that they hunted whales in the open sea with heavy harpoons. This last implies the use of umiaks or large skin boats like those employed today, although no remains of these were found.

Since all these classes of objects (except harpoon rests) are found in each of the five stages of Eskimo culture used here in correlation (Old Bering Sea, Punuk, Thule, Late-Prehistoric, and Modern), we have evidence of the same general pattern of sea mammal hunting extending through a long period of time and over a wide area. But just as the individual elements of this hunting complex vary from one region to another in historic times, so they vary in given localities from one stage to another. Certain elements, like foreshafts and finger rests, cannot be distinguished from those used in modern times, but others, like specific types of harpoon heads and socket pieces, are characteristic of only one stage. Thus, Okvik harpoon heads can be distinguished from those of all subsequent stages, even though specific types are almost the same as specific types found in Old Bering Sea, Punuk, Thule, and Modern stages. The difference lies in slight modifications of form (multi-pronged spurs) and in a peculiar style of decoration. To the writer these slight modifications seem less significant than the remarkable similarity in the implements which have been made over a period of many centuries and throughout that vast Arctic region from Siberia to Greenland.

If we examine the sixteen specific types or sub-classes of these sea-mammal hunting implements (five significant types of harpoon heads, five types of socket pieces, four types of ice picks, two types of float plugs) it will be seen that eight do not occur (or are not described) in the other stages; seven occur in Old Bering Sea; four in Punuk; three in Thule; one in Modern. Stated in this way, the sea mammal hunting complex of Okvik appears to be most closely related to that of Old Bering Sea, a conclusion which simply verifies the close association in time of these two stages as already determined on other grounds.

Bird Hunting

On the little Punuk group, as on other islands in Bering Sea, are sea cliffs used as nesting grounds by many thousands of migratory water fowl, such as cormorants, auklets, murres, and eider ducks. That these birds constituted an important food supply of the Okvik people is shown by the presence of the familiar Eskimo bird darts and blunt bird arrowheads; but it is probable that the majority of such birds were taken in nets or snares, and in the

nests before they were grown, as is customary today.

The barbed or plain head set in the fore end of a bird dart cannot be distinguished from heads or points used on other types of darts or on some types of arrows. The presence of bird darts in the Okvik collection can be demonstrated, however, by the characteristic curved bone or ivory prongs which are set in a cluster of three near the center of a dart shaft so that a dart which fails to strike a bird head-on may snare one by the wing with one of the prongs which branches out from the shaft. These bird dart side prongs occur in all of the other five culture stages, but of the three specific types two are found in Old Bering Sea, one in Thule.

Blunt bird arrowheads like those described here seem to be particularly characteristic of Alaska Eskimo (although a blunt-pointed arrow with a tang, probably used for birds, is reported for the Thule stage in the eastern Arctic). They have been described for Punuk, Late-Prehistoric, and Modern stages but not for Old Bering Sea. Their absence from the Old Bering Sea collections from Gambell, however, is probably a matter of chance.

Barbs for gull snares may be represented by double-pointed objects described with needles (Fig. 23, Nos. 2, 3). Such barbs are used today on St. Lawrence as well as throughout most of the American Arctic.

Bolas weights which are widely used by the Eskimo in snaring birds in flight are absent from the Okvik collection as from Old Bering Sea collections. This tends to verify Collins' contention that they were not introduced until the Punuk stage.[1]

The class of objects described as dart heads (Fig. 13) includes bone and ivory points probably used with bird darts, but other specimens in this class may have been barbed heads used with seal hunting darts similar to those employed in historic times.[2] Dart heads are distinguished from arrowheads by a line hole near the butt, indicating that they were attached by a line to the shaft or to a float so that when the quarry was struck the head could break away from the shaft and then drag it or the attached float as an impediment to the wounded animal. Both in hunting birds and small seals, darts are normally hurled with a throwing board. The use of throwing boards by the Okvik people is indicated by small pegs (Fig. 13) similar to those used in modern throwing boards to engage the butt of the dart. This is, however, a somewhat uncertain identification since such pegs may have had other uses. Some of these dart heads may also have been used with arrowshafts and shot with a bow like the Aleut sea-otter arrows.

The knowledge and use of bows are deduced not only from the occurrence of several types of arrowheads, but from one fragment of a wooden bow (Fig. 34, No. 6). They were apparently used in hunting birds and in warfare, as in the other five correlated stages.

Fishing

Tomcod, black cod, sculpin, and halibut are caught with hook and line in the open sea off St. Lawrence Island at the present time. A special multi-barbed hook, like the Okvik type in Fig. 15, No. 7, is still used in fishing for tomcod. Another type found at Okvik (Fig. 15, No. 6) is reported from Punuk and Late-Prehistoric stages, while slender ivory fish line sinkers (Fig. 15) occur in all stages in Bering Sea culture (though apparently not throughout the Arctic in the Thule stage). A much heavier sinker made from walrus mandibles appears only in the Modern stage on St. Lawrence. Even though fish are abundant in Bering Sea and can be caught both in summer and in winter, they do not now form an important part of St. Lawrence Eskimo diet; the comparative rarity of fish hooks in all stages suggests that this has always been true.

Hump-backed salmon and salmon trout run up a few small rivers in the eastern part of St. Lawrence Island and are taken in small numbers during the summer. The small ivory barbs (Fig. 15, Nos. 1–4) were undoubtedly used by Okvik people with a salmon spear like that described for the eastern Arctic.[3] It is curious

[1] Collins, 1937a, 227.
[2] Nelson, 1899, Pl. LVII, No. 18.
[3] Mathiassen, 1927, 40.

that so far such barbs are described only for the Okvik and Punuk stages on St. Lawrence, but for the Thule stage over a wide area. This circumstance is probably accidental since in the large collections from Kukulik, now at the University of Alaska, a few appear in Late-Prehistoric and Modern collections (not published). It is probable that this type of salmon spear was utilized to some extent in the Old Bering Sea stage as well, even though it was not found in the Gambell sites.

Warfare

The only indication of fighting equipment in the Okvik collections is the class of implements described as arrowheads (Fig. 14) and the single wooden bow (Fig. 34). Blunt bird arrows indicate that bows were used in hunting birds; some of the long barbed arrows may have been used for the same purpose, but they resemble modern barbed arrows described by the present St. Lawrence Islanders as used only in warfare. There are no large land animals on the islands which could be hunted with such weapons. Polar bears were probably killed with a lance as in historic times, and foxes, the only other land mammal, were probably taken in snares. A peculiar feature of one type of Okvik arrowhead (Fig. 14, Nos. 1–3) is the set of long sharp barbs lying close to the shaft. This is precisely the feature which distinguishes one type of war arrow used in the Modern stage. Such heads would have no particular advantage in killing game, but they would provide an ingenious punishment for enemies.

Bows used with such arrows, judging from the single fragmentary specimen, were made from wood in the shape and form of modern bows, and this implies the technique of sinew-backing for strength. Furthermore, one implement classed with awls (Fig. 20, No. 3) very closely resembles the sinew-twister used generally by Eskimo in lashing a wooden bow with reinforcing sinew. Wooden bows and some form of slender barbed arrowhead are again characteristic of all five stages correlated with Okvik, but two of the specific types of arrowhead occur in Old Bering Sea, only one in Punuk, one in Thule, and one in Late-Prehistoric.

Bone or ivory plates used with Bering Sea Eskimo slat armor were not found at Okvik, which verifies Collins' statement[1] that this type of armor was introduced among Bering Sea Eskimo during the Punuk stage. Bone and ivory wrist guards which appear in later stages are also absent.

Travel and Transport

Sleds. Two very different types of sled are used by the modern St. Lawrence Islanders. One is a small, low form with solid ivory runners,[2] sometimes described as a boat sled or "sled for use on the sea ice"; the other is a built-up sled with wooden runners and bone shoes used primarily with dogs over land. Evidence of only the first type is found at Okvik. Judging from the modern sled of this kind, we may assume that it was used for hauling skin boats over the sea ice to open water leads, in hauling loads of meat for short distances over the ice or along the shore, and also that it was usually drawn by hand. This Okvik type of sled occurs in all stages of Bering Sea culture, but not in the Thule stage as described by Mathiassen.

There is a single sled shoe in the collection (Fig. 16, No. 6), a type also found in all stages of Bering Sea culture but not in Thule. This was lashed to a wooden runner, probably on a type of low boat sled similar to that just described. The broad, flat shoes made from whale bones, common to the later Bering Sea cultures and the widespread Thule, and used on the present dog-drawn sled, are absent. With these shoes and the familiar bone or ivory dog trace buckles lacking in the Old Bering Sea collections from Gambell,[3] Collins concludes that dog traction was not employed by the earliest Bering Sea Eskimo. The same conclusion might then apply to Okvik people. The writer, however, is not convinced that the absence of these specific types is sufficient proof of the ab-

[1] Collins, 1937a, 224.
[2] Nelson, 1899, Pl. LXXVI, Fig. 1. This is a sled with separate bed and runners—not a toboggan.
[3] Collins, 1937a, 338.

sence of dog traction. Dog bones are found in both Okvik and Old Bering deposits. There is no good reason why wood or baleen could not have been used for both trace buckles and flat sled shoes, as they were in later times,[1] and if this was the case, the chance of their being preserved is not great. Furthermore, it is quite possible that the small boat sled found here was drawn by dogs even though that is not customary today.[2] In northern Europe[3] the presence of sled shoes in ancient archaeological sites is taken as an indication of dog traction; in northern Asia dog traction is known as an ancient trait.[4] Thus there seems to be little reason why it should be denied to early Bering Sea Eskimo, where it is to be expected, simply because certain modern or recent types of sled and harness parts are absent.

A light ivory link (Fig. 24, No. 2) closely resembles a Thule stage dog trace buckle. It has not been included with the sled parts because it may be too light for such a use, and also because it is an unusual specimen which alone is no adequate indication of the modern type of dog harness.

Bone cross-pieces (Fig. 16, No. 6) for the small flat sled occur at Okvik as in Old Bering Sea and Thule sites. The objects described as sled arches do not occur elsewhere and are not certainly identified. Nevertheless, they closely resemble sled parts described for modern St. Lawrence Eskimo[5] and may have been used across the front of either the low flat sled or on built-up sleds of the modern type.

Baleen toboggans, which were used by Bering Sea and Thule people, are quite certainly identified in this collection by the presence of perforated baleen strips.

As a group, these sled parts show that Okvik people had developed at least one type of sled which is still used by the western Eskimo. The absence of other modern types and of any objects known certainly to have been used with dog harness, leaves the question of dog traction among these people undecided.

Boats. No frame parts of the familiar Eskimo kayak and umiak occur in the Okvik collections. Only a few fragments of wooden objects are preserved for us at this site; consequently, the absence of wooden struts and other frame parts found in more recent deposits cannot be considered significant here. Some type of sea-going boat must have been used by an island people dependent upon sea mammals, even though these might be taken in winter from the ice or in summer along a shore where walrus came ashore in large numbers. A whaling harpoon head certainly implies the use of large walrus skin umiaks like those used today, and the forked harpoon rests for a kayak (Fig. 12, Nos. 10–11), like those used in recent times, indicate the use of the modern kayak.

The presence of small flat sleds strengthens the conclusion that skin boats were hauled across the shore ice to open leads, particularly in spring, to be launched there for open water hunting.

Other Traveling Apparatus. Cleats or crampons known as ice-creepers which are lashed to boot soles by modern Eskimo as an aid to foot travel over slippery ice fields, appear at Okvik as in all the later phases of western Eskimo culture. One type (Fig. 17, No. 9) occurs in Old Bering Sea and Punuk; another (Fig. 17, Nos. 10, 11) in Punuk and Late-Prehistoric.

Snow goggles, another ingenious invention of Eskimo people who must hunt and travel over glaring fields of ice and snow, when spring sunlight is literally blinding, are represented by one curious pair which is elaborately engraved in the characteristic Okvik style. Although goggles of this general type were used in all of the other five stages, the Okvik pair is distinguished by round eye holes instead of the long narrow eye slits adopted in the later culture stages. Certainly round eye holes, admitting much more light, must have been less effective than eye slits, or hardly effective at all unless the user rubbed soot around his eyes and on the inner surface of the goggles, as is often done even with the more efficient modern type.

[1] Mathiassen, 1927, Pls. 13, 14.
[2] Murdoch (1892, 356) states that sleds of this kind were occasionally drawn by one dog.
[3] Childe, 1939, 10.
[4] Zolotarev, 1938, 22.
[5] Nelson, 1899, Pl. LXXVI, Fig. 16.

Barbs for boat or blubber hooks appear in a great variety of forms among different groups of modern western Eskimo. They are used both in the kayaks and in umiaks, or on shore for handling or dragging meat and blubber.[1] Similar implements are not described by Mathiassen for the Thule people of the eastern Arctic, but they occur in all stages of Bering Sea culture. Those found at Okvik most closely resemble Old Bering Sea forms.

The Working Tools

Knives. The two very different kinds of knives found everywhere among the Eskimo and termed men's knives and women's knives (ulu) also appear in the Okvik collections. Here the most common type of men's knife is the composite form with a handle made of two strips of bone or ivory, with slots in the edge at one or both ends, so that when the strips are lashed together the slots form a narrow socket for a small blade. Precisely the same type is found in all five culture stages referred to here in correlation. None of the fifteen composite handles from Okvik retains a blade and not one of the stone implements (Figs. 31, 32) can be identified specifically as a blade for such a knife. Several very thin blade slots suggest the use of metal, which may have been obtained from Asia long before Russian expansion.[2]

A closely related men's knife (Fig. 18, Nos. 5–7) is not reported from other sites.[3] The handle is made in one piece, with a deep slot which can be sprung apart for the insertion of the blade, so that this was partly held in place by tension. One such knife is complete with blade. The others are broken apart and are bladeless.

Another peculiar form of Okvik knife (Fig. 18, No. 9) with a large slate blade set in a slot along the edge of an ivory handle has been grouped with men's knives, but may have been some form of ulu or woman's knife. In part it resembles the men's knives with side blades described for the Thule stage by Mathiassen (Pl. 18).[4] A wooden handle (Fig. 18, No. 11) of the same general type is distinguished by a curious ivory blade stop set in the wooden handle against a slate blade. The only other specimens of this kind seen by the writer are in a collection of recent material from Point Hope.

Rubbed slate blades (Fig. 31, Nos. 1–3) described as men's knife blades must have been used in end-socketed handles such as that illustrated in Fig. 18, No. 8. Chipped chert or jasper blades (Fig. 32, Nos. 8, 9) may also have been used in such handles, but this is uncertain.

The familiar crooked knives of the modern Eskimo, which occur also in Punuk and Thule stages, are here absent as in Old Bering Sea collections.

Women's knives (ulus) at Okvik are similar to those found in all other stages, but show some modifications of the usual form. One type, with ridges along the handle, most closely resembles those described for the Punuk stage; others (Fig. 19, Nos. 4, 6) seem to be unique. Semilunar slate blades, used with women's knives in all stages, were found hafted in such handles (Fig. 19, No. 9) and separate (Fig. 31, Nos. 8, 9).

Drills, Awls, Reamers. That the bowdrill of historic Eskimo had developed in this early stage of Bering Sea culture can be determined by the presence of ivory bearings which were held between the teeth to support the upper end of a whirling shaft (Fig. 20, Nos. 7, 8). There is also a single ivory drill point presumably used with such a mechanism (Fig. 20, No. 6). Bowdrills have not been reported from Cape Dorset culture sites in the eastern Arctic[5] nor in the Ipiutak culture at Point Hope;[6] otherwise they occur everywhere in typical Arctic Eskimo cultures. Drill rests for the hand (Fig. 22, No. 6) are described for all stages of Bering Sea culture, but not for Mathiassen's Thule stage in the eastern Arctic.

A large number of sharp, slender, pointed instruments described here as awls, reamers, marlin spikes, and hand drills prob-

[1] Nelson, 1899, 222.
[2] Collins, 1937a.
[3] Occurs in the Ipiutak collection from Point Hope, not published.
[4] Mathiassen, 1927.
[5] Jenness, 1925.
[6] Rainey, 1941.

ably had a great many uses in working bone, ivory, wood, baleen, or skin. They occur everywhere in Eskimo collections. One specimen grouped with these (Fig. 20, No. 3) may be peculiarly significant. As mentioned above, it closely resembles an instrument used by historic Eskimo in lashing a sinew-backed bow, and may indicate that this kind of bow was unknown at that time and was not first introduced in the later Punuk stage as suggested by Collins.[1]

The Chopping Adze. Ivory adze heads or sleeves (Fig. 20, Nos. 9, 10) and stone adze blades (Fig. 32, Nos. 1–4) represent a working tool used by all Eskimo, but the only heads in the collection are a peculiar boot-shaped type described only for the Punuk and Late-Prehistoric stages. The stone blades are found in all stages. Those from Okvik are too large to be used in boot-shaped heads and probably indicate the presence of another type of head not represented in the collection.

Stone Flaking Tools. One very simple form of stone chipping implement at Okvik (Fig. 20, Nos. 12, 13) was utilized in all culture stages, but another (Fig. 20, Nos. 14, 15) is a peculiar composite type described only for the historic Eskimo at Point Barrow.[2] It is curious that precisely the same form occurs at the Okvik site and in historic times in north Alaska, and yet does not appear among the tens of thousands of specimens excavated at many sites on St. Lawrence Island which are later than Okvik. This may be only a matter of chance, but it seems more likely that, due to the fact that flint chipping continued to be an important craft in north Alaska, while it was largely discontinued after the Old Bering stage on St. Lawrence Island,[3] the more complex flaking tool persisted in the north, but disappeared in Bering Sea.

Picks or Mattocks. Heavy ivory or bone heads hafted on a wooden shaft have been used during all stages for cutting sod blocks, digging, and picking away ice. In the Thule stage, and in recent times in Bering Sea, a broad flat blade made from a whale rib was used as a head on such implements, but in north Alaska (Point Hope) pick heads of the Okvik type (Fig. 22, Nos. 1–5) are still used. They are lashed against the end of a broad, wooden shaft with rawhide thongs. On Punuk Island many of these pick heads, precisely the same as those from the Okvik site, were found in a water hole, suggesting that they were used in breaking the ice for drinking water.

Tools used in working Skins. Ivory scrapers, termed blubber or fat scrapers, were used in removing the blubber adhering to sea mammal skins after these had been stripped from the carcass with a skinning knife. They are still used by many Eskimo women in preference to metal scrapers. Two of the three types found at Okvik occur in all five stages, but the third, termed a spoon scraper because it has a deep spoon-shaped head and a slender handle, has been described only for the Thule stage. The same type also occurs in Late-Prehistoric and Modern stages at Kukulik (not published). The chipped chert and jasper implements termed side scrapers and end scrapers (Fig. 32, Nos. 12–14) may have been used as skin scrapers. A chipped flint end scraper, hafted in a short wooden frame, is still utilized by Point Hope women in working skins.

Needles and needle cases (Fig. 23) like those found everywhere in Eskimo cultures also occur in the collections described here. However, the very small and very delicate needles with a minute eye hole excavated at Okvik in 1934 were lost in shipment or in storage and the coarse, rather crude needles illustrated give a very poor idea of the implements actually used by Okvik women in sewing skins. These small specimens are described in field notes as very little larger than steel needles and thus could be used in such fine needlework as that carried on today.

The Dwellings

Although no house structures were found at the Okvik site on the Punuk Islands, dwellings used by Okvik people probably resembled the structure found

[1] Collins, 1937a, 363.
[2] Murdoch, 1892, 228.
[3] Collins, 1937a.

in 1939 at the Hillside Site near Gambell on St. Lawrence Island. As observed above, the implements and the style of ivory engraving found at this site are the same as in the Okvik deposit, and it is probable that the two sites were occupied by the same people during approximately the same time.

This dwelling may be described as a round subterranean or semi-subterranean structure, eighteen feet in diameter, with a paved stone floor and a central open hearth. The construction of the walls and roof and the form of entrance cannot be determined. It is obviously a large permanent dwelling like those used in the Arctic area during each of the five culture stages referred to here, but its circular form corresponds with the Thule type of house rather than with the square or rectangular houses reported for all subsequent stages on St. Lawrence Island.[1] The open hearth has been reported only in houses at the Ipiutak site (Point Hope) which we now believe precedes the Okvik stage.[2]

Household Equipment

Shovels. Small perforated shovel heads made from seal or walrus scapulae (Fig. 22, Nos. 8, 9) are like those used in historic times on St. Lawrence Island for clearing refuse off the house floors. Larger and less finished heads made from walrus scapulae, like those found in Old Bering sea and Late deposits, were picked up in the vicinity of the Okvik site and since wooden handles excavated from the site (Fig. 34, Nos. 4, 5) fit the large shovel heads, this kind of household shovel was undoubtedly also in use.

Buckets and Trays. Oval and round wooden bucket bottoms (Fig. 34) probably were used with either baleen or wooden rims, forming a bucket similar to those described for all culture stages. Their edges, however, are not beveled to fit into a groove of the rim, as is the case in recent and modern baleen or wooden buckets.

A few fragments of wooden trays or bowls (Fig. 34), probably used as food containers, resemble those made by Eskimo wherever driftwood is obtainable.

Fire-making. A wooden shaft (Fig. 34, No. 10), charred and smoothed on one end, was undoubtedly used with a drill bow in making fire by friction. None of the pitted fire boards, on which the fire was kindled and which are found in other deposits, has been preserved.

Pottery. Approximately seventy-two sherds of the coarse, crumbling, poorly fired pottery characteristic of Alaskan Eskimo culture were found throughout the Okvik deposit and demonstrate that pottery was known even in this earliest stage of Bering Sea culture. There are no complete vessels and the sherds are too small to allow for a conclusion regarding shapes, but the wick flanges found on fragments of more recent clay lamps, and the perforated lugs of recent cooking pots are absent, as in Old Bering Sea collections. Therefore, we may conclude that these sherds are fragments of simple round or oval cooking pots and lamps used before the modern rectangular cooking pots[3] and lamps with wick flange had been developed.

A few sherds have impressed decoration like that described on sherds from the Gambell sites.[4]

Clothing and Personal Adornment

Although no remains of skin clothing were preserved at Okvik, one of the engraved ivory torsos of the carved human figures (Fig. 28, No. 5) gives some idea of the style of parka probably worn at that time. Two triangular patterns engraved on the breast extend from the nipples to the shoulders, and resemble the triangular pieces of white reindeer skin sewn into the parkas worn by Eskimo in north Alaska at the present time. Also on the back of the same figure are diamond-shaped and triangular patterns which suggest the elaborate parka decoration of Chukchee and Siberian Eskimo.[5]

The small ivory objects illustrated in Fig. 23 (Nos. 11–12) are undoubtedly buttons which may have been used as belt

[1] Another round house constructed of stones and whale bone was found at the Kitneapaluk site near Gambell in 1939.
[2] Rainey, 1941.
[3] Geist and Rainey, 1936, Fig. 20.
[4] Collins, 1937a, Pl. 52.
[5] Bogoras, 1909, Fig. 179.

fasteners.[1] The small hooks and perforated blocks (Nos. 6–10) may have been used for the same purpose, but cannot be distinguished from bag or box fasteners.

Ivory pendants (Fig. 23, Nos. 13–16) were certainly worn as ornaments.[2] Such objects are also described for the Punuk and Thule stages. An ear or hair ornament (Fig. 23, No. 21) is like those worn by St. Lawrence women in historic times.

The custom of tattooing the face with simple linear figures, practised by many Alaskan Eskimo women within the last generation (at Point Hope the tattooing is begun at puberty and completed at the time of marriage), probably had developed in the Okvik period. Several of the carved human figures (Figs. 27–29) have rows of punctures or lines across the face which resemble the present tattoo markings, and in at least one case (Fig. 28, No. 1) lines on the chin are in the same position as tattoo lines worn by St. Lawrence women today.

A style of wearing the hair, probably for men, is indicated in one figure (Fig. 30, No. 9).

Carving and Engraving

It has been observed above that the custom of engraving almost all classes of implements used by Okvik people is one of their most striking culture traits. The engraved designs, however, are much simpler, more sketchy, more irregular, and less pleasing than the complex curvilinear designs of the Old Bering Sea stage. It was apparently not until this subsequent stage that the Bering Sea Eskimo developed the art of engraving ivory to a point never again attained by their descendants. But the Okvik art of carving in the round stands out as an artistic achievement not matched in the later stages of Eskimo culture. The head of the female statuette (Fig. 27) appeals to the writer as the most remarkable Eskimo carving thus far reported, and the head of a dog or polar bear (Fig. 25, No. 1) gives an effect of animation which is notably lacking in the usually stiff and formalized style of later Eskimo carvers.

Carved Human Figures. (Figs. 27–29.) These figures are very numerous in the Okvik deposit. In addition to the forty-five specimens in the collection, at least six more, found by the natives, have been sold to private collectors. Similar carvings with a carefully finished head and a crude block-like torso are reported for all stages in Eskimo culture and throughout most of the Eskimo region. Those found in Alaska, Canada, and Greenland, have usually been described as dolls since the American Eskimo still carve such figures for their children, but in northeastern Siberia among the Koryak and Chukchee they are described as images and guardians.[3] Carved wooden figures like that on Fig. 28, No. 7, we know are kept at present with other religious paraphernalia by the Eskimo captains of whale hunting crews on St. Lawrence Island. The figures are fed with blubber and meat during certain ceremonies; later, they are burned at a particular place which happens to be the same as that where old and helpless members of the group were killed.[4] It seems probable that these Okvik figurines were idols or fetishes rather than children's toys since it is unlikely that such a large number of dolls would occur at one site and that so many of them would have the torso engraved with designs, an unnecessary labor for doll bodies which are now usually clothed in skin garments.

Most of these figures have a long, narrow, pointed head and a curious elongated nose which is particularly characteristic of the Okvik stage. The engraved eyebrows, the row of punctures across the face, and the engraved torsos are also distinctive features which characterize most of the human figures found at the site. Figures with lower limbs and rudimentary arms (Fig. 29, No. 1) are rare and the flat mask-like object (Fig. 29, No. 4) is unique.

The mother and child (Fig. 27) is the only figure of its kind in the collection, but another resembling it was purchased by Commander F. A. Zeusler of the United

[1] Nelson, 1899, Pl. XXVII.
[2] Nelson, 1899.
[3] Jochelson, 1905, 39; Bogoras, 1909, 329, 344.
[4] Geist and Rainey, 1936, 123.

States Coast Guard in 1939. The Eskimo who carved the figure illustrated here certainly must have been interested in more than simply representing a human face. Emotion such as that expressed in the curious twisted smile and rather sly expression is foreign to most Eskimo carving of the present time, although there are some modern wood carvings from St. Lawrence which realistically portray old people in pain. One is reminded of more sophisticated West African wood carvings or Chinese statuettes in wood and stone.

Animal Figures. (Fig. 25.) These objects are also familiar in most Eskimo collections, but like the idols are executed here in a peculiar and specialized style. Heads like that of the dog or polar bear (No. 1) must have been attached to some implement, as are similar specimens from modern collections at Point Barrow.[1] But the realistic portrayal of a snarling animal again illustrates a carving art which is remarkably advanced when compared with that of modern Eskimo. The walrus head (No. 4) shows a mastery of very delicate carving which is also unusual.

Animals represented in the collection are whales, seals, walrus, dogs or polar bears, and birds. All of these animals are carved today by the Bering Sea Eskimo for sale to traders, but none of the modern carvings is an exact duplicate of those pictured here.

Engraved Designs. There are no realistic figures engraved on these ivory objects as on implements used by historic Eskimo in Alaska.[2] All patterns are geometric as are those characteristic of Old Bering Sea and Punuk stages. While the total effect of these Okvik designs is distinctive, and easily recognized, the individual elements such as spurred lines, Y-figures, nucleated circles, parallel lines, and ladder-like figures are the same as those employed by Old Bering Sea and Punuk people (even to some extent by modern Eskimo[3]) in designs which, seen as a whole, appear to be totally different. The distinction, then, between these varying art styles is largely a matter of finish, of certain combinations, and, to some extent, of the addition of new elements in the later stages. In the Old Bering Sea stage, for example, the circles surround raised and punctured bosses which look like eyes; these are combined in a pattern which resembles an animal's head,[4] petaloid elements are added, and the total effect is a free-flowing, curvilinear style both complex and sophisticated. (See Fig. 37.) Again, in the Punuk stage the designs, though still composed of the same basic elements, become stiff, more mechanical, with precise "compass-made" circles, less curvilinear, and ornate.

When the Okvik collection was first excavated and before its relative age was known, the style of engraving suggested a close association with the Punuk stage, particularly because of a similar relative simplicity when compared with the more elaborate Old Bering Sea style.[5] It is now clear that this Old Bering Sea art is an intermediate form, as Collins pointed out,[6] a special development, probably within the Bering Sea region, and that it marks the high point in an ancient Eskimo art which deteriorated in later times. The discovery of sites in which only Okvik style of engraving occurs (sites which cannot be recognized from the surface) suggests that still earlier deposits may possibly be found containing objects with a still more primitive style of engraving; and that, eventually, this ancient form of Bering Sea art will appear as an autochthonous development within the western Eskimo area. This would explain the fact that no similar art style is reported from neighboring regions.

Religious and Ceremonial Paraphernalia

It has been observed above that the numerous carved human figures resemble idols or fetishes used by modern St. Lawrence natives in whale hunting ceremonies and also figurines described as guardians among the Chukchee and Kor-

[1] Murdoch, 1892, Fig. 417.
[2] Hoffman, 1897.
[3] Hoffman, 1897, Pls. 38, 42.
[4] Geist and Rainey, 1936, Fig. 44.
[5] Rainey, 1937, 607.
[6] Collins, 1937a, 91.

yak of northeastern Siberia. Some may be children's dolls, as are similar effigies carved today, but all of them cannot be explained in this manner. If they are religious or ceremonial objects, then we have evidence of religious ideas and certain ceremonial practices which persist until the present time. Since the total complex of tools and implements from the site is so remarkably like that of the historic period, we might also expect little change in that normally more conservative aspect of human culture, the religious and ceremonial life.

The curious winged figures (Fig. 26) may best be termed ceremonial objects, since it is difficult to imagine any utilitarian purpose for such elaborate implements. A whole series of these objects is now associated with the three early stages of Bering Sea culture, developing from the small, simple, specimens (Fig. 26, No. 1) through large butterfly-shaped specimens of the Old Bering Sea stage,[1] to the trident, turreted, and wedge-shaped[2] objects of the Punuk stage. All these ceremonial objects have a socket in the base; some of those associated with the Punuk stage have been found with a segment of wooden shaft still remaining in the socket, so that it is safe to assume they were all mounted on a round shaft. Their use is entirely a matter of conjecture. It has been suggested that they were employed in a whaling ceremony[3] (some resemble a whale's tail); that they were wings for the butt end of a harpoon or dart used with a throwing board,[4] or that they were good luck charms which were planted on top of snowhouses during the caribou hunting season.[5] It has also been observed that they resemble the banner stones found in eastern United States and canoe ornaments from Micronesia.[6] They are found only in the three early stages of Bering Sea culture and, like the elaborate engraved decorations, constitute one of the most remarkable single traits distinguishing these culture types from later and historic Eskimo cultures.

A toy drum handle (Fig. 24, No. 14) indicates that the familiar Eskimo tambourine drum was used during the Okvik stage, as in all subsequent stages. It is the type of handle which fits over and is lashed to the narrow rim of the drum. It is precisely the same as handles carved from ivory at the present time. This specimen then gives at least some indication of the drum-song and dancing ceremonies which still maintain an important place in modern Eskimo culture.

The small carvings described as ornamental attachments (Fig. 24, Nos. 5, 6; Fig. 25, No. 1) which must have been lashed in or to some implement may have had a supernatural significance. Wooden plugs with a human face carved on them are attached to sealskin floats by Tigara (Point Hope) Eskimo with the belief that, among other supernatural powers, these have the ability to call out to the hunter when his float is lost, and thus assist him in recovering it. Finally, the complex engraved designs on many hunting implements may have had more than a purely artistic function. They are too complicated and too much alike to suggest the owner's marks[7] of historic Eskimo. The persistence of certain basic elements during what must be a long period leads one to suspect that these had some symbolic or supernatural function and were not purely ornamental.

[1] Collins, 1937a, Pl. 20.
[2] Geist and Rainey, 1936, Pl. 62.
[3] Gordon, 1916.
[4] Collins, 1937a, 201.
[5] Jenness, 1938, 176.
[6] Collins, 1937a, 200.
[7] Wissler, 1916, Fig. 35.

STATISTICAL SUMMARY

Of those described above, sixty-four classes of objects have been selected which are significant in determining the relation between the five culture types referred to in this paper. The classification is based on the function of objects which is known by reference to historic Eskimo culture. There can be little question that an object classed, for example, as a sled runner, in the published accounts, was used everywhere in the area for the same purpose. But the decision as to whether a particular sub-class or specific type of sled runner or harpoon head, found at a site on St. Lawrence Island, is precisely the same as, only related to, or generally like a specific type in the same class of object found at Naujan in Repulse Bay, seems to be largely a matter of personal opinion. Recognizing this difficulty, the following summary of the occurrence or non-occurrence of traits in each stage is presented in two ways: first, the distribution of general traits or classes, for example, harpoon heads, is given; and, second, the distribution of sub-classes or specific types within each class, for example, "harpoon heads Type A," is also given. The distribution of the basic classes will demonstrate the persistence of a general culture complex throughout all stages, while the distribution of specific types, although subject to the error of individual judgment, quite clearly shows that the Okvik culture type is most closely related to Old Bering Sea or the earliest stage of Arctic Eskimo culture previously published.

A list of the classes and sub-classes used in correlation follows. The letters OBS—P—T—L—M refer to the five culture stages, Old Bering Sea, Punuk, Thule, Late-Prehistoric, and Modern.

1.	Harpoon Heads			OBS	P	T	L	M
		5 Types:	A	OBS	P	T	—	—
			B	OBS	P	—	—	M
			C	OBS	P	—	—	—
			D	OBS	P	T	—	M
			E	OBS	—	—	—	—
2.	Whaling Harpoon Heads			OBS	P	T	L	M
3.	Harpoon Socket Pieces			OBS	P	T	L	M
		5 Types:		—	—	—	—	—
4.	Harpoon Foreshafts			OBS	P	T	L	M
5.	Finger Rests for Harpoon Shafts			OBS	P	T	L	M
6.	Harpoon Ice Picks			OBS	P	T	L	M
		4 Types:	1	OBS	—	—	—	—
			2	—	—	T	—	—
7.	Float Plugs			OBS	P	T	L	M
		2 Types:	1	OBS	—	—	—	—
8.	Harpoon Rests for Kayak			—	—	—	L	M
9.	Dart Heads			OBS	P	T	L	M
		3 Types:	1	OBS	—	—	—	—
			2	—	—	T	—	—
			3	OBS	P	—	L	M
10.	Side Prongs for Bird Darts			OBS	P	T	L	M
		3 Types:	1	OBS	—	T	—	—
			2	OBS	—	—	—	—
11.	Center Prongs for Bird or Fish Spears			OBS	P	T	L	M
12.	Arrowheads			OBS	P	T	L	M
		5 Types:	1	OBS	—	—	—	—
			4	OBS	P	—	L	—
			5	—	—	T	—	—
13.	Bird Arrowheads			—	P	—	L	M
		2 Types:	1	—	P	—	L	M
			2	—	P	—	—	—
14.	Salmon Spear Barbs			—	P	T	—	—
15.	Fish Hooks			—	P	—	L	—
		3 Types:	2	—	P	—	L	—
16.	Fish Line Sinkers			OBS	P	—	L	M

17.	Sled Runners	2 Types:		OBS	P	—	L	M
18.	Sled Cross-Pieces			OBS	—	T	—	M
19.	Baleen Toboggans			OBS	P	T	L	M
20.	Boat or Blubber Hooks			OBS	P	—	L	M
		4 Types:	1	OBS	P	—	—	—
			2	OBS	—	—	—	M
			3	OBS	—	—	L	—
21.	Ice Creepers			OBS	P	—	L	M
		2 Types:	1	OBS	P	—	—	—
			2	—	P	—	L	—
22.	Snow Goggles			OBS	P	T	L	M
23.	Men's Knife Handles			OBS	P	T	L	M
		6 Types:	1	OBS	P	T	L	M
			3	OBS	P	T	—	—
24.	Knife Sharpeners			OBS	P	—	L	M
25.	Women's Knife Handles			OBS	P	T	L	M
		7 Types:	2	—	P	—	—	—
			7	OBS	P	T	L	M
26.	Awls, Marlin Spikes, Reamers			OBS	P	T	L	M
27.	Hand Drills			OBS	P	T	L	M
		2 Types:	2	OBS	P	T	L	M
28.	Bow Drill Points			OBS	P	T	L	M
29.	Drill Mouth Pieces			OBS	P	T	—	—
30.	Drill Rests for Hand			OBS	P	—	L	M
31.	Adze Heads			OBS	P	T	L	M
32.	Stone Flakers			OBS	P	T	L	M
		2 Types:	1	OBS	P	T	L	M
33.	Wick Trimmers			—	—	—	—	M
34.	Blubber Scrapers			OBS	P	T	L	M
		3 Types:	1	OBS	—	T	L	M
			2	OBS	P	—	L	M
			3	—	—	T	L	M
35.	Cups			—	—	—	—	—
36.	Picks or Mattocks			OBS	P	T	L	M
		3 Types:	1	OBS	—	—	—	—
			4	—	—	—	L	M
37.	Wedges			OBS	P	T	L	M
38.	Shovel Heads			—	—	—	L	M
39.	Needle Cases			OBS	P	T	—	—
40.	Needles			OBS	P	T	L	M
41.	Belt, Bag, or Box Fasteners			OBS	P	T	L	M
42.	Buttons			OBS	P	T	L	M
43.	Pendants			—	P	T	—	—
44.	Rings			—	—	T	—	—
45.	Chain Links			OBS	P	T	L	M
46.	Ornamental Attachments			—	P	—	—	—
47.	Toys			OBS	P	T	L	M
48.	Carved Animal Figures			OBS	P	T	L	M
49.	Winged Figures			OBS	P	—	—	—
50.	Carved Human Figures			OBS	P	T	L	M
51.	Polished Slate Blades			OBS	P	T	L	M
		4 Types:	1	OBS	P	T	—	—
			2	OBS	P	T	L	M
			3	OBS	P	T	L	M
			4	OBS	P	T	L	M
52.	Flaked Slate Blades			OBS	—	—	L	M
53.	Chipped Chert and Jasper Implements			OBS	—	T	—	—
		6 Types:	1	OBS	—	—	—	—
			2	OBS	—	T	—	—
			3	OBS	—	—	—	—
54.	Adze Blades			OBS	P	T	L	M
55.	Whetstones			OBS	P	T	L	M
		4 Types:	1	OBS	P	T	L	M
			2	—	—	—	—	M
			3	OBS	—	—	—	—
56.	Wooden Bucket Bottoms			OBS	P	T	L	M

57.	Wooden Trays	OBS	P	T	L	M
58.	Shovel Handles	—	—	—	—	—
59.	Wooden Bows	OBS	P	T	L	M
60.	Wooden Knife Handles	OBS	P	T	L	M
61.	Wooden Dart Shafts	OBS	P	T	L	M
62.	Wooden Drill Shafts	OBS	P	T	L	M
63.	Pottery	OBS	P	T	L	M
64.	Unidentified Heart-shaped Objects	OBS	—	—	—	—

The preceding list may be summarized as follows:—

64 significant classes (based upon function)
78 specific types or sub-classes (based upon form and style)

53 classes occur in Old Bering Sea
54 classes occur in Punuk
47 classes occur in Thule
51 classes occur in Late-Prehistoric
51 classes occur in Modern

34 types occur in Old Bering Sea
24 types occur in Punuk
19 types occur in Thule
18 types occur in Late-Prehistoric
18 types occur in Modern

CONCLUSIONS

The Okvik type of Eskimo culture described here may now be defined as that of a sedentary, coast-dwelling people who lived in permanent subterranean or semi-subterranean houses in an Arctic region where their methods of hunting sea mammals were determined by seasonal movements of the ice-pack. Their staple food must have been walrus meat, but they also hunted seals, whales, and migratory birds. There were no caribou on the islands. The seal and walrus were caught in winter on the ice-pack and in summer on the open sea with kayaks like those used in historic times. Whales were hunted in the spring and summer with a large type of harpoon attached to a series of sealskin floats, undoubtedly by whaling crews using the historic type of large walrus hide umiak.

This sedentary, coastal, sea-mammal hunting pattern, which contrasts with that more nomadic caribou hunting type of the historic Eskimo culture extending along the Arctic coast from the mouth of the Mackenzie to Baffin Land, with the inland type represented by the Caribou Eskimo on the Barren Grounds, and the sub-Arctic type in South Alaska and South Greenland, is essentially the pattern of Eskimo culture which Mathiassen described under the term Thule. But during the past few years several distinct phases, stages, or specific types of this basic pattern have been discovered in North Alaska in numerous archaeological sites. It is now clear that the type of Eskimo culture found by Mathiassen at Naujan in Repulse Bay and at other sites in the eastern Arctic, which he termed Thule, is one stage in the development of a widespread and very ancient Arctic-coastal culture.

In tracing the distribution of the Thule culture Mathiassen showed that it once extended from northeastern Siberia through North Alaska and northern Canada to North Greenland; that it was submerged along the Arctic coast in Canada by a recent Central Eskimo culture, but that it persisted until the historic period with only slight modifications in North Alaska and in North Greenland (also to a certain extent on Southampton Island among the Sadlermiut people). The later excavations in North Alaska do not alter this conclusion. Those culture types found in the western Arctic which have been termed Okvik, Old Bering Sea, Birnirk,[1] and Punuk may be defined as varying forms of the same Arctic coast pattern and apparently precede the Thule stage as represented at Naujan, Thule, and other sites in the eastern Arctic. In drawing this conclusion, the development of the Arctic coast culture and the notable differences between the individual stages or phases in that culture must be considered in detail.

The Okvik stage described here is distinguished from later stages in the western Arctic primarily by a specific style of ornamentation, but also by specific types of harpoon heads and implements which occur in varying forms in subsequent stages, such as harpoon socket pieces, ice picks, harpoon rests for kayaks, dart heads, arrowheads, bird arrowheads, knife handles, sled runners, sled cross-pieces, snow goggles, women's knife handles, mattocks, ornamental attachments, carved animal figures, winged figures, and carved human figures.

The distribution of types has shown that the Okvik stage lies very close to Old Bering Sea as defined by Collins. This close resemblance, however, is undoubtedly exaggerated by certain circumstances in the excavations. Collins found the elaborate curvilinear art, which characterizes the Old Bering Sea stage, in two sites known as the Hillside site and Miyowagh near Gambell, St. Lawrence Island. The Miyowagh site, lying closer to the sea, is undoubtedly the more recent deposit. Here in different sections of the site he found remains of the two stages which he has called Old Bering Sea and Punuk. In two house structures in the older Hillside

[1] Found by W. B. Van Valin of the Museum of the University of Pennsylvania in 1913 near Point Barrow, Alaska. A brief account of the discovery described the material as representing a Thule culture (Mason, 1930).

site he found objects decorated in the Old Bering Sea style like those at Miyowagh, but also, among and below the paving stones on one of the house floors, ivory objects with a simpler form of engraved decoration which he recognized as specifically different from the more complex curvilinear style. As observed above, this is the type of engraving which is found on the hundreds of decorated objects from the Okvik site. Accompanying this simpler style of engraving in the lower levels of the Hillside site were small carved human figures, a winged object, and some curious heart-shaped objects,[1] characteristic of Okvik, but not of the other sites containing objects decorated in the typical Old Bering Sea style. He has included all of the material from the Hillside site with the description of the Old Bering Sea culture.

With the discovery of the Okvik site on the Punuk Islands in 1931 and the large house structures in 1939 (only 100 yards from Collins' Hillside site) containing only the simple (Okvik) style of decoration, it is clear that Collins' Hillside site contained remains of both the Okvik and the Old Bering Sea culture types as defined here. Thus, employing Collins' description of Old Bering Sea culture in which certain Okvik types are included, this correlation makes the two stages appear to be more closely related than is actually the case. In any event, the carved human figures, the small winged objects, and the heart-shaped objects referred to above, which are characteristic of the Okvik site, do not occur in the Old Bering Sea collections from Miyowagh, nor in the large Old Bering Sea collections from Kukulik.[2] Therefore, it is probable that these types, at least, were made only in the earlier stage.

Whatever the degree of relationship may be, it is now clear that during the later, Old Bering Sea, stage a new and more complex style of engraving developed, rectangular houses replaced circular structures, new types of harpoon heads were used,[3] and many specific Okvik types of implements, as recorded in the descriptions and correlations, were either discontinued or altered in form.

Collins'[4] distinctions between Old Bering Sea and Punuk cultures are now somewhat modified by the discovery at the Okvik site of certain implements which he found in the Punuk deposits and not at the Old Bering Sea sites. Whaling harpoon heads, finger rests with constricted sides, arrowheads with shouldered or knobbed tangs, arrowheads with single barb, blunt-pointed bird arrows, sinew-twister for bow (?), barbs for salmon spears, bone knives, drop pendants of ivory and shoe-shaped adze heads, several of the Punuk traits not found in Old Bering Sea sites according to Collins, now appear in Okvik sites that are older than Old Bering Sea deposits; consequently, we must suppose that their absence from collections of the intermediate stage is a matter of chance. That whaling harpoon heads, at least, were certainly made during that period is evidenced by two such implements in the University of Alaska collection from the Miyowagh site, engraved in the most elaborate Old Bering Sea style.

But just as the Old Bering Sea stage can be distinguished from the Okvik stage by a new style of decoration, new forms of harpoon heads, and by modified forms of the same general classes of implements, so a Punuk stage can be recognized upon the same basis. There are, also, some new, apparently significant, elements added in the Punuk stage. These are bone plates for slat armor, wrist guards, bolas weights, and engraving tools with iron points, all indicating a direct contact with Asiatic cultures.

The Thule stage in the eastern Arctic and the Late-Prehistoric and Modern stages in the western Arctic already have been recognized as phases of a single culture.[5] The total complex of culture traits is essentially the same in each stage, and they are distinguished primarily by different types of harpoon heads used in

[1] Collins, 1937a, Pl. 12, Figs. 5–7; Pl. 12, Fig. 1; Pl. 30, Figs. 18–20.
[2] Geist and Rainey, 1936.
[3] Geist and Rainey, 1936, Pls. 70, 71.
[4] Collins, 1937a, 356–361.
[5] Jenness, 1929, 84; Rainey, 1936, 362.

seal and walrus hunting. On St. Lawrence Island the modern stage is further distinguished by the presence of trade goods, such as iron implements, hard woods, and glass beads; but these objects appear simply as additions to the material culture of western Eskimo which before 1880, at least, did not profoundly alter the native culture. In the Thule sites of the eastern Arctic some western traits, such as armor plates, wrist guards, ice creepers, boat or blubber hooks, and fish line sinkers are absent, while other traits not known in Bering Sea are added. These include broad snow knives, baleen bows and weapon points, scrapers of caribou scapula and soapstone cooking pots. In addition to harpoon heads some implement types, such as harpoon socket pieces, lance heads, and knife handles, also appear in altered forms in the eastern Arctic.

The remarkable similarity between collections from St. Lawrence Island and those excavated from sites off northern Hudson Bay, in Baffin Land and north Greenland, over two thousand miles to the eastward, may be summarized by listing the Thule types characteristic of these sites which occur in precisely the same or closely related forms in the western Arctic. Mathiassen's list[1] of representative Thule forms is as follows:—

Those traits marked by an asterick (*) are duplicated on St. Lawrence Island; those marked with a dagger (†) are closely related to western forms; and those marked with a double dagger (‡) are known to occur in closely related forms in all western culture stages referred to here in correlation.

‡† 1. Thin harpoon heads with open shaft socket.
‡ * 2. Loose harpoon foreshafts with conical shaft end and a central or lateral line hole.
‡† 3. Heavy socket pieces for harpoon shafts.
† 4. Loose lance heads with open shaft socket.
† 5. Fixed lance heads with wedge-shaped shaft end and longitudinal grooves or side blades.
* 6. Bladder dart heads with barbs and conical tang.
7. Weapon points of baleen.
8. Baleen bows.
‡† 9. Arrowheads with conical tang with two knobs.
‡† 10. Bird harpoons.
*11. Bolas balls.
‡ *12. Side prongs for bird darts, with barbs on both inner and outer sides.
‡ *13. Barbs for salmon spears, with bent-over necks.
14. Broad snow knives with two shoulders.
‡† 15. Knives with blades in the sides.
‡ *16. Whittling knives, the handles of which are formed by lashing together two longitudinal pieces.
‡ *17. Mattocks.
‡ *18. Wedges.
‡ *19. Hand drills.
‡ *20. Ulus (women's knives) without tang.
(?) 21. Whale bone shaves.
22. Scrapers of caribou scapula.
‡ *23. Winged needle cases.
†24. Lamps with rows of knobs near the front edge.
25. Oval soapstone cooking pots.
‡ *26. Earthen vessels.
(?) 27. Platform coverings of baleen.
‡ 28. Combs with narrow ornamented handles.
† 29. Bird figure with human fore bodies.
‡† 30. Human figures with amulet strap.
*31. Amulet boxes.
‡ *32. Certain ornamental elements.
*33. Seal scratchers.
(?) 34. Baleen wolf killer.
*35. Net and trap of baleen.
‡ *36. Cup-shaped scraper.
‡ *37. Ornamental pendants of ivory.
‡ *38. Chain.
(?) 39. Ornamental pendants of slate.
*40. Characteristic rich ornamentation.
‡† 41. Semi-subterranean round whale bone house.
*42. Stone graves.
43. Conical tent.
44. Round and oval tent rings.
‡ *45. Women's boat.
‡ *46. Use of baleen for many objects.
‡ *47. Dominating role played by whaling.

Three specific types of harpoon head, particularly characteristic of Thule sites in the eastern Arctic,[2] were found in the enormous stratified midden at Kukulik on St. Lawrence Island[3] in levels above harpoon heads of the Punuk type and below that form which characterizes the Late-Prehistoric stage. In the Kukulik excavations it was observed that all material from the later stage represented a Thule complex and that these specific Thule types of harpoon heads occurring at a cer-

[1] Mathiassen, 1927, part 2, 4.

[2] Mathiassen, 1927, Pl. 1.
[3] Geist and Rainey, 1936, Pl. 67.

tain level in the midden represented a pure Thule stage in the western Arctic, preceded by Punuk and followed by a Late-Prehistoric stage. But Collins found these Thule types at Gambell, St. Lawrence Island, in the Ievoghiyoq site (Punuk period) and consequently described them as rare Punuk types, thus denying that there was a pure Thule stage on the island.[1] Since that time, Giddings of the University of Alaska has found a round semi-subterranean whale bone house of the Thule type at Kitneapaluk (St. Lawrence) containing only Thule type harpoon heads. This verifies my conclusion that there was a pure Thule stage on St. Lawrence comparable to that reported at Cape Prince of Wales[2] and at Point Hope[3] in 1937 and 1939.

The question now remains: Is the Thule stage, or that period when Thule type harpoon heads were made in the western Arctic, contemporary with the Thule sites in the eastern Arctic? If Mathiassen is correct in concluding that Eskimo with a Thule type of culture were the first to settle Greenland,[4] then this stage in the eastern Arctic must be dated as early at least as the tenth to the twelfth century, since the Norsemen met the Eskimo in west Greenland during the thirteenth century. If, as it now appears, this particular form of the Arctic coast culture was derived from the western Arctic, it must have developed there at least a hundred years earlier than the tenth century. This would date the Thule stage on St. Lawrence as early as the ninth century and place the Punuk stage some time before that. The fact that the bulk of the Kukulik midden, probably the largest single midden deposit in the Arctic, was deposited since these particular types of harpoon heads were used in the west (at least at that site) indicates a respectable age for a pure Thule stage in the western Arctic.

There is, of course, no reason why a pure Thule form of the basic Arctic coast culture should not persist in the western Arctic long after it had been established in the east (according to Mathiassen this type continued with only slight modifications among the Polar and Sadlermiut Eskimo until the present century). Consequently, deposits on St. Lawrence Island containing the specific Thule type harpoons may be generically related to those in the east even though they prove to be much more recent.

There is general agreement that the Late-Prehistoric and Modern material from St. Lawrence Island lies much closer to Mathiassen's eastern Thule forms than does the more ancient Punuk and Old Bering Sea material. The total culture patterns as defined for the Thule stage in the eastern Arctic and for the Late-Prehistoric and Modern stages in the west correspond very closely; they have in common types of sled shoes, dog harness equipment, bird figures used in a game, and some items of hunting gear such as seal scratchers. But, above all, the implements from these three stages are coarsely made, crude, rarely decorated and then only with simple patterns; while the Okvik, Punuk, and Old Bering Sea stages are characterized by carefully and beautifully fashioned implements and elaborate engraved decoration. As Mathiassen expresses it, in referring to the difference between older material from the western Arctic and more recent material from the east:—

> While the culture becomes poorer from an art point of view, a number of practical elements appear: the central Thule culture all through acquires a more sober and practical character compared with the western branch from which it emanated.[5]

This statement would apply equally well to the difference between the ancient and recent culture types in the west.

Accepting Mathiassen's conclusion that the Thule culture type originated in the western Arctic, Collins invokes a "return migration of Thule Eskimo"[6] to explain the remarkable similarity between the ancient Thule stage of the east and the

[1] Collins, 1939.
[2] Collins, 1937a, 377.
[3] Rainey, 1941.
[4] Mathiassen, 1936, 125.
[5] Mathiassen, 1930a, 97.
[6] Collins, 1937b, 377.

recent stages of the west. This would explain the notable similarity of Eskimo dialects along the Arctic coast and as far south as Norton Sound in Alaska. But since migrations of people are relatively rare phenomena in the diffusion of culture elements, and since collections of skeletal material from archaeological sites are far too limited to substantiate such a theory of migration,[1] it is hardly justifiable to postulate such a movement of peoples on the basis of a few recurring elements within a culture pattern which is so remarkably homogeneous throughout the entire Arctic coast zone. It seems more probable that Mathiassen's Thule stage marks a period of great expansion in the Arctic coastal culture when this specific form was carried as far east as Greenland, and that during subsequent periods in the west the Thule type was somewhat modified, as it was in Greenland.

The solution of this question, however, will undoubtedly be achieved through the absolute dating of archaeological remains by the tree-ring method which was found to be applicable in the Eskimo field during the University of Alaska investigations of 1938 and 1939. At present the number of house logs and wooden objects from St. Lawrence Island, Point Hope, and other sites in northern Alaska actually dated is insufficient for positive correlated dating of deposits, but it is now obvious that the method can be applied in this treeless region where driftwood from inland Alaska is used in such quantities. A large number of absolute dates already have been correlated with house structures in the Kukulik midden. These now indicate that at least several centuries have passed since the characteristic Thule type harpoons were made at that site.

In the introduction to this paper it was observed that no broad conclusions regarding the origin of Eskimo culture could be made at present because of the limited knowledge of archaeological deposits, particularly in regions of Eskimo settlement outside of the American Arctic coast area, that is, in southern Alaska, northeastern Siberia, and in the area of inland Eskimo. Since the discovery of the Okvik culture type, however, it would seem advisable to set up a working hypothesis in the form of a classification of known culture forms in the Arctic zone.

The five forms of Eskimo culture described on St. Lawrence and Punuk islands and one form described for the central and eastern Arctic, referred to here in correlation, have been recognized as six stages of an Arctic coast culture. To these may be added the Birnirk stage discovered by Van Valin at Point Barrow, Alaska, in 1918, which has not been published in detail, but which has been recognized as closely related to Mathiassen's Thule culture.[2] Its chronological position is uncertain, but some of the Birnirk harpoon types were found at Kukulik in strata above Old Bering Sea types and apparently below Punuk forms, thus indicating a relative age for these particular types.[3] We may also add the Inugsuk culture type found on the central west coast of Greenland[4] which has derived from an earlier Thule form in North Greenland and which in turn gave rise to later sub-Arctic forms in south Greenland. The Dorset culture, reported by Jenness, is limited to the eastern Arctic, and although it has not been published in detail, it now appears to be that of a people who

[1] Fischer-Møller (1937, 5, 6) writes:—
"During the course of the last generation a copious material has been got together, particularly in the form of skulls, for the elucidation of the physical anthropology of the Eskimos, and in the course of time it has been possible to distinguish between the various groups according to their geographical distribution. From the Western Eskimos especially there are large collections in America, and from Greenland in Copenhagen, where in the University Museum of Normal Anatomy there are about 500 skulls in addition to a quantity of limb bones. *As to the chronological determination of the skeletal parts, however, only very modest results have been arrived at, simply because in previous investigation into Eskimo culture it was not possible to draw any sharp line between old and new.*" (Italics mine.)
Fischer-Møller, however, had two collections of known antiquity to work with: that from the Birnirk site at Point Barrow, and that from the Naujan site in Repulse Bay. He concludes (p. 66):—
"But beyond establishing the fact that these two groups—very close to each other in similarity of culture, but separated in time by a period of from 400 to 600 years—exhibit rather marked differences in the structure of the head; nothing can be done with the present material; *nor is the great similarity between the recent Point Barrow skulls and the Naujan skulls sufficient to bear any very reaching hypothesis.* (Italics mine.)

[2] Mason, 1930.
[3] Rainey, 1936.
[4] Mathiassen, 1930b.

penetrated to the Arctic coast before the advent of Thule people from the west.[1] This culture form, which apparently affected the Thule Eskimo type in the northern Hudson Bay region, is an aberrant type that cannot be included in the Arctic coast pattern described here. Finally, the Ipiutak culture type found at Point Hope in 1939, lacking a large number of characteristic Eskimo traits which occur in all published stages of the Arctic coast culture, likewise cannot be included in the same pattern. Additional excavations will be made at that site before definite conclusions are drawn, but this Ipiutak type now appears to be an early and perhaps formative stage in the development of the sedentary, sea-mammal hunting Eskimo culture which we are discussing here.

A tentative classification and chronology of culture forms within the Arctic coast culture pattern may be summarized as follows:—

I. *An early period of local development in the Bering Straits Region* (ca. 100 B.C.–1000 A.D.) (northeastern Siberia, islands in northern Bering Sea, northwest coast of Alaska). Elaborate geometric engraving of ivory implements; complex and delicately made tools and weapons; a few implemental types unknown to later Eskimo.

a. Okvik stage (known only from St. Lawrence and Punuk Islands, the Diomedes, and northeastern Siberia).[2]
b. Old Bering Sea stage (known from northeastern Siberia, St. Lawrence Island, the Diomedes, and Point Barrow).
c. Birnirk stage (uncertain chronology, known from Point Barrow and in part from St. Lawrence Island).
d. Punuk stage (known from northeastern Siberia, St. Lawrence, and Punuk Islands, the Diomedes, and Point Hope).

II. *A late period of expansion* (ca. 1000 A.D. to the present time) (northeastern Siberia, northern Bering Sea, northern Alaska, Arctic coast of Canada, north and central Greenland). Very simple engraving of ivory objects (realistic engravings developed in recent times in north Alaska, not on St. Lawrence Island); cruder, but probably more efficient implements than in the preceding period; disappearance of special and elaborate unidentified objects (winged figures).

e. Thule stage (northeastern Siberia to northern Greenland). Modified in Inugsuk stage of central Greenland.
f. Inugsuk stage (central Greenland; gave rise to sub-Arctic forms in south Greenland). Probably contemporary with Late-Prehistoric stage on St. Lawrence Island.
g. Late-Prehistoric stage (as described for St. Lawrence Island); probably corresponds with Inugsuk stage in Greenland; terminates about 1650, with the introduction of Russian trade goods from Siberia.
h. Modern culture, on Southampton Island (Sadlermiut) and in north Greenland (Polar Eskimo), derived from prehistoric Thule type.
i. Modern culture in northern Alaska, as described for St. Lawrence Island. This dates from about 1650 to 1880 (from introduction of Russian trade goods via Siberia to the St. Lawrence famine).

Culture forms known in the Arctic coast zone which do not correlate with the basic Arctic coastal culture pattern defined above, include:—

a. Ipiutak type (known only from Point Hope in Alaska). Not published in detail; probably precedes the Okvik stage of the basic coastal pattern.
b. Dorset type (known only from the eastern Arctic in Newfoundland, Labrador, Baffin Land, northern Hudson Bay, and north Greenland). Probably the culture of a people

[1] Jenness, 1938.
[2] Harpoon heads with characteristic Okvik decoration found on the Diomede Islands (Collins, 1937a, Pl. 27, Figs. 5, 6). Okvik harpoon heads of Type A and B were collected by Bogoras at Indian Point and East Cape, Siberia—American Museum of Natural History collections, not published.

who penetrated to the Arctic coast before the advent of Thule Eskimo.

c. Modern central Eskimo culture (along the Canadian Arctic coast from the mouth of the Mackenzie to Baffin Land). The semi-nomadic, caribou-hunting culture of the inland people who submerged the Thule people along this coast in relatively recent times.[1]

The inherent weakness in this classification of Arctic culture forms lies in the fact that it is based primarily upon extensive research on St. Lawrence Island alone. Excavations on the Diomedes, at Cape Prince of Wales, at Point Hope, and at Point Barrow have not been published in detail, while practically no systematic excavation has been done in Norton Sound, in Kotzebue Sound, in northeastern Siberia, along the Arctic Coast between Point Barrow and northern Hudson Bay, nor in the Arctic Archipelago. Furthermore, most of the sites excavated so far are the large midden deposits or house ruins which can be easily recognized on the surface, and it is only in recent years that a few ancient sites, no longer perceptible on the surface, have been found. Thus, with our present knowledge of Eskimo prehistory, a classification which attempts to establish a specific relationship between several forms widely separated in time and space can be no more than conjecture. The limited degree of this knowledge was very much impressed upon the members of the Point Hope expedition in 1939. In airplane flights along the coast from Kotzebue to Point Hope and again in the vicinity of Port Clarence Bay, we located from the air[2] innumerable ancient village sites. In a few weeks of excavation at Point Hope, we found three different types of Eskimo culture, one previously unknown; also continued excavations on St. Lawrence Island (which has been more thoroughly excavated than any other single area) led to the discovery of sites which profoundly alter our knowledge of the prehistoric culture development on that island. This purely tentative classification of culture forms must be viewed against the background of a vast Arctic region and an enormous number of sites, where investigations thus far completed appear as little more than isolated discoveries.

Nevertheless, there can be little doubt that the sedentary, sea-mammal hunting, Arctic coast pattern of Eskimo culture with which this paper has been concerned had developed in the western Arctic at least as early as the beginning of the Christian era, that subsequently it was carried eastward across the Canadian Arctic to northern Greenland, and that it has persisted with certain modifications in northern Alaska and northern Greenland until the present day. The center of development for this culture pattern now appears to be the Bering Straits region, and since the complex Old Bering Sea culture type, previously described as the oldest known stage of Eskimo culture in the western Arctic, is now seen to be derived from a somewhat simpler form (Okvik) in northern Bering Sea, there is some indication that the whole Arctic coast pattern may have originated in the Bering Straits region. At least the elaborate curvilinear art, the origin of which has been sought outside of the Bering Straits area, can now be described at least in part as a local development within that region. But without any systematic research in northeastern Siberia the description of the Bering Straits area as a culture center can be only conjecture. Nordenskiöld[3] and Sverdrup[4] report Eskimo ruins and culture

[1] Legends of a recent movement of people from the central Arctic to the coast from inland are recorded by Boas (1888) and Jenness (1923).

[2] Flying at altitudes between five hundred and a thousand feet at slow speed against very stiff head winds along the one hundred seventy miles of shore line between Kotzebue and Point Hope, we could recognize scores of abandoned camps and village sites by a characteristically deeper green tundra growth and, occasionally, by the white, bleached whale bones projecting from the midden débris. Later, at Port Clarence Bay with the aid of a United States Coast Guard amphibian plane we had an opportunity of trying out this method of survey from the air suggested during the earlier flight to the northward. With a knowledge of the appearance of ancient sites gained at Point Hope we found that it was a relatively easy matter to distinguish between ancient and modern deposits, even rom the air, by a difference in the color of vegetation, a fact which we verified by partially excavating sites discovered in this way not far from Teller.

[3] Nordenskiöld, 1882, 334. Wrangel, as quoted by Nordenskiöld, cites Chukchee traditions of Okilon people (Eskimo) as living along the Siberian coast, as far west as Chaun Bay (Wrangel, 1839, 220).

[4] Sverdrup, 1926, 177, quoted by Mathiassen, 1927.

elements of a similar Arctic coast type at North Cape (Irkaipij) on Firsojle Island off the mouth of the Kolyma River on the Siberian Arctic coast, while Cernecov[1] and Schmidt[2] report Eskimo-like material even as far west as the Yamal and Kola peninsulas.

Until extensive excavations are made, particularly in northeastern Siberia, we may only conclude that in so far as the American Arctic is concerned the oldest known Eskimo remains occur in the Bering Straits region, and that this tends to verify Mathiassen's conclusion that Eskimo people originated somewhere in the western Arctic, either about Bering Straits or still farther west along the Arctic coast of Siberia.

[1] Cernecov, 1935.
[2] Schmidt, 1930.

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