EDITORS
H. L. SHAPIRO
BELLA WEITZNER
IPIUTAK AND THE ARCTIC WHALE HUNTING CULTURE

HELGE LARSEN AND FROELICH RAINNEY

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The collaborating authors of this study met for the first time during the International Congress of Anthropology and Ethnology in Copenhagen in 1938. At that time we began the discussions of Eskimo prehistory which continued intermittently for the next five years. We have had many disagreements and numerous arguments but, with no little surprise, we now find ourselves in complete agreement. Many of our contentions undoubtedly were resolved by the discovery of the Ipiutak site at Point Hope, Alaska, where so many dubious points in the field of Eskimo archaeology were clarified.

Prior to our meeting in Copenhagen, Helge Larsen had been engaged in archaeological research in Greenland where he excavated sites on Clavering Island and in Knud Rasmussen's Land, East Greenland. Froelich Rainey had explored the archaeological possibilities of Central Alaska and had continued the excavations begun by Otto William Geist on St. Lawrence Island in Bering Sea. We agreed that the ancient sites in the Bering Strait region were most promising in a search for traces of the earliest Eskimo settlements in the New World and that many excavations must yet be made before the complete story of the Eskimo can be written. In our discussion of promising sites in northwestern Alaska we recalled Knud Rasmussen's statement that the old village of Tigara at Point Hope was one of the largest and most interesting sites along the Arctic Coast. This statement and his intimate knowledge of the entire American Arctic, acquired during his famous trip from Greenland to Siberia, gave us confidence that excavations at Point Hope would be profitable. We decided to organize a joint expedition to Point Hope and settle our discussions with the spade.

At that time Larsen was curator in the Danish National Museum, while Rainey was Professor of Anthropology at the University of Alaska, working under a special arrangement between the American Museum of Natural History and this university.

James Louis Giddings, Jr., who was studying dendrochronology under Prof. A. E. Douglas at the University of Arizona, had just begun his attempt to date Eskimo sites by the tree-ring method. During the winter of 1938, he worked with Rainey at the University of Alaska. Childs Frick generously offered to support the experiments in dendrochronology and thus made it possible for Giddings to accompany Rainey and Larsen on the first Point Hope expedition in the summer of 1939. We continued to work together both in the field and in the laboratory during the next three years. In the summer of 1941 we were joined by Harry L. Shapiro of the American Museum who supervised the excavation of the Tigara burials and made anthropometric measurements of the Eskimo now living at Point Hope.

The large collections of skeletal material excavated during 1939, 1940, and 1941 will be studied by Shapiro and will be treated in a separate publication in this series. Likewise, a complete report on the excavations conducted by Giddings along the Kobuk River will be published separately. These studies form an integral part of the same comprehensive Arctic Alaska research which is the subject of this report.

Since Ipiutak is the largest and one of the most ancient known settlements in the American Arctic, its discovery has led to a reconsideration of all the known theories regarding the origin of the Eskimo. This circumstance and the unusually large collections resulting from the excavations (some 10,000 artifacts and 500 skeletons) have necessitated detailed library and laboratory research which has delayed the completion of this publication. Moreover, the World War interrupted its normal progress, principally because Rainey entered the United States Government service in 1942 and Giddings joined the United States Navy in 1943. Rainey's absence placed the brunt of the library research and the major part of the writing on Larsen, who was on the staff of the American Museum from 1943 to 1945.

We have found the research in Alaska intensely interesting and exciting and we are very grateful to the institutions and individuals who have made it possible. We are indebted to the Frederick G. Voss Anthropological and Archaeological Fund of the American Museum of Natural History and to the Danish Rask-Ørsted Foundation for the principal financial
support for the expeditions. The University of Alaska, Knud Rasmussen Fund, the American-Scandinavian Foundation, and the United States Civilian Conservation Corps also made substantial contributions. Funds supplied by the last-named organization made it possible to employ virtually all the able-bodied Eskimo at Tigara and thus greatly increased the extent of the excavations. Charles E. Bunnell, president of the University of Alaska, Clark Wissler, Curator Emeritus in the Department of Anthropology, and Harry L. Shapiro, now Chairman of the Department of Anthropology, the American Museum of Natural History, Paul Nørlund, Kaj Birket-Smith, and Therkel Mathiassen of the Danish National Museum and Gudmund Hatt and Christian Blinkenberg of the University of Copenhagen have enthusiastically supported the entire project. We are deeply indebted to these individuals for their unfailing encouragement and assistance. Rear Admiral F. A. Zeusler of the United States Coast Guard repeatedly provided hospitality for members of the expedition. To him and to the East Asiatic Company we are exceedingly grateful for transportation provided. Our thanks are due, too, to His Excellency, Henrik Kauffmann, Danish Ambassador to the United States, Frederik Graae, former Chief of the Danish Department of Education, Danish Consul Mogens Bildsoe and to Lloyd Ripley and Leo Sams, teachers at Point Hope.

We wish to add that much of the success of these expeditions has been due to the sincere interest and enthusiasm of the Point Hope Eskimo themselves, for whom we both have the greatest affection and respect. Their lively curiosity about the past made them unusually willing workers and stimulating companions with whom it has been a pleasure to live and work during the several seasons of research from 1939 to 1941.

Last but not least we are very grateful to a number of persons who in various ways have contributed to this monograph. Above all, we are greatly indebted to Miss Bella Weitzner who has edited the report. This prodigious task was carried out with her customary skill and accuracy and with an indefatigableness and understanding of the subject which are admirable. We also want to thank the following scientists who, each in his field, have given us help and advice: Olaus J. Murie who studied the Ipiutak dog skulls, Frederick H. Pough and Lester W. Strock who analyzed the iron, and Robert Heine-Geldern, Alfred Salmony, and Mary Slusser for their suggestions regarding the Asiatic relations of the Ipiutak culture. Finally our thanks are due the artists, Mrs. F. Rainey, Janet Roemhild, Inger Achton, and Fred Scherer for their great skill and interest in drawing the text figures, and to Thane Bierwert of the Photographic Department of the American Museum of Natural History, who supervised the photographing of the specimens.

Helge Larsen
Froelich Rainey

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In June, 1939, Larsen arrived in the United States from Denmark and joined Rainey and Giddings at the University of Alaska in Fairbanks. Field equipment brought from Denmark was combined with that accumulated at the university, but all equipment and supplies were reduced to a minimum, since it was necessary to fly from Fairbanks to Point Hope in a very small plane.

At this time of year travel in the Arctic is possible only by airplane. Despite our careful calculations of weight, we found that the small Fairchild on pontoons which we had chartered could not rise from the Chena River at Fairbanks. After several attempts we were forced to reduce our load still further and even then the pilot, Hermann Lerdahl, managed to get us off only by rocking the ship from side to side at full speed until it rode on one pontoon. Although it was midnight when we took off, the temperature that night in Fairbanks was over 90° F. Arriving at Kotzebue, six hours later, we found the temperature had dropped to 38° and that a violent wind off the pack ice combined to produce winter conditions. We refueled at Kotzebue and continued along the coast towards Point Hope, flying over rolling barren hills. From the air, the Point Hope spit looked like a long, low breakwater extending out into the Arctic Ocean. On the fourth of July there were still traces of snowbanks and some patches of floe ice. Unfamiliar with the broad lagoon enclosed by the Point Hope spit, our pilot chose to land in the open sea to the south of the Point. It was an extremely rough and hazardous attempt for a small, overloaded plane, since considerable sea was running. The pilot used his engine with remarkable skill to keep us from being swamped by the waves. We taxied up to the gravel beach and were greeted by a crowd of excited Eskimos.

The entire setting of the Tigara village at Point Hope was more thoroughly native Eskimo than we had expected. The sod igloos inhabited by the present people are an extension of the old abandoned village. Modern Tikerarmiut still wear typically Eskimo fur clothing; skin umiaks are supported on weathered whalebone racks; polar bear skins glisten on the skin-drying racks; tethered dog teams are everywhere. All this combines to overbalance the few modern frame houses and the school, giving the impression of a purely native village. The only white inhabitants of the village were the teacher and his family and the Episcopal missionary.

The three of us arranged to occupy a very small frame house, partly covered with sod blocks, which had been abandoned for the summer by its Eskimo owner. There was barely room for a stove, a table, and three beds. Tigara was in a holiday mood. The whaling feast had just ended. All the hunters were waiting for a return of the pack ice to begin the late spring hunt for seal and beluga. We found the Eskimo very friendly, curious, and eager to assist us in every way. At first most of them assumed that we were a troop of Hollywood camera men who intended to make another movie at Point Hope. Part of the picture "Eskimo" had been filmed at Point Hope, and some Tigara families had even been taken to Hollywood to complete the final sequences.

To our surprise, we found a large number of Eskimo women busily excavating the Old Tigara village. It was like a mine, where each woman staked out her claim and, assisted by her children, energetically mined for archaeological specimens. Practically every household owned boxes of relics taken from the old abandoned houses. Scattered about the mounds were thousands of ivory, bone, stone, pottery, and baleen artifacts discarded by the Eskimo miners. Shortly before our arrival old Nashuguruk had excavated an abandoned house where she discovered dozens of handsomely carved wooden dance masks. For three archaeologists this was an exciting collection. We soon began bargaining for them with the old woman which continued for several weeks. Tigara men and women have sold artifacts to the crew members of trading ships and Coast Guard cutters for several decades; their sale or barter is the basis of one of their most familiar contacts with white men. As with most other Eskimo, bargaining is a joy.

Since archaeology is an occupation familiar to the Tigara Eskimo the council of village elders was disinclined to permit our excavations in Old Tigara, believing that we would deprive...
them of a lucrative trade. It was only after hours of conference, a detailed description of our objectives, and many references to Knud Rasmussen, whom the elders remembered with great pleasure, that we were finally given the necessary permission. Thereafter, for many weeks, we suffered the advice and criticism of all the old women of Tigara who squatted near our excavations with the critical eye of experts. They laughed at our methods and were continually giggling over our use of stakes, lines, and leveling instruments. Each party carefully avoided encroaching on the diggings of the other.

At that time we had some difficulty in obtaining workmen, since the Eskimo found it more profitable to excavate on their own behalf or to hunt. Later we learned that our first workmen were the least capable people in the village.

The Old Tigara site now appears as four grass-covered ridges which extend from the northern shore near the end of the spit towards the houses now occupied. These ridges are in effect four irregular mounds consisting of igloo ruins and refuse. In 1924 Knud Rasmussen recorded 122 separate igloo ruins, but since then the sea has continued to encroach on the northern shore, so that many have been washed away. Probably only a small section of the site remains; at one time the ruins must have included several hundred houses.

Exploration of the peninsula soon disclosed another extensive old site at Jabbertown, 5 miles to the eastward. Jabbertown is now abandoned, but during the latter part of the nineteenth century and the early part of the twentieth century it was an international settlement of American whalers, Hawaiians, Portuguese, Negroes, and men of all nations who wintered there during the heyday of baleen whaling. The ancient site at Jabbertown, which was the same as the whaling settlement, also appeared as grass-covered mounds composed of ruined igloos and debris. A second series of excavations was begun here early in the summer of 1939; we continued to travel between Tigara and Jabbertown by sailing umiak or by dog team, overland. Oddly enough, the Tigara Eskimo use dog teams and winter sleds on the wet grass of the spit throughout the summer.

We soon learned that the bulk of the Old Tigara deposit was formed during what we may call the late prehistoric and modern periods, that is, during several centuries preceding the European discovery of Point Hope in 1823 and during the century following. The ancient site of Jabbertown was occupied before the Old Tigara site. However, the implements found in both of these sites are not unlike those used by the historic Eskimo and are familiar types common to many excavated sites in the American Arctic. Excavations at both sites were mildly interesting, but of no great significance in our search for traces of the original Eskimo occupants of the area.

In a collection of relics purchased by the teacher at Tigara we found an engraved ivory fragment which was unlike anything we had seen from the Eskimo region. We were all very curious about its origin. Some time later, old Sam Rock, the first Eskimo interpreter for the mission, told us of excavating relics on the spit east of the present mission buildings, on the north shore, a mile north of the present Tigara village. No traces of habitation in this region were observed. Then, one evening, when Larsen and Giddings were returning on foot from Jabbertown, they crossed the spit east of the mission, and with the long sunset shadows they noticed a series of shallow rectangular depressions on the low, rolling ridges of the bar. That night we discussed these three items of evidence and immediately decided to combine our men to investigate the depressions. The next day we began digging exploratory pits at the points where we could observe slight irregularities, and soon unearthed the blackened bone-filled debris representing habitation refuse. We were surprised to find extremely well-chipped flint implements and not the familiar polished slate tools so common in the debris of Old Tigara and Jabbertown as well as in other arctic Eskimo sites, but the curious engraved ivory objects discovered later were truly astonishing. By the end of that first day, we knew we had discovered a very curious and entirely unfamiliar arctic culture which was remarkably different from anything previously known in Eskimo archaeology.

Excavations were continued at Old Tigara and at Jabbertown, but our interest was concentrated at this newly discovered site which we named “Ipiutak,” the Eskimo term for the

1 Rasmussen, 1927, 329.
narrow sand bar separating two lagoons at that point on the north shore. Further careful investigation of the site and continued excavations revealed that there had been a very large number of ancient houses at Ipiutak, but it was extremely difficult to distinguish the ruins. Moreover, these house ruins had little in common with the familiar semi-subterranean whalebone and sod igloos of the arctic Eskimo.

Since this discovery was made late in the season, we were able to excavate only nine houses during the field season of 1939. Rainey and Giddings left Tigara in August, aboard a United States Coast Guard cutter en route to St. Lawrence Island, and Larsen joined them a few days later, aboard a second cutter, after completing the excavations. We realized that work at Point Hope had only begun and planned to return the following spring.

En route to St. Lawrence Island on the United States Coast Guard cutter “Spencer,” we put in at Port Clarence near Teller, Alaska. While we were lying in this port, an opportunity was offered us to make an aerial reconnaissance of archaeological sites in this region in a small amphibian plane. Dr. A. Hrdlička had reported numerous archaeological sites in the Teller region. After our experience at Point Hope, we felt certain that it was possible to locate ruins from the air. Giddings and Rainey took off August 13, bound for Imuruk Basin. We intended to land near a point at the upper end of the basin where interesting sites had been reported. We landed on the bay but were unable to approach the point because of the extremely shallow water. Abandoning this project therefore, we made a general reconnaissance of Imuruk Basin and the shores of Port Clarence, flying at an elevation of approximately 1000 feet. From this elevation we easily differentiated two types of ruined igloos, one being a markedly darker green than the other. We concluded that the darker green vegetation represented recent deposits, while the lighter green indicated more ancient sites. The ruins were scattered all along the shore and were very numerous. The following day we returned by boat to make test excavations at two of the sites located from the air. A few hours of excavation proved that our conclusion was correct and that sites of different age could be determined by aerial reconnaissance. Since that time, in various flights along the Arctic coast, we have all observed this phenomenon. There is little doubt that archaeological reconnaissance by airplane can be a profitable method.

We left Teller on August 15, and en route called at Cape Prince of Wales, King Island, and at Little Diomede Island. It was possible for Giddings and Rainey to spend some time ashore, at each point, purchasing collections and discussing the location of archaeological sites with the local Eskimo. We then called at Nome to pick up Larsen, who had arrived there on board the cutter “Alert,” after completing excavations and packing at Point Hope. Admiral Zeusler of the cutter “Spencer” then received instructions to stand by off St. Lawrence Island to monitor the flight of a Japanese plane bound from Tokyo to New York on a good-will flight. Fog delayed the plane. The “Spencer” therefore lay off Savoonga on St. Lawrence Island for some days, giving all three of us an opportunity to visit the Kukulik site excavated by Geist and Rainey from 1933 to 1935. Kukulik is certainly one of the largest Eskimo ruins in the Arctic. Since the greater part of the deposit was laid down during what we have designated as the Recent-Prehistoric period,1 Larsen was able to draw his own conclusions as to the length of time involved in the most recent cultural phases.

Rainey had planned to leave the cutter at this point in order to continue excavations at the Okvik site on Punuk Island, but Admiral Zeusler advised him that it would be impossible to take him off the island that fall; hence, the plan to excavate on Punuk was abandoned. Rainey had advised the St. Lawrence Eskimo of his plans by radio. When he arrived at Savoonga several boat loads of Eskimo had just returned from Punuk, after extensive excavations of their own at the Okvik site.

We then arranged to leave Giddings at Kukulik on St. Lawrence Island, to continue his dendrochronological studies. Giddings worked for some weeks at this site and later, after our departure, at Gambell on the western end of St. Lawrence. It was during that fall that Giddings discovered the second deposit of Okvik material in a ruined house on the slopes of the headland at Gambell.2

In the fall of 1939 Larsen returned to

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1 Geist and Rainey, 1936.
2 Rainey, 1941a, 471.
Seattle, whence he returned to Denmark. The declaration of war resulted in a hazardous journey to Copenhagen and made it impossible for him to return to the United States in the spring of 1940 as he had planned. Giddings and Rainey returned to the University of Alaska, where Giddings remained throughout the winter. Rainey and Mrs. Rainey returned to Point Hope in January to carry out a study of the modern Tigara people, while Giddings, during the following summer, began investigations along the Kobuk River.¹

Excavations at the Ipiutak site were resumed in July, 1940, when Magnus Marks and Mrs. Marks from the University of Alaska arrived at Point Hope to assist Rainey.

At this time of the year the house depressions were still filled with water or melting snow, and new green grass was sprouted on higher ground around them. In late June and early July there was a striking contrast between the tall, yellow grass of the preceding summer in the depressions and the fresh green surroundings, causing the houses to stand out clearly, as if drawn on a chart. For about six days in early July it was possible to map 575 well-defined house sites at Ipiutak. Moreover, at this time we also observed, outlined on the surface, depressions in front of the houses which we interpreted as narrow entry ways. We failed to notice these the preceding summer because the shallow deposit of habitation refuse on the floors of the entry ways did not extend into the house ruins proper.

Excavation of the Ipiutak houses continued through the greater part of July, 1940. Then Rainey and Marks decided to search for a burial ground, which we assumed might be associated with this very large settlement. Careful reconnaissance of the spit to the east of Ipiutak did not disclose even a slight indication of burials. We were, therefore, forced to begin excavating innumerable test pits. After some days, working with a crew of two or three men, we found a midden and six graves which contained objects which resembled those found in the Ipiutak houses, but were in many ways distinctive. However, this endless excavation of test pits with a few men was tedious and not very productive.

One evening, in conversation with the village elders in Tigara, Rainey mentioned the difficulties of such prospecting, and becoming interested in the search, one of the old Eskimo suggested that the entire population of the village assist. Rainey decided to offer prize money for the discovery of Ipiutak graves. With this incentive, all of the Eskimo in the village, men, women, and children, agreed to join us under the direction of their council of elders.

Rain and a wind with hurricane force were no deterrents on the morning of August 5, to some 45 people of Tigara who joined us for the search. Every available shovel, mattock, and digging tool, including soup spoons and primitive bone root picks, were utilized by the Eskimo in these excavations. They scattered over the spit east of Ipiutak and towards Jabbertown for a distance of some 2 miles, each choosing a promising spot. They dug all day, but it was not until five in the afternoon that old Kuwana discovered the first grave, which happened to contain large numbers of elaborate and fantastic spiral carvings. Excitement ran high in the village. During the next few days even the old people, who were barely able to walk out to the burial ground, joined us. In five days some 50 graves were discovered. The most spectacular, perhaps, was that containing a skeleton with realistically carved ivory eyes, but there were others which were truly caches of artistic treasures. The Eskimo shared our excitement. In all 14 houses and 65 burials were excavated in the summer of 1940.

Late in August, when a chartered plane arrived to take us off the spit, we knew we had found a highly complex and advanced arctic culture, much more spectacular than that indicated in the house ruins. We knew, too, that another season of excavation was necessary before the true significance of our discovery could be determined.

During the winter of 1940–1941 Rainey remained at the American Museum of Natural History, carrying on research related to the excavations at Point Hope. Giddings remained in Alaska. In the spring Larsen managed to arrange transportation for himself, his wife, and son, from occupied Denmark to the United States. Harry L. Shapiro, who was interested in the skeletons from Ipiutak, arranged to work at Point Hope the following summer. Rainey

¹ Giddings, 1944, 113–134.
and Shapiro arrived at Point Hope in June, 1941, and Larsen in July. During this time Giddings continued excavations of old sites along the Kobuk River discovered the previous year. We believed that the excavations at these sites would assist us in determining the significance of the newly discovered culture at Point Hope.¹

Realizing the importance of sufficient labor to carry on the 1941 excavations we managed, in Alaska, to obtain assistance from the Civilian Conservation Corps. This organization set up a camp at Point Hope under our direction and allowed for the employment of all able-bodied Tigara men. Throughout the summer of 1941 we were able to maintain a labor crew of 20 or 30 men. Thus it was possible to accomplish considerably more than had been possible the two previous seasons. By the end of the summer we had excavated 48 houses and 506 graves.

We found that the graves related to the Ipiutak site extended from the settlement to Jabberton along the southern shore of Marryat Inlet a distance of 5 miles. We found graves of the old Tigara people extending from their old village some three-quarters of a mile to the eastward, in many cases underlying the present settlement. We also managed to excavate many human bones from the common grave composed of scattered remains from the more recent scaffold burials, which had been gathered together and buried under the direction of the mission. Shapiro also made anthropometric measurements of living coast and inland Eskimo. Thus we have physical measurements of various groups of Eskimo extending over a considerable period of time.

Late in the summer, while Larsen continued the excavations at Point Hope, both Rainey and Shapiro made brief visits to Point Barrow for observations and the purchase of archaeological specimens. Shapiro and Rainey then left by Coast Guard cutter. The large collections of skeletal material and implements were carried as deck cargo on the cutter. Larsen, who remained at Point Hope until late fall, took a small trading schooner from Point Hope to Nome and was very nearly lost at sea when a gale disabled the schooner and blew it drifting for many miles off its course in the Arctic Ocean north of Bering Strait.

During the winter of 1941 and 1942 Rainey, Larsen, and Giddings remained at the University of Alaska, studying the combined collections of artifacts from Point Hope and Kobuk. At the same time we also had numerous purchased collections from other localities in Alaska and the excavated material from St. Lawrence Island to amplify our studies. All the skeletal material was shipped directly to the American Museum of Natural History for study by Shapiro. Our joint laboratory research in Alaska was interrupted in the early summer of 1942 when Rainey began a reconnaissance of the Alcan Highway during the course of its construction, and Giddings made a trip along the Yukon. However, Larsen was able to return to Arctic Alaska in the summer of 1942 to search for old settlements of the inland Eskimo on the Utorqaq River. We believed that a knowledge of this area would assist in an understanding of the Ipiutak culture. Because of the war Larsen naturally could not return to Denmark, but he has been able to continue the research and to write a large part of this study at the American Museum of Natural History.²

¹ Giddings, 1944.
² A number of preliminary reports on the Point Hope expedition have been published. See Larsen, 1940, and Rainey, 1941b, 1941c, 1941d, 1941e, and 1942.
TOPOGRAPHY OF POINT HOPE

Point Hope, the Tikeraq of the Eskimo, lies approximately 125 miles north of the Arctic Circle and is the westernmost point of the continent north of Bering Strait. It resembles a triangular breakwater and consists of two bars which converge approximately 15 miles west of the mainland and enclose a large body of shallow water, known as Marryat Inlet (Fig. 1). The inlet opens to the sea through a narrow pass just north of the mouth of the Kukpuk River. The marine beach, or gravel bar, forming the southern leg of the triangle extends southeastward to the rocky headlands of Cape Thompson and encloses a series of shallow freshwater lagoons which are separated from the sea by this barrier beach, which at some points is no more than 100 to 200 feet wide. The northern leg extends northwestward to the mainland, just north of the mouth of the Kukpuk River, a distance of approximately 15 miles.

The peninsula, which has an area of approximately 80 square miles, consists of alluvial plains and marine beaches. The alluvial plain composed of stratified silts and sands overlain by peat and tundra vegetation is the familiar "muck" deposit of the Alaska mainland. It is undoubtedly Pleistocene in origin since it contains bones of the mammoth. The marine beaches, in all probability relatively recent formations, are composed of coarse sand and gravel, principally chert and limestone. The southern leg of the triangle forming the peninsula is entirely beach deposit, while the

1 Much of this description of the topography is taken from Kindle, 1909, and from Collier, 1906.

Fig. 1. The Point Hope Peninsula.
The southern shore the ice had forced up a new gravel beach line, at some points 50 to 100 feet wide. As a matter of fact, a bay formed by a hook at the extremity of the Point was entirely filled in by the ice during the winter and spring of 1940.

The triangular western end of the peninsula (Pl. 96, Fig. 2) consists of a series of regular canal-like depressions separating parallel ridges; it is quite probable that the beach deposit made in 1940 simply forms another one of these ridges. The channels or depressions between these ridges vary from 2 to 6 feet in depth and some contain fresh water throughout the entire summer. These channel-like depressions, alternating with ridges, quite clearly demonstrate the physical structure of the triangular end of the peninsula which is entirely composed of gravel and sand. It is also possible that the arctic tide, which varies from 0.2 to 2.25 feet, setting east and west, or at right angles to the northerly current, may have played some part in the formation of the peninsula. At the present time, the spit is in process of building on the south and is being cut away on the north. These changes were clearly observable during the three seasons of our work at Point Hope. Dr. John Driggs estimated that the north shore was cut back at least 185 feet during the 18 years of his residence at Point Hope. At least several feet were cut back during the violent storms in the early summer of 1940.

Shallows extending outward from the northwestern side of the point, a distance of 3 miles, suggest that the tip of the peninsula originally extended towards the northwest rather than towards the southwest as at present, which might mean that the northwesterly current at that time was stronger than the outflow from the Kukpuk River, while the opposite is the case now. Although we have no means of estimating the age of the marine beaches, it is clear that at least the base of the peninsula was formed during Pleistocene times and we know from the extensive and ancient culture deposits on the actual gravel bar that the marine beaches are in all probability many centuries old.

All that part of the peninsula which is composed of alluvial or delta deposits is covered by tundra growth and by extensive peat deposits which are derived from such tundra growth.
The gravel bars or beach deposits, on the contrary, are only sparsely covered with grass and very low-growing arctic plants. Vegetation flourishes in the channel-like depressions where water stands during part of the summer months and on the crest of the ridges only where there have been deposits of some organic matter, that is, bone refuse or the remains of human occupation. Many of the ridges are completely barren. Vegetation is much more abundant on the northern than on the southern shore, verifying our opinion that the south shore has been growing and is therefore more recent.

The triangular part of the spit which forms the westernmost tip of the peninsula at no point has an elevation of more than 6 feet, and during unusually heavy storms sea water covers practically the entire point. For example, in October, 1893, almost the entire point, or that part of it occupied by the Tikerarmiut, was inundated during an extremely violent south-west storm.

The Old Tigara ruins are situated some 600 yards from the westernmost tip of the Point Hope peninsula, extending eastward from the northwest shore. The ruins now form four irregular mounds which are covered with tall grass (see Pl. 97, Fig. 1). Actually, the ruins are composed of abandoned sod igloos and habitation debris, but, for the most part, it is impossible to recognize individual house mounds. This deposit of house ruins and habitation refuse reaches a depth of 8 to 10 feet and is composed of innumerable whale bones, stones, sod blocks, driftwood logs, thousands of artifacts, decayed meat and skins, a conglomeration of the refuse accumulated through centuries of occupation. Decay of these organic materials is responsible for the unusual quantity of vegetation growing over this site. Waves and ice wearing away the northeast shore continually expose house ruins and debris. In 1924 Knud Rasmussen counted 122 separate house ruins in this deposit, whereas in 1939 and 1940 we could observe no more than about 70.

The four lines of house ruins result from the fact that the houses were built on the natural ridges described above. The modern Tigara houses, which form an extension of the old site, are also built on these ridges, roughly forming four avenues. A long pond situated in one of the natural canal-like depressions was probably the source of water supply for the ancient village.

The shallow graves of the ancient Tigara people extend for over a mile east and northeast of the modern village, north of the pond. The present village is built on the western end of this vast cemetery, which undoubtedly includes thousands of individual graves (we excavated several hundred in the summer of 1941). Moreover, during historic times the Tigara people adopted the custom of scaffold burial, placing the bodies of the dead on racks supported by whale jawbones. Remains of these scaffold burials also extend nearly a mile to the eastward of the present village. The scattered bones from these scaffold burials and the shallow graves emphasize the impression that the spit is now one vast cemetery. This area is labeled Old and New Tigara on the map (Fig. 2).

Six miles east of Tigara, on the narrow neck of land between Marryat Inlet and the south shore, lies the abandoned settlement known as Jabbertown, which was established by American whalers who wintered there during the latter part of the nineteenth century and the early part of the twentieth century. One of the frame houses built by the whalers still stands, but has now been abandoned. However, an ancient settlement, not unlike Tigara in appearance, is recognizable in a series of grass-covered mounds, also composed of ruined igloos and habitation refuse. Our excavations in the ancient Jabbertown deposit reveal that it was occupied prior to the occupation of the Old Tigara settlement and, therefore, must have been abandoned several centuries ago.

Along the north shore of the spit, not more than a mile from Old Tigara, extending eastward from what is now the Episcopal mission site, is Ipiutak. This third and largest site extends for more than 5 miles, from the mission to Jabbertown, following the southern shore of Marryat Inlet. Unlike the old sites at Tigara and Jabbertown there are practically no surface indications of either the house sites or the graves. The Eskimo have walked over this site for generations, and scores of white men have explored the spit and neither have observed traces of ancient Ipiutak.

We first noticed slight circular depressions extending along the natural ridges of the spit. Later we learned to recognize the location of house sites by the contrasts in vegetation described above. All of the numerous graves were
Fig. 2. Map of Point Hope, Alaska, showing position of Ipiutak village and graves, the Old and New Tigara graves, and the Jabbertown site.
Fig. 3. Ipiutak village site.
discovered simply by the random digging of pits, there being no surface indications as to their location.

As at the Old Tigara site, our excavations disclosed that most of the Ipiutak houses were built on the ridges and are, therefore, grouped in (five) long avenues extending east and west for some three-quarters of a mile. Also, as at Old Tigara, the westernmost end of the settlement has been washed away by the encroaching sea. The northernmost avenue of houses was deeply buried under a layer of sand, which undoubtedly was blown off the north shore of the spit and from the beach of Marryat Inlet. House sites on this avenue were particularly difficult to locate; obviously there are many more at the site than are actually located on the map (Fig. 3). Like the houses, the graves followed the contours of the spit and were invariably found on the crests of the ridges.

Reconnaissance excavations extending eastward from the end of the peninsula, along both the northern and the southern legs of the triangle, disclosed no other significant ruins, although we found an occasional ruined igloo or burial which could be correlated with the people of Old Tigara. Many days were spent in the exploration of the islands in the eastern end of Marryat Inlet near the base of the peninsula, where waves had scored precipitous cliffs along the shores of many of the islands. These exposed faces were examined with some care in the hope that we would find very ancient material of Pleistocene age in association with the mammoth bones periodically washed out by the sea. All the cuts examined were composed of the familiar muck deposits, but mammoth bones were extremely rare, and no remains of human habitation were found.
ECOLOGY OF NORTHWEST ALASKA

The area referred to here as northwest Alaska is bounded on the south by the Arctic Circle, on the east by the 150th parallel, and on the west and north by the Arctic Ocean. It is the northwesternmost tip of the North American continent and has an area of some 75,000 square miles. The Brooks Range, which can be considered the northwesternmost extremity of the main continental mountain chain, extends northward above the Arctic Circle and falls away into the rolling highlands just east of Capes Lisburne and Thompson. On the north it is flanked by a smaller range, the De Long Mountains, and on the south by the Baird Mountains. Hence much of the interior of northwest Alaska is rugged mountainous country, in which rise all the major rivers in the area. North of the mountain chain the broad Arctic plain slopes to the Arctic Ocean. Except for narrow belts of spruce and birch forest along the Kobuk and the lower reaches of the Noatak rivers, it is a treeless area, covered, wherever there is soil, by moss, lichens, grass, and small flowering plants. Small willows grow in sheltered places along the northern rivers and their tributary streams, but, as a whole, it is a barren land which in winter is a trackless dead white expanse of hard-packed snow, broken only by dark rocky cliffs. Chains of mountain peaks, like the De Long, rise like glistening white teeth against the sky.

Much has been written about the severe climate in which arctic Eskimo manage to maintain themselves; their survival, despite this extreme cold, is perhaps the single achievement which has made them one of the best known and most frequently described primitive people in the world. Yet a comparison of yearly temperatures on the arctic coast with those in the wooded regions of interior Alaska and Canada reveals that the Athapascan Indians actually experience lower temperatures in midwinter than do the Coast Eskimo. This fact is misleading. Temperatures of 50° F. and even 70° below zero in the forested Athapascan territory are not uncommon, while temperatures of 30° or 40° below zero on the coast are rare. Nevertheless, 50° in the interior is more endurable than 30° on the coast. The Eskimo require much heavier clothing and warmer houses than do the Indians, for example at Fort Yukon, where temperatures may be static at 50° to 60° below zero for many weeks.

Climatic records kept at Point Hope for a sixteen-year period, from 1888 to 1904, convey a poor impression of the cold endured by the Tigara people. The lowest temperature recorded was -48° F. in February, 1892, normally the coldest month; the highest, 97°, in July, 1891. Such extremes of temperatures are probably very rare. During the summers of 1939 and 1940 the normal range was between 35° and 50°, but owing to the cold northeast winds we were rarely comfortable without fur parkas. The lowest temperature recorded in 1940 was -37°, as usual, in February. During February, 1940, Rainey traveled with an Eskimo companion through the hinterland east of Point Hope when temperatures of 30° below zero were accompanied by a fifty-mile gale. Clothing infinitely superior to that of the Athapascan Indians made travel under these conditions possible, even though one's face when exposed to the full blast of the wind froze in less than a minute. Their clothing also makes it possible for Eskimo hunters to spend many hours on the ice pack at temperatures of 20° or 30° below zero accompanied by high winds. In January, 1940, with temperatures remaining steadily at 20° to 25° below zero, the Tigara people experienced a shortage of seal oil, which is their common fuel, and many of the houses had no heat at all for several days. During this time many families lived constantly in temperatures little above zero, even indoors.

The land supports great bands of caribou, arctic wolves, brown and grizzly bears, foxes, marmots, ground squirrels, and lemmings. Some years ago mountain sheep were common in most of the region, but now they seem to have retreated to the less approachable mountain ranges. The number of caribou also declined sharply during the first part of the twentieth century, but they are now increasing.

Several varieties of fish, the most common of which are salmon, salmon trout, and whitefish, run in all the large rivers and most of the small streams, but they are most plentiful in the three rivers flowing into Kotzebue Sound. Fish are today, and undoubtedly always have been, a
stable and dependable food supply for all the river people.

Water fowl swarm into the Arctic each summer in uncounted millions, not only to nest in the rookeries on the sea cliffs, but to nest and feed at the lakes, ponds, and rivers of the interior. Murres and gulls nest on the sea cliffs, while geese and ducks nest on the tundra. In winter, only arctic owls, hawks, ravens, and ptarmigan remain in the north. Ptarmigan are common both on the tundra along the shore and in the rolling hills of the hinterland.

Sea mammals today are the great stable food supply for most of the arctic coast Eskimo. Small hair seals are the most common, but the large bearded seal, walrus, beluga, and baleen whales follow the edge of the ice pack in its seasonal movements north and south. Polar bears, which follow the pack as do the sea mammals, are still killed in considerable numbers all along the arctic coast, particularly at Point Hope, Icy Cape, and Point Barrow where the bears hunt for seals in open leads about these capes.

All of the area referred to here was occupied in historic times by Eskimo-speaking peoples. The Athapascan Indians penetrated arctic Alaska only on the upper Koyukuk, Chandalar, and Porcupine rivers, and thus, for the most part, were confined to the area east of the 150th parallel. Natives of northwest Alaska today recognize two very different groups of Eskimo, the Nunatarmiut and the Tareormiut, who can be characterized as land people and sea people. During the last century, the Nunatarmiut occupied all of the major river valleys, like the Kobuk, Nonatak, and Colville, and devoted the greater part of each year to hunting caribou on the tundra. The Tareormiut, on the contrary, lived principally at the two large permanent settlements of Tigara (Point Hope) and Utkia-vik (Point Barrow), but also established small settlements along the coast all the way from Cape Seppings to the Canadian border. These small settlements seem to have been no more than colonies established by people from the two large communities. The Tareormiut of northwest Alaska, as represented in the settlements at Point Hope and Point Barrow, are culturally very closely related to the people at Cape Prince of Wales, East Cape, Siberia, and at Gambell, St. Lawrence Island. All these settlements are located on peninsulas or points of land where the great baleen whales pass close inshore on their yearly migrations from the Pacific to the Beaufort Sea and thus are natural whaling stations for the famous arctic Eskimo whalers. The Nunatarmiut, or land people, during the past 40 years have abandoned most of the hinterland, to join the coast people at coastal settlements at Kotzebue, Kivalina, Point Hope, Wainwright, and Point Barrow. True Nunatarmiut remain on the Kobuk, Selawik, and Noatak rivers, which enter Kotzebue Sound. The vast arctic slope north of the Brooks Range has been entirely abandoned only during the past 20 or 25 years. This concentration of all northwestern Eskimo in the coastal settlements was apparently influenced by the establishment of trading posts on the shore, the contact with American whalers who employed practically all able-bodied Eskimo as crew members, the great reduction of the caribou herds following the introduction of the repeating rifle, and, later, by the establishment of schools and missions on the coast. It is our impression that inland Eskimo were more numerous than coastal Eskimo in the aboriginal period.

Today the Eskimo living in all of the coastal settlements stem from both groups, but one may easily distinguish Tareormiut from Nunatarmiut. The inland people are tall, big boned, with long slender faces and with high-bridged noses, and resemble the Indians; the coast people are short, small boned, with round faces and the characteristic flat Eskimo nose. This contrast in physical type is particularly apparent at Wainwright and Point Barrow, where immigration to the coast is more recent. The Eskimo themselves are very much aware of the distinction.

While the Nunatarmiut were definitely inland dwellers and the Tareormiut coast dwellers continued contact between the two groups was maintained both in warfare and in trade. The coast people required the caribou skins neces-

1 Really salt-water people; tareug, salt and salt water. The two terms Nunatarmiut and Tareormiut are also used by the Mackenzie Eskimo. According to Stefansson (1914, 330), the Kettagrayuit people distinguished between the "Tuyormiut," who lived between the Mackenzie Delta and Demarcation Point, and the Nunatarmiut, who lived farther west. Petitot's name for the salt-water people between the mouth of the Mackenzie and Herschel Island ("les habitants de la mer") is a variant of Tareormiut (Petitot, 1876, ix).
sary for survival in hunting on the ice, while the inland people sought blubber, thongs, ivory tools, and other implements made by the coastal people. Each summer trading centers were established at the mouths of all the major rivers. A lively trade between the two groups is traditional.

We believe that a brief description of the historic Nunatarmiut and the Tareormiut is necessary here in order to clarify the ecological background for the study of the prehistory in this region. Since detailed ethnographic studies

of both groups were lacking, Rainey carried on ethnographic research during the period from January to August, 1940, among the Tikerarmiut at Point Hope, and Larsen spent the summer of 1942 at Wainwright and on the Utorqaq River, where he conducted similar studies with a number of Nunatarmiut. We are, therefore, using the Tikerarmiut to characterize the Tareormiut, and the Utorqaqmiut as an example of the Nunatarmiut in the following sketches of the divergent coast and inland people.

THE TIKERARMIUT

Tigara was discovered by Captain Beechey, commander of H.M.S. "Blossom," in 1826 during his cruise through Bering Strait and along the northwest coast of Alaska in search of the lost Franklin expedition to arctic America. The name is derived from Tikeraq, the Eskimo word meaning index finger, and obviously refers to the finger-like formation of the spit upon which Tigara is located.

Except for a few frame houses built by the mission, the school, a trader, and recently by the Eskimo, the present village presents much the same appearance as it did in 1826. The Tikerarmiut still live in semi-subterranean sod igloos constructed on a framework of driftwood logs and whalebone. The umiak racks supported on whale jaws, the skin-drying racks, the few remaining burial scaffolds, and the low green mounds which are the sod igloos still resemble "a forest of stakes ... and beneath them several round hillocks" described by Beechey. At present 250 Eskimo live at Tigara, a population which has altered little since the first estimate in 1880. It is probable, however, that at least 1000 persons lived there during the early part of the nineteenth century, before various diseases were communicated to the natives by American whaling ship crews. They called themselves Tikerarmiut (people of Tikeraq) and considered the village their permanent home, even their own place of origin. They may be considered as a distinct tribe with a local dialect, a definite territory, and a sense of social solidarity particularly in relation to other groups of Eskimo in arctic Alaska. Although their permanent houses were located in Tigara, we know that they traveled hundreds of miles along the coast, even as far as Point Barrow, and that they founded numerous colonies along the coast from Kivalina as far north as Icy Cape. One such colony was established about 20 years ago at Point Lay. Moreover, in summer the Tikerarmiut traveled to the mouth of the Utorqaq and to the mouths of the rivers flowing into Kotzebue Sound in order to trade with the Nunatarmiut. Many tales describe the continual warfare between the Tikerarmiut and the Nunatarmiut.

The location of the settlement was probably chosen because the great baleen whales pass close inshore around the point of the spit during their yearly migrations, and the open leads caused by wind and current at the point produce favorable winter seal hunting conditions. Enormous herds of walrus also haul up on the spit during the spring when they follow the ice pack northward. The small hair seal is hunted during all that part of the year when the ice pack lies against the point, but baleen whales, bearded seals, beluga, and fish are taken only during the spring and early summer. All of these animals are migratory, and the time of their arrival at Point Hope is determined by the movements of the pack ice. It may be said that the entire economy of the Tikerarmiut is governed by the movement of the ice pack, and that it is responsible for a distinct annual cycle of activities.

In presenting an ethnographic background for our study of the prehistory of arctic Alaska, we are principally interested in the economy and material culture of a typical coast popula-

1 Beechey, 1831, vol. 1, 363.
tion. This type of Eskimo culture can best be characterized in relation to the yearly hunting cycle which determines not only the pattern of hunting activities but the sequence of religious ceremonies. The following sketch is, therefore, oriented in relation to five significant periods in the yearly schedule.

In the fall, the pack ice usually moves down from the north before new ice forms on the sea. Those Tikerarmiut who had been trading with the inland Eskimo at the mouth of the Utorqaq and in Kotzebue Sound or who had been encamped along the shore to net belugas returned in their umiaks along the shore to Tigara. The first group to return began the winter season by cleaning out the qalegit, or dance houses (more commonly known in Eskimo literature as kashim), and preparing for the series of fall and winter festivals or religious ceremonies which principally occupied them until conditions were favorable for hunting on the ice.

During the past century there were seven of these dance houses in Tigara. Every individual in the village was a member of one of them. They were clubs which were the centers of all ceremonial and religious life. The dance houses were the largest structures in the village, but resembled the dwellings in being square and semi-subterranean, with floor, roof, and walls of driftwood planks or split logs. The long sunken entrance passage was constructed on a framework of whale jaws and the inner entrance was through a round hole in the floor. The outer entrance to the passageway was by means of a ladder passing through a square exit in the roof. The entire structure was covered with sod blocks. Lighting was achieved through a square gut window in the roof of the inner room and through a similar skylight in the passageway. Dance houses are no longer used by the Tikerarmiut, but the present sod houses are of the same general structure except that one enters directly from the passageway through a door to the inner room, thus eliminating the entrance through a man-hole in the floor. Light and heat for the dance houses, as well as for the dwellings, were provided by seal oil lamps. In the dwelling house small underground rooms at each side of the entrance passage at the inner end were used as kitchens, sleeping chambers (particularly when the house owner exchanged wives with a neighbor), and for the storage of food, weapons, and other gear.

In very severe weather dogs were sometimes brought into the passageways.

The series of ceremonies performed in the dance houses, following the fall return to the Tigara village, are described by Rainey. In brief, they comprise a ceremonial and supernatural preparation for the spring whale hunt, which begins the following April. These ceremonies occupied the Tikerarmiut people during most of the winter, and they are responsible for the present feeling that, in spite of its hardships, winter is the festive season. This complex social and ceremonial life of these whale hunting Eskimo places them in sharp contrast with both the inland people and the historic Central Eskimo.

There was little hunting in the fall. During that season the Tigara people lived on whale, seal, and walrus meat stored in underground caches since the preceding spring, or a small quantity of caribou meat brought back to the village after the summer trading. Several generations ago some men hunted seals in kayaks before the pack ice returned, but kayak hunting has been discontinued, it is said, because the hunters found it very dangerous.

Winter seal hunting normally began late in October or early in November when hunters could travel over heavy sea ice in search of seal breathing holes. Breathing-hole hunting, which is characteristic of the Central Eskimo, has often been described, so that a repetition of the details seems unnecessary here. At Tigara it was a very hazardous undertaking during the early winter, particularly because of the erratic movements of the ice. Under certain conditions of wind and current, ice often moved far out to sea, carrying the hunters off from the village. Men repeatedly disappeared in this way, drowning, freezing to death, or being killed by polar bears, which roam the pack ice in considerable numbers along the coast. There was always a hope that stranded hunters might reach the Siberian shore; hence they were not given up as lost until the following year. During the past century, no dogs were used when hunting on the ice. It is said that the Eskimo feared losing their dogs when the ice broke up or moved out with a shift of wind or current. Small sleds, no more than 2 or 3 feet long and 3 or 4 inches high, were used occasionally when

1 Rainey, 1947.
the ice was smooth and when it was necessary

to travel several miles over the ice pack.

The daily task of every able-bodied man was
to hunt seal, from daylight until dark, during all
the winter months from November until April.
For two months the sun does not appear above
the horizon, but there are always a few hours of
twilight. In the old days men hunted in small
family groups, fearful of hostile neighbors. It is
said that family feuds often kept the whole vil-
lage in a state of open warfare or armed truce.
These men lived and hunted under the severest
climatic conditions imaginable. In January and
February, 1940, Rainey found all of the men
occupied, like their ancestors for a great many
generations, in the hunt. Nowadays rifles have
been substituted for harpoons, and seals are
shot in open ponds or leads instead of har-
pooned at breathing holes. While Rainey
hunted with the Tikerarmiut, he was continu-
antly impressed by the idea that no truly primi-
tive group could possibly exist under such
conditions. Only by means of a highly complex
technology and through a highly developed
knowledge of natural phenomena could human
beings penetrate the Arctic. Their way of life
was in sharp contrast to that of the Athapaskan
Indians, who, with a very primitive material

culture, can survive in only the forested regions
of the interior.

Breathing-hole hunting was not the only
method of capturing seals in mid-winter. Seal
nets were used extensively before the introduc-
tion of rifles. Employed at night in the dark of
the moon, when darkness added to the normal
hazards of hunting on the ice, these nets were
responsible for a type of seal hunting which was
considered to be a particularly dangerous pur-
suit. Today only the most courageous use nets,
and then only when seals are scarce.

Tomcod, a very small arctic fish that travels
in schools, arrive at Point Hope in January and
can be taken through holes in the ice on the
shoal waters of the north shore. Old women and
children spend many hours a day during Janu-
ary in the severest weather of the winter jigging
for these fish with multi-pronged hooks. The
fish freeze instantly when exposed to the air
and are eaten frozen and raw. With good luck,
one person may secure as much as a bushel of
tomcod in a single day. In February or March
old people and children moved across to the
south side of the Point to fish for crabs in much
deeper water, through holes cut in the ice. A
seal's nose used as bait was placed on a flat,
circular, netted grid made from baleen and
lowered to the bottom. Crabs clambered up on
the grid and were thus drawn to the surface.
These also were eaten frozen and raw. Crab
fishing continued until the beginning of the
whale hunt in April and thus supplied at least
some variety in the monotonous diet of seal
meat during the winter months.

During the winter polar bears appear in con-
siderable numbers on the pack ice off Point
Hope, whenever steady south winds close the
open leads along the south shore. The polar
bears were hunted with bows and arrows and
with hand lances. Polar bear hunting was con-
sidered dangerous and exciting, probably in
part because, unlike the Greenland Eskimo,
the Tikerarmiut did not use dogs to surround
and hold the bears at bay.

The fall and winter months were normally a
period of food scarcity, and when ice conditions
were bad famine was not uncommon. Many
such evil times are described in the legends,
from which it is clear that the Tikerarmiut were
sometimes forced to resort to cannibalism in
order to survive the winter. It is a curious
paradox that though these two seasons were
dreaded because of possible famine, it was dur-
ing these periods that the Eskimo enjoyed a
complex social and ceremonial life. However, it
is possible that the critical conditions of fall
and winter gave rise to the elaborate perform-
ances carried out in the dance houses, since
most of these were directed towards influencing
the supernatural forces controlling the supply
of game.

Late in March or early in April the snowbirds
appear at Tigara. Then the Eskimo knew that
the whales would soon arrive. Though seal
hunting was the chief occupation during the
dark months, minor preparations for the whale
hunt began when the dance houses were
opened in the fall and continued until the ar-
ival of the snowbirds, when preparations be-
egan in earnest. All whaling gear was repaired,
cleaned, and prepared for the all-important
early spring hunt. The great bowhead whales
and the small belugas, or white whales, arrive
simultaneously, when an offshore lead is
opened by wind and current. However, the
hunting at this season is confined mainly to the
bowheads.
At present there are nine whaling crews at Tigara, but there must have been at least twice that many during the last century. Each crew consisted of an umialik, or boat owner, acting as captain, and three to six paddlers and a harpooner. The umialik owned the umiak and all the whaling gear. The crew members employed by him were paid in whale meat. All the crews from the village dragged their boats on sleds to the edge of the lead, which might be from 1 to 3 miles from the shore of the spit. As long as the lead was open the entire crew remained on the pack ice, at times as long as two or three weeks, without a change of clothing and without shelter. All the crews must be constantly on the alert both day and night, ready at any minute to launch their boats and pursue the whales when they come up to spout. The crew slept in snatches, standing or sitting on the boat sled, and no one was allowed to use a shelter or sleeping bag.

When a whale was sighted spouting, all the crews launched their boats to paddle in pursuit. If a boat managed to get within striking distance, the harpooner stood in the bow and the boat was driven up onto the whale’s back so that the harpooner could thrust straight downward with his harpoon. Today, whaling irons and primitive harpoon guns are used to strike and kill the whales, but they were originally only whalebone harpoon heads attached to short, thick shafts, as well as stone-headed lances. Sealskin floats, which served as a drag upon the stricken whale, were attached to the harpoon head by a long walrus hide line. All the boat crews attacked the same whale when a harpoon had been fixed. After the whale was exhausted dragging the floats, the boats swarmed about it so that their harpooners could use lances for the final kill.

In the spring of 1940, when Rainey was a member of one of the Tikerarmiut boat crews, the nine crews succeeded in striking 13 whales during April and May. However, of these 13, only five were killed and secured. The others, trailing harpoons and floats, were lost beneath the ice pack. The season of 1940 was considered very successful, although the native narratives record the killing of more whales during the last century.

During April and May whales sometimes failed to appear in the leads for many days. During these slack times the Eskimo killed large numbers of migrating water fowl with the bolas. Flocks of eider ducks and crowbills fly fast and low along the shore of the Point, from rookeries on the sea cliffs to their feeding grounds. The Eskimo simply hid behind the piles of ice and hurled their bolas into the flocks of birds as they flew past. Some beluga and seals were also harpooned at this time, but, by and large, all interest was centered in bowhead whales.

The tons of meat, blubber, and skin obtained in a whale hunt were stored in deep subterranean caches near the village where it could remain in edible condition for more than a year. When fresh it was boiled, but after seasoning in the caches, both flesh and skin were normally eaten raw. The baleen and many of the bones, particularly the jawbones, were used to manufacture many types of hunting implements and household equipment. Only the skull was returned to the sea, as a ceremonial rite. Whale jawbones used during the past century to support the burial scaffolds east of the village have now been gathered to make a palisade around a modern cemetery. Hundreds of these bones attest to the large number of whales taken by many generations of Tikerarmiut.

By early June, when pools of water begin to appear on the grounded shore ice, most of the bowhead whales had passed Point Hope in their migration to Beaufort Sea. Then the umialit agreed on a certain day to terminate the whale hunting. All the boat crews returned to the shore together to celebrate the spring whale feast, or nulukatuk. Each dance-house group conducted its own feast, but all the feasts were held simultaneously, usually during a three-day period. The feast is essentially a celebration of the successful whale hunt, but it also has a ceremonial aspect mainly associated with mourning for the dead.¹

The term nulukatuk is derived from the name of a jumping game in which a walrus skin is suspended on a framework of lines and tripods, so that a number of people grasping the edge of the skin can toss one person high into the air, somewhat in the manner of our blanket tossing. This procedure is generally associated with gift giving; umialit who were successful in the whale hunt customarily threw many small gifts into the crowd, as they were being tossed in the skin.

It is said that many generations ago bowhead

¹ Rainey, 1947.
whales passed Point Hope in the fall during their southward migration, as well as in the spring, and that at that time there were two whale hunting seasons each year. This situation exists at Point Barrow at the present time.

Whale hunting practices illustrate the basic pattern of social organization among the Tikerarmiut. There was no chief or governing body, but the umialik or boat owners were the leaders in the community, and, being men of position and influence, all hunters were allied in some way to one of them. Usually an umialik, as the head of a family group, drew his whaling crew from among the able-bodied men of his own family; but men who were without families, as the result of famine or death, for example, could join an unrelated umialik to expand his “family group” beyond the ties of blood. Through wife exchange, unrelated families could also be combined into one “extended family,” since Tikerarmiut considered all close relatives of two men who exchanged wives as actually related by blood following the exchange. Each family group was essentially a law unto itself and, as mentioned above, many of them carried on endless feuds with each other, which often led to open warfare. Several family groups formed a single qalegen. Competition between families was often expressed in the contests or games carried out between the qalegen. During the latter part of the nineteenth century one umialik, a man called Attungorak, obtained many desirable trade goods from American whaling ships, and with this prestige of wealth set himself up as a kind of chief of the Tikerarmiut. He was eventually murdered by men of his own village, who thus expressed their dislike of an arbitrary chief.

Late in May or early in June the floe ice packed against the Point Hope spit begins to melt in the bright rays of the arctic sun. Small ponds appear on the ice, usually at seal breathing holes, and through them both the small hair seal and the large bearded seal crawl out on the ice to lie in the sun. During this period the Tigara men were still hunting whales, but it was not until after the whaling feast that their full attention was turned to stalking seals on the ice, a method of seal hunting which has often been described for the Eskimo.\(^1\) At Tigara the large bearded seals were numerous at this time of year and they were the chief object of the hunt, not only because each animal provided several times as much meat as the smaller hair seal, but because bearded seal skins were necessary for boat skins, boot soles, and rawhide lines. In June and July, as larger ponds were opened by the thawing of the ice, the hunters built walls of ice blocks at the edge of the smaller ponds and waited behind these for seals to approach while swimming on the surface of the pond. When the seal rose or swam close to one of these ice shields the hunter hurled his harpoon, which was a somewhat modified form of that used in stalking seals, retaining a hold on the harpoon line. It usually required two men to hold a bearded seal struck in this manner. Hunters also carried a club with which to brain the seal, when brought to the surface or within reach by being drawn in on the harpoon line. Bows and arrows were also carried at this time of year, in case the hunter encountered a polar bear while he was hunting seal.

Walrus were sometimes killed during this late spring period by the same methods used for bearded seal, but most of those killed by the Tikerarmiut were taken during the summer after the ice had disappeared. At that time huge herds of walrus sometimes hauled up on the beaches to rest. It is said that they were often so oblivious to the Eskimo that the hunters rushed among them with clubs and lances, slaughtering scores of animals as they crawled up out of the water and over the carcasses of the dead.

Hunting sea birds with bolas and the familiar Eskimo bird spear continued through May, June, and July, as the birds passed on their flight along the shore in enormous numbers.

With the disappearance of the ice pack in summer, almost all hunting at Tigara ceased, and the village was more or less deserted by all the able-bodied people. At this time their semi-subterranean houses became damp and evil smelling, often partly filled with water; light, clean skin tents were substituted as shelter for the brief summer period. The tents, the summer hunting gear, and articles intended for trade were loaded into large umiaks, and the family groups separated to settle at isolated summer camps along the shore. The boats were towed along the beach by dog teams, or propelled by paddles, or sometimes sailed. Some groups camped at no great distance from Tigara at favorable spots, where beluga and

\(^1\) Nelson, 1899, 128-129.
fish could be taken in nets. Others camped along the shores of Marryat Inlet, where caribou could be lanced from kayaks as they swam in the lagoon. Still other groups traveled as far as Kotzebue to the south or the Utqiagvik River to the north to trade with the inland Eskimo. At this time the Tikerarmiut also visited the bird rookeries at Cape Thompson and Cape Lisburne, where they not only killed large numbers of small birds but also collected eggs. The young birds and the eggs were taken from the nests by the men who climbed up the steep rocky face of the cliffs or were lowered from the top in a breeches buoy at the end of a long rawhide line. Skins of the crowbill were used to make warm, light, feather parkas. Bird eggs of all kinds and in any stage of development, as well as the young birds, were boiled and stored in bags of seal oil, to be eaten later in the fall or winter.

Such was the basic yearly cycle of activities upon which the native economy of the Tikerarmiut depended, in so far as it can be reconstructed after nearly 100 years of direct contact with Europeans. This yearly schedule was undoubtedly subject to alteration by unusual variations in the seasonal movement of the ice pack. In 1940, for example, the spring season was unusually advanced. Whales arrived nearly a month early and the sea ice was driven off shore by a strong northeast wind on the first of June, rather than in July, a circumstance which under native conditions would have fundamentally changed the yearly cycle described above. However, the sedentary life of the Tigara Eskimo throughout the greater part of the year and the nature of their large permanent settlements on the Point Hope spit, where sea mammals are abundant, regularly followed this seasonal activity, a pattern common to all of the Tareormiut in arctic Alaska.

THE NUNATAMIUt

Despite the fact that the inland Eskimo of arctic Alaska were probably more numerous and certainly more traveled than the coast Eskimo, and also the main distributors of the white man's goods, very little is known of their life. Several circumstances contribute to this situation. First, their habitat, the tundras and mountains of the interior, was remote from the routes of the sea-faring explorers and whalers. Second, their territory had little or nothing to offer the white man, and by the time surveyors and scientists began to explore their country, a major portion of the inland Eskimo population was already on the verge of abandoning their homeland and settling among the coast people.

Capt. F. W. Beechev knew that there were Eskimo living on the Colville River, but he did not mention them by name. Thomas Simpson, who reached Point Barrow from the east in 1837, heard the Eskimo there talk about the Noonatagmun, but he took them to be Russians. ¹ That they were friendly Eskimo whom the Barrow people met and with whom they traded at the mouth of the Colville River we learn from John Simpson and Maguire, who came to Barrow on the "Plover" in 1852.²

¹ Simpson, Thomas, 1843, 161.
² Simpson, John, 1875, 236; M'CJure, 1856, 391.

The period from 1881 to 1886 was one of intensive exploration in arctic Alaska. Much information was gathered about the native population, especially about the coast people, who are thoroughly described in the works of John Murdoch³ and E. W. Nelson⁴; but only now, and for the first time, is exploration being extended to the interior. Expeditions led by George Stoney⁵ explored the Selawik, Kobuk, Noatak, and Colville river systems, Cantwell⁶ the Kobuk and McLenegam⁷ the Noatak rivers. It is from these authors that we obtain our first information about the Nunatamiut. W. L. Howard,⁸ who traveled with them from the Kobuk River to Point Barrow, descending the Ikpikpuk River, gives an impression of their daily life. Most of our present knowledge of the Nunatamiut we owe to Vilhjalmur Stefansson⁹ who, in the period between 1908 and 1912, lived and traveled with them.

Meanwhile all our knowledge is in the form

³ Murdoch, 1892.
⁴ Nelson, 1899.
⁵ Stoney, 1899.
⁶ Cantwell, in Healey, 1887.
⁷ McLenegam, in Healey, 1887.
⁸ Stoney, 1899.
⁹ Stefansson, 1914.
of scattered notes, a patchwork of information which must be organized in order to get even a relatively complete picture of their culture. Unfortunately, this picture can never be completed. The information is insufficient, and the possibility of obtaining more is rapidly vanishing. The groups north of the Brooks Range have abandoned not only their homeland but their old way of life; and the southern groups, who still occupy the interior, are crowded around trading posts and missions and are gradually changing from caribou hunters to reindeer herders.

According to the latest census, 1939, about 1400 people were then living in the interior of arctic Alaska. How numerous they were when their culture was still flourishing we do not know and cannot now surmise. The census for an inland village, such as the Noatak, records only the number of people present in the village when the census was taken, but we must remember that most of the people had no permanent homes and were constantly moving from place to place. For the same reason, McLenegan’s estimate of 225 Noatarmiut in 1885 is undoubtedly too small.1 Knud Rasmussen mentions 500 Eskimo coming down the Colville River in 1924, but they were undoubtedly only a part of the Kangianermiut or Colville River Eskimo.2 Larsen’s informant, Qamaq, who lived most of his life on the Utorqarmiut, said that when all the Utorqarmiut congregated at Tulareaq, the mouth of the Utorq River, there were two rows of tents, with 80 tents in each. According to Qamaq there were approximately 10 persons in each tent, making a possible total of 1600. Even if the Utorqarmiut were said to be the most numerous group, this figure is undoubtedly too high; 800 is probably closer to the truth. The Kangianermiut were probably equal numerically to the Utorqarmiut; the Noatarmiut were fewer than the Utorqarmiut. Even today close to 900 people live in the Kobuk-Selawik area. Therefore we can safely estimate the population of the interior of arctic Alaska at the turn of the century as not less than 3000.

All these people had many traits in common. Most of the time they lived near the rivers, for which they were named and on which they depended for both fishing and transportation. We have already mentioned the Kangianermiut, the Utorqarmiut, and the Noatarmiut on the Noatak River. Two other groups should be added, the Kovagmiut on the Kobuk and the Selawingmiut on the Selawik River. These are the major groups. The people who live along the smaller rivers and tributaries of the main rivers were also named after the rivers.

All these groups speak the same language. At least, the dialectic differences are less marked than are those of the Nunatarmiut and the Taraermiut. Above all, it is their ecology which makes these inland Eskimo a unit and serves to distinguish them from the coast Eskimo. Naturally, the Nunatarmiut and Taraermiut have many basic Eskimo traits in common, and undoubtedly they have been in constant communication for a long period. Their artifacts, for instance, were very similar, and the strong influence of the coast culture can be traced half way up the Kobuk River. Examples of this influence may be found at Ahteut and Ekseavik. At these sites, excavated by Giddings, the houses had central fireplaces and side-benches as in the typical Nunatarmiut houses, but they also had the long, deep, sunken entrance which characterizes the Taraermiut houses.4

In the following brief description of the life of the Nunatarmiut, we exclude the Selawingmiut because they are mainly fishermen rather than caribou hunters. This summary is based on information obtained in 1942 by Larsen from the Utorqarmiut now living at Wainwright and Point Lay,5 and supplemented by information on the Noatarmiut obtained by Rainey in 1941 at Kivalina, and from various other sources.

The caribou is to the Nunatarmiut what the bowhead whale is to the Taraermiut. Their material culture is based mainly on the caribou. Life in the interior would be impossible without large herds of caribou. When, for some unexplainable reason, the caribou fail to appear in numbers sufficient for their needs, the Nunatarmiut had the choice of starving or of settling on the coast until the herds returned. Though other sources of food, such as fish, bear, mountain sheep, edible roots, and berries,

1 Healey, 1887, 75.
2 Rasmussen, 1927, 317.
3 Stefansson, 1914, 10.
4 Giddings, 1944, 122, 129.
5 Main informants: Qamaq and Amos Aqernerersaq, both over 70 years old.
and in some parts moose and ground squirrel, are available, none of these are obtainable in sufficient quantities to supply a population as large as that of the Nunatarmiut.

The caribou is not only the main source of food, but its skin is used for clothing, tents, and for kayak covers; the antlers are manufactured into arrowheads and many other artifacts; the sinew is split for thread; the oil is extracted from the bones, etc. It is understandable, then, why caribou hunting is the main occupation of the men and why every conceivable method of hunting is employed.

The caribou is a migratory animal. In the winter it lives in the mountains where it is easier to find food than on the snow-covered and wind-swept tundras. In the spring a large number of caribou, especially the males, wander down to the tundra. Caribou are hunted practically the year round: at the time of their fall migration back to the mountains when the animals have a thick layer of back fat; in the winter when their fur is thick and warm and good for bedding and winter clothing; and in the spring when the heavy fur is shed, leaving a soft delicate skin ideal for summer clothes. The caribou is not only migratory, but wanders constantly, covering a huge area in its search for the best grazing. If the Eskimo wants the caribou, he must follow it.

The Utorqarmiut are sometimes called "the wolf people," because they follow the caribou herds like a pack of wolves. In addition to these wanderings in pursuit of game, the Nunatarmiut, or at least the majority of them, undertook other seasonal wanderings. Except for most of the people on the upper Kobuk, a few of the Noatarmiut and some of the Kanganermiut who remained in the interior all year round, the Nunatarmiut traveled to the coast every summer to hunt seal, walrus, or white whale, and to trade with the Tareermiut.

Their material culture and their economy are naturally influenced by this nomadic life. Not only do their activities change seasonally, but they are adapted to the different geographical conditions of the territory they occupy. In order to get a clear picture of their material culture, it is therefore necessary to follow them on their wanderings and study their annual cycle of occupations.

During the winter, most of the Nunatarmiut live in small groups, scattered in the mountains around the headwaters of the large rivers, hunting, trapping, and fishing. The aged and some women and children are left in semi-permanent villages, which were usually located near a corral or caribou drive. But as each group had several corrals, they sometimes lived near one and sometimes near another. Their houses, which were built of willow branches or, where wood was available, of short timber, will be described later.

The younger people who traveled around in pursuit of game lived either in temporary dome-shaped houses or tents made of plaited willows and covered with two layers of caribou skin which had a final covering of 6 to 8 inches of snow. When they moved, they carried the poles and skins with them. The snow covering of the structure, which meanwhile had frozen solid, was left standing and could be used as an emergency shelter in bad weather. The ordinary snowhouse was also used. (See p. 56.)

In addition to caribou hunting, mostly by driving the animals into a corral and snaring them, the most important occupation during the winter was fishing through holes in the ice of rivers and lakes. Fish were taken with hooks or spears, in traps, or with dip nets. A snowhouse was sometimes built over the fishing hole, and served as a shelter.

Late in April or in the beginning of May, when the sun had gained enough power to affect the snow and the caribou began their yearly migration towards the coast, the Eskimo abandoned their winter life, loaded their sleds with all their possessions, and followed them slowly. With heavily laden sleds and seldom more than four dogs to pull them, nobody rode. The people followed the sled on snowshoes, or harnessed themselves and helped the dogs pull it. The goal of every sled party was the rendezvous of the band. This meeting place might be the village where the rest of the family had wintered or places like Kigalik on the upper Ikkpikpuk River and Aniuk on the upper Noatak, where they had stored their boats the previous fall. Both Kigalik and Aniuk were located at the end of navigation. In the fall, when they reached the chosen place, they removed the covers from the umiaks and kayaks, placing the boat frames on a rack and storing the covers in a cache beneath it. The Utorqarmiut usually met at Pingalo, a village about 100 miles up the Utorqaq River.
At the rendezvous they awaited the break-up of the ice. This was not, however, a period of leisure and relaxation. During the daytime everybody was occupied with preparations for the journey to the coast; the men had to replace the skin covers on the boats or build new boats; the women were busy making clothing to use at the coast (inland skins must not be worked at the coast); and the children gathered wood and berries. In the meantime the men were constantly on the lookout for caribou which might pass their camp en route to the coast. The men carried out their tasks in a qalegi, a circular enclosure of poles and caribou skins erected in the middle of the camp. At night they exchanged their tools for drums, and for hours and hours, the rhythmic beat of the drums broke the silence of the arctic spring night. Everybody joined in this orgy of joy. The strenuous winter with all its hardships was behind them; ahead was the gay trip down the river, the coast with plenty of seal meat and blubber, and the excitement of meeting and trading with the Tareormiut.

The ice usually broke the first week of June. As soon as the river had calmed down after the first violent rise, the boats were launched and the coastward journey was begun. Women, children, and the boatmen rode in umiaks covered with bearded seal skins, like those used by the Tareormiut. The younger men rode in caribou skin covered kayaks. The owner of the umiak steered it from the stern and, whenever paddling was necessary, the women paddled. It was easy to keep a boat going with the current, and very often they broke the monotony with a song. The parties halted frequently while the men hunted caribou or went fishing and the women dug roots or picked berries which were sweet after the winter frost. The dogs hauled caribou meat packed in two seal or caribou skin bags, resembling saddle bags.

Immediately preceding their arrival at the coast, all the Utorqarmiut camped together. Tulareaq, at the mouth of the Utorqaq River, is one such camping place. The tents, which consisted of a framework of willow poles covered with caribou skins, were arranged in long, equally spaced straight rows, with the boats in a row, one in front of each tent.1 In this camp they made additional equipment for use at the coast. Clothing, spears, utensils, and artifacts that were made inland could be used only after the performance of a special ceremony, just as caribou meat could be eaten only after a little caribou fat had been burned on the beach. When the equipment was ready and the ceremonies were concluded, they spread out along the coast in groups of two to five families to hunt seals. The seals were either stalked as they basked on the ice or were harpooned from kayaks. Neither a float nor a throwing board was used with the harpoon.

When the sea ice broke up, late in June or early in July, the Utorqarmiut congregated again to hunt walrus at one of several sites, Iwilik, Sutlevik, or Utorqaq, all located between Icy Cape and the mouth of the Utorqaq River. Walrus were hunted from umiaks and killed on floating ice or in the water with harpoons or lances with flint blades.

The Noatarmiut people gathered at Shesholik to hunt white whales by driving them into shallow water and killing them with lances and harpoons.

While camping at these sites, they also made all the artifacts that they were going to use in the interior: bowls and dishes of driftwood, seal lines, and water boots. In the past they also met the Tareormiut on the coast. Utorqaq, near the entrance to the lagoon and opposite the mouth of the river of the same name, was the favorite meeting place of the Utorqarmiut and all the Tareormiut who lived between Wainwright and Point Lay. The two groups camped separately, but visited each other for feasts and, more important, to trade. The Nunatarmiut bartered baleen, oil, water boots, and seal thongs for caribou and wolf skins, sinew, snowshoes, and willows for tent poles, bows, etc.

The most famous trading place in arctic Alaska was Kotzebue, where the Nunatarmiut, especially the Noatarmiut, Kovagmiut, and Selawingmiut, met people from Point Hope, Shismareff, Cape Prince of Wales, the Diomede Islands, and even from more remote places. Another trading center was Nequleq at the mouth of the Colville River where the Kanganermiut met and traded with the people from Point Barrow.

Usually in August, before the rivers froze, the Nunatarmiut started back towards the interior. With boats heavily laden with seal skin

1 See Nelson, 1899, 262.
bags full of oil, walrus tusks, rawhide lines, etc., and traveling against the current, the going was much slower than in the spring. Dogs were harnessed to a long towing line; one man led the dogs and another held the line up. At shallow places the women in the boats had to help by poling. Their goal was one of the five or six caribou corrals where they had decided to spend the first part of the winter. The Utorqarmiut usually stopped at Pingalo which could be reached by boat. Others went as far as the boats could float, then set them on racks and continued on foot, loading their belongings on the dogs.

Before they began to prepare the corral, which had to be done before the soil froze, they hunted caribou from kayaks in the rivers or lakes, killing them with flint-bladed lances. Another hunting method used at this time of the year was to build rows of inuksut, which led to the entrance of a narrow mountain pass. The caribou were driven in between the inuksut towards the pass where they were killed from ambush with arrows.

The most used and most rewarding method of hunting caribou was, however, the caribou drive or corral. The principle of this method is to drive a caribou herd between two converging rows of inuksut towards a circular arrangement of snares, or slip nooses, in which the animals are caught. They are then killed with spears and bow and arrow. A detailed description of this method is unnecessary here, as Stefansson's sketches of a caribou drive and the type of snare used are accompanied by adequate explanatory captions. A caribou drive on Oman, a hill near Pingalo used by the Utorqarmiut, corresponds in general to Stefansson's sketch. Notable differences are that the Oman drive had only two rows of inuksut, but three rows of snares. Each man prepared and owned a section of all three circles and got the animals caught in his own snares. This method was not used until snow covered the ground, but the inuksut and the stakes to which the snares were tied were put in the ground before it began to freeze.

Other important occupations in the fall were fishing, for the men, and picking berries and root digging, for the women. The men caught grayling, whitefish, and salmon either in fish traps, with nets, or with hooks. The women cooked the berries and roots and preserved them in bags with oil.

As we have seen from the preceding brief sketch, the Nunatarmiut annual cycle follows a pattern markedly different from that of the Tareormiut. The question arises now, how deeply rooted is this difference? Is the culture of the Nunatarmiut original or are they merely Tareormiut who have moved inland and adapted their culture to the new geographical conditions? Birket-Smith, who previously raised the same question, seems to favor the latter supposition because of "their intimate connection with the sea," a view he shares with Weyer who calls the Nunatarmiut "habitually inland dwellers."

It is true, first, that the majority of the Nunatarmiut are dependent on the sea for oil, lines, and skin covers for their umiaks; second, that some of them may remain at the coast one or more winters and hunt seals through the ice when caribou hunting, for one reason or another, is poor, and, third, that their implements are virtually identical with those of the Tareormiut. On the other hand, many Nunatarmiut culture traits differentiate them from the Tareormiut. These can be explained only if we consider the Nunatarmiut and the Tareormiut as representing two fundamentally different variants of the Eskimo culture.

Returning to the quotation from Birket-Smith, we fail to see that the Nunatarmiut have an "intimate connection with the sea." Only a few of them spend more than a month or two on the coast every year, and others live their whole lives in the interior and have absolutely no knowledge of sea mammal hunting. The situation is the same for the Caribou Eskimo whom we consider typical inland Eskimo. When the Nunatarmiut occasionally did remain on the coast for a longer period, they did not participate in the whale hunt, neither did they use floats for seal hunting as did the Tareormiut. It is true that their implements have a certain similarity, but borrowing or learning from each other by neighboring people is inevitable. But group contacts work both ways, and it is often difficult to determine

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1 Inuksuk: a thing of stone or willow which resembles a man.
2 Stefansson, 1914, Figs. 93–94.
3 Birket-Smith, 1929, pt. 2, 223.
who is the originator and who the imitator.

The major differences between the coast and the inland cultures have already been mentioned, viz., the settled life of the Tareormiut and the roving Nunatarmiut, and the whale as against the caribou as the main economic factor. Several other differences between these two groups should be stressed; the most important of these is the winter dwelling. A comparison between the coast and inland winter dwelling shows clearly fundamental differences that definitely eliminate the possibility that the Nunatarmiut house is a variant of the Tareormiut house transferred to the interior. The typical Tareormiut winter house is a solid structure consisting of several layers of heavy sod blocks (kardalik), placed as in a brick building, and lined on the inside by upright logs and whalebones. The roof, which is also covered with sod blocks, is supported by horizontal beams with their ends resting on the walls. A passageway, 9 to 10 meters long, led to one of the short ends of a rectangular or trapezoidal living room. The floor of this passageway is at least a meter below the floor of the living room, thereby creating a “cold trap.” Opening out from the sides of the entrance passage were small rooms used as a kitchen and for storage. The rear of the living room, which was entered through a hole in the floor, was occupied by a sleeping platform raised so high above the floor that people could sleep under it as well as on it. Light and heat were furnished by two blubber-burning lamps placed against each side wall in front of the platform. Drying racks hung above the lamps. A rack which held snow blocks, from which water dripped into a bucket beneath it, completed the furniture.

The Nunatarmiut house as it was used in the interior was of a much lighter construction. It consisted of a framework of willow branches or spruce logs, covered with thin light moss turf (ibrulik), arranged like shingles. This layer increased in thickness towards the bottom and, with the whole structure covered with dirt, it looked like a dome-shaped or oblong mound of earth. The roof was usually supported by four posts arranged around a central fireplace, and often by an additional post at each of the four corners. The center posts were higher than the corner posts, resulting in a roof which was horizontal at the center and sloped downward all around. The house was entered through a short passageway or storm-shed, the floor of which was level with the house floor. In earlier days the house was semi-subterranean, and the entrance floor formed a gentle slope from the surface to the house floor. A bearskin hung over the outer doorway, a caribou skin over the doorway leading into the house proper. The center of the house was occupied by an oval or rectangular fireplace outlined by stones or logs. Around the fireplace, and inside the four corner posts, the floor was usually covered with split logs or planks parallel to the four walls. At either side of this wooden floor were sleeping platforms of sand or gravel covered with willows. The inner edge of each platform was supported by a heavy log which also served as a pillow. The space behind the fireplace was used for storage. When the fireplace was not in use for cooking, a square opening in the roof above it was covered with a gutskin window or a cake of ice. The groundplan of the houses varied considerably. Oblong or square houses, sometimes with rounded corners, are the most common, but other forms occur. In the oblong houses the entrance is always on one of the long sides, in contrast to the Tareormiut house where the entrance is usually on the short side. Sometimes these houses also have an alcove in the back wall, a feature which is typical of the so-called Mackenzie house.

Aqergognat, an abandoned village near the north end of the lagoon in which the Utorqar River empties, a site partly excavated by Larsen in 1942, furnishes an excellent example of the striking difference between the Tareormiut and the Nunatarmiut houses. The village consists of 16 house ruins, six of them of the Tareormiut type, with high solid walls surrounding a deep rectangular depression and long deep tunnels with kitchen and storerooms. The rest of the ruins were shallow depressions surrounded by a low, barely visible wall. The two types of houses were undoubtedly occupied contemporaneously. Of the Nunatarmiut houses, seven were oblong, each with two sleeping platforms. Two had only one platform but were otherwise like the rest, and one was of the Mackenzie type. All these houses were built of driftwood; consequently they were more solid than most inland houses. In none of them was the floor excavated more than 2 feet, and in most the excavation was shallower.

Semilunar stone lamps, probably imported
from the east, were used by the Nunatarmiut, but these were not used for cooking. They used pottery and knew how to make pots, but, according to two informants, cooking pots were mostly obtained from Cape Prince of Wales and Shismareff. That, as well as the frequent use of hot stones for boiling, seems to indicate that their original cooking vessels were made of wood or bark and that pottery is an introduced trait. Roasting on a flat stone was another cooking method.

As a background for our study of the prehistory of arctic Alaska, we have tried to give a picture of the country and the possibilities it offers to human occupation. We have seen how the different geographical conditions of the coast and the interior are reflected in the culture of two Eskimo groups, the Tareormiut and the Nunatarmiut. In our opinion the cultural difference between these two groups is deeply rooted and cannot be explained by the geographical conditions alone. One factor which undoubtedly is responsible for some of the differences, that is, the contact of the Nunatarmiut with their neighbors to the east, the Athapascan, has not been mentioned. But it is possible that two important traits, the use of snowshoes and the caribou drive, were adopted from them. We do not know whether the physical type of the Nunatarmiut has been influenced by contact with the Indians or whether the tall lean Nunatarmiut, with the narrow face and the long, high-bridged nose, was originally different from the coast Eskimo. This problem can be solved only by a comparative study of a sizable number of representatives of these three peoples.
THE ARCTIC WHALE HUNTING CULTURE

Of the two groups of Eskimo that have been described in the preceding section, the Tareormiut and the Nunatarmiut, the former is the better known both ethnologically and archaeologically. While archaeological investigations in the interior of arctic Alaska are of very recent date,1 excavations of prehistoric sites have been carried out in the coastal regions for more than three decades, resulting in large archaeological collections, especially from Barrow and Point Hope. However, these collections are limited in scientific significance because they were procured in large part through random digging by local Eskimo. Though they do provide some idea of the prehistoric material culture of the Eskimo, for data on the cultural development in this area we must resort to the few collections that were systematically excavated. But even these fail to supply the answers to certain important questions, such as the origin of these Eskimo and their relationship to other Eskimo groups. However, our sources of information are not limited to this area proper. The culture of the coastal Eskimo of arctic Alaska is part of a culture pattern that at one time occupied the arctic shores of North America and adjacent parts of Asia from the mouth of the Kolyma River to East Greenland. Only by considering this area as a unit do we attain a full understanding of the prehistory of the Tareormiut. We shall briefly summarize previous archaeological work in this larger area with special reference to its western section, so that we may not only explain the prehistoric background of the Tareormiut but attempt to prove that we are dealing with a single culture and that the different names applied to it merely represent various phases of the same culture.

Therkel Mathiassen, archaeologist on the Danish Fifth Thule Expedition, 1921–1924, under the leadership of Knud Rasmussen, was the first to realize the existence of a prehistoric Eskimo culture that extended from northeastern Asia to Greenland. This culture, which he named the Thule culture, is based primarily upon sea mammal hunting, especially whale hunting, and is further characterized by permanent settlements located at places favorable for hunting whale, walrus, and seal. The settlements consisted of semi-subterranean houses solidly built of stone, whalebone, and sod, each entered through a long, deep tunnel. The houses were heated and lighted by stone lamps that were also used for cooking. The hunting gear and tools were functional, simple in form, but of good workmanship. Relatively few artifacts were decorated; the art motives, mostly geometric, were few and simple. Mathiassen’s description of the Thule culture is based primarily on material excavated by himself and other members of the expedition north and west of Hudson Bay, but he discovered, by comparison with material from other regions, that the same culture at one time extended from Siberia to East Greenland and that remnants of it still existed, though in a modified form, in Alaska and Greenland, while in the central area it had been replaced by the culture of the Central Eskimo. He found, by comparing the various types of implements, that the earliest forms occur in the west, and concluded that the cradle of the Thule people was in Alaska or adjacent parts of Siberia.2

Mathiassen was correct in this assumption, but he did not realize that evidences of a culture ancestral to the Thule culture had been brought to light near Barrow 10 years previously by Stefansson. At Birnirk3 Stefansson had excavated a mound, 4 meters high, covering five round house structures. Whalebone was used in the construction of the houses which contained an abundance of potsherds and a fairly large number of slate and flint implements.4 Only a small part of Stefansson’s Birnirk collection has been published, specifically the harpoon heads, which deviate in certain respects from the Thule harpoon heads. Characteristic of the Birnirk heads is a bifurcated or trifurcated spur and the presence of one or two flint side blades.5

In 1918–1919 W. B. Van Valin excavated some mounds near Utqiavik and Nunavik in the same region. The mounds contained rectangular houses built of driftwood covered by thick layers of sod. The wall timbers were vertical,

1 Giddings, 1944.
2 Mathiassen, 1927.
3 Probably the same as Perignak, where according to Patrick H. Ray, “a group of mounds mark the site of an ancient village,” 1885, 37.
4 Stefansson, 1914, 393–394.
5 Wittler, 1916, Figs. 3a–e, 4a–d.
and the roof consisted of parallel poles resting on the side walls and a ridgepole. The collection was described by J. Alden Mason as belonging to the Thule culture. Apart from the occurrence of the characteristic Birnirk type harpoon heads, there is little difference between Van Valin’s find and Mathiassen’s Thule culture.\(^1\) The Birnirk site was reexamined in 1931 by James A. Ford, who was able to prove the existence of a culture stage characterized by the Birnirk harpoon heads, which antedated the Thule culture.\(^2\)

Meanwhile, Diamond Jenness, who in 1926 had made the first systematic excavation in Alaska, had set up a chronological series of harpoon heads in which he placed a Birnirk head as the earliest known type and two different Thule type heads and a modern type as subsequent forms.\(^3\) Jenness’ chronology was based on the results of his excavations at Wales and Little Diomede Island. Here, as at Barrow, the house remains indicated solid structures of sod, logs, whalebone, and stone. They represented two or three periods, but Jenness found that Eskimo culture underwent remarkably little change for several centuries preceding European contact.\(^4\)

During his stay at Little Diomede Island, Jenness saw an extraordinary harpoon head which had been found 8 feet below the surface. Like many Birnirk heads it had three spurs, but in contrast to these the surface was covered with extremely fine etchings in the form of concentric circles and plain and spurred lines. Other objects, possibly of walrus ivory, with similar decoration were obtained on the Diomede Islands by Jenness and from St. Lawrence Island and other places in the Bering Strait region by Aleš Hrdlička and Otto William Geist. Jenness realized that these objects belonged to a distinctive and highly developed Eskimo culture, apparently the oldest culture yet discovered in the western Arctic, preceding, at least at Wales and on the Diomede Islands, the Thule stage as exemplified by the mound dwelling at Wales and by similar ruins at Point Hope and Point Barrow.\(^5\)

The discovery of this Old Bering Sea culture, as it was later called, immediately aroused interest in Alaskan archaeology, and the following decade witnessed much activity, especially on St. Lawrence Island, where most of the examples of this culture had been obtained. On this island and on the neighboring Punuk Islands, the Alaska Agricultural College and School of Mines (now the University of Alaska) and the Smithsonian Institution carried out large scale systematic excavations over a number of years. Thanks to these institutions and the men who did the actual work, we now have a clear picture of the cultural development on these islands from the most ancient to recent times. A considerable number of sites have been investigated by both institutions, but the principal efforts were finally concentrated on two localities. The main excavations of the Smithsonian Institution were at Chubukak, near the present village of Gambell, while the University of Alaska chose Cape Kukuliak, near Savoonga, as its objective. The two localities were of a different nature and supplemented each other perfectly. At Gambell, Henry B. Collins, Jr., and his assistants found five sites of different ages, of which the earliest, the Hillside site, represented the Old Bering Sea culture, while the latest had been abandoned for about 50 years. The Kukulik site, on the other hand, consisted of a huge midden, more than 20 feet deep, in which the various culture periods were represented by layers, the Old Bering Sea culture being at the bottom, the modern Eskimo culture at the top. The result of these excavations was very satisfactory, and the cultural sequence established by Collins on the basis of the Gambell excavations\(^6\) was confirmed by Geist and Rainey who excavated at Kukulik.\(^7\) Collins distinguished between three cultures, Old Bering Sea, Punuk, and Modern; Geist and Rainey, operating with more extensive material, were able to distinguish six culture phases: Old Bering Sea, Birnirk, Punuk, Thule, Recent-Prehistoric, and Modern. The Birnirk and Thule phases were recognized by the presence of Birnirk and Thule type harpoon heads, which also occur in Collins’ find, but since it has been impossible to distinguish any other types of implements associated with these harpoon heads.

\(^1\) Mason, J. Alden, 1930.
\(^2\) Collins, 1933.
\(^3\) Jenness, 1928, Pl. 12.
\(^4\) Ibid., 74.
\(^5\) Ibid., 78.
\(^6\) Collins, 1937.
\(^7\) Geist and Rainey, 1936.
heads, their occurrence on St. Lawrence Island is probably due to contact with culture phases centering outside this island.

The most conspicuous difference in the cultures or culture phases of St. Lawrence Island is in the decorative art. Characteristic of the Old Bering Sea phase is the elaborate curvilinear style of decoration mentioned above; in Punuk the decoration is much simpler and stereotyped; and in the two latest phases decorated objects are virtually absent. Collins, who has given the most thorough description of the Old Bering Sea art, distinguishes three different styles: Style 1, found on objects from the earliest layer of the Hillside site, is simpler than Style 2; Style 3 seems to be a further development of Style 2. Of the three styles, 2 and 3 are closely related and difficult to distinguish, while Style 1 is definitely individual. In 1941 Rainey published some archaeological material, from Punuk Island excavated by Geist and Skarland and from St. Lawrence Island excavated by Giddings, which was decorated in Collins' "Old Bering Sea Style 1." From this it is apparent that the eight artifacts from the Hillside site decorated in "Old Bering Sea Style 1" actually belong to another and obviously earlier culture phase than Old Bering Sea. This phase, Okvik, deviates just as much from Old Bering Sea as this does from Punuk. In addition to the decoration, which is more frequently used than in Old Bering Sea, we find differences, for instance, in the house form, in the shape of harpoon heads, socket pieces, knife handles, and in "winged" objects. Types of implements like flaking hammer heads, composite flint flakers, and human figurines occur, all unknown in Old Bering Sea. According to the latest data we thus have five cultures or culture phases on St. Lawrence Island: Okvik, Old Bering Sea, Punuk, Recent-Prehistoric, and Modern. In arctic Alaska we have Birnirk, Thule, and Modern; in the central and eastern Arctic, we have the Thule and Inugsuk cultures.

In Eskimo literature there has been a lack of consistency in the use of the terms culture and culture phase. The term culture is generally applied to Old Bering Sea and Thule, but Punuk, for instance, is sometimes called a culture, sometimes a phase. Since Old Bering Sea is no longer the earliest and seems in no way more significant than, for instance, Okvik and Punuk, we see no reason why the same term should not be applied to all of them. Since there is no actual culture difference between the three, only a change in style of decoration, in the shape of harpoon heads, in a few other types of artifacts, and the normal appearance or disappearance of others, we believe that they should all be termed what they really are, namely, phases, stages, or periods of the same culture complex. Instead of pointing to the differences, we should emphasize the similarities, especially those that form the foundation of the culture. The fundamental elements of this culture are sea mammal hunting with floats in open water, a permanent, solidly built winter house with a deep, long entrance, pottery or stone lamps and cooking pots, rubbed slate implements, an extensive use of baleen, a knowledge of the sled and bow-drill. These are the characteristics of Mathiassen's Thule culture, and it would have been logical to use that name for the culture as a whole. However, since the name Thule is used principally to refer to the eastern Arctic, we believe it is more practical to assign a new name to the culture and retain the names already established, Okvik, Old Bering Sea, Birnirk, Punuk, Thule, and Inugsuk, to designate the culture phases. As there is a difference between the Thule phase of Alaska and that of the eastern Arctic, we suggest their identification as western and eastern, respectively. As the name for the culture we suggest the Arctic Whale Hunting culture, since whale hunting seems to have been the most important economic factor. The word Arctic is added to distinguish the cultures from those of south Alaska and the Aleutians which do hunt whales, but with other methods.

1 Rainey, 1941a.
ANALYSIS OF THE IPIUTAK CULTURE

HOUSES

The description of the Ipiutak village site (p. 21) and the excavation data on the individual houses, their appearance, dimensions, and contents (p. 187) have exhausted all the evidence obtained through the field-work. Our task now is to present a synthesized picture of the Ipiutak house. Despite the large number of houses excavated and the relatively good state of preservation of some of them, we cannot reconstruct the house type completely on the basis of the field data alone, but must resort to information gathered from similar houses elsewhere. This is especially applicable to the construction of the walls and roofs of which virtually nothing remained, though we have a fairly clear conception of the interior arrangement.

As is apparent from the groundplans and the descriptions of the houses, variations in shape, size, and interior arrangement are so negligible that we can consider them as representing a single type. This simplifies our task. We can confine ourselves to the description of a standard house, merely noting the variations where they occur. The Ipiutak house was semi-subterranean. The depth of the floor below the surface varied from house to house, but less so within a single row of houses than if we include the entire village in the comparison. This is evident from the measurements given in Table 1 below.

In the left-hand column are shown the depths of the shallowest and deepest house in each row (Rows B and C are here considered as one, as they are difficult to distinguish in some places), as well as the average depth of all the houses in the row. The floor depths increase from south to north, probably because the northernmost houses, which are closest to the ocean shore, were covered by drift sand; hence, the average for Row B+C probably gives the most accurate picture of the original conditions. That the floor levels in Row E were actually lower than in Row D and those in Row D lower than in Rows B+C is apparent from the middle columns of the table—the height above sea level of the deepest and highest floor in each row and the average height for all the houses in each row. This is because the ground rises towards the south, a fact which is evident from the corresponding figures from the surface. We conclude, therefore, that though there was some variation in the depth of the house, the variation was approximately the same over the entire village during the period of occupation. Though we believe 73 centimeters to be the most accurate average depth, it is probably too high, a conclusion based on certain observations made during the investigation of the site. In several places outside the house pits, below the sod at a depth of about 20 centimeters, we observed a layer of black gravel different from the sterile gravel found at greater depth outside the village. We exposed this layer in excavating around House 53 and in test pits at a greater distance from the house, confirming our assumption that it was present over the whole village. In the exposed area the surface of this black gravel was rather uneven, with small bumps and depressions. The only sensible explanation seems to be that this black gravel layer represents the surface of the village at the time of occupation. If we are correct in this assumption, the overlying 20 centimeters of gravel and sod have accumulated since the oc-

<table>
<thead>
<tr>
<th>Row</th>
<th>Depth of Floor Below Surface (in cm.)</th>
<th>Height of Floor Above Sea Level (in cm.)</th>
<th>Height of Surface Above Sea Level (in cm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B+C</td>
<td>Min. 50</td>
<td>Max. 91</td>
<td>Average 73</td>
</tr>
<tr>
<td>D</td>
<td>Min. 70</td>
<td>Max. 103</td>
<td>Average 85</td>
</tr>
<tr>
<td>E</td>
<td>Min. 73</td>
<td>Max. 114</td>
<td>Average 91</td>
</tr>
</tbody>
</table>

40
cupation, primarily by the formation of the sod, and possibly also through the action of the sea when, during exceptionally high tides and storms, the entire spit is submerged, which happens occasionally. A similar situation was observed at the Ipiutak cemetery, where remains of surface burials were found 10 to 25 centimeters below the present surface (p. 58). To determine the actual depth of the Ipiutak houses we must therefore subtract 20 to 25 centimeters from the depths as measured. Thus we arrive at an average depth of about 50 centimeters for the houses.

In groundplan the Ipiutak house was a square, with more or less rounded corners. Some houses were slightly longer in one axis; only one, House 51, was definitely rectangular. The houses range from 3 by 3 to 6 by 7 meters, but the majority of the excavated houses were between 4 and 5 meters square. The characteristic features of the groundplan are the fireplace, the floor, and the sleeping platforms. The fireplace, a round or oval heap of ashes and oil-coke, is nearly always in the east-west axis of the house, usually a little west of the center, in the middle of the floor. The square or rectangular floor was covered with logs or consisted of hard-packed gravel. In the first houses excavated, we did not always succeed in establishing the presence of the floor, probably because of our faulty excavation technique; later, we sometimes failed because of the poor state of preservation. Whenever wood was present in the houses it was usually concentrated around the fireplace, either in the form of flooring consisting of parallel logs, as in Houses 38, 40, 50, and 55, or as a layer of wood fibers. Evidently the logs were preferably placed parallel to the corresponding wall, that is, in an east-west direction at the north and south of the fireplace and vice versa in the opposite direction. The space in front of the fireplace frequently had no wooden flooring. Presumably the lack of remains of a wooden floor in most of the houses is due to the bad state of preservation. Some houses, like House 65 (Pl. 97, Fig. 3) had only a hard-packed gravel floor. The gravel platforms which surrounded the floor on three sides, filling the entire space between the floor and the north, east, and south walls, were usually very low; only a few were raised more than 10 centimeters above it. Heavy logs were placed along the edges of the platforms to prevent them from sliding into the floor. Remains of these logs were found in several houses. In some, they framed the floor almost completely (Pl. 97, Figs. 2, 3). Houses 36, 40, and 65, with many logs on the platforms, are exceptions. Remains of willow branches were found on the platforms of several houses, suggesting that these were undoubtedly used as a support for the bedding, probably caribou skins. In none of the houses was there a trace of a platform along the west wall. In House 41 (Fig. 4) the platforms extend to the west wall, leaving a lower space in front of the entrance, but we cannot be sure, for lack of sufficient examples, whether this arrangement was unusual. Before describing the superstructure of the house, we should mention that the deepest deposits and the greatest concentration of artifacts were below the rear platform, especially its northeast corner. It is our impression that this was the working area in the house, that most of the flint chipping and carving of ivory and antler were done here; consequently we assume that it was the special place for the head of the family.

As already mentioned, our investigations produced scant evidence as to the construction of the roof and walls. The walls contained no stones, bones, or timber; only their position was
determinable. However, to judge from the remains of logs lying inside some of the houses and the absence of any other building materials, we can be reasonably certain that logs and possibly willow branches were used in the superstructure. In several houses we found parts of logs lying on the floor and platforms. To judge from their position, often at right angles to the walls, it is obvious that they could not have been part of the flooring or platform cover; hence, these must have been wall and/or roof timbers. Fig. 5a shows House 54 after the removal of the sod and a layer of gravel. The logs radiating from the fireplace were undoubtedly the remains of the superstructure, since we found hard-packed gravel and parts of a wooden flooring (Fig. 5b) beneath them. From this and other examples, we can assume that the walls consisted of perpendicular logs or poles. Thanks to the good state of preservation of House 65, we know how the walls and the roof were supported. The groundplan (Fig. 6) shows a post in each of three corners of the floor; even though we were unable to find the fourth post, we are reasonably certain that a post was originally set in each corner. At the top the upright posts were probably connected by horizontal poles, thus forming a frame, square or rectangular, according to the position of the posts. The wall timbers were probably leaned against this frame. For the rest of the construction, we must resort to other sources of information.

A comparison between the Ipiutak and the Nunatarmiut house (p. 35) produces so many points of resemblance that their close relationship is indisputable. Since the groundplans of the two houses are virtually identical, we can be reasonably certain that their superstructures did not differ greatly. Let us first compare the groundplan of the Ipiutak house with that of a house on Ambler Island on the upper Kobuk River excavated and illustrated by Giddings. The following traits are identical: the shape, the size, the fireplace in the middle of a wooden floor, the surrounding low gravel platforms originally covered with willow branches with a heavy log along the inner edge, and the four roof supporting posts in the corners of the floor. Except for the stones lining the fireplace, the Ambler Island house could just as well have been one of the Ipiutak houses. Following his description of the Ambler Island houses, Giddings calls attention to the great similarity between these prehistoric houses on the right bank of the Kobuk River and a house opposite the island occupied each winter by a family from

1 Giddings, 1944, Fig. 6a, Pl. 10 (upper), and 117.
Shungnak. The groundplans are almost identical, the main difference being that a stove has been substituted for the open fireplace.

Upright poles form the walls; cross-beams are laid into notches made in the top of supporting posts; the top of the roof is flat; and the whole structure, strikingly similar to that of the Ipiutak house, although the Hotham Inlet house is larger and more carefully made with a plank floor and platform covering. It differs from the Ipiutak house in one essential point: it had a deep underground entrance passage which terminated in a hole in the floor, a feature which, as we shall see later, is borrowed from the Tareormiut. The superstructure is obvious from the sketch and needs only a few comments.

... a roof sloping down on all sides, like that of a verandah, from a square framework in the centre, supported by four straight pillars, one at each corner, seven feet high and eight feet apart. ... The walls were only three feet high, and inclined slightly inwards the better to support the sloping roof, ... [The logs between the floor and the platforms were] rounded on the upper surface to rest the head upon during sleep.

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1 Giddings, 1944, 117–118 and Fig. 6b.
2 Simpson, John, 1875, 255–256.
Simpson continues with descriptions of other inland houses:

A modification of the last form, built of undressed timber, and sometimes of very small dimensions, with two recesses [platforms] opposite each other, and raised about a foot above the middle space, is very common on the shores of Kotzebue Sound; but on the rivers, where trees grow, structures of less

1 Houses of the same type, built by Utorqarmiut, were excavated by Larsen at Aqergognat near Icy Cape in 1942.

permanent kind are erected. Then the smaller trees are felled, cut to the length required, and split; then laid inclining inwards in a pyramidal form, towards a rude square frame in the centre, supported by two or more upright posts. Upon these the smaller branches of the felled trees are placed, and the whole, except the aperture at the top and a small opening on one side, is covered with earth or only snow. The entrance is formed of a low porch, having a black bear-skin hanging in front, leading to a hole close to the ground, through which an unpractised person can hardly creep, farther protected from the breeze by a flap of deer-skin on the inside. In the hilly districts, near the source of the Sparaefel River, this sort of snow covered hut was in use, and the inland tribes on the Nu-na-tak, are described as living in dwellings of a similar kind, constructed of small wood, probably built afresh every year, and not always in the same locality. A stranger approaching a village of this description, if the numerous footmarks happened to be obliterated by a recent drift or fall of snow, might readily pass by unconscious of its existence, unless he happened to catch a glimpse of the black bear-skin doors, which are all turned in one direction.  

With the same groundplan and a superstructure in which we find identical basic elements, the four posts and perpendicular wall timbers, we can be fairly certain that the Ipiutak house had the same general appearance as the Nunartmiut houses described above. It is, of course, impossible to decide as to which one of these houses it bore the closest resemblance, but considering its antiquity we must assume that it is to the primitive inland houses rather than to the more refined Hotham Inlet form. If our assumption is correct, the wall timbers were inclined inward and rested directly on the upper frame, leaving space only for a small, square, probably flattish roof around the combined smoke hole and window. When not in use as a smoke hole, the window probably consisted of getuskin in summer and a cake of ice in winter. The walls presumably were made of heavy poles with smaller sticks filling the intervening space. This framework was covered with turf which is evident from the layer of usually tough grass or moss turf we found resting directly on the floor and platforms of most of the houses. The turf was probably like the relatively thin ibruliks used by the Utorqarmiut (p. 35) and was laid like shingles. The whole structure was then covered with earth; in winter with earth and snow, or only snow. Since the houses had rounded corners and were covered with earth, they probably looked more like a dome-shaped hut than a square house.

So far we have not mentioned the entrance, one of the most difficult problems in reconstructing the Ipiutak house. As described elsewhere (p. 16) indications of an entrance passage were found in front, that is, to the west, of many houses, but despite careful test digging we were unable to locate one in front of every house (Pl. 97, Fig. 4). We are inclined to believe that all the houses had a side entrance and some sort of passage or storm-shed, which of course would not exclude the possibility that they also had a roof entrance. If the houses had a roof entrance, it is strange that we found no traces of a ladder, a heavy pole with steps or foot holes, similar to that used in other underground houses with roof entrances. Wherever we encountered an entrance passage the bottom was either higher than the house floor or on the same level. The deep entrance passage which terminates inside the house below floor level and thus acts as a trap for cold air was not used at Ipiutak, or in the Utorqarmiut houses excavated in 1942, or the houses excavated by Giddings on the upper Kobuk. The houses at Ahteut and Ekseavik on the middle Kobuk and Simpson’s Hotham Inlet house had the cold trap.

Two Ipiutak houses (Houses 31 and 51) deviated from the rest. They were larger and definitely rectangular. House 31 was 7 by 6 meters and had a very thin deposit, while House 51 (6.5 by 4.5 meters) was one of the best preserved of those excavated (Fig. 8). The oval fireplace was in the middle of a gravel floor which was surrounded by a wooden floor consisting of long planks or logs so precisely fitted together that almost no gravel was visible between them. Between this floor and the narrow gravel benches along the walls were a number of small sticks and wood chips, apparently refuse from wood carving. We suggest that these two houses were comparable to the later qalegit, but we have no further evidence to substantiate this suggestion.

Undoubtedly the most astonishing feature of the Ipiutak village is its enormous size. Five hundred seventy-five house pits are located on

1 Simpson, John, 1875, 258–259.
2 Giddings, 1944, 117.
3 Ibid., 122, 127.
Fig. 8. Groundplan of House 51.
the map (Fig. 3), but that is far from the total number of ruins. Despite the fact that the map was made under the most favorable conditions, other ruins were discovered later through test digging or by accident. This was true in Row E where the ruins were covered with drift sand. Seventy-five ruins were located in this row, but there may be 100 or more. The actual number of ruins at Ipiutak is probably somewhere between 600 and 700, excluding those washed away by the sea, which is rapidly wearing away the north shore of the spit. This was evident not only along the bank beyond the boundaries of the Ipiutak site, but also in front of the Tigara village, where approximately 56 houses had disappeared between 1924 and 1939. We do not know the time span for this destruction nor whether the Ipiutak houses have vanished at the same speed as at Tigara, but we can imagine the original Ipiutak village as an enormous site. One obvious question is, were all these houses inhabited simultaneously? The answer is very difficult because some of the evidence is affirmative, the rest negative. To begin with the former: the artifacts found in the houses are so uniform that it is impossible to detect any cultural differences in the houses, despite our efforts to excavate in all parts of the village. On the other hand, it is inconceivable that 4000 to 5000 people, or more, could have sustained life here, even if the hunting conditions were better than they are today, and especially since the Ipiutak people probably did not hunt the large baleen whales which are now and have been for many centuries the basis of the economy of the population. Furthermore, even if there were more driftwood than now, it seems inconceivable that there was enough for the construction of so many houses, each of which must have required a considerable quantity of wood.

Finally, there is the fuel problem. Unlike the later occupants of Point Hope, the Ipiutak people had no blubber lamps and must have used an enormous amount of wood for cooking and, if they occupied the village in the winter, for heating as well. They may also have burned blubber on the open fireplace, but wood must have been the staple fuel. It is certain that at least some of the houses were not occupied simultaneously; they were built in such close proximity that one house barred the entrance to another.

With all these arguments against contemporaneous occupation, we are inclined to believe that the village was built piecemeal. The most tenable explanation seems to be that the Ipiutak village was not permanently occupied, but was primarily a temporary settlement, occupied seasonally, probably in spring and summer, and was analogous to the summer camps of the Nunatarmiut (p. 33). In support of this theory we can advance the following arguments. First, the floor deposit in most houses was so thin that they were undoubtedly occupied for a very brief period, probably a single season. Second, since caribou hunting was one of the most important occupations of the Ipiutak people, which is evident from the extensive use of antler and the importance of archery, they must have spent some time in the hinterland, where the caribou roam. The main hunting seasons for caribou are in the fall and winter when they are fattest and have the heaviest pelt. The use of willows as a foundation for the bedding and birch bark for vessels or trays is other evidence of an inland life. The bone refuse found in the houses told us clearly what Point Hope had to offer, namely, seal and walrus. Bones of hair seal, bearded seal, and walrus were the most numerous, and as seal can be caught almost anywhere along the coast, it was probably the walrus with its precious ivory tusks that first and foremost attracted the Ipiutak people. The bearded seal and the walrus are migratory and appear only in late spring and early summer, when the ice pack begins to move northward. It is also significant that typical winter game, like the polar bear, was very sparsely represented in the bone refuse. From the preceding arguments we conclude that Ipiutak was the spring and summer settlement of a seasonal migratory people. Every spring they moved to Point Hope from the interior and with unlimited and excellent building space they did not hesitate to build new houses in preference to reoccupying those used previously. Since the majority of the houses appeared to have very little or no timbers left, we cannot exclude the possibility that the same timbers were used successively in several houses.

The Ipiutak house, a semi-subterranean, dome-shaped hut, with side entrance, rounded-square groundplan, central fireplace, four roof supporting posts, and low platforms along three
walls, is a well-known Alaskan type; in fact, the most widespread house form in Alaska. The only new phase of our discovery is the occurrence of this type so far north; its main area of distribution is in Alaska south of Norton Sound. Since Collins has already made a thorough study of the Alaskan house forms,\(^1\) we shall in the following call attention only to those points which our own investigation may contribute to the knowledge of the Eskimo house in and outside Alaska.

We have already pointed out that the Ipiutak house type has survived among the Nunatarmiut up to modern times and have mentioned the almost identical forms on the Kobuk and the variations at Hotham Inlet and at Aqergognat. The Aqergognat houses are particularly interesting since they give us the clue to the solution of the problem of the much discussed Mackenzie house. The Utorgqarmiut houses at Aqergognat were of three kinds: first, a house with one platform at one side of the fireplace; second, with two platforms, one on either side of the fireplace; and third, with three platforms, the third being behind the fireplace. Since all other features were alike, the three styles were obviously contemporaneous. The only reason for building them with the variations noted above was the size of the occupying family or families. It is the third style in which we are especially interested. A glance at the groundplan of Aqergognat House 1 (Fig. 9) is sufficient to demonstrate that it is a modified form of the Ipiutak type house, the only real difference being that the two rear corners are brought in. As at Ipiutak and Ambler Island the entrance passage is level with the floor. A comparison between this groundplan and Petitet's sketch of a Mackenzie house\(^2\) reproduced by Murdoch\(^3\) and Steensby\(^4\) leaves no doubt that the two houses are closely related. The resemblance would be still more striking if the superstructure of the Aqergognat house had been preserved. A reconstruction of this made by Larsen according to Qamaq's directions corresponds exactly to the Mackenzie house in the arrangement of posts and the wall and roof timbers. The only signifi-

cant difference is that, in the Mackenzie house, lamps have replaced the fireplace. The theory first suggested by Collins that the Mackenzie house is related to the quadrangular house typical of southwest Alaska\(^5\) has thus been further substantiated by our investigations. The Ipiutak house filled the gap between Norton Sound and Mackenzie, and the Aqergognat house, a Mackenzie house with a fireplace, is a new link in the chain of evidence.

As mentioned above, the main area of distribution of the Ipiutak house is south of Bering Strait. De Laguna, who has also discussed the distribution of the Alaskan house types, was the first to point out that there seems to be a fundamental pattern underlying the construction of all the houses south of Bering Strait.\(^6\)

The pattern to which she refers is that of the Ipiutak house with central fireplace and platforms along the walls. This does not mean that we find only true copies of the Ipiutak house in this area. On the contrary, there are many local variations, and the points of resemblance may sometimes seem rather few, but we must remember that the comparisons are made with relatively recent houses, for many of which we have very incomplete descriptions. The lack of information about prehistoric houses in this region militates against a definite conclusion. Instead of quoting all the sources of information, an unnecessary repetition of Collins' and De Laguna's work, we have selected a few examples from various parts of this region for comparison. First, we quote a portion of Dall's description of houses from St. Michaels in Norton Sound. It coincides on many points with the Ipiutak house and hence may give some hint on details not revealed by our excavations. The St. Michaels' houses are semi-subterranean with an entrance "more or less so" and a roof "with a square opening in the centre for the escape of smoke and admission of light."

Dall continues his description:

They are built of spruce logs, without nails or pins, and are usually about twelve or fifteen feet square. The entrance is a small hole through which one must enter on hands and knees, and is usually furnished

\(^1\) Collins, 1937, 257 et seq.
\(^2\) Petitet, 1876, xxii.
\(^3\) Murdoch, 1892, Fig. 13.
\(^4\) Steensby, 1905, 203, 204.
\(^5\) Collins, 1937, 267.
\(^6\) De Laguna, 1934, 159.
Fig. 9. Groundplan of Aqergognat House 1, after removal of timbers.
with a bear or deer skin or a piece of matting to exclude the air. Outside of the entrance is a passage-
way, hardly larger, which opens under a small shed,
at the surface of the ground, to protect it from the weather.

They are about eight feet high in the middle, but the eaves are rarely more than three or four feet above the ground. The floor is divided by two logs into three areas of nearly equal size, the entrance being at the end of the middle one. This portion of the floor is always the native earth, usually hardened by constant passing over it. In the middle, under the aperture in the roof, the fire is built, and here are sometimes placed a few stones. On either side the portion separated by the logs before mentioned is occupied as a place to sit and work in during the day, and as a sleeping place during the night. The earth is usually covered with straw, or spruce branches when obtainable, and over this is laid a mat woven out of grass. Sometimes the space is raised, or a platform is built of boards, or logs hewn flat on one side. This is a work of such labor, however, that it seldom is resorted to. The beds, which generally consist of a blanket of dressed deerskin, or rabbitskins sewed together, are rolled up and put out of the way during the day.

From Nunivak Island we have Collins' excellent drawing of a cross-section of a house that is reminiscent of the Ipiutak house, but differs in the use of whale skulls, a sunken entrance, and the location of the fireplace, which is against the rear platform. Petroff describes a Kuskokwim house as a circular mound of earth with a short, low passage to the earthen floor. The interior is an irregularly shaped square or circle 12, 15, or 20 feet in diameter with a fireplace directly under the smoke hole.

Rude beds of skins and grass mats are laid slightly raised above the floor, upon clumsy frames of sticks and saplings or rough-hewn planks. Sometimes a small hallway with bulging sides is built over the entrance.

In the Bristol Bay area we find the same general features, but Porter describes "the tunnel-like passage...10 to 12 feet long...declining from the outer entrance, then rising again and entering the room through the floor," a trait seldom met with south of Bering Strait. Unfortunately, De Laguna's otherwise very comprehensive investigations at Cook Inlet give us only sparse information about ancient houses. No traces of houses were found from the First Period of the Kachemak Bay culture; for the Second Period we know only "that large stones and whale vertebrae were used in their construction." In the Third Period, however, we recognize the typical "Southern" house "built of wood, with posts in the corners and other places along the walls." It was excavated to a depth of 2 or 3 feet and had a very narrow, 12 feet or more long, semi-subterranean entrance. "Some of the houses had more than one room, and some seem to have had a fire-place in the main room." The Kodiak house was probably very similar. It was square, dug 2 to 4 feet below the surface, with four corner pillars and walls of perpendicular, hewn boards inclining inward. Connected with the main room, which had a central fireplace, were low sleeping rooms for three or four families. Houses of the same type were built on Prince Williams Sound as far as Kayak Island. Two types of houses are known from the Aleutians: the large community house with roof entrance mentioned by Cook, and a small, semi-subterranean house, which probably corresponds to the typical Alaskan houses. Both types were observed by Larsen on Unalaska Island in 1945 and, although conditions did not permit a closer examination, the small houses definitely gave the impression of being the older of the two types. One of several small, round depressions located about 25 meters above the sea was excavated, but as it contained no traces of wall or roof structure and only a paper thin culture layer covered with 50 to 70 centimeters of sand, its shape and size were undeterminable.

We have now seen how the Ipiutak house type and its variations are distributed from the Mackenzie to the southern limit of the Eskimo territory and thus it may rightly be designated as the typical Alaskan house. But another type is known in Alaska, the house of the Tareormiut and their prehistoric ancestors; in other words, the house of the Arctic Whale Hunting culture. The Tareormiut house described in a preceding section (p. 35) and a recent ruin at Metlatavik near Wales described and illustrated by Collins are examples of the type of

1 Dall, 1897, 13-14.
2 Collins, 1937, 258 and Fig. 25.
3 Petroff, 1884, 15.
4 Porter, 1893, 169.
5 Collins, 1937, 262 and Fig. 26.
house constructed by the Tareormiut from Bering Strait to Barrow. As already pointed out, the Tareormiut house or, as it is usually called, the Point Barrow house, differs from the typical Alaskan house in several significant features: 1, the heavy sod walls; 2, the long, sunken entrance passage with recesses used for cooking rooms, storage, and other purposes; 3, the absence of a fireplace; 4, the rear platform; and 5, the roof structure supported by the walls. Of the two types the Point Barrow house is definitely better adapted than the Ipiutak house to the climatic conditions on the barren and windy arctic coast. Simpson complains not only of the rush of cold air through the smoke hole, but of the failure of the smoke to ascend through it,\textsuperscript{1} inconveniences unknown in the Point Barrow house. Furthermore, the use of lamps instead of a fireplace solves the problem of obtaining sufficient fuel on the treeless coast; and, finally, the sunken entrance passage acts as a cold trap, a great improvement over the skin door. The Ipiutak type is probably the older of the two house types, and when we find one or more of these additional features in houses of the Ipiutak type we must assume that these traits result from contact with the Tareormiut.

As previously stated (p. 39) we believe that all the house types of the Arctic Whale Hunting culture are closely related. Thus far, this is only a postulate, but since it is related to the total problem of the Eskimo house we have postponed the discussion to keep it within the proper context. Collins, who, like Mathiassen, has recognized the resemblance between the Point Barrow and the Thule house, suggests that the Thule house is a prototype of the former, and that the Point Barrow house is a late introduction from the east.\textsuperscript{2} The relation between the two house forms is obvious, but we think that they both represent more recent forms of the house of the earliest phases of the Arctic Whale Hunting culture. We do not believe it is necessary to go so far back as the central and eastern Arctic to find a prototype for the Point Barrow house. Right at Point Barrow are some house ruins that antedate the Thule houses, and these, as far as we can judge from the scanty information available, are of the same type as the Point Barrow house. We refer to the Birnirk houses which, as already mentioned, were apparently rectangular, built of perpendicular logs, heavy sod blocks, and whalebone, with a roof supported by the walls and a ridgetpole, and with indications of a kitchen in the entrance.\textsuperscript{3} In the Jabbertown house (Fig. 52), which also antedates the Point Barrow house and is reminiscent of the Metlatavik house, the logs were horizontal, a feature also found in the Old Bering Sea house.

The earliest known houses of the Arctic Whale Hunting culture and the only known houses of the Okvik phase were excavated by Giddings in 1939 at the Hillside site at Gambell and at Kitneapaluk 20 miles south of Gambell. The excavation of the former revealed an almost circular floor paved with flat stones, with a hearth a little off center. Unfortunately we have no information about the entrance and very little about the walls and roof. Some poles and posts and a whale skull were found; these may be part of the structure, in which boulders were probably also included.\textsuperscript{4} This house form seems to be a combination of the typical Alaskan house, as represented by the fireplace, and the central and eastern Thule round house with a stone floor. The Kitneapaluk house was also round, but further details of its construction are not yet available. Collins, who with his assistants excavated several houses at Gambell, is our main source of information about the houses of the Old Bering Sea and Punuk phases. According to Collins the Old Bering Sea house was small, square to rectangular, semi-subterranean, with a stone floor and walls of horizontally laid timbers with occasional whale jaws. The long entrance passage was lower than the house floor; it had a stone floor and walls and a timbered roof. A modification of this house, twice as large but otherwise similar in all its essential features, came into use in the succeeding Early Punuk phase. Later, in the Punuk phase, we find a semi-subterranean, square to rectangular house with a stone floor and walls of stones, walrus skulls, and whalebones instead of timbers. The form of roof is unknown, but it was probably of skins. The narrow entrance passage is either lower than or level with the house.

\textsuperscript{1} Simpson, John, 1875, 259.
\textsuperscript{2} Collins, 1937, 267–268.
\textsuperscript{3} There is no reason to believe that they were built as charnel houses as J. Alden Mason suggests (1930, 385).
\textsuperscript{4} Rainey, 1941a, 471 and Figs. 2, 3.
floor. It is paved with stones, has a roof of whale ribs or stones, and a circular enlargement of or annex to the passage.

A house type similar to the Ipiutak house and one built as recently as 40 to 50 years ago was also introduced in the Punuk phase. It differed from the Ipiutak house in having roof beams of whale jaws and, occasionally, a stone-paved entrance passage. In addition, Collins mentions two types of summer houses and the modern St. Lawrence house, which we will disregard in this connection.¹ Except for the Ipiutak-like house, which was undoubtedly introduced from the Alaskan or Siberian mainland, Collins is hesitant as to the relationship between the Old Bering Sea and Punuk houses and the other Eskimo houses. On the other hand, he recognizes the resemblance to the Thule house, but the shape of the St. Lawrence house and the absence of a platform restrain him from drawing any definite conclusions. To us, the lack of a platform does not seem to be of major significance. Several of the Thule houses in Canada as well as in Greenland had no platforms when excavated, and none of the Tareormiut houses excavated by Larsen between Utorqaq and Wainright had a platform, but it was obvious that the rear of the house had served as a sleeping place. Whether the Old Bering Sea and Punuk houses originally had a wooden platform, which has disappeared for some reason, or whether the occupants slept on skins spread over the floor stones, it is quite certain that the rear of the house served as sleeping quarters as in the Thule house. In this respect it differs from the typical Alaskan house with side platforms. We also fail to see great significance in the shape of the groundplan. In two such closely related culture phases as Okvik and Old Bering Sea (which Collins does not recognize as two culture phases) we find a round and a quadrilinear groundplan. And how many of the Thule houses are actually round? It is true that Mathiassen illustrates houses with a circular groundplan, but in most of them so very little remains of the walls that it is impossible to determine the exact outline of the house.² If we turn to Holtved's more detailed drawings of houses from the Thule District, which are more or less contemporaneous with the houses described by Mathiassen, we find very few that are actually round. For example, let us examine the earliest group of houses from Inuarfigssuaq.³ House 8 is a "rounded rectangle"; House 9 is "almost rectangular"; House 22 "seems to have been round or cloverleaf shaped"; House 18 is of uncertain form; House 19 "almost pearshaped" or trapeziform with rounded corners; House 20 "is curiously awry in outline, one corner at the back being a right angle the other rounded"; House 21 "has a right-angled corner at the front, whereas at the back it is rounded"; House 24 is "round" and House 29 "partially a trapeziform house."⁴ We see how contemporary houses at the same site vary and how rare are truly circular houses. Had we chosen another group for comparison, we would find a similar situation. In the first place, we learn that the Thule people adhered to no very rigid shape; and, second, we find almost rectangular houses comparable to those of the early phases of the Arctic Whale Hunting culture in the west. Thus, having eliminated Collins' hesitations regarding shape and platform, we see no barriers for our assumption of a direct connection between the houses of the Arctic Whale Hunting culture in the west and east and that the Thule house, like many other Thule elements, developed from an Alaskan form. In the houses of the Arctic Whale Hunting culture we usually find the following traits: a long, deep entrance passage with a cold trap, a rear platform or sleeping place, stone pavement, and stones and whalebone used as building material.

The northern Alaskan house with wooden floors and walls may result from a more abundant supply of driftwood, or from contact with the Nunatarmiut. If the latter, we can explain the use of perpendicular wall timbers. On Little Diomede Island and King Island stone has been used as building material up to recent time. An occupied house on Little Diomede and two qalegit on King Island are entirely built of stone, except for the interior of the room. The student familiar with the stone houses of the eastern Arctic cannot fail to be impressed by the striking similarity in house forms in two so widely separated areas—a similarity which we have tried to demonstrate is not accidental but based on an old common tradition. This type of house probably had its origin in

² Mathiassen, 1927, pt. 1.
³ Holtved, 1944, pt. 2, 39.
the Bering Strait region. The presence of a central fireplace in the Okvik house in its earliest form indicates a connection with the Ipiutak house, which, as we shall see presently, is a widespread and undoubtedly very ancient form.

In their analyses of Eskimo houses in Alaska, Collins and De Laguna also discussed their distribution outside the Eskimo area. Since the Ipiutak house is of the same type as the typical Alaskan house it is inevitable that our discussion of the distribution of the former coincides with that of Collins and De Laguna. In order to avoid unnecessary repetition we refer to the above-mentioned publications for details and sources and will limit ourselves to a record of the most significant facts and add information wherever we find it necessary. Collins deals most extensively with that part of northeastern Asia inhabited by the Paleo-Asiatics and the Siberian Eskimo. The underground houses found farthest to the northeast on the shores of Bering Strait and the Gulf of Anadyr are probably of Eskimo origin. Judging from Bogoras' sketch of the house at Nu'nligren it seems to be most closely related to the houses of the Arctic Whale Hunting culture. It is rectangular, with a sunken entrance passage; whalebone is used in the construction of the walls; a central fireplace is lacking. However, we find a close connection with the Ipiutak house in the house of their neighbors, the Maritime Koryak. The elementary structure is the same: the walls of perpendicular logs, the central floor space with a fireplace and four roof supporting posts. The men use the entrance passage only in summertime; in the winter they use the smoke hole; but women and children use the entrance passage the year round. The groundplan, which is octagonal, is reminiscent of Simpson's Hotham Inlet house. The Koryak house deviates from the Ipiutak house in having only a single platform at the rear, the place of the side platforms being occupied by sleeping tents. We must assume that the Ipiutak house had no structural feature comparable to the storm roof of the Koryak house.

The next house to consider, the winter house formerly used by the Kamchadal, is also of the Ipiutak type. It was rectangular and had no entrance passage, but otherwise had the same features as the Ipiutak house: upright wall timbers, four roof supporting posts, a fireplace, and platforms on three sides. As among the Koryak, the men entered the house through the smoke hole, while women and children, or possibly only the children, used an opening in the wall, which served as a draft channel for the fire. Farther south, we find the toryf, the Gilyak winter house, which has even greater resemblance to the Ipiutak house than those previously described. The groundplan, given by Schrenck, almost duplicates that of the Ipiutak house, and the accompanying description adds more points of resemblance. The groundplan is square with rounded corners. The entrance passage, descending from the surface to the floor, is covered with branches or thin poles. A few steps lead from the entrance to the floor which consists of hard-packed earth. The roof is supported by four posts in the corners of the floor and along three walls are platforms 1½ feet high. The fireplace is rectangular, lined with boards, and filled with earth; above it is an arrangement of poles from which the cooking pot hangs. Schrenck also mentions a smaller Gilyak winter house of the same shape, but with low platforms covered with branches and a simple storm-shed instead of an entrance passage. A similar house was used by the Ainu on southern Sakhalin. A groundplan of a winter house shows a square underground house with three platforms, a central fireplace, and an entrance passage. On Shumshir, one of the Kurile Islands, Osamu Baba has excavated square house pits, and underground houses on Yezo are mentioned by several authors.

Turning now to the north coast of Asia we find that, according to old accounts, the Yukaghir formerly lived in underground houses. The Cossack chief, Busa, who traveled in these regions in 1638, found Yukaghir living in subterranean houses on the Tschendoma River, east of the Jana River. On one of the Bear Islands, Wrangel found an underground house with walls of perpendicular poles, and writing about the Indigirka and its tributaries he says

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1 Collins, 1937, 270–276; De Laguna, 1934, 161–162.
2 Bogoras, 1904–1909, Fig. 100.
3 Jochelson, 1905–1908, 453–454, Fig. 60.
4 Steller, 1774, 212, and plate on opposite page.
5 Schrenck, 1881, 321–322, and pl. 10.
6 Torii, 1919, Fig. 87.
7 Baba, 1936, 100.
8 Wrangel, 1839, pt. 1, 7.
that when the Russian settlers first came to this region they found a large number of ruined earth houses, each with a fireplace. The continuity of distribution is broken in the central part of northern Siberia inhabited by the Tungus and Yakut, but we find underground houses again in western Siberia. Travelers in the seventeenth and eighteenth century report underground houses among the Samoyed and Ostyak. Thus Olearius writes of the Samoyed:

Sie wohnen in kleinen niedrigen halb in die Erde gebauten Hütten, welche (wie sie sagten) oben rund und spitz zulaufen, in der mitten ein Loch als Schorstein, durch welches sie zur Winters Zeit steigen;\(^2\)

in other words, a semi-subterranean house with a roof entrance. A hundred years later Pallas describes the winter house of the Ostyak as semi-subterranean, covered by earth, with a fireplace in the center, an entrance passage, and a window made of a cake of ice.\(^3\) According to Sirelius winter houses corresponding to this description are still used, or at least were in use at the beginning of this century, by some of the Ostyak, and formerly over the entire area occupied by the Ostyak and Vogul, except for the northernmost Reindeer nomads.\(^4\) Assuming that the winter houses referred to by Pallas and the "erdzelte" described by Sirelius, which were also used as winter houses, are identical, we are able to visualize these houses from Sirelius' descriptions and drawings. The groundplan is generally 3 to 4.85 meters square, and the house is excavated to a depth of 30 to 60 centimeters. The fireplace formerly was in the center, but it is now usually replaced by an oven in one corner. At Jukan the house was furnished with wooden sleeping platforms along three walls.\(^5\) The pyramidal superstructure, which is pointed or, more often, has a flat top, consists of split, sloping logs supported by a framework of round posts or poles and covered with earth. The posts, four, six, eight or 12 in number, are set at the edge of the excavation and support a square horizontal frame. In the house from Jukan, described above, a square window, which probably originally also served as a smoke hole, is situated in the center of the flat part of the roof; in other houses, the window, usually made of ice, is placed at one side of the house. In front of the door is a short passageway or storm-shed.\(^6\) The question is whether these houses or earth tents, as Sirelius calls them, are related to the Ipiutak house. There are obviously many points of resemblance, but they differ in the principle of roof support in that the Ipiutak house had four vertical posts rising from the floor while these Asiatic houses had four or more inclined, marginal posts. Sirelius' use of the term earth tent is based on this tent-like arrangement of the posts. He considers it as the final step in a developmental sequence beginning with a semicircular shelter, followed by a conical bark or skin tent, and a pyramidal structure of thin, split logs.\(^7\) He advances several sound arguments in favor of his theory. He may be correct, but if he is, the development must have begun very long ago because, as we shall see presently, semi-subterranean houses have existed in these regions since ancient times. With these points of resemblance in mind we cannot entirely dismiss the possibility of a connection between the Ipiutak house and the form with four corner posts. It is tempting to suggest the hypothesis that the Ipiutak house represents a more advanced form of the house with four corner posts. The corner posts, by being moved inside the walls and made perpendicular, can support a larger roof frame and thereby make the interior more spacious and provide a more adequate support for the roof with its heavy burden of earth and snow.

That underground houses are ancient at the middle and lower Ob is proved by the Russian excavations in the 1930's. Some of the settlements are provisionally dated in the second millennium B.C., another at the end and the beginning of the first millennium B.C. Of the earliest house pits some are very large, measuring 25 by 25 meters; the most common size, however, is 10 by 10 meters; the house pits of the more recent settlements were the smaller.\(^8\) Farther north, on the Jamal Peninsula, is the interesting settlement of marine hunters discovered in 1929 by Chernetsov. He excavated three small round house pits, each with a cen-

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1 Wrangel, 1839, pt. 2, 57.
2 Olearius, 1666, 159.
4 Sirelius, 1906-1909, 87.
5 Op. cit., Fig. 12.
6 Sirelius, 1906-1909, 84-104, Figs. 9-22.
8 Field and Prostov, 1942, 399-400.
central fireplace and a side entrance. The roof had been supported by vertical posts.\textsuperscript{1} This site is dated much later, probably from the first millennium A.D. Farther to the west are many known examples of underground dwellings. At Jokanga in the northeastern part of the Kola Peninsula, Itkonen excavated a rectangular house pit with rounded corners, a central fireplace, and side entrance,\textsuperscript{2} and to the northwest on the Kola Peninsula, Zemljakov located 22 house pits lying in two long rows along a terrace.\textsuperscript{3} The same type of house pits and the same arrangement of the pits in long rows are very common in the northernmost part of Norway, especially in Finnmarken adjacent to the Kola Peninsula. Of particular interest is the large neolithic settlement at Karlebotn, Nesseby, discovered by Nummedal. Along the edge of a coastal terrace, 72 house pits lay close together in one, two, or three rows, covering an area of 300 meters. The large number of houses and their arrangement are reminiscent of the Ipiutak village. There are also other similarities. Before excavation, the pits had the appearance of shallow depressions surrounded by a low mound. They are round or rectangular or square with rounded corners and range in size from 7 by 4.6 to 4 meters square, are 40 to 50 centimeters deep, and have a central fireplace.\textsuperscript{4} Unquestionably the semi-subterranean houses of northern Norway and those of the Kola Peninsula are related; both are probably related to the houses on the lower Ob and the Jamal Peninsula. We thus have a West Siberian-North European area with underground houses corresponding to the East Siberian-North American distribution. At present the hiatus in our knowledge of the intervening regions prevents us from connecting the two areas and establishing a complete circumpolar chain of underground houses, but Gjessing's demonstration of a considerable number of culture elements with circumpolar distribution leads us to believe that some day this chain will be closed.\textsuperscript{5} The underground houses described from the areas farthest to the west appear to antedate all the others. Their relatively greater antiquity, however, does not necessarily indicate a western origin. Gjessing thinks that these underground houses were diffused from Asia to eastern Europe, but we do not know where and when they originated. He mentions the fact that houses interpreted as semi-subterranean and similar to those of the arctic regions were encountered in the find from the Aurignacian period at Gargarino in central Russia.\textsuperscript{6}

In the foregoing we have demonstrated that underground houses are widely distributed in Eurasia both temporally and spatially. While it is evident that the Ipiutak house is closely related to the relatively recent houses of the Paleo-Asiatics in northeastern Siberia, the relationship with the houses of the western group will be problematic as long as we know so few details about their construction. Meanwhile, it is not necessary to go as far as Eurasia to prove that the Ipiutak house is an ancient type of house; this is obvious from its wide distribution in North America. Not only were underground houses distributed over a large part of this continent, but we find them with the characteristics of the Ipiutak house. Steensby pointed out the resemblance between the Mackenzie house and the earthlodge of the Mandan and other tribes of the village groups of the Plains,\textsuperscript{7} but many more parallels have been added since then. In his useful little book, "Native houses of western North America," Waterman and his collaborators have recorded the most important data on the occurrence of pit structures.\textsuperscript{8} From Waterman's tabulation of pit structures from various areas we have selected houses which, like those of the Ipiutak, have four roof-supporting posts inside the walls, to which we add some supplementary data. Beginning at the west, the Southern Maidu have a circular house with four posts supporting a roof-frame, a central fireplace, and side entrance.\textsuperscript{9} Among the numerous examples from the Southwest, where square or round houses and kivas occur from late Pueblo horizons back to late Basket Maker time, we select Roberts' description of 18 pit houses at Kiawathlanna in eastern Arizona.\textsuperscript{10} The houses, which he dates to Pueblo I period, are circular, oval, or rectangu-

\textsuperscript{1} Chernetsov, 1935, 133, Figs. 5-7; Field and Prostov, 1942, 400.

\textsuperscript{2} Itkonen, 1918, 35, Fig. 1.

\textsuperscript{3} Gjessing, 1942, 427-428, Fig. 219.


\textsuperscript{5} Gjessing, 1942, 452; and 1944.

\textsuperscript{6} Gjessing, 1942, 426; Golomshtok, 1933, 334.

\textsuperscript{7} Steensby, 1905, 189.

\textsuperscript{8} Waterman, 1921.

\textsuperscript{9} Dixon, 1905, 172, Fig. 41.

\textsuperscript{10} Roberts, 1931, 16.
lar, with a roof of poles, brush, and plaster. They range in size from 2.13 to 7.32 meters in diameter and in depth from 0.41 to 2.44 meters.

The superstructure was supported on four upright posts placed in the floor at some distance from the walls. . . . The four uprights carried stringers which formed a rectangular framework upon which the small poles forming the sloping section of the superstructure rested. The rectangular space at the top probably had a flat roof with a single opening in the center which served both as a smoke hole and an entrance.

This house form had no side entrance but a ventilator, which Roberts considers a modified survival of the entrance passage of earlier forms of pit houses, namely, those of the Basket Maker III period. In an earlier publication of a Late Basket Maker site in the Chaco Cañon, New Mexico, Roberts presented well-founded evidence for this assumption. The majority of the houses at this site were very similar to those described above in groundplan and superstructure, but they had a side entrance consisting of an antechamber and a low passage connecting it with the main room of the house.1 In a contemporary protokiva house a short distance from the village the entrance had been reduced in size until what had originally been an entrance capable of actual use became a mere "ventilator."2 After that change had taken place, the house must have been entered through the roof. Houses similar to the Ipiutak type in size, shape, and superstructure occur thus in the Southwest as far back as the Basket Maker III period, and Morris even strongly suspects that essentially the same kind of habitation was in use during Basket Maker II, when it was tribal custom to live in the open, as do the Navajo.3

Both Roberts and Morris mention the possibility of a connection between Basket Maker III houses and the underground houses of northeastern Asia and some of the Eskimo.4

From the Plains area we have already mentioned the Mandan house,6 and here also houses similar to the Ipiutak house were used in prehistoric times. From Sweetwater, Nebraska, Strong reports prehistoric Pawnee houses with four roof supporting posts, a central fireplace, and a short side entrance passage. Some were square, some round, and some intermediate in outline, but apparently all belonged to the same period.8 That the type also occurs east of the Mississippi is demonstrated by two examples, one from historic times, the other prehistoric. The Chickasaw in northeastern Mississippi originally had a circular winter house, the floor of which was 1 yard below the surface. It had a central fireplace and a winding entrance passage 6 to 7 feet long. The walls were of upright posts, and the roof was supported by four large pine posts in the middle of the room.7 The other example is from the Angel site, Vanderburgh County, Indiana, where square houses with a central fireplace and four posts have been found.8

These examples of North American semi-subterranean houses with a central fireplace, four roof supporting posts, and a side entrance should be sufficient to prove the antiquity of this type. The examples from the Southwest and the Plains areas demonstrate that round, square, and rectangular houses were used indiscriminately, and when we consider the additional significant features in common, there seems little doubt of their common origin. It is too early to say anything definite about the place of origin of this type of house, but it is to be hoped that archaeological investigations in northern Asia will throw light on this problem.

One Alaskan type of house, the snowhouse, has not yet been mentioned. We do not know whether or not the Ipiutak people made snowhouses, but since no snowknives were found it is almost certain that they did not construct houses of snow blocks. This is probably also true of other prehistoric cultures in Alaska, although snowhouses were in use in arctic Alaska in historic time.9 Of the two types of Alaskan snowhouses, that with a roof of poles and canvas was obviously a modern invention which we can omit from consideration; the other is more interesting and will be discussed here.

Murdoch was the first to mention the possi-

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1 Roberts, 1929, 10 et seq., Figs. 1, 2.
2 Ibid., 64–65.
3 Morris, 1939, 24.
4 Roberts, 1929, 85; Morris, loc. cit.
5 Catlin, 1842, vol. 1, 81–83.
6 Strong, 1932, 151.
7 Bushnell, 1919, 69–70.
8 Black, 1944, 484 et seq., Fig. 3.
9 Murdoch, 1892, 81–83; Stefansson, 1914, 205.
bility that the snowhouse was developed from a

tent.\(^1\) Steensby expanded this idea, suggesting

that the dome-shaped tent covered with snow

was the predecessor of the snowhouse, an as-
sumption he later abandoned, but which was

revived by Birket-Smith.\(^2\) The dome-shaped
tent covered with snow in winter time was

commonly used by the Nunatarmiut, especially

when they were moving around. Stoney gives

the following description of such a dwelling

from the upper Kobuk:

A special tent was made for me by bending poles to

the required shape and covering them with deerskin,

leaving an entrance. Over this mould snow was

thrown, which froze solid and made a comfortable

house. Upon leaving such a hut the poles and skins

are taken down, leaving the snow house. This sort

doing is often seen along the line of travel

in the mountains and affords good shelter in bad

weather.\(^3\)

Similar snow-covered huts or tents were used by

other Alaskan Eskimo when traveling and

among the Malemiut after childbirth.\(^4\) But true

snowhouses, that is, houses built of snow blocks,

have also been used in Alaska. In the mountains

around Noatak, Howard camped

in a native snow hut made of blocks of snow cut from

a packed snow drift and piled around a circular base

to a height of a few feet, the roof formed by over-
lapping the higher layers. Upon becoming warm the

moisture congeals upon the snow inside which keeps

them dry. These huts are found all through the

mountains, being made early in the season and

through the winter by hunting parties.\(^5\)

Although Howard does not mention it, it is

possible that this house originally had an inside

framework that was removed when the house

was abandoned. This assumption is based on

Qamaq’s statement that the Utorqarmiut al-

ways made a frame of willows tied together at

the top and with a circular groundplan. This

frame was covered with snow blocks 26 inches

long, 20 inches wide, and 10 inches thick. The

same kind of snowhouse is reported from the

Koryak.\(^6\) As to snowhouses without a support-
ing frame, we are inclined to accept Birket-

Smith’s explanation that

such a pronouncedly Arctic form of dwelling had

originated in the extreme, woodless region by the

Northwest Passage.\(^7\)

On the other hand, do we believe that the dome-

shaped, snow-covered tent is the prototype of

the real snowhouse, and that the former came

from Alaska to the central regions where the

final development took place. The Ipiutak
	house was not adapted to temporary use for

traveling and as we suppose that the Ipiutak

people spent a large part of the winter hunting
caribou in the interior, we assume that during

that period they used a snow-covered tent as a

dwelling.

BURIALS

The Ipiutak cemetery, discovered in 1940

by Rainey, occupies a long, narrow strip of land

on the lagoon side of the Point Hope spit, ex-

tending from 560 meters southeast of the

Ipiutak village site almost to Jabbertown. Like

the rest of the spit, this area, 425 meters long

and from 400 to 40 meters wide, consists of

long, low, parallel gravel ridges. Except for the

barren ridges most distant from the lagoon

shore, the ground was covered by a low growth

of grasses, herbs, and arctic willows. At Point

Hope such vegetation is usually a sign of hu-

man activity. The investigation of this area

1 Murdoch, 1888, 127.

2 Steensby, 1905, 191; Birket-Smith, 1929, pt. 2, 41.

3 Stoney, 1899, 577.

4 Nelson, 1899, 242 and 289.

5 Stoney, 1899, 812.

6 Birket-Smith, 1929, pt. 2, 235.

burials definitely assignable to the Ipiutak culture or that we may regard as Ipiutak burials with reasonable certainty.

All Ipiutak burials occurred below the surface. Absolutely no surface indications disclose their position. The only method of locating them is to dig test pits, but as the burials often occur in groups, a search in the immediate neighborhood of the first burial found is frequently rewarding. Contrary to the houses, which are very uniform in size and shape, we found at least two different types of burials; several additional graves are not certainly classifiable as belonging to either of these two types nor are they uniform enough to be considered a third type. The burials in log coffins form the most constant and most easily recognized type. Of 138 burials classified as Ipiutak, 59 presumably belong to this type. Their exact number is somewhat doubtful because of the state of preservation of the coffins. Although none was so well preserved as to permit a detailed description of the structure, not to mention exact measurements, the majority were easily recognized as coffin burials. On the other hand, some were so disintegrated that the preservation and position of the skeleton, the depth of the burial, and the type of the neighboring graves were the only clues to their identity. Most of the coffin burials were quite deep; only a few were found directly beneath the sod. In 33 the base was 50 centimeters or more below the surface; some of these were 1 meter deep. Combining our observations during the excavations of the best-preserved coffins, primarily Burials 21, 53, and 61, we are able to make the following reconstruction.

The coffins are rectangular structures built of horizontal logs which form a floor, four walls, and a cover. The logs were so soft that it was possible to remove them with the fingers in the form of long strands and were so compressed that it was difficult to distinguish one log from the other. Consequently it was impossible to determine to what extent they had been worked. The floor consisted of small parallel logs extending either crosswise or in the long axis of the coffin. The walls were probably made of several logs laid one above the other, but it was impossible to determine their number or to measure the height of the walls. The end pieces were supported by uprights stakes set in the gravel outside the coffin. The shape of the cover is problematic. It was made of solid logs extending lengthwise, but these were so firmly pressed together that the individual logs were indistinguishable. In Burial 21 the cover seems to have been gabled. Most of the coffins contained a single skeleton; six had two skeletons, and two had three. Burial 109 contained a dog skeleton. Except in Burial 21 and in four burials with fragmentary skeletons, all the skeletons were articulated, that is, the bones lay in their normal relation. Forty-three skeletons were supine, usually with both hands lying on the pubic region, four were prone, and 11 lay on the side. Two child skeletons were flexed; the rest were extended. Of 54 skeletons, 44 had the head towards the west, six towards the east, three towards the north, and one towards the south. Thirty-six burials contained grave goods, but, as a rule, not much was found in each grave. Two facts are noteworthy: first, all the grave goods were identical, even in detail, with the finds from the houses, indisputable evidence of the contemporaneity of the coffin burials and the houses; second, not a single openwork carving or other ornamental ivory carving was found in the coffins. Finally, it is worth mentioning that in four burials a whalebone shovel of the same type as those found in the houses lay on top of the coffin.

In contradistinction to the coffin burials all other Ipiutak burials were shallow. The majority were found directly beneath the sod, or in the sod itself; only a few exceptions reached a depth of 50 centimeters. This suggests that the bodies were not interred, but were originally placed on the ground, a point also emphasized by the fact that directly under the sod in the cemetery grounds, as well as in the village site, we found a layer of black gravel, undoubtedly the original surface. When we take into consideration that some of the coffins were also found immediately beneath the sod, we must conclude that the majority of the Ipiutak burials were surface burials. Meanwhile we must not forget that the deep burials are much more difficult to find than the surface burials; hence, the number of excavated graves of the two types does not provide us with absolutely certain proof of which of the two is the more common. Despite the lack of preservation of the structure

1 A brief description of all burials found in this area is given on pp. 225–233. Their location is shown in Fig. 2.
of the surface burials, some variations were observed during the excavation, but it is very difficult to determine whether these are due only to the state of preservation or actually represent more than one type. We are inclined to believe that there are at least two types, but we must admit that the evidence is slight and inconclusive.

The more common of the two types of burials has been described as midden-like (p. 226). These burials consisted of decay-blackened, shallow deposits of scattered, usually fragmentary human bones, artifacts, refuse of flint, ivory, antler, and animal bones and pieces of badly decayed wood. These deposits varied from 2 to several square meters in extent. They resembled the middens and were found in the same area (Fig. 2), but there is no reason to doubt that they are actually burials. They are readily distinguishable from the middens by the artifacts. In the middens the latter are of a slightly different type and belong to another phase of the Ipiutak culture, which we have termed Near Ipiutak. But could they not be deposits from Ipiutak camping places similar to the Near Ipiutak middens? For various reasons this is not very likely. In the first place, they often contained remains of human skeletons; second, many contained a large number of complete arrowheads with the blades in place, which would not be discarded or forgotten. Finally, virtually all the ornamental ivory carvings were found in these deposits, frequently in considerable quantity. It is inconceivable that these art objects would have been abandoned at a camping place. We believe, therefore, that we have good reasons to consider them as burials. However, we know very little of their construction. Of the 29 midden-like burials, only a few contained more than fragments of wood. In Burial 11 we found a log near the center of the deposit with fragments of two stakes set against its northern end and a pole extending outward from it in an east-west direction. In Burial 91 a post was found in the middle of the deposit.

Three groups of burials (Burials 15 to 20, 94, 96, 97, and 107 and Jabbertown Burials 2 to 30), which in many respects remind us of the preceding, may serve to increase our understanding of the surface burials. The Jabbertown burials show the greatest resemblance to the midden-like burials. The decay-blackened gravel directly below the sod contained fragmentary human skeletons, pieces of logs, and artifacts scattered over an area of 2 square meters or more. These burials generally contained more wood, which lay in an ordered position, and there was less bone and flint refuse. The burials formed a more or less straight line about 220 meters long and 2 meters wide and lay in a west-east direction. Some of them, especially Jabbertown Burials 2 to 15, were in such close proximity that it was sometimes difficult to distinguish the grave units, and we definitely got the impression that we were dealing with a series of contemporary burials or one mass burial. Some of the log fragments were scattered, but many of the larger pieces definitely lay in an east-west and north-south direction. For instance in Jabbertown Burials 9 and 11 to 15, they formed a square or rectangular frame around the deposit of bones and artifacts. Remains of a post were found in some of the burials. The bodies were definitely placed on the surface, but whether they were originally enclosed in a log frame or were covered by a pile of logs, which is also possible, is not certainly determinable. If we may judge from the construction of the two following and similar groups of burials, either of these explanations seems plausible.

Burials 15 to 20 form a row similar to Jabbertown Burials 2 to 15. The row is 25 meters long from east to west, 2 meters wide, and consists of at least six adjoining grave units. Immediately below the surface and in no case deeper than 25 centimeters lay fragments of wood and artifacts, and in Burials 15 to 17 badly decayed parts of skeletons. In Burial 15 were the remains of a partly articulated skeleton, which had been extended with the head towards the west, with logs on either side of it. In Burial 16 parts of an adult skeleton were found scattered among fragments of wood and artifacts. In Burial 17 scattered bones, fragments of wood, and artifacts rested between two parallel logs extending east to west, as in Burial 15. Burials 18 to 20 contained no skeletal remains, only wood fragments and artifacts. A similar group of burials (Burial 107) formed a row in an east-west direction. Six skeletons lay supine, with fragments of logs on either side of each. Considering other similarities, it is possible that the bodies in the Jabbertown burials were also originally extended and in the course of time
were scattered because of their exposed position. Like the preceding, Burials 94, 96, and 97 formed an east-west row, with log fragments extending through the long axis. In addition, they contained a large quantity of brown, fibrous paste, which may be interpreted as the remains of logs piled over the bodies. In other respects the shallow, decay-blackened deposits, the scattered fragments of bones, the artifacts, and the animal bones resemble one of the middle-like burials.

All the surface burials, both the middle-like burials and the rows of burials, except Burial 107, have one very significant feature in common, a striking uniformity in grave furniture. In these burials, with very few exceptions, were found all the strange, elaborate ivory carvings, the various types of swivels, openwork carvings, chains, ornamental chain links and linked objects, carved rods, and ornamental daggers and arrowheads that make the Ipiutak find unique and puzzling. It is these elaborate carvings that are the correlating factors of all these surface burials despite the fact that their poor state of preservation prevents us from ascertaining whether they are all of one type, or whether some were piles of logs while others were log frames. They also indicate that these were not merely winter burials, an otherwise obvious explanation, because it is inconceivable that a special type of grave goods should be limited to a certain season. We conclude, therefore, that the burials are referable to a special social group, possibly shamans (see p. 135), or, at any rate, individuals of high social standing.

Of the burials not yet mentioned, Burials 28, 30, and 32 have two traits in common with the preceding: they are shallow and contained the same kind of grave goods. Burial 28 contained no human bones but a mass of wooden fibers which possibly represented a pile of logs. In Burial 30, fragments of a skeleton, with the bones in normal anatomical relation, were found in what appeared to be the remains of a log enclosure. Burial 32 contained parts of three skeletons of which one was apparently supine with the head towards the west. Fragments of logs were found near the bones. The grave furniture is interesting; in addition to five animal carvings and a swivel it also included a number of artifacts very similar to those found in the houses. Some of the burials which, like Burial 30, contained skeleton remains in a long enclosure or frame were superficial while others were deep. Burials 33 and 34, the former with four skeletons found at a depth of 50 centimeters, the latter with one skeleton 40 centimeters below the surface, contained, as did Burial 32, a number of artifacts similar to those found in the houses. Burials 40 and 88, both with one skeleton in a log frame, and, respectively, 25 and 40 centimeters below the surface, contained no artifacts. In Burial 41 the confused bones of two skeletons were found in a rectangular log frame measuring only 120 by 50 centimeters, indicating that it was either a secondary burial or, what is more likely, that the bodies were dismembered before they were forced into that small frame. As in the coffin burials (Burials 21, 24, and 51) one of the skeletons had been furnished with artificial eyes as well as a mouthpiece and noseplugs. Apparently, then, the frame burials have affinities with the surface burials and the coffins, particularly with the former. But it is still uncertain whether we are dealing with two or three types of burials in the Ipiutak culture.

A number of burials have been classified as uncertain, either because of the absence of grave goods or because the latter deviated in some degree from the typical Ipiutak forms. Burial 90, a shallow grave, contained a partially articulated skeleton in a log structure suggesting a coffin. Near the left femur were 13 arrowheads which deviate from typical Ipiutak arrowheads in being sturdier and with a different style of ornamentation (Types 1a and 2a, p. 64). Two additional arrowheads of Type 1a seem to have been shot into the body. The grave also contained two dog skulls. An adjoining grave, Burial 101 and Burial 89, contained the same kind of arrowheads. These burials, with the two others, formed a group. Burial 89 has been classified as a true Ipiutak burial because of its grave furniture which is rather puzzling. Two adult skeletons lay in the grave, one above the other. Both were articulated, except for the heads, which were probably separated from the body before interment. The upper skeleton (89a) had an arrowhead within the joint of the left elbow; the lower skeleton (89b) had three arrowheads pointing forward in the chest cavity; two broken arrowpoints were found embedded in the sternum (Fig. 10). Obviously the latter had been killed, but who killed him and the relation of the two
skeletons remain an unsolved riddle. Only arrowheads of Type 2a were found in connection with Burial 89b. In his left hand, Skeleton 89a held a bundle of 43 arrowheads of which only four were of Type 2a; the balance were typical Ipiutak arrowheads. In addition Burial 89b contained two plain and one twisted swivel, all typical Ipiutak forms, indicating that at least this skeleton should be attributed to Ipiutak. The occurrence of both kinds of arrowheads in the bundle held by Skeleton 89a suggests that they are contemporaneous, but uncertainty arises in deciding whether they are just rare Ipiutak types or were made by another closely related people. For various reasons we are inclined to consider the latter explanation the more plausible. In the first place, only one, not very characteristic, example of Type 1a arrowhead and one of Type 2a were found in the Ipiutak houses. Second, the uncertain burials deviate from the typical Ipiutak burials in other traits. Of the other uncertain burials which probably belong in the same category, namely, Burial 102 and the group 82 and 131 to 137, only Burials 102, 131, and 134 contained Type 2a arrowheads, but other traits tie them together. If we consider all the uncertain burials mentioned above, we notice that the skeletons in Burials 82, 89b, 102, 131, 132, and 134 were placed with the head towards the north and in Burial 137 towards the east, while in the typical Ipiutak burial the head usually was towards the west. We note also that in four burials (Burials 90, 131, 132, and 137) dogs were buried with the human, a feature absent in any true Ipiutak burial. Thus we have reason to believe that another people, probably related to the inhabitants of the Ipiutak village, lived in the same area. It is possible also that in this burial with evidence of a killing, we have indications of an unfriendly relation between the two groups.

We may summarize then by concluding that at least two and possibly three types of burial were practiced, viz., in coffins, on the surface, and in frames. How do these methods compare with the burial practices in other parts of the Eskimo area? Outside of Point Hope, the use of log coffins comparable to the Ipiutak form is apparently extremely rare, or they have not been found. De Laguna found in a shallow grave at Yukon Island II a flexed body, and "fragments of rotted wood above the skeleton may suggest the wooden coffin used in Prince William Sound." She also mentions other examples in the same region.1 Box burials, so common along Bering Sea, are not comparable to the Ipiutak coffins; they are placed on or above the ground and, according to Nelson, are a late introduction.2 At Point Hope, interment in log coffins was the most common practice, ranging chronologically from the time when the Ipiutak culture flourished to fairly recently when coffin burial was replaced by platform burial.

The western part of the Point Hope spit, between Tigara and Ipiutak, is actually an enormous cemetery with hundreds of graves, only a fraction of which were investigated. All these graves are subterranean, and most of them are coffin burials. Of the three Birnirk graves, two were definitely coffin burials and the third contained some wood fragments (p. 169). No wood was found in the two graves attributed to the Western Thule phase of the Arctic Whale Hunting culture, but the majority of the burials of the following Tigara phase were in log coffins (p. 175). It seems strange that Point Hope should be the only place where log coffins were used, especially since the same culture

Fig. 10. Arrowpoints embedded in sternum. 99.1-181, B89b.

1 De Laguna, 1934, 163.
2 Nelson, 1899, 312.
existed all along the coast of northern Alaska. The absence of this type of burial outside Point Hope cannot be attributed to the special geological conditions here, since similar gravel bars exist along the entire coast from Bering Strait to Point Barrow. The only sensible explanation is that they have as yet not been discovered. No burials of the Okvik, Old Bering Sea, or Punuk phases were found at Point Hope, but two Old Bering Sea burials are recorded from St. Lawrence Island, one from Miyowagh and one from Kukulik. At Miyowagh one body was found 4 feet below the surface, covered by several stones and a mass of timbers, and at Kukulik four or five skeletons were found resting on a stone floor. As both burials were found in middens, we do not know whether they originally were interments or surface burials. In one respect they deviated from the Ipiutak burials but resembled the Tigara burials: the bodies were in a flexed position. At Point Hope the position of the body was the most important distinguishing factor between Ipiutak and Tigara burials. In the typical Tigara burial the body was placed in a log coffin, supine, with the head towards the west, and with the legs more or less flexed; in the Ipiutak burial the body was extended. Whereas the flexed position seems to be fairly constant in burials of the Arctic Whale Hunting culture, the burial structure differs in Alaska and in the areas to the east of the Mackenzie River, where stone chambers predominate. Despite their great difference in appearance it is possible that there is a connection between the log coffins and the stone chambers. In the first place, they are based on the same idea, that is, careful protection of the body; second, it is not incredible that the building of stone graves in the regions east of the Mackenzie, where driftwood and timber become scarce, is analogous to the stone and whalebone houses which in the same regions take the place of the wooden structure of the houses to the west. Of the two burial positions, the extended and the flexed, the latter is the most common among the Eskimo. Wherever the extended position is used, it is almost always in exposed rather than interred burials. To our knowledge, bodies interred in extended position are, outside Point Hope, known only from Port Möller.

The other main type of Ipiutak burials, which we consider as a kind of exposure, is just as common among the Eskimo as the log coffins are rare. Even if we disregard the stone chambers, which are surface burials of a different kind, we find various forms of surface burials in most parts of the Eskimo area. The simplest method is to leave the body unprotected on the tundra; more care is shown by those who surround the body with a framework of stones or logs, or cover it with a pile of logs. A comparison between these methods and the Ipiutak burials is impeded by the circumstance that we have no certain knowledge of the Ipiutak style of surface burials. As we almost always found some traces of wood with the skeletons, we can exclude the simple exposure method of burial, and since we have several suggestions of the presence of a log frame and only a few of a log pile, we must assume the former method as the most likely to have been practiced, and suggest the possibility that both methods were used. Assuming that the extended position was the normal one, we find the closest resemblance to the Ipiutak surface burials in the immediate neighborhood of Point Hope. At Icy Cape and at Imilik, near the mouth of the Utorqaq River, both favorite summer camping places of the Utorqamiut, three surface burials were found in 1942. In all the burials the skeleton was supine, extended inside a solid rectangular frame of heavy logs. According to Qamaqt the Utorqamiut dressed the body in its best clothes and laid it, supine and extended with the hands on the pubic region, on the tundra some distance from the settlement or camp. Farther to the east the Mackenzie Eskimo placed the body on the ground, supine and extended, with the arms straight or bent, and covered it with logs. There may be a connection between the frame burials and the ring of stones laid around the body, for instance, by the Central Eskimo and on St. Lawrence Island. At St. Michaels, Nelson was told that in ancient times the dead were exposed on the open tundra with their weapons and tools beside them.

1 Collins, 1937, 64–65.
2 Geist and Rainey, 1936, 78–79, and Fig. 18.
3 Weyer, 1932, Fig. 17.
4 Weyer, 1930, 262.
5 Birket-Smith, 1929, pt. 2, 293–294.
6 Larsen’s informant in 1942.
7 Stefansson, 1914, 192, 193, and 315.
8 Birket-Smith, 1929, pt. 1, Fig. 112.
9 Nelson, 1899, Fig. 107.
It was the custom to lay the body at full length on its back and plant two sticks about three feet long one on each side of the head, so that they would cross over the face.\footnote{Nelson, 1899, 312.}

Is there a connection between this and the Caribou Eskimo practice of setting up a pole obliquely at one end of the grave?\footnote{Birket-Smith, 1929, pt. 1, Fig. 115.} Dismembered bodies are known from Cook Inlet and Port Möller.\footnote{De Laguna, 1934, 164.}

The origin of the various Eskimo burial practices is still obscure. Difference in environment may explain the occurrence of some customs, for instance, the use of wood and stone structures; on the other hand, have we learned from the investigations at Point Hope that geographical conditions do not influence the use of exposure and interment? As the main difference between Ipiutak and later burials at Point Hope is in the position of the body, and as the extended position is the older, the most important question in this connection is when and where did the Eskimo first adopt the practice of burying their dead in a flexed position? It is to be hoped that this and other problems concerning the burial customs of the Eskimo may be solved by future research.

ARCHERY

Since Mathiassen published his "Archaeology of the Central Eskimo," it has become almost standard practice to begin any description of a series of Eskimo artifacts with a discussion of harpoons and their component parts. This is natural because the harpoon is not only the most important, but the most characteristic, Eskimo hunting implement. Moreover, in Eskimo chronology the diagnostic importance of harpoon heads equals that of pottery in other cultures. We deviate from the more usual practice in this monograph in order to emphasize the importance of archery as compared with harpooning in this culture. When we consider the number of arrowheads and other artifacts used in archery which were found in the Ipiutak houses and burials, it is obvious that the bow and arrow were the chief weapons of these people. The total number of arrowheads in the Ipiutak collection is 1172. To this number may be added 436 arrowpoints, 571 side blades for arrowheads, 47 bird arrowheads, and 14 sections of incomplete wooden bows, totaling 2240 artifacts related to archery. In other words, 22 per cent of the entire collection has some bearing on the bow and arrow and their use. Compared with this, the number of harpoon heads and other parts of harpoons is insignificant. One hundred and fifty-nine harpoon heads were found in Ipiutak houses and burials. When we add the harpoon socket pieces, foreshafts, ice picks, and harpoon blades, the total of harpoon parts is only 324 or a little over 3 per cent of the entire collection. The relative importance of archery and harpooning is also demonstrated clearly by the distribution of the artifacts belonging to each category in the houses and burials. Arrowheads, arrowpoints, or side blades were found in all the houses except one and in 72 out of 112 burials which contained grave furniture. Only 18 burials yielded harpoon parts which were also absent in several houses.

ARROWHEADS

In most Eskimo cultures arrowheads occur in a few very simple forms with only minor variations. The Ipiutak arrowheads, however, have been made with more care than most Eskimo arrowheads. For instance, with very few exceptions they are all decorated with four longitudinal, incised, equally spaced lines.\footnote{A description of all types of implements accompanies Pls. 1–95.} They also have a greater range of form and more variation in size and shape than in any Eskimo culture. In spite of the differences, Ipiutak arrowheads are easily recognized as such. They are almost all made of antler; only 23 are made of ivory. They all have one feature in common: the smooth, conical tang, or, actually, a tapering butt. Some have screw or thread-like impressions on the tang, but these are unintentional and are only the result of the arrowhead's having been screwed into the wooden shaft. Another characteristic trait which they share with other Ipiutak weapon points is their decoration with incised lines.
We have classified the arrowheads into eight types according to the presence or absence of flint end or side blades and barbs. The two most common types have been subdivided in order to distinguish certain specimens which might prove to be chronologically significant.

Strangely enough, the most common form of arrowhead found at Ipiutak, Type 1 (Pl. 1, Figs. 1–3; Pl. 32, Figs. 1–8), does not occur among any other finds in the Eskimo area. Harpoon and lance heads with inset side blades are known from the early phases of the Arctic Whale Hunting culture and from Southampton Island, but side blades have never before been found in arrowheads. These side blades, which are made of chipped flint and will be considered later (p. 98), were designed, of course, to serve as cutting edges and to spread the wound after the sharp point penetrated the skin. The majority of the arrowheads have two blades; a few have three. The blades are always placed in the opposite edges, closer to the point than to the butt and always alternate. Most of the blades are set in close together and sometimes overlap. The blade slots were made merely by deepening and widening the longitudinal lines sufficiently to receive the blade. Undoubtedly the lines and the slots were made at the same time and probably with the same implement. The slots are about 2 millimeters wide and 4 to 5 millimeters deep in the middle. No cement seems to have been used for holding the blades in position.

A small group of arrowheads with side blades, 13 in all, has been classified as Type 1a (Pl. 1, Fig. 4; Pl. 32, Figs. 9–10). They differ from the majority in being heavier, usually have only a single side blade, and lack the incised longitudinal lines. They were found in a group of atypical burials (Nos. 89, 90, 101, and 102) and one in House 11. As has been stated previously, arrowheads with side blades do not occur in Eskimo finds, but it is unlikely that this type so common in the Ipiutak culture would disappear without leaving any traces. Among later forms of arrowheads, the common type with a simple lanceolate blade may have developed from Ipiutak Type 1.

Another common form of arrowhead at Ipiutak, classified as Type 2 (Pl. 1, Figs. 5–9; Pl. 32, Figs. 11–18), has a chipped flint blade set into a slit in the point. This form is one of the most widely distributed in the Eskimo area. The Ipiutak specimens are readily distinguishable by their slenderness, the incised lines, the tapering butts, and the finely chipped blades. The blade slit is always very deep, often more than half the length of the blade. The blades will be described later (p. 95). Their variation is not so great as in the preceding group, but, on the whole, the heads from the burials are more carefully made than those from the houses. While most of the arrowheads from the burials are round or oval in cross-section, those from the houses are, in the main, quadrangular or triangular in cross-section. Arrowheads, quadrangular in cross-section and identical with those from the houses, were found in Burials 64 and 108. Two arrowheads from Houses 32 and 33 had three short transverse incised lines (Pl. 1, Fig. 8), which may be an ownership mark.

A small group has been classified as Type 2a (Pl. 1, Fig. 10; Pl. 32, Figs. 19–20). These are from the same burials as the arrowheads in Type 1a and have similar characteristics. They are broader, but are either without incised lines or have broken lines. One Type 2a specimen was found in House 18.

The third of the most common groups of arrowheads (Type 3), with end blades and barbs (Pl. 1, Figs. 11–12; Pl. 33, Figs. 1–20), is also a widespread Eskimo type. Naturally the variation in this type is greater than in the preceding ones as there are many more possibilities for range in the number and arrangement of the barbs. Actually no two are exactly alike, not even two found in the same grave. A good example of this is Burial 96 which contains 22 specimens of this type, nine of which are illustrated in Pl. 33 (Figs. 2, 4–6, 10–11, 15–16, 18). The barbs are unilateral or bilateral, awl-shaped, flat, or triangular in cross-section. In some cases the barbs are cut so deep that the arrowhead inevitably would break in the wound, which may very well have been the intention (Pl. 33, Fig. 11).

Burials 64 and 108 again yielded a variant which can be duplicated from the houses, that is, a form in which the longitudinal lines are cut so deep that they alter the form of the head, making it quadrangular in cross-section. A striking similarity in ornamentation is found in the arrowheads shown in Pl. 1, Fig. 11, from House 23, and Pl. 33, Fig. 9, from Burial 67. Each barb on both of these arrowheads has
three longitudinal lines, one medial and two lateral.  

From Burial 101, one of the group of atypical burials mentioned before, we have an arrowhead (Pl. 33, Fig. 20) that has the same characteristics as the arrowheads of Types 1a and 2a. It is heavy and also lacks the incised lines.

Type 3 is the only one which has close parallels outside Ipiutak. In the Okvik phase of the Arctic Whale Hunting culture, there are arrowheads with the same tapering butt, long slender barbs lying close to the shaft, and even the longitudinal lines on the shaft and barbs.1 Similar forms also occur in the Old Bering Sea phase,2 but only one specimen, which was found very deep and might belong to the Okvik phase, has the incised lines. Recently arrowheads very similar to this type with a conical tang and unilateral or bilateral barbs have been found in the Aleutian Islands (60.1-9243–9245).

The other types were found only in small numbers. Type 4, with barbs and side blades (Pl. 1, Figs. 13–14; Pl. 33, Fig. 21), Type 5 with both side blades and end blade (Pl. 1, Figs. 15–16; Pl. 34, Figs. 1–4), and Type 8 without blades or barbs (Pl. 1, Figs. 17–19) occur in houses as well as burials. Type 6, with a flint end blade and with the barbs cut in opposite directions (Pl. 34, Figs. 5–10), and Type 7 consisting of fantastic forms (Pl. 34, Figs. 11–21) were found only in burials. The two last forms are very unusual and extremely interesting because they could not have been used as arrowheads. Forward pointing barbs, especially when they are placed in front of the normal barbs, would defeat the purpose of any arrowhead, and it is difficult to understand how any of the fantastic forms could have been used. Some of those assigned to Type 7 (Pl. 34, Figs. 11–14) could be used as bird arrowheads, but those with a blade can scarcely be so classified. Furthermore, the Ipiutak people had bird arrowheads of a quite different shape. The specimen illustrated in Fig. 11, which was found in the surface gravel near Jabbertown, but undoubtedly is an Ipiutak specimen, proves beyond all doubt that this kind of arrowhead could not be used as such. On the other hand, we feel justified in classifying them as arrowheads as they all have the characteristics of this implement, such as the conical tang, the incised lines, barbs, and blades. They are all made with great care. The fact that they were not present in the houses and that they have no apparent practical use leads us to conclude that they have some symbolic or ceremonial significance.

Fig. 11. Linked arrowhead. P3381, surface find near Jabbertown.

It seems strange that any people should spend so much time and effort in making artifacts that have no practical purpose, but, as we shall see later, this is not an isolated phenomenon.

**Arrowpoints**

Several arrowheads described in the foregoing were found with the flint blades still in position, but a number of loose blades were also found. Of 436 arrowpoints or end blades found at Ipiutak, not including those still in the arrowheads, 134 were found in the houses and 302 in the burials. Taken as a whole, those from the burials are of finer workmanship than those from the houses, but there are some exceptions, since we have delicate blades from the houses and rather crude examples from the burials. The arrowpoints will be more thoroughly discussed in connection with the other flint implements (p. 95). At this point we will limit ourselves to a brief description of the types and their occurrence in other finds. The arrowpoints have been divided according to the shape

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1 Rainey, 1941a, Fig. 14, Nos. 1–3.
2 Collins, 1937, Pl. 34, Figs. 2–4.
of the base into two main types, each with a subtype. Though the basic types are easily distinguishable, many transitional forms make classification difficult. A few specimens are classified as rare forms. Type 1, with a straight base (Pl. 2, Figs. 1–6; Pl. 35, Figs. 1–20), is far the most common. The total number of arrowpoints, 176, is not restricted to any special type of grave or type of arrowhead. Arrowpoints similar to these occur in other finds such as Kachemak Bay, Cook Inlet, Port Möller, Alaska, the Aleutians, in the Okvik phase of the Arctic Whale Hunting culture, and in Greenland. They are, as a rule, cruder and thinner than the Ipiutak examples, undoubtedly because of the inferior material of which they are made. The Greenland specimens, made of siliceous slate, chipped and ground, are very delicate and have one parallel in the Ipiutak finds (Pl. 35, Fig. 20).

Only 40 examples of Type 1a, with a slanting base (Pl. 2, Figs. 7–8; Pl. 35, Figs. 21–24), were found. Type 1 and Type 1a are not restricted to any special type of grave or arrowhead.

Type 2, with a concave base (Pl. 2, Figs. 9–11; Pl. 35, Figs. 25–32), is also relatively rare, there being not over 40, but, contrary to the preceding types, it is restricted to the so-called "midden-like" burials and was found also in a few houses. A somewhat similar blade was found at Cook Inlet. Flint arrowpoints with a concave base also occur in the Dorset culture, but they are more triangular. Twenty-three examples of Type 2a, which has a concave slanting base (Pl. 2, Fig. 12; Pl. 35, Figs. 33–36), were found in "midden-like" burials and in four houses.

Some arrowpoints have been classified as rare forms, as they occur too infrequently to be classified as types and must be considered as variants of the previously described types (Pl. 2, Figs. 15–16; Pl. 35, Figs. 37–41). Some of them, like that illustrated in Pl. 35, Figs. 37–40, are known only from the Ipiutak culture. The form with the pointed or rounded base (Pl. 2, Fig. 16; Pl. 35, Fig. 41) is similar to arrowpoints from Kachemak Bay, the Aleutians, and Greenland, but as it is represented at Ipiutak by only four specimens, all of which may be accidental forms, we do not want to stress this fact. Pl. 2, Fig. 15, is semi-stemmed as are several specimens found in the so-called Near Ipiutak burials (see Pl. 80, Figs. 1–14). A few are so short and broad that it is hard to determine whether they have been used as arrowpoints or harpoon blades (Pl. 2, Figs. 13–14; Pl. 35, Figs. 42–43).

**Inset Blades**

Of a total of 718 chipped flint blades classified as inset or side blades, 571 have probably been used in arrowheads of Types 1, 4, and 5, and the rest in harpoon heads, lance heads, or knives. Of the 571, only 262 were complete, but it was difficult even with these to determine with certainty in what kind of implement they were used. The classification is based mainly on the length and width of the blades which have been divided into five types. The only difference between the two types that we assume have been used with arrowheads is that Type 1 (Pl. 2, Figs. 17–23; Pl. 36, Figs. 1–36) is asymmetrical and Type 2 (Pl. 36, Figs. 37–39) is symmetrical. However, the distinction is not always clear, and it probably has little significance. Type 1 is by far the more common of the two. Type 2 does not occur in the finds from the houses.

The large number of caribou bones found in the Ipiutak houses and the fact that almost one fourth of all the specimens were made of antler indicate that caribou hunting was of major importance. This undoubtedly accounts for the great number of arrowheads and their accessories in the collection. But the bow and arrow were not necessarily only hunting weapons. They could also have been used in warfare and there are definite indications to that effect. Two skeletons (Burials 89 and 90) were found with three to four arrowheads in the breast cavity. In one of the skeletons (Burial 89) two arrowpoints were found embedded in the sternum (see p. 60 and Fig. 10).

The fact that arrowheads, arrowpoints, and inset blades were found in 72 per cent of the burials containing grave goods in comparison

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1 De Laguna, 1934, Pl. 30, Figs. 2–3, 20–21.
2 Weyer, 1930, Fig. 20b.
3 Jochelson, 1925, Fig. 16a and c.
4 Rainey, 1941a, Fig. 32, No. 7.
5 Solberg, 1907, Pl. 12, Figs. 33–37.
6 De Laguna, 1934, Pl. 30, Fig. 7.
7 Mathiassen, 1927, pt. 1, Pl. 61, Figs. 7–9.
8 De Laguna, 1934, Pl. 30, Figs. 11–13, 19.
9 Jochelson, 1925, Fig. 16b.
10 Solberg, 1907, Pl. 12, 1–7.
to 16 per cent with harpoon parts is a good indication that the bow and arrow were the favorite weapons of the Ipiutak man, whether for fighting or hunting. Point Hope is not, and probably never has been, a good hunting place for caribou as the caribou live mostly farther inland. We must therefore assume that the Ipiutak people spent part of the year inland, hunting caribou. This may also explain why only 30 per cent of the arrowheads and arrow blades were found in the houses which yielded almost two thirds of the entire collection.

Bird Arrowheads

Blunt arrowheads for killing birds, very similar to those used until recently by the Alaskan Eskimo, occur in Ipiutak houses as well as in the burials, although in small numbers. Two are from the houses (Pl. 1, Figs. 20-21) and five from the burials (Pl. 42, Figs. 5-9). Except for one specimen (Pl. 1, Fig. 21), which has a flat tang, they are all socketed. Especially interesting are two of the four nicely carved heads from Burial 89 (Pl. 42, Figs. 7-8) which have the same general features, especially the crown-shaped top that is characteristic of bird arrowheads from northwest Alaska from early periods to the present. Bird arrowheads with decorative carving are also known from the Okvik phase.¹

Type 1 of the implements of uncertain use (Pl. 28, Figs. 1-7) is in all probability another form of bird arrowhead. It is blunt, has a perforated stem, probably for a lashing, and a conical tang which sometimes has screw or thread-like impressions exactly similar to the ordinary arrowheads. It occurred in 25 houses and two graves. With a total of 43, they were apparently more commonly used than the preceding form. A similar form is known from the Okvik phase.²

Arrow-Straightener

The object shown in Pl. 42, Fig. 14, resembles an arrow-straightener and has been identified as such. Except for three problematic fragments from Houses 19 and 51, it is the only one found. It is from Burial 32, where it was accompanied by other tools. It has the same scratchy decoration as many Ipiutak specimens.

Bows

As the Ipiutak bow was made of wood, which is usually badly preserved at this site, our knowledge of this weapon is very incomplete. Of the 14 remnants of bows in the collection, all but one are children's toys; only two are sufficiently complete to suggest the kind of bow the Ipiutak people used. These two bows are not of the same type. One is much longer than most Eskimo bows. It measures 1.89 meters and was probably 1.92 meters long when complete. It is 5.9 centimeters wide in the middle and from 0.6 to 1.7 centimeters thick. Now far too thin in relation to its length, it probably was originally thicker; in fact there are indications of more layers of wood, now disintegrated, on the inner concave side. The back of the bow, which is slightly convex, shows no signs of the backing it must have had, unless it were a compound bow. The bow stave is straight except for the ends which are bent inward, similar to a bow from Point Barrow, illustrated by Murdoch.³ Otherwise, it does not resemble any Eskimo bow, as these are usually shorter and narrower. Bows as long as this or even longer were used in Asia, for instance, by the Gold, the Japanese, Yakut, and Vogul.⁴

The second rather well-preserved bow is illustrated in Pl. 31, Fig. 1. Even with one end broken off and reworked, it was probably never more than 64 centimeters long, which undoubtedly means that it was used as a toy. It is quite different in shape from the one described above. It is narrow and thick in the middle, thinner and flatter towards the nocks, with the widest part in between. One side is flat, the other convex, in cross-section, but it is difficult to determine which side is the back. If it originally had a backing, the flat side is the back. The middle part and the ends are bent in opposite directions, forming a double curve, with the ends towards the back. In this respect it is somewhat similar to a bow from the mouth of the Kuskokwim River, illustrated by Murdoch.⁵ The wide "wings" which are even more pronounced on the fragment, illustrated in Pl. 31, Fig. 3, are characteristic of bows from Alaska, south of Norton Sound,⁶ but occur also in other parts of

¹ Rainey, 1941a, Fig. 14, Nos. 10, 11, and 13.
² Rainey, 1941a, Figs. 14, 15.
³ Murdoch, 1885, Pl. 4, Fig. 9.
⁴ Adler, 1902, 14.
⁵ Murdoch, 1885, Pl. 3, Fig. 5.
⁶ Murdoch, 1885, Figs. 2, 3, 6.
the Eskimo territory, for instance in Greenland. A few Greenland bows also have the wings curved towards the back.¹ Thus this type, rather than the large bow, seems to be widely distributed among the Eskimo.

Among the implements of uncertain use are five specimens, all from the houses, which possibly were connected with archery (Pl. 28, Figs. 26–27). They were undoubtedly attached to an implement with a convex surface, and we suggest that they were attached to the middle of the bow stave on the inside to protect the wrist from the string. This form of wrist guard is characteristic of the bows used by the Athapascan Indian in Alaska,² but is unknown from the Eskimo. The fact that so few were found, and none in the burials, indicates that if our interpretation is correct, they were not in common use.

SEA MAMMAL HUNTING

Of all the factors that made Point Hope an ideal spot for human habitation, its excellent location for sea mammal hunting is probably the most important. Hair seal and bearded seal are abundant nine to 10 months of the year, and herds of walrus pass the Point in the spring and summer and can be taken on the ice or on the beach where they sometimes haul up to rest. From April to June whales pass the Point on their migration from the Pacific to the Arctic Ocean; later in the summer belugas pass its shores. These good hunting conditions also account for the ancient Ipiutak village, even if the later inhabitants of Point Hope were better equipped for sea mammal hunting than were the Ipiutak people. For instance, we have no evidence that they were able to kill the large whales which were the foundation of the economy of the later settlers. No whaling harpoon heads or foreshafts were found in the ruins. Neither floats nor baleen was found. We uncovered a few whalebone implements, mostly shovels, but the quantity was too insignificant to prove that whale hunting had been a regular occupation. A single dead whale stranded at or near Point Hope could easily account for the few whalebone implements. Hence, until further evidence to the contrary is produced, it is justifiable, for the present, to maintain that the Ipiutak people were not whale hunters.

The only method of learning the kind of game the Ipiutak people hunted is to identify and determine the relative proportion of each kind of animal bone left in the houses. Such a test was made for the contents of 14 houses, with the result that 53 per cent of all the bones, except dog bones, were from seal, 23 per cent from walrus, 12 per cent from bearded seal, and 10 per cent from caribou. The remaining 2 per cent consisted of bones of birds, fox, squirrel, polar bear, whale, wolf, and beluga in this sequence, ranging from 90 bird bones to two beluga bones. Certainly this demonstrates that the seal was far the most important game, followed in descending quantity by walrus, bearded seal, and caribou.

Harpoon Heads

Judging from the well-developed harpoon heads and other parts of harpoons and the number of types into which they are classifiable, sea mammal hunting was by no means a newly acquired occupation of the Ipiutak people. The harpoon heads, of which 159 were found, are of the generalized Eskimo type. They are all toggle harpoon heads, usually with a round line hole and an open or closed socket in the base for the foreshaft. Most of them were furnished with flint blades. These are either side blades, set in two parallel slots, just in front of the line hole, or an end blade set in a deep blade slit in the point of the head. They have no bars, but usually have two or three basal spurs or a single spur which is usually two- or three-pronged. Two- or three-pronged spurs also occur on harpoon heads from the earlier stages of the Arctic Whale Hunting culture, the Ovkik, Old Bering Sea, and Birnirk phases, but while the majority of the latter are made of ivory, the Ipiutak harpoon heads are, with very few exceptions, made of antler. The Ipiutak harpoon heads are also simpler in form and do not have so many variations as, for instance, do those of the Old Bering Sea phase. That the harpoon heads from the Ipiutak culture and those from these early

¹ Birket-Smith, 1918, 18–19.

⁲ Osgood, 1937, Pl. 8a and b.
phases of the Arctic Whale Hunting culture are related is obvious, and the latter should in all probability be considered later forms that developed from the Ipiutak types.

The Ipiutak harpoon heads have been classified into four main types, some with subtypes, and into miniature and rare forms. Only the first three types were found in such quantity as to justify the assumption that they were in common use. Some of the rare forms are undoubtedly intrusive, or were adopted from some other culture.

Type 1, of which 62 were found, is slender, pointed, with an open shaft socket, two side blades parallel with the line hole, and a multi-pronged spur (Pl. 3, Figs. 1–12; Pl. 37, Figs. 1–4). It is a very uniform type among which only three examples (Pl. 3, Figs. 10–12) vary slightly from the general pattern. The only real variation is in the size, the spur, which can be bifurcated or trifurcated, and in the number and arrangement of the decorative incised lines.

Similar harpoon heads are known from the oldest phases of the Arctic Whale Hunting culture, from Okvik, Old Bering Sea, Birnirk and Early Punuk, but as in the case of the arrowheads, the Ipiutak examples have individual characteristics which differentiate them from all the others. The most striking difference is the slenderness and the awl-shaped point of the Ipiutak harpoon heads, compared with those heads of the Arctic Whale Hunting culture which are relatively thicker and, except for the oldest form, from the Okvik phase, have a flat point with two sharp edges in line with the side blades. Rainey's Type E of the Okvik phase is the closest approach to the Ipiutak form, but the Okvik harpoon heads either lack any decoration or are ornamented in the typical Okvik style. Harpoon heads of the Old Bering Sea phase, Collins' open socket, Type IIx, are still more different, with a flattened point, two lashing slots, groove for the line, plain or with typical Old Bering Sea decoration. Only one harpoon head from the Birnirk phase has been found with the side blades parallel to the line hole; the majority have the side blades at right angles to the line hole (Pl. 87). This type of harpoon head seems to have become scarce during the Punuk phase. In this culture phase they are more slender, in which respect they approach the Ipiutak type, but they never have more than two spurs and are quadrangular in cross-section.

In his chart showing the chronological development of harpoon heads at Gambell, St. Lawrence Island, Collins has placed as the earliest of this type of harpoon head, a form with three dorsal, symmetrical spurs, with two line holes, one above and one below the socket, and with two lashing slots, similar to the harpoon head to be seen in Pl. 5, Fig. 16, from Ipiutak. In spite of their considerable difference in shape and function, this conclusion is understandable, as the general development of harpoon heads on St. Lawrence Island seems to have been from highly complex to more simple forms. Meanwhile, with our present knowledge, the picture becomes clearer. The extensive use of side blades for weapon heads in the Ipiutak culture justifies the assumption that this idea was carried over from the Ipiutak culture to the Arctic Whale Hunting culture, rather than vice versa. Therefore, when we find side blades used in almost identical harpoon heads, it seems logical to conclude that the Ipiutak harpoon heads are the earlier of the two. An additional factor which gives further weight to this conclusion is that this is the predominating type of harpoon head in the Ipiutak culture, but that its frequency decreases until it finally disappears in the Punuk phase. Hence this type of harpoon head has developed from the slender, pointed Ipiutak form through the thicker but otherwise similar Okvik form, to the Old Bering Sea, Birnirk, and Punuk forms with the flattened point. The type with the side blades at right angles to the line hole does not occur in the Ipiutak culture proper, but in the closely related Near Ipiutak phase, though here with only one side blade (Pl. 78, Fig. 7; Pl. 84, Figs. 9–10).

Three Ipiutak harpoon heads have been classified as Type 1a, as they lack side blades and a lashing slot (Pl. 3, Figs. 19–21). They have one or two spurs and a gouged line hole, while Type 1 has a drilled line hole. The head illustrated in Pl. 3, Fig. 19, has a rectangular line hole; Pl. 3, Fig. 21, has a slit widened in the middle. Instead of the lashing slots these

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1 Rainey, 1941a, Fig. 9, Nos. 1–4.
2 Collins, 1937, 102, and Pl. 24, Figs. 5–8.
3 Mason, J. Alden, 1930, 390, Pl. 5, Figs. 8–9.

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4 Collins, 1937, 116, Pl. 28, Fig. 1; 203, Pl. 70, Fig. 1.
5 Collins, 1937, Fig. 24.
harpoon heads have a groove around the socket. The line hole, groove, and spur make it certain that they are not merely unfinished examples of Type 1, but belong to a definite, perhaps more primitive related type. Similar harpoon heads were found in the midden deposits east of the Ipiutak village site (Pl. 83, Figs. 1–5). A harpoon head almost identical with Pl. 3, Fig. 211 was found in the southern part of Norway (Fig. 12).

In addition to those of Types 1 and 1a, 20 miniature specimens were found in the Ipiutak houses (Pl. 3, Figs. 13–18). None of them has inset side blades, but Pl. 3, Fig. 13, is carved with two sharp keels which imitate flint side blades, but is otherwise a perfect copy of a normal-sized harpoon head. Whether these miniature harpoon heads were actually used, for instance, to take fish or whether they are toys is difficult to decide. Some of them lack the line hole or have a shaft socket so shallow that they obviously were not utilitarian. Corresponding miniature foreshafts were also found in the houses (p. 76).

Forty-two harpoon heads of Type 2 were found. They are broad,2 with a closed shaft socket, slit for an end blade at right angles to the line hole and with a bifurcated or trifur-

Fig. 12. a. Harpoon head, Agder, Norway. After Gjessing, 1944. b. Bird arrowhead from Kjelmøy, Finmark, Norway.

1 Björn, 1932, Fig. 2.

2 According to Mathiassen’s classification of harpoon heads, this type is thin, but, when it is compared with the other Ipiutak harpoon heads, it would be confusing to characterize them in this way.

While Type 1 had a rather limited distribution, Type 2 is one of the most widespread forms of harpoon heads in the whole Eskimo area, in time as well as in space. It is represented in all stages of the Arctic Whale Hunting culture, and it is still used by the Central Eskimo.3 It has been found on the Aleutians4 and at Cook Inlet5 as well as in Greenland.6 Several authors consider it the most primitive type and, because of its wide distribution, possibly the earliest form of Eskimo harpoon head.7 The fact that it is one of the main forms in the Ipiutak culture confirms this theory to the extent that it is an ancient type, but a still more primitive form must have preceded it. Ipiutak Type 2 harpoon heads seem to be in a stage of development. No two are exactly alike; they range from simple, crude forms with or without very casual line decoration, as may be observed in Pl. 4, Figs. 10–13, to well-carved forms with delicate incised linear designs. In spite of this, most of them have certain traits in common which serve to segregate them as a definite Ipiutak type, though less pronounced than in Type 1. All except one are made of antler. They all have, or seem to have had, chipped flint blades. More than by any other feature, they may be characterized by their ornamentation. The majority are decorated with incised lines which form patterns characteristic of the Ipiutak culture. The decoration is not uniform: it ranges from rather simple incised lines, to straight or curved, plain or spurred elements, and a combination of delicate and heavy lines, cut with the utmost skill and forming a well-balanced and artistically perfect surface decoration as shown in Pl. 4, Fig. 7. This may result from the difference in ability of the craftsmen, but it may also show a development in art during a rather limited period of time. The latter assumption is based on the apparent correlation between the shape of the harpoon head and the decoration. Arranged serially, according to the shape of the point as in Fig. 13, it appears that the most elaborate decoration occurs on the harpoon heads with the sharpest points.

Most of the harpoon heads of this type have
a three-pronged lateral spur, a trait they share with Type D of the Okvik phase, but which distinguishes them from harpoon heads of the same general type from later culture phases.

The trifurcation is not always complete. Occasionally, two of the prongs are only indicated as knobs or steps on one heavy spur. This type was much more common in the houses than in the burials, and there is a remarkable difference in size between those from the houses and those from the burials. Most of the harpoon heads from the houses are large and powerful, while those from the graves are small and very thin. The large ones were probably used for walrus,

the smaller ones for seals. It is an interesting fact that the same general type of harpoon heads is still used for walrus by the Central Eskimo.

One miniature harpoon head of this type was

\[ \text{Rainey, 1941a, Fig. 8, Nos. 1–8.} \]

\[ \text{Mathiassen, 1927, pt. 2, 21.} \]
found in a house (Pl. 4, Fig. 16). The third common type of harpoon head is unique. These harpoon heads are slender, pointed, have side blades parallel with the line hole, and a closed shaft socket (Pl. 5, Figs. 1–10; Pl. 37, Figs. 7–8). Some of these heads, for instance that shown in Pl. 5, Fig. 6, with an awl-shaped point and trifurcated spur, resemble Type 1 except for the closed shaft socket, but most of them have a flat point with sharp edges parallel to the side blades. They approach what Mathiassen calls “flat” harpoon heads,¹ in that the openings of the line hole are placed on the “upper” side with the spur on the dorsal side. The spur may be plain, bifurcated, or trifurcated. Four specimens have a perforated spur, the purpose of which is not quite clear. They are all decorated with incised lines, some still filled with red paint. The decoration is typical of the Ipiutak culture and resembles the decoration on harpoon heads of Type 2 rather than of Type 1. The decoration on the short specimens (Pl. 5, Figs. 8–10) is exquisite. The harpoon head illustrated in Pl. 5, Fig. 7, has a different design—heavy, longitudinal, and horizontal lines reminiscent of the decoration on some harpoon heads from the Okvik phase.²

Miniature harpoon heads, slender, pointed, with a closed shaft socket, lacking side blades, were found in the houses (Pl. 5, Figs. 11–12). On the basis of shape, they have been classified as miniature Type 3, but they might with equal accuracy be classified as miniature forms of Type 2. They are rather crude, with gouged-out line holes, and with or without simple decoration. Three of them could have been used for fishing.

Only five examples were found of harpoon head Type 4. These are short, broad, with an open shaft socket and end blade at right angles to the line hole (Pl. 5, Figs. 13–14; Pl. 37, Figs. 9–10). The specimens from the burials have a trifurcated lateral spur and two lashing slots, while those from the houses have a broad, plain spur and only one lashing slot. It is possible that this type belongs in the Near Ipiutak phase rather than in the Ipiutak culture proper (p. 63). The same general type occurs in almost all phases of the Arctic Whale Hunting culture to modern times, but the trifurcated spur is limited to the earlier phases, namely, Okvik,³ Old Bering Sea, and Early Punuk.⁴ The Ipiutak specimens can be distinguished from these by their slenderness and ornamentation. The harpoon heads shown in Pl. 5, Figs. 13–14, have simple line decoration on the lower part.

Four harpoon heads found in burials and two in houses have been classified as rare forms because only one of each kind was found. Three of these harpoon heads can be grouped with the types already described, as they have the same general arrangement of blade, line hole, socket, and spur, in spite of the fact that they are quite different in general appearance. Those shown in Pl. 5, Fig. 15, and Pl. 37, Fig. 12, have the same general characteristics as Type 2. They are broad, have a closed shaft socket and end blade at right angles to the line hole, and yet they differ from Type 2 and from each other.

An ivory harpoon head, round in cross-section, has a very long, heavy spur with a curved side barb (Pl. 5, Fig. 15). The decorative design differs from that of any other harpoon head though the design elements are common in the Ipiutak culture. The ladder design and pairs of thin, oblique lines are also found in the Okvik phase.⁵

An ivory harpoon head is illustrated in Pl. 37, Fig. 12. It is characterized by a ridge that extends from the line hole to the tip and by a five-pronged spur. A similar ridge occurs on many Eskimo harpoon heads of this general type from the Old Bering Sea to the central Thule phase.⁶ Five-pronged spurs appear on harpoon heads of the Okvik and Old Bering Sea phases.⁷

The harpoon heads shown in Pl. 37, Figs. 13 and 14, were found in the same grave. One (Fig. 13) has the same general features as Type 4, but differs in other respects. Its most outstanding features are its size, the serrated edges of the blade slit, and the four-pronged spur. A similar harpoon head is known from the Old Bering Sea phase.⁸ The other (Pl. 37, Fig. 14) is even larger. The blade slit is parallel to the line hole and it has a long, bifurcated spur. The same general type, but usually thicker, is com-

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¹ Mathiassen, 1927, pt. 2, 12.
² Rainey, 1941a, Fig. 7, No. 5.
³ Rainey, 1941a, Fig. 7.
⁴ Collins, 1937, 106.
⁵ Rainey, 1941a, Fig. 5, No. 6, and Fig. 14, No. 1.
⁶ Collins, 1937, Pl. 26; Figs. 16–20; Pl. 28, Figs. 25–26; Mason, J. Alden, 1930, Pl. 5, Fig. 1; Mathiassen, 1927, pt. 1, Pl. 2.
⁷ Rainey, 1941a, Fig. 4, No. 5; Collins, 1937, Pl. 27, Fig. 6.
⁸ Collins, 1937, Pl. 23, Fig. 5.
mon in the Okvik and Old Bering Sea phases. These two specimens were obviously made for big game, possibly walrus or even whale. These differ from the Eskimo whale hunting harpoon head in that they always have a closed shaft socket and a blade at right angles to the line hole (Pl. 79, Figs. 1–2).

A very unusual form, illustrated in Pl. 37, Fig. 11, has a constricted body, an oblong, narrow line hole, a closed shaft socket, and a three-pointed spur. The traces of line ornamentation and the blade fragment are similar to these characteristics on other Ipiutak specimens.

While the five rare harpoon heads previously mentioned could, and probably do, belong to the Ipiutak culture, there are good reasons for believing that the head to be seen in Pl. 5, Fig. 16, does not. In the first place, it is the only harpoon head found at Ipiutak that has two line holes. The side blades, which are much larger than on any other head, are made of green silicified slate which is chipped and partially rubbed. The ornamentation is in the characteristic Okvik style (Fig. 14).

A number of similar harpoon heads have been found in the Bering Strait region and northern Alaska. The closest resemblance is found on a specimen from Little Diomede Island described by Jenness and one from Cape Smythe described by Wissler. Both of these are decorated in Okvik style, with single or double spurred lines and concentric circles, the same elements that occur on the Ipiutak specimen. This differs from the two other specimens in having a longer and more flattened point and larger blades. This form also occurs on St. Lawrence Island (Collins, Type IX), but with typical Old Bering Sea decoration. Doubtless the Ipiutak specimen belongs to the same culture phase as those from Little Diomede Island and Cape Smythe. Since it was found in the floor debris of an Ipiutak house, it seems to indicate that the Ipiutak people were not the only inhabitants of arctic Alaska at that time.

**Harpoon Blades**

A number of loose, chipped flint blades have been interpreted as blades for harpoon heads. These occur more frequently in the houses than in the burials, as is to be expected. There is no doubt as to the identification of most of the end blades (Pl. 2, Figs. 34–39). They are exactly like those found in the harpoon heads. The practice of using flint end blades persisted at Point Hope, at least until the Birnirk phase (Pl. 87, Figs. 3–4), whereas in the later phases of the Arctic Whale Hunting culture slate took the place of flint.

The side blades that have been used in harpoon heads are difficult to distinguish from those used in arrowheads. The size and shape of one type of side blade (Type 3, Pl. 2, Figs. 24–25; Pl. 36, Fig. 40) seem to indicate that it had been used in harpoon heads rather than in arrowheads, but there is really no sharp distinction between side blades for arrowheads and harpoon heads. Flint side blades were used in harpoon heads on St. Lawrence Island until the Punuk phase, but chipped slate or shell blades were also sometimes used.

**Harpoon Socket Pieces**

Only nine harpoon socket pieces, each differing from the others, were found, two of them in houses. Despite the small number, we find three different means of attachment to the harpoon

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1 Rainey, 1941a, Fig. 4; Collins, 1937, 104.
2 Jenness, 1928, Pl. 13a.
3 Wissler, 1916, Fig. 9. (The drawing is incorrect.)
4 Collins, 1937, Pl. 23, Figs. 1–2.
shaft, according to which we have classified them in three different types. Type 1 (Pl. 6, Fig. 1; Pl. 38, Figs. 1–3) has a conical or flat tang extending from the base of the socket piece. With a single exception, these socket pieces are all carved to represent heads of unidentifiable more or less fantastic animals. In three of them the socket for the foreshaft is in the mouth, while in one (Pl. 6, Fig. 1) it faces the harpoon shaft. They all have perforations, indicating that the socket piece has been lashed to the harpoon shaft. Deep grooves from socket to base may have been intended for a line to hold the foreshaft in position or may be purely ornamental. However, the fact that the grooves pass through slots seems to indicate that they were made for some practical purpose. The deep, conical sockets of Pl. 38, Figs. 1–2, fit the long conical tangs of the foreshafts. The cylindrical socket of Pl. 6, Fig. 1, which is actually a tube, since it is open on both ends, may possibly have contained a wooden plug with a slot for a foreshaft with wedge-shaped tang (see p. 75).

Type 2 is a very unusual form with a loose tang extending from the hollow butt and fastened by one or two pegs (Pl. 38, Figs. 4–5). The tang can also be considered as a part of the harpoon shaft, in which case we have a socket piece hollow at the butt, a common Eskimo type. One explanation for this strange arrangement is that it made possible the removal of the socket piece from the shaft, either for replacement by another type of socket piece or merely for safekeeping. The foreshaft sockets of the two specimens are different; Pl. 38, Fig. 4, has a conical and Pl. 35, Fig. 5, a cylindrical socket, corresponding to the shape of the tang in each foreshaft. Otherwise the two specimens are very similar; both have a great number of sockets for jet inlay and both have two grooves extending from the fore end to the base. As in Type 1 it is difficult to determine whether they are ornamental or are meant to hold a lashing to the foreshaft. In both, the grooves are connected with the line hole.

Type 3 has a bifurcated butt, the upper part of which is connected by a thin wall (Pl. 38, Figs. 6–7). The two specimens, which were found in the same grave, differ in many ways from the other Ipiutak socket pieces. They are made of ivory, while most of the others are of antler. They have a cup-shaped receptacle for the foreshaft, have pure line decoration, and are not carved in low relief as are the other specimens. The decoration consists of double, plain, or spurred lines, exquisitely fine, which are characteristic of the Okvik style. An almost identical specimen is in a purchased collection from St. Lawrence Island in the University of Alaska museum (Cat. No. 2—1935/1347; no location).

If we consider the loose tang of Type 2 as part of the shaft and not of the socket piece, all three types are common in the Arctic Whale Hunting culture, but socket pieces carved to represent animal heads are found only in its earlier phases, especially the Old Bering Sea. Socket pieces carved in the shape of animals with the socket in the open mouth were used until recently by the Eskimo between Norton Sound and the Kuskokwim River. They were often carved in relief and had eyes inlaid with jet.

**HARPOON FORESHAFTS**

Harpoon foreshafts were much more numerous than socket pieces; 46 specimens were found altogether, not including 41 miniature foreshafts. Like the arrowheads, most of the foreshafts are decorated with four or more longitudinal, incised lines which extend from the line hole almost to the point. They have been

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1 Mathiassen, 1927, pt. 1, Pl. 3, Fig. 9.

2 Collins, 1937, Pl. 27B.

3 Nelson, 1899, Figs. 109–112.
classified according to their size and function, in two types, but more types could be established if the shape of the tang and the point were used as criteria.

The foreshafts of Type 1 are short and have probably all been movable, that is, used in connection with a socket piece (Pl. 6, Figs. 2–3; Pl. 38, Figs. 1, 2, 4, 5, 9). They are oval, round, or quadrangular in cross-section, depending on the depth of the incised lines. The tang is conical, cylindrical, or wedge-shaped, and consequently most of them have been used in socket pieces with sockets of a corresponding shape. In the Arctic Whale Hunting culture, most movable foreshafts have a conical tang. Foreshafts with a cylindrical or wedge-shaped tang are known from Tigara, Cook Inlet, and Bristol Bay.¹ No socket pieces with an oblong narrow socket fitting a wedge-shaped tang have been found at Ipiutak, but most likely the socket pieces with a wide socket, such as shown in Pl. 6, Fig. 1, and Pl. 38, Figs. 6–7, had an inset wooden plug with an oblong groove for the foreshaft, like the socket pieces for dart heads which are common in Alaska, especially in the south.² The line hole is always a narrow, rectangular slot placed in the long axis, usually near the tang. Two foreshafts have double line holes, one above the other, as in Pl. 38, Fig. 1. All but one have a conical tip with a blunt or rounded point (only one foreshaft, Pl. 38, Fig. 1, has a sharp point) indicating that they were made for harpoon heads with a closed socket. The foreshaft, Pl. 38, Fig. 9, has a flat tip and was used with open socketed harpoon heads.

In connection with this type of foreshaft, we should mention the ivory ring found on the foreshaft illustrated in Pl. 38, Fig. 4. A similar ivory ring was found in the same grave (Pl. 38, Fig. 8), and a third one was excavated in House 12. Their purpose is not quite clear, but it may have been the same as a spruce root grommet on the harpoon foreshaft from Bristol Bay, just referred to. This leads us to a discussion of the function of these foreshafts. On most Eskimo harpoons the foreshaft was lashed to the socket piece or to a line that connects the socket piece with the harpoon shaft. This means that when used the foreshaft can slide out of the socket, but stays with the harpoon shaft. The Ipiutak foreshafts, or at least some of them, must have functioned differently. If these foreshafts, which have a conical tang over 3 centimeters long, were tied to the socket piece they could not be released from the socket unless the assembly line had a slack of 3 centimeters, which eliminates its usefulness. It is more likely that these foreshafts were attached to the harpoon line by a loop, in which case the foreshaft would stay on the harpoon line, but be detached from the harpoon shaft. This is entirely different from the hinge effect of the foreshafts attached to the socket piece. Our assumption is further supported by the size of the line hole. The narrow slot for the line in most of the Ipiutak foreshafts is too small for the heavy lashing necessary to hold the socket piece and foreshaft together, but large enough for a loop, the only function of which is to prevent the foreshaft from sinking. This form of attachment was used in Alaska until recently.³ It has also been suggested by Mathiassen for one type of movable foreshaft from the Central Thule phase.⁴ We are inclined to believe that the same form of attachment was used on some of the foreshafts from St. Lawrence Island described by Collins.⁵

The foreshafts classified as Type 2 are long and heavy (Pl. 6, Figs. 4–5; Pl. 39, Figs. 1–5). Of 29 specimens only one has a conical, blunt point. All the others have a flat point, indicating that this type was primarily intended for open socketed harpoon heads. The tang is usually wedge-shaped; only one (a fragment) has a conical tang. Most of the foreshafts have a narrow, rectangular line hole near the tang; a single example (Pl. 39, Fig. 2) has two holes. Obviously these foreshafts had a different function than Type 1. Type 1, when compared with recent Eskimo foreshafts from Alaska, reminds us of foreshafts used for open water hunting of walrus and seal.⁶ Type 2, on the other hand, resembles more closely the long foreshafts used for ice hunting. We do not know whether they

¹ 60-1-523; De Laguna, 1934, Pl. 41, Figs. 1, 2; Mason, Otis T., 1902, Fig. 88.
² Nelson, 1899, 109–112.
³ Mason, Otis T., 1902, Figs. 83–84, from the Kuskokwim, 60-523 from Point Hope, and 60.1-5662 from Alaska, unlocalized.
⁴ Mathiassen, 1927, pt. 2, 32.
⁵ Collins, 1937, 127.
⁶ Murdoch, 1892, Figs. 214, 224; Nelson, 1899, Pl. 55a, Figs. 6 or 7 (Fig. 7 has a socket piece carved in the shape of a polar bear head).
were movable foreshafts like those described from Point Barrow\(^1\) or fixed as in the central and eastern areas.\(^2\) Some of them, as in Pl. 6, Fig. 4, were definitely fixed foreshafts as they lack a line hole and the lower part is roughened. Whether the others have been movable or fixed is difficult to determine. The foreshaft shown in Pl. 39, Fig. 5, is very corroded, but seems to have a scarred face in the butt end. Two specimens (Pl. 39, Figs. 1, 2) have a tapering butt, and in one of them the hole is close to the butt, which seems useless on a movable foreshaft. A wedge-shaped tang (Pl. 39, Figs. 3, 4) on two other foreshafts offers no clue to its use. The latter are from Burial 108 which contained a very complete outfit of hunting gear, harpoon heads, socket pieces, foreshafts, ice picks, etc. The wooden shafts and the lines were the only artifacts lacking to make a complete harpoon. Two socket pieces (Pl. 38, Figs. 4, 5) in this burial had foreshafts of Type 1 in place, but no socket pieces for the other foreshafts. This probably means that these at least were fixed foreshafts, attached directly to the wooden shaft. This type of foreshaft was probably used for ice hunting, whether for stalking seals on the ice in the spring or for breathing-hole hunting, or both, we do not know. That at least some of these foreshafts were used with harpoon heads of Type 1 is proved by one found in place on a foreshaft of this type in Burial 108.

One specimen with the characteristic four incised lines, a rounded point, and a flat, shouldered tang was probably a fixed foreshaft (Pl. 39, Fig. 7), but could also be a movable foreshaft with the line tied above the tang.

In addition to these foreshafts, 41 miniature forms were found in the houses and one in Burial 108. They have the same characteristics, a flattened or rounded point, a narrow rectangular line hole (sometimes replaced by a groove), and the usual incised, longitudinal lines. We have divided them into two types, basing our classification on the shape of the tang. Type 1 has a beveled tang (Pl. 6, Figs. 6–7; Pl. 39, Fig. 6). Type 2 has a long, wedge-shaped tang (Pl. 6, Fig. 8). Type 1 is obviously a fixed foreshaft, like the familiar style from the Central Thule phase.\(^3\) Type 2 is a miniature replica of Ipiutak foreshaft Type 2 and may have been either fixed or movable. Like the miniature harpoon heads, both types of foreshafts are made with great care and have undoubtedly been used with them either as toys or for fishing.

**Ice Picks**

Thirty-two ivory or bone shafts, each with a sharp point and a perforated or scarfed tang, have been identified as ice picks. The identification is not absolutely certain, as they are different from ordinary Eskimo ice picks. However, since five of them were found in graves with other harpoon parts (three in Burial 108 which also had three foreshafts for ice-hunting harpoons), it is fairly certain that we are correct in our interpretation. The tang is very often roughened, demonstrating that it has been inserted in a shaft. One of these ice picks (Pl. 39, Fig. 9) has three steps on one side of the tang to secure the lashing. The lateral rectangular slot is always near the butt. Probably some of these may not be harpoon ice picks, but may have been used in a separate shaft.

**Dart Head (?)**

A unique specimen (Pl. 42, Fig. 10) is either a dart (barbed harpoon) head or a movable lance head. It has a tapering tang, a triangular line hole, and three unilateral barbs. The point has been reworked. It could have been used for hunting sea mammals or bears.

**Summary**

We may now summarize our discussion of implements used in sea mammal hunting. The Ipiutak people had the typical Eskimo toggle harpoon consisting of a harpoon head, foreshaft, and socket piece. The types resemble those of the Eskimo, especially the earlier phases of Eskimo culture such as Okvik and Old Bering Sea, and the Kachemak Bay culture. On the other hand, most of the Ipiutak harpoons are easily recognized by their characteristic shape and decoration. The Ipiutak people had two different kinds of harpoons: one with a socket piece and a short foreshaft, probably a throwing harpoon for open-water (kayak?) hunting, and another with a long foreshaft attached directly to the shaft, a thrusting harpoon, for ice hunting.

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\(^1\) Murdoch, 1892, Fig. 227.
\(^2\) Mathiassen, 1927, pt. 2, 31 et seg.
\(^3\) Mathiassen, 1927, pt. 2, 31.
Very significant is the absence of a number of common and characteristic Eskimo elements connected with harpooning, such as finger rests, float plugs, float mouthpieces, float bars, and wound plugs. Their absence may be partially explained by the fact that very few wooden implements were preserved. However, finger rests are usually made of antler, bone, or ivory. Ivory float plugs occur in the Okvik phase which has most affinities to the Ipiutak culture. Hence it is justifiable to assume that the Ipiutak people did not use finger rests and probably had no floats. The question arises now whether the throwing harpoon was used from a boat or from the edge of the ice in leads and creeks. Despite the fact that no remains of boats or boat accessories were found, we assume that the Ipiutak people, as sea mammal hunters, had umiaks as well as kayaks. The latter were probably used for seal and caribou hunting in the same way as by the Nunatarmiut (p. 33).

The absence of floats also excludes whale hunting, at least in its known form in the Arctic Whale Hunting culture. Moreover, we have found no evidence suggesting other forms of whale hunting. Whaling harpoon heads have not been found at Ipiutak. The badly preserved fragment of an ivory object that has some resemblance to a whaling harpoon head (Pl. 76, Fig. 4) is too uncertain to use as evidence of the existence of whaling. On the other hand, whaling may have been practiced in other parts of Alaska contemporaneously, at least at a time not too remote from the time of the Ipiutak culture. Typical whaling harpoons occur in the closely related Near Ipiutak finds from Point Hope (Pl. 79, Figs. 1–2).

We are uncertain as to whether the Ipiutak people used the throwing board. One specimen (Pl. 31, Fig. 9) might be a throwing board. It has a slot near the tip which may be intended for a peg, indications of a longitudinal groove on the front, and a lateral slot just above the handle, which could be for a peg to secure a firmer grip. The specimen is too badly preserved to justify a definite identification; the identification of the pegs for throwing boards should be taken with some reservations (Pl. 27, Fig. 13; Pl. 75, Fig. 1).

OTHER HUNTING AND FISHING GEAR

Compared with seals, walrus, and caribou, other animals played only a minor role in the economy of the Ipiutak people. This is evident from the fact that 98 per cent of all animal bones found in the houses were from these animals. The remaining 2 per cent consisted of bones of dog, bird, fox, squirrel, polar bear, whale, and wolf. Fox, squirrel, and wolf were probably trapped, mostly for the skins, while birds and polar bears undoubtedly were hunted not only for their food value, but for the skins as well. We do not know the type of weapon used in bear hunting, but probably both lances and bows and arrows were used.

Undoubtedly birds were as important a supplement to the diet of Ipiutak people as they are for the Tikerarmiut today. Few bird bones were found in the houses, but that, of course, is because most of the smaller bones have disintegrated or were eaten by the dogs. True hunters as they must have been, we can be sure that they would have taken advantage of the millions of gulls, ducks, geese, loons, etc., that spend the summer in this region. Of the implements used for bird hunting, blunt or bird arrowheads have already been described (p. 67), but the characteristic Eskimo bird spear with side prongs was also known.

SIDE PRONGS FOR BIRD DART

Eleven side prongs for bird darts were found in the houses (Pl. 7, Figs. 1–4) and four in the graves (Pl. 42, Figs. 3–4). They are of the common Eskimo type, with barbs on both the inner and outer sides, as in the early phases of the Arctic Whale Hunting culture. The similarity between the side prongs from the Okvik phase of this culture and those from Ipiutak is striking. In shape and decoration, the side prongs shown in Pl. 7, Figs. 2–4, are almost identical with two Okvik specimens.1 On three examples, undoubtedly belonging to the same bird spear, found in an Ipiutak grave (Pl. 42, Figs. 3–4), we find the same spur near the base as on an

1 Rainey, 1941a, Fig. 13, Nos. 8–9.
Okvik specimen. Three (Pl. 7, Figs. 2–4) are decorated in the style characteristic of the Okvik phase. The barbs are decorated with straight or slightly curved lines extending from the base towards the point. Similar decoration is found not only on Okvik side prongs, but also on dart heads. We observed the same resemblance between Okvik and Ipiutak Type 3 arrowheads (p. 65).

We do not know whether the bird dart had single or multiple end prongs. The collection from the Ipiutak houses contains 11 barbed points cut 6 to 7 centimeters from the tip. These may be bird spear end prongs (Pl. 7, Figs. 5–7). The occurrence of a considerable number of long, slender, curved, barbed prongs with a sharp, pointed tang (Pl. 7, Figs. 11–16; Pl. 42, Figs. 1–2) suggests the possibility that bird spears with several end prongs were used at Ipiutak. They are undoubtedly end prongs. The fact that they are curved and have a flat tang and that two or three have been found together leaves little room for speculation as to their function as part of a multi-pronged weapon. Whether it was a bird dart or a leister is difficult to decide, since multi-pronged spears in Alaska were used for taking both birds and fish. We believe that these prongs are for bird darts. The leister prongs of the Okvik and Old Bering Sea phases at least are quite different, and we do not know the use of some barbed prongs, closely resembling the Ipiutak examples, which occur in archaeological finds from Cook Inlet and the Aleutians. If we consider them as end prongs for bird darts, the question arises whether the Ipiutak people had two kinds of bird darts, one with side prongs and one with end prongs, or a bird dart with both side prongs and several end prongs. The fact that the majority of the side prongs are of the Okvik type or decorated in Okvik style suggests that the bird spear with side prongs was adopted from the Okvik people, while the original Ipiutak bird dart had end prongs and no side prongs. Most of the end prongs are decorated in typical Ipiutak style with four equidistant, longitudinal, incised lines.

**Gull Hooks**

Slender, double-pointed shafts pierced or grooved in the middle are probably gull hooks (Pl. 7, Figs. 8–10). This type is known from Alaska to Greenland. It is probably only accidental that it has not hitherto been reported in the earlier phases of the Arctic Whale Hunting culture. Several of the same shape (Pl. 42, Figs. 11–13; Pl. 28, Figs. 15–16) lack holes or grooves and may be unfinished gull hooks.

**Salmon Spears**

In contrast to the more recent cultures at Point Hope, few fishing implements occur at Ipiutak. The presence of parts of salmon spears shows clearly that the Ipiutak people were fishermen as well as hunters, but these are the only fishing implements identified with certainty. As already mentioned, it is possible that they had a leister, but it is questionable whether they used a hook and line. Complete fishhooks, bars, and shanks for composite fishhooks and fish line sinkers are absent in the Ipiutak finds. A few thin shafts of ivory or antler with an eye hole are the only specimens that can be interpreted as fragments of fishhooks. One of them (Pl. 29, Fig. 2) closely resembles a shaft from Okvik described as a broken fishhook shank. Meanwhile, until more indisputable evidence is available, we must eliminate fishhooks as an element of the Ipiutak culture.

The best proof that the Ipiutak people practiced fishing is the occurrence of a fully developed salmon spear with the Ipiutak “trade mark,” the line decoration. This implement can be used not only in shallow streams but also in the winter for fishing through holes in the ice, as practiced today by the Central Eskimo. The Ipiutak salmon spear is very similar to the ordinary Eskimo salmon spear. It consists of the same five parts: a center prong and two side prongs each with a barb lashed to it (Pl. 7, Figs. 17–24; Pl. 42, Figs. 15–18). As are many other Ipiutak implements, the salmon spear is more

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1 Rainey, 1941a, Fig. 13, No. 10.
2 Ibid., Fig. 13, Nos. 1, 3.
3 Nelson, 1899, Pl. 59, Figs. 1–6; Pl. 67, Figs. 1–2.
4 Collins, 1937, Pl. 33, Figs. 16–22; Rainey, 1941a, Fig. 13, Nos. 12–13.
5 De Laguna, 1934, Pl. 42, Fig. 16; Jochelson, 1925, Pl. 24, Figs. 1–2, 5–6.
6 Rainey, 1941a, Fig. 15, No. 5.
7 Mathiassen, 1928, 66; Jenness, 1922, 155.
elaborate and more carefully made than are most later forms. This is especially noticeable in the shape of the center prong and the decoration. Center prongs of a similar shape and the same arrangement of the side prongs attached directly to them have recently been reported from Labrador but are otherwise unknown in Eskimo cultures. The distribution of the barbs with the characteristic projecting knob is interesting. Almost identical specimens are known from Port Möller, Okvik, Point Barrow, and Repulse Bay. The same form, but with holes instead of a slot for lashing, is more recent. It is the most common form among Central Thule finds and has been used until recently in Alaska, south of Bering Strait. It is also known from St. Lawrence Island, but, according to Collins, it does not occur with great frequency there. The form of salmon spear in which the barb is set into a hole or slot in the side prong, commonly used by the modern Central Eskimo, does not occur in the Ipiutak culture, but is found in the closely related Near Ipiutak culture (Pl. 78, Fig. 28, and p. 163).

Snares and Traps

That snares and traps were used extensively is almost certain, but no trace of them remains. Because of their similarity to snares in Alaska, a number of hollow bird bones which are notched at one end have been interpreted as parts of ground squirrel snares (Pl. 28, Figs. 12–14). Nelson illustrates a ground squirrel snare from Cape Darby. This consists of a wooden cylinder and a baleen noose. He also describes similar snares from the head of Kotzebue Sound; in these the cylinders were made from the hollow wing bones of birds. In the American Museum collections from King Island and Kotzebue Sound are several snares (0-56; 60.1-4219) consisting of bird bone tubes, with nooses of split feather shafts or baleen.

Grooved antler shafts such as are illustrated in Pl. 28, Figs. 8–11, could have been used for the same purpose when no bird bones were available. These shafts have a notch or a hole in one end for attachment of the noose, one strand of which fits in the groove. This would explain the position of the groove, partly on one side and partly on the other, but the interpretation of this implement is not yet definite.

Lances, Daggers, or Knives

One of the characteristics of the Ipiutak culture is the extensive use of chipped flint side blades. Their use in arrowheads and harpoon heads has already been mentioned, but, in addition to these weapons, we found a number of long, slender, ivory shafts with grooves for blades in one or both sides. Some of these shafts are undoubtedly parts of weapons, others may be knives, but as we do not know of any parallels, it is difficult to assign a definite purpose to them. It is obvious, however, that some of them were attached to a wooden shaft and are undoubtedly lance heads. Others, with a carved end which served as a handle, may be daggers or knives. In many cases it is difficult to determine whether or not a specimen has been hafted. Consequently some lance heads may be classified as daggers and vice versa. They are probably all weapons, but whether they were used for sea mammal hunting or caribou hunting, or interchangeably, we do not know.

Only seven complete or partially complete lance heads were found in the houses, but if we include small fragments the number found in the houses and the burials is about equal. Their similarity in shape and decoration is one of the traits that links the graves to the houses. Lance heads or daggers with side blades have not previously been reported from Alaska, but lance heads with grooves for side blades have been found in other parts of the Eskimo territory. In one of these the slate side blades were still in position. A single specimen with flint side blades was found in a grave on Southampton Island. "According to the opinion of the

1 Bird, 1945.
2 Weyer, 1930, Fig. 25a-c.
3 Rainey, 1941a, Fig. 15, Nos. 1–3.
4 Mathiassen, 1930b, Pl. 9, Fig. 11.
5 Boas, 1907, Fig. 185a.
6 Mathiassen, 1927, pt. 2, 55.
7 Nelson, 1899, Pl. 67, Fig. 5 from Rasinsky and Fig. 42, No. 1, from the lower Yukon.
8 Collins, 1937, 225.
9 Nelson, 1899, Pl. 51, Fig. 4.
10 Nelson, 1899, 124.
11 Mathiassen, 1927, pt. 2, 37; pt. 1, Figs. 49, 110, and Pl. 72, Fig. 11.
12 Boas, 1907, Fig. 178, and 384–385.
Eskimo, this large sword-like knife was used for cutting the blubber of whales,” but it may be a lance head. Like the lance heads described by Mathiassen, it also has an end blade; the side blades are placed opposite each other and not in alternating position as in the Ipiutak examples. The part of the side blades that is visible resembles the Ipiutak side blades but an X-ray examination reveals them as oval. The shape of the grooves is identical.

The Ipiutak lance heads are long, slender, pointed ivory shafts with one or two rows of side blades, varying in number from two to nine. Either the grooves for the blades are continuous, so that several blades are held in the same groove, or each blade is set in a separate groove. The grooves intended to hold several blades are deeper and are somewhat wider at the places where the blades were inserted. No traces of any cement remain, so that the blades must have been wedged into the grooves. As the back of each blade is straight and each groove is concave, the blades never fill the groove completely.

The lance heads have been classified into two types, according to the shape of the tang. Type 1 (Pl. 6, Figs. 9–12; Pl. 40, Figs. 1–8) has a perforated, usually flattened tang. It is a rather consistent type, with only one specimen (Pl. 40, Fig. 4) differing from the general pattern. This is unique and has very little in common with the other lance heads of this type: the blade groove is in the middle of the blade and not along the edge; the edges are undulating, and the tang is flat and curved to fit a wooden shaft. The perforation on the other lance heads may have been intended to hold a suspension strap, or for attachment to a shaft.

Type 2 (Pl. 40, Figs. 9–12) has no perforations and has a conical or flat tang. These lance heads were undoubtedly attached to a shaft, as is indicated by the conical tang, the knobbled tang of the specimen shown in Pl. 40, Fig. 11, and the fact that the one in Pl. 40, Fig. 9, has a blade slot close to the butt. The lance head shown in Pl. 40, Fig. 13, is unique. It has been included here merely because it is undoubtedly a lance head and has a conical butt, but it has a blade slit in the end and no slots for inset blades. It is somewhat like the fixed lance heads of the Thule phase.¹

Six specimens from the graves have been classified as lances or daggers. Characteristic of Type 1 (Pl. 41, Figs. 1–4) is the hilt which is carved more or less in the form of a stylized animal or animal head. Consequently these lances could not have been fastened into a shaft. The lance illustrated in Pl. 41, Fig. 1, could have been attached to a shaft through a perforation formed by the hind legs of the animal, but it is more likely that this hole was intended for a suspension cord or strap. This is probably also the purpose of the holes in the other three specimens. These display no suggestions of any means of attachment. For this reason we feel no hesitancy in classifying them as daggers. They are pointed, have a definite hilt, and, except for the example in Pl. 41, Fig. 2, each has two rows of side blades.

The two daggers classified in Type 2 (Pl. 41, Figs. 5–6) were found with the three-looped carvings in the position shown. We do not know whether these carvings are parts of the weapon or whether they were merely placed together in the grave. We have additional examples from the Ipiutak graves of the burial of unrelated artifacts: for instance, the swivel and the openwork carving shown in Pl. 64, Fig. 3. On the other hand, the fact that the same combination of objects occurred in two graves seems to indicate that the two pieces are actually parts of the same weapon. We have been unable to arrive at a satisfactory conclusion as to their purpose. If they are hand guards, as has been suggested, it follows that the whole implement has been used as a dagger. Meanwhile, the shape of the butt, especially that illustrated in Pl. 41, Fig. 5, seems to indicate that it has been mounted on a shaft, in which case we must look for another explanation.

Finally, we can say with certainty that the remaining weapons with side blades have not been hafted. They have a definite hilt and have been used either as daggers or knives (Pl. 41, Figs. 7–11). The term dagger can be applied to Figs. 7 and 10 of Pl. 41, since they have slots for side blades in both edges, while the other three have had only a single cutting edge. It is doubtful whether these specimens were functional weapons; it is more likely that they had a ceremonial purpose.

¹ Mathiassen, 1927, pt. 2, 36.
TOOLS

The tools used by the Ipiutak people for working ivory, bone, antler, stone, wood, and skin, are in general the same as those used by the Eskimo. Most of the tools are identical. Some are less specialized; others, particularly the tools made of flint or used in connection with the flint industry, are more specialized than is usual among the Eskimo. One point in which the Ipiutak culture deviates from the general Eskimo pattern is in the absence of the bowdrill. No mouthpieces, bows, or drill shafts, otherwise common in most Eskimo finds, were excavated at Ipiutak. In this respect it is reminiscent of the Dorset culture.¹

Knife Handles

A total of 70 knife handles were found in the Ipiutak houses, one in a grave. Most of them were made of antler; 20 were of ivory and three of wood. One reason why so few knife handles were found, compared with the large number of knife blades, is undoubtedly that, though wooden handles were extensively used, the conditions for preservation of wood were usually very poor. One of the wooden handles was found in House 65 which contained more wood than any other, but even there, the wood was so soft that it was impossible to preserve. The three wooden handles were found with side blades in place (Figs. 16, 17, 21). The fact that the majority of the knife blades are undoubtedly side blades seems to indicate that knives with wooden handle and side blade were common.

Side blades were also used in antler and ivory handles. These handles (Type 1, Pl. 8, Figs. 1–7) have a blade slot on one side extending to the very tip. Some are made for short blades, others for long blades. The blade was held in position by a lashing below the tip. Most of the handles have a wide slot, evidently intended for a flint blade, and one (Pl. 8, Fig. 1) was found with a side blade (Type 2) in place. A few, like that illustrated in Pl. 8, Fig. 7, have a slot only 1.5 to 2 millimeters wide, too narrow for a flint blade, suggesting that they may have had metal blades. Most of the handles of this type are plain; only one (Pl. 8, Fig. 4) is decorated with incised lines in typical Ipiutak style. One small handle (Pl. 8, Fig. 8) has a blade slot in both ends; they differ in length (0.9 and 2.2 centimeters) and are less than 1 millimeter wide.

Knife handles with a side blade near or at the end, "whittling knives," are common throughout the Eskimo territory, as shown by Mathiassen,² and are also widespread in time. In Alaska they are known throughout the earliest phases of the Arctic Whale Hunting culture to modern times.³ The blades are usually of slate or iron, but a knife with a flint blade is known from Ponds Inlet.⁴ While the whittling knives of the Thule phase usually have the blade slot in the side near the point, as

¹ Jenness, 1925, 435.
² Mathiassen, 1927, pt. 2, 69.
³ Rainey, 1941a, Fig. 18, No. 11; Collins, 1937, Pl. 38, Figs. 2–3.
⁴ Boas, 1907, Fig. 179a.
far east as East Greenland, we find a form corresponding to the Ipiutak knife with the blade slot extending to the point.

Two kinds of knives with an end blade were found at Ipiutak. Knife handles (Type 2) with a blade socket in the end are represented by only three antler specimens (Pl. 8, Fig. 9). The sockets are small, but wide enough to hold a flint blade. This type is also widely distributed in time as well as in space.

![Image](https://example.com/image1)

Fig. 17. Fragment of knife handle with side blade in place. P2348, H4.

A third type of knife handle occurs at Ipiutak (Pl. 8, Figs. 10–14; Pl. 43, Fig. 7). Similar handles have been described as gravers by Hoffman, chisels by Murdoch, and whittling knives by Mathiassen. These specimens consist of two more or less symmetrical parts which, when lashed or nailed together, form a socket for a blade in one or both ends. Of the 37 knife handles of this type found at Ipiutak, only four are true composite handles. The majority have only been partially split in such a way that the two parts clasp the blade firmly. Some of them also had a ridge around the upper end to hold a lashing. No blades were found in any of these handles, but there is little doubt that most of them had a metal blade. This is indicated by the width of the sockets, usually about 1 millimeter, and by the fact that we found no stone blades that fitted these handles. The tool was probably invented by a people who had access to a very small amount of metal, probably iron. The use of iron by the Ipiutak people is demonstrated in an engraving tool with an iron point (see p. 83), found in House 51.

The distribution of this type of knife is interesting. As outside Ipiutak, it seems to be limited to the Arctic Whale Hunting culture. In its earliest phase, Okvik, we find the true composite knife, as well as the form which is only partly split in two, but, in contrast to the situation at Ipiutak, the composite knife was in the majority. In all the more recent culture phases, from Old Bering Sea to modern times, only the true composite form occurs. Spatially this type is distributed from Norton Sound to Greenland, but it is not reported from the Central Eskimo. Of the two, the composite is probably a later development of the partially split form—another example of an Eskimo culture element, the earliest form of which is the most common at Ipiutak.

**Engraving Tools**

It is generally accepted that the composite knife was used to work antler and ivory. For the fine surface decoration found on many antler and ivory artifacts, the Ipiutak people probably used special engraving tools which consisted of a slender ivory or antler shaft with a sharpened incisor of a ground squirrel or an iron point set into a slot in the end (Pl. 8, Figs. 15–24; Pl. 43, Fig. 3). The ground squirrel incisors, of which three were found in place, were all sharpened to a point. Enamel, of course, is an excellent tool for engraving the softer ivory and antler. It has undoubtedly been the tool of an artist. With few exceptions, these engraving tools are decorated, some of them very elaborately (Fig. 18). The decoration is usually limited to the middle section. It is possible that the decoration had a utilitarian purpose and served to prevent the instrument from slipping in the hand of the artist, as, for instance, in the specimen with the two knobs (Pl. 8, Fig. 23). This implement was possibly also used as a drill, for instance, to make the dots and small sockets for inlays which occur frequently in Ipiutak decoration. This assumption is based on the shape of the butt. Almost all the engraving tools have a conical butt which shows signs of wear caused by rotation. One butt is a truncated cone with a short tip in the center. The natural explanation for this form would be that the butt has rotated in a drill rest or drill mouthpiece. No drill rests or drill mouthpieces were found, but that, of course, could be acci-

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1. Larsen, 1934, Pl. 12, Fig. 19; Glob, 1935, Pl. 2, Fig. 21.
2. Hoffman, 1897, 785, and Pl. 19, Figs. 3–5.
5. Rainey, 1941a, Fig. 18, Nos. 1–7.
7. Hoffman, 1897, Pl. 19, Fig. 5.
8. Holtved, 1938, Fig. 19, No. 9.
dental. It follows then that we must find a suggestion as to how the tool was manipulated. The decoration is placed exactly where the bow-string should run, which argues against the use of a bow. The only explanation seems to be that it was turned by being rotated between the fingers or palms.

One specimen (Pl. 8, Fig. 24) has had an iron bit. Only a small portion of the bit remained in the socket but, although highly oxidized, was tested by optical methods to determine its terrestrial origin. (See p. 254.)

The presence of iron in the Ipiutak find is obviously of paramount significance. In the first place, it supports our belief that the composite knife handles and other knife handles with a very narrow blade slit were intended to hold an iron blade. Second, it means that we must revise our present opinion regarding the use of iron in the Eskimo culture; and, finally, it provides excellent evidence as to the origin and age of the Ipiutak culture. Prior to the Ipiutak excavations, the general belief was that iron was introduced into Eskimo culture in the Punuk phase, an assumption that was based upon Collins’ find of iron-pointed engraving tools and knife handles, with sockets designed for a metal blade, belonging to that culture phase. As the source of the metal Collins suggested Asia, where iron objects were used in China, as well as in the central part, at least about the middle of the first millennium B.C. Collins thinks that iron in small quantities might possibly have reached Bering Strait and St. Lawrence Island more than a thousand years ago.

Leaving the question as to precise date open, we now have good reason to believe that iron was known to the Eskimo of the Arctic Whale Hunting culture during an earlier phase than Punuk. The Ipiutak culture definitely antedates Punuk and is probably also earlier than Old Bering Sea, but seems to be contemporaneous with Okvik, the earliest phase of the Arctic Whale Hunting culture. Furthermore, Okvik and Ipiutak have many common traits which indicate definite contact; it is almost certain that the Okvik people had a knowledge of iron and probably also used it as did the Ipiutak people. No iron has been found in association with Okvik artifacts, but, as Rainey has already pointed out, the narrow blade slits in the true composite knife handles, as well as in its prototype (Okvik Types 1 and 2), suggest the use of metal blades. As already mentioned (p. 82), in our opinion the composite knife handle was originally designed to hold a small metal blade by a people who had access to only small quantities of the precious metal. Iron-bladed knives were undoubtedly also used by the Old Bering Sea.

On Pough’s suggestion, the iron was also subjected to a spectroscopic test, which confirmed its terrestrial origin. (See p. 254.)

Fig. 18. Engraving tools. a. P3724, H43. b. 60.1-7689, B54.
people. Fifty-six composite knife handles were found at Miyowagh, St. Lawrence Island, a site in which the Old Bering Sea as well as the Punuk phase is represented. Thirty-one of these, and one from the earlier Hillside site, had such small sockets "that they must have been designed for metal blades." With our present knowledge we can thus be quite sure that iron was used by the Eskimo in the earliest known phases of their culture. As we believe that the Ipiutak culture is not only contemporaneous with but also precedes the Okvik phase, the Ipiutak engraving tool is the earliest evidence of the use of refined iron in the Western Hemisphere. The iron was, of course, of Asiatic origin.

Engraving tools similar to these are known from Okvik and Ekseavik on the Kobuk River, both with decoration around the middle. Several specimens are known from St. Lawrence Island. One, from Early Punuk, is decorated like the above, while the others are much shorter and of a different shape. It is undoubtedly accidental that no engravers have been found in the Old Bering Sea phase. In northwestern Alaska the type persisted until fairly recent times. A wooden engraving tool from Cape Smythe, which is probably contemporaneous with Old Tigara, has four sharp serrated ridges on its lower part near the middle. Engraving tools with decoration in relief have recently been reported from the Aleutians and were in use on Kodiak Island until recent time.

Adzes

A considerable number of parts of adzes used for work in wood and probably also in antler, ivory, and bone were found in the Ipiutak houses as well as in the graves. We have distinguished at least two different types, probably three. The most common is the ordinary Eskimo adze with the blade set in a socket in a head of antler or bone which is lashed to the handle. The collection contains 63 adze heads of which 10 were found with a stone blade in the socket. The arrangement for the lashing has been used as the criterion for the classification and on this basis the adze heads have been divided into three types. Type 1 (Pl. 9, Figs. 1–10; Pl. 44, Figs. 1–2) has neither slots nor holes for lashing and is by far the most common. Most of the adze heads have, like that shown in Pl. 9, Figs. 1–5, a 2.5- to 3-centimeter wide groove on the upper surface to hold the lashing and a flat plane underneath for the handle. Unique specimens are illustrated in Pl. 9, Figs. 6–8. Two adze heads (Pl. 9, Figs. 9–10) are quite different from the rest. They are much smaller and nicely carved and decorated to form animal heads. They undoubtedly were used, since the sockets are large enough for a stone blade and the upper surface behind the blade is worn in the same manner as in almost all the large heads. It is very likely that, like the engraving tools, these were the tools of craftsmen.

Adze heads very similar to Type 1, especially in its common form, are known from Cook Inlet, Kotzebue, the Kobuk River, Point Barrow, the Dorset culture, and from Greenland. A very interesting similarity between the Dorset and Ipiutak adze heads may be significant. Leechman illustrates 10 specimens from Dorset sites, describing them as a new type of adze head. They may be characterized by an outward flare of the sides in front, permitting the use of a wide blade. The same outward flare occurs on several Ipiutak specimens, but is most pronounced in that shown in Pl. 9, Figs. 5 and 6. Furthermore, as may be observed in Fig. 6, the lashing groove is broken up by knobs, as in several of the Dorset specimens.

Type 2, with one or two lashing slots, is represented by only seven specimens (Pl. 9, Figs. 11–13; Pl. 44, Figs. 3–4). As may be observed in the illustrations, this type is not very consistent. Each example has its own individualities which are not duplicated in finds outside Ipiutak. Included in this type are small, carefully made, decorated heads, which probably were used for fine work (Pl. 9, Fig. 11; Pl. 44, Fig. 3). One specimen (Pl. 44, Fig. 3) is badly weathered, but the features of an animal head can still be traced on the rear.

1 Collins, 1937, 146.
2 Rainey, 1941a, Fig. 35, No. 10.
3 Giddings, 1944, 127.
4 Collins, 1937, Pl. 60, Figs. 9–11; Pl. 81, Figs. 17–20.
5 Quimby, 1944, Fig. 8m.
6 Birker-Smith, 1941, Fig. 33a–c.
Type 3, with four vertical lashing holes, is represented by a single specimen (Pl. 44, Fig. 5). The rest for the handle is a slightly sunken area between the four holes. A similar head was purchased by Giddings at Kotzebue, and vertical holes are also found in adze heads from Point Barrow, Naujan, and East Greenland.

It is interesting to note the difference in the types of adze heads from the earlier phases of the Arctic Whale Hunting culture and Ipiutak. In the Okvik, Old Bering Sea, and Punuk phases, the blades in most of the adze heads were lashed to the head and were not set in a socket. Socketed adze heads occur, but they are rare. Most of the socketed adze heads from Old Bering Sea and Punuk resemble Ipiutak Type 1.

All the adze blades are made of hard stone like silicified slate and are ground, at least around the cutting edges. Some of them appear to have been chipped before they were ground. The adze blades found in the heads belong to Type 1 (Pl. 10, Fig. 1) and are characterized by a blunt, beveled, cutting edge. The angle to which the edge has been rubbed down varies somewhat, but in most cases approaches 90 degrees. An adze blade with this kind of edge may seem strange, and Collins, in describing similar blades from St. Lawrence Island, does not accept them as such, but calls them adze-like scrapers. Meanwhile, the mere fact that these were found in adze heads, all of which are worn on the upper surface near the socket, should be sufficient proof that they are adze blades. Nineteen loose blades of this type were found in the Ipiutak houses, but none in the graves. This type of adze blade occurs not only in the earlier phases of the Arctic Whale Hunting culture, Okvik, and Old Bering Sea, but also in the Eastern Thule phase. Knud Rasmussen's collections contain hafted specimens from Point Barrow and Point Hope. The type also occurs in the Dorset culture.

Adze blades of Type 2 are more or less of the same shape as Type 1, but they have sharp edges (Pl. 10, Figs. 2–3; Pl. 47, Figs. 6–12). Some of them have a beveled edge, but the angle is more acute so that the edge is thinner. Like Type 1, the majority of these blades have undoubtedly been hafted, but a few long specimens (Pl. 10, Fig. 3, and Pl. 47, Figs. 6–7, for instance) could have been mounted directly on the handle; in fact, that shown in Pl. 47, Fig. 6, which is thicker than the rest, has two roughly made notches in each side, probably to hold lashings. This particular specimen is ground almost to the butt, while the grinding on most of the others is confined to the part near the bit; the rest are either chipped or left unworked. Two specimens (Pl. 47, Figs. 7–8) have a sharp edge at both ends. Collins described the same feature for some of the "adze-like scrapers." Most of the adze blades of Type 2 were found in the graves, which is in contrast to Type 1. Type 2 is widely distributed throughout the Eskimo territory.

The third type of adze blades (Pl. 10, Figs. 4–6; Pl. 47, Figs. 17–19) is very different from the two previously described. It is much larger and heavier, usually square in cross-section, and has a sharp bit. The blade must have been attached directly to a handle, although notches or grooves for lashing are missing. Though no handles for this kind of blade were found, it is assumed that they were probably of wood and T-shaped like those used for the grooved adze, several examples of which were found by Giddings on the Kobuk River. Outside Ipiutak, this type of adze blade is known only from a Dorset site in Newfoundland. Wintemberg, who described it, thought that it was not of Eskimo origin, as he was familiar with the type only from presumed Beothuk sites and from Woodland sites in Quebec and the New England states. Nelson figures one blade from Sledge Island, which is very much like that illustrated as Pl. 47, Fig. 17. It is longer and wider than, but as thick as, the Ipiutak specimens. Like many of these, it is rectangular in cross-section. Heavy adze blades are not uncommon in

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1 Giddings, personal communication.
2 Murdoch, 1892, Fig. 135.
3 Mathiassen, 1927, pt. 2, Pl. 20, Fig. 9.
4 Giddings, personal communication.
5 Glob, 1935, Pl. 3, Fig. 11.
6 Collins, 1937, 334.
7 Ibid., Pl. 46, Fig. 7; Pl. 78, Fig. 19.
8 Collins, 1937, 152.
9 Rainey, 1941a, Fig. 33, No. 3.
10 Collins, 1937, Fig. 16.
12 Mathiassen, 1930b, Pl. 8, Fig. 14; Pl. 13, Fig. 2.
13 Jenness, 1925, Fig. 4a.
14 Collins, 1937, 152.
15 Giddings, personal communication.
16 Wintemberg, 1940, pt. 2, 314 and Pl. 15, Fig. 2, No. 6.
17 Nelson, 1899, Pl. 39, Fig. 12.
Alaska, but they are grooved on the upper surface. It is the type De Laguna calls "the splitting adze," which is common at Cook Inlet and Prince William Sound and has also been found on the lower Kuskokwim and lower Yukon. Recently Giddings has found them quite common at inland sites on the Kobuk River. It is possible that this grooved form is a later development of the plain Ipiutak form.

The collection includes two adze handles, one of wood and one of antler, but both undoubtedly intended for an adze head (Pl. 9, Figs. 14–15). They are of the common Eskimo type; that in Pl. 9, Fig. 14, which is rather delicate and decorated with incised lines, may possibly have been used with one of the small, decorated heads like those shown in Pl. 9, Figs. 9–11.

Chisels

Another group of ground stone implements should be mentioned in this connection, namely, 15 specimens classified as chisels (Pl. 10, Figs. 14–15; Pl. 47, Figs. 13–16). Their purpose is unknown. They vary somewhat in appearance, but the fact that they are all made of the same kind of material, a hard silicified slate, are all flat, rectangular in cross-section with the two narrow sides meeting to form a short, sharp edge, justifies the assumption that they are variants of a single tool. The hard material and the sharp edge lead us to believe that this tool was used in carving ivory and antler. It occurs in two different sizes; the larger (Pl. 47, Figs. 13–15) was found only in the burials, while the smaller (Pl. 10, Figs. 14, 15) occurred in the houses as well as the graves. In its typical Ipiutak form, this implement has never been recorded from the Eskimo area, but one specimen (Pl. 47, Fig. 16), with the tip squared off, is similar to a group of implements from the Old Bering Sea phase, which Collins describes as "implements with rubbed edges." The implement described by Winterberg from Dorset sites on Newfoundland is probably the same, although his description and illustrations do not make this quite clear. The only difference between the specimen illustrated in Pl. 47, Fig. 16, and the other "chisels" is that the edge is beveled to a much steeper angle.

Whetstones

Whetstones are the commonest ground stone implement at Ipiutak. Of a total of 123, the majority were found in the houses. Except for five specimens which form a distinct type, no classification has been attempted. Type 1 includes a number of different shapes ranging from round boulders rubbed on one or more sides to more standard forms, square or rectangular in cross-section (Pl. 10, Figs. 7–10; Pl. 47, Figs. 1–3). These whetstones were probably used for many different purposes: for grinding stone tools, for smoothing the surface of ivory and antler implements, and for sharpening awls, needles, etc. Some, like that figured in Pl. 10, Fig. 10, with several longitudinal grooves, have undoubtedly been used as sharpeners for awls and needles. Whetstones of different shapes are among the most common implements in all Eskimo cultures.

Only five whetstones of Type 2 were found in the Ipiutak houses and graves. They are all of sandstone and have a wide longitudinal groove on one surface (Pl. 10, Fig. 11). It is undoubtedly the same type of implement that is well known from British Columbia and the western United States as an arrowshaft smoother, but, as far as we know, it has not previously been recorded from the Eskimo.

Pieces of pumice were found in four of the houses (Pl. 10, Fig. 18). They have one or more rubbed surfaces and have probably been used for polishing ivory and antler artifacts or in skin dressing as described by Nelson. In the Aleutians pumice has apparently been used for both purposes. It was used in all stages of the Kachemak Bay culture. Some of the rubbing stones from the Old Bering Sea phase are of similar material. According to Cranz, in Greenland it was used for rubbing skin.

Grinding Stones

Thirty-eight grinding stones, most of them fragmentary, were found at Ipiutak, mainly in the houses. They are made of sandstone or graywacke and are ground on one or more surfaces, one of which is hollow in the middle. Traces of pigment indicate that they have been used to

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1 De Laguna, 1934, Pl. 18, Figs. 1–3, and 172.
2 Giddings, 1944, Pl. 10, lower.
3 Collins, 1937, 149 and Pl. 39, Figs. 19–22.
4 Winterberg, 1940, pt. 2, 314 and Pl. 16, Fig. 1, Nos. 1–6.
5 Nelson, 1899, 117.
6 Jochelson, 1925, Pl. 16, Figs. 22, 23, 25; Pl. 17, Fig. 16.
7 De Laguna, 1934, 63.
8 Collins, 1937, Pl. 43, Figs. 6, 11, 12.
9 Cranz, 1767, 167.
grind red ocher for paint. Some of them, for instance the one shown in Pl. 22, Fig. 14, with four ground surfaces, may also have been used to sharpen or polish stone tools. Grinding stones like those from Ipiutak have been found at Cook Inlet, in the Aleutians, at Kobuk River sites, and in late deposits on St. Lawrence Island.

**Wedges**

Most of the 47 wedges, undoubtedly used to split wood, were found in the houses. Except for three, they are all of walrus tusks, are wedge-shaped or pointed at one end and at the opposite end are grooved or notched to hold lashings, and have a scarfed face for the haft. Two different forms are distinguishable: a mattock, usually made from the basal end of the tusk, heavy, with a wide beveled edge; and a root pick, made from the distal end of the tusk, from small tusks or walrus penis bones, slender and pointed, or with a short beveled edge. The mattock blades (Pl. 22, Figs. 1–3; Pl. 44, Fig. 10) are by far the more common of the two, totaling 122. They have probably been used to cut sod for house construction and possibly for other purposes.

Thirty-six specimens have been classified as root picks (Pl. 22, Figs. 4–6; Pl. 44, Figs. 8–9). They were probably used to dig edible roots, but could, of course, also have been employed for other purposes. Blades for mattocks and picks like these occur in the earlier phases of the Arctic Whale Hunting culture in Okvik and Old Bering Sea. Collins calls all these ivory picks, using the term mattock blade only for one specimen made of a section of a whale rib. It is true that mattock blades from the Thule and more recent phases are usually made of whalebone, but this does not necessarily mean that only the tools made of whalebone are mattock blades; it is merely a change in material from ivory to whalebone. In northwestern Alaska the modern mattocks are shaped like those from Ipiutak, but the material is whalebone. While mattock blades are found from Alaska to Greenland, root picks seem to be confined to Alaska and the Aleutians.

**Shovels**

A number of flat bone and ivory objects with a handle or with arrangements for a handle have probably been used for shoveling or digging. The largest and most common are the whalebone shovels (Pl. 21, Figs. 1–2; Pl. 45, Figs. 5–6). They are cut from whale ribs and occur in two forms, one with a handle at one end like those in Pl. 21, Fig. 1, and Pl. 45, Fig. 6, and one without a handle (Pl. 45, Fig. 5). Many of these are fragmentary, and their identification as shovels is uncertain as, for instance, in the case of that illustrated in Pl. 21, Fig. 2, with three pairs of holes near the edge. The holes in the middle of the blade shown in Pl. 45, Figs. 5 and 6, are probably to lash on a handle. If our interpretation is correct, this tool closely resembles the snow shovel used by the modern Central Eskimo, except that the latter are made of wood. A snow shovel of whalebone, very much like that of the Ipiutak, was found in West Greenland.

Shovel blades made of a walrus scapula, like that shown in Pl. 21, Fig. 5, are scarce at Ipiutak; only five specimens were found. They were common in the Tugara burials and were apparently used on St. Lawrence Island from the earliest to modern times. The same type occurs in Greenland.

In addition to these two tools, which have been classified as shovels with good reason, two types of blades have been called shovel blades, for lack of a better name. Both types occur in the houses and in the graves though in small numbers. Type 1 (Pl. 21, Fig. 3; Pl. 45, Figs. 1–2) is a concave blade of mammoth ivory with

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1 De Laguna, 1934, Pl. 18, Fig. 6; 60.
2 Jochelson, 1925, Pl. 19, Fig. 4.
3 Giddings, 1944, 118.
4 Geist and Rainey, 1936, Pl. 35, Figs. 5–6.
5 Nelson, 1899, 75 and Pl. 33b, Figs. 1, 3.
6 Rainey, 1941a, Fig. 22, Nos. 1–5.
7 Collins, 1937, Pl. 49.
8 Ibid., 160–161.
9 Mathiassen, 1927, pt. 2, 78–79.
10 Jochelson, 1925, Pl. 26, Fig. 44.
11 Birket-Smith, 1929, pt. 1, Fig. 13; Mathiassen, 1928, Fig. 72b.
12 Mathiassen, 1934, Fig. 69.
13 Rainey, 1941a, Fig. 22; Collins, 1937, Pl. 50, Fig. 6; Pl. 60, Fig. 12; Geist and Rainey, 1936, Pl. 24, Fig. 7.
14 Mathiassen, 1930a, Fig. 21.
holes for lashing. Type 2 (Pl. 21, Fig. 4; Pl. 45, Figs. 3–4) is flat, made of whalebone, with a section cut out for the haft and with holes for lashing. Both blades are rather small for shovels. The second of the two forms is more like a spade and could have been used as a moss spade. A flat whalebone blade with six holes was found in West Greenland, and snow shovels of whalebone with a cut-out section and holes are known from Southampton Island.

**Marlin Spikes**

Thirty-nine pieces of walrus ribs, split lengthwise, worn at the distal end, and sometimes with the proximal end shaped into a handle, were found in Ipiutak houses (Pl. 22, Figs. 12–13). The tip is flat, with a rounded, blunt, or sharp edge. This tool was undoubtedly made for a special, but still undetermined, purpose. Collins describes a similar implement from the Old Bering Sea and Punuk phases as a rubbing or scraping tool, “probably for working hides.” This interpretation seems untenable, as the area of wear is at the sides near the point and, undeniably, a shorter handle would be more practical. A similar tool is used by the modern Eskimo on St. Lawrence Island and Point Hope for fitting the skin cover on the boat frame. It is possible that the Ipiutak specimens were also used in this way. This implement (60. 1–6127, etc.) is also known from Port Moller, Alaska.

**Cutting Boards**

A number of flat, usually oblong pieces of ivory with the flat sides scored by numerous cuts are undoubtedly cutting boards used, for instance, in working skin and in cutting feathers for arrows (Pl. 22, Figs. 9–11). They are often made of the core of a walrus tusk and sometimes are animal-shaped (Pl. 22, Figs. 10–11). We have no record of cutting boards from the earlier phases of the Arctic Whale Hunting culture, but they are known from Cook Inlet and the Aleutians, from Barter Island and Greenland. In the two latter places they are of wood. From Greenland we have evidence that they were used in cutting feathers for arrows.

**Skin Scrapers**

Most of the tools mentioned in the foregoing have been used for working hard materials, such as stone, ivory, antler, bone, and wood, and were probably men's tools. Tools used primarily by women are fewer and are all related to working one material, skin. We must assume that, after the preparation of food, the most important occupation of the Ipiutak women was the care of the family's skin clothing—not only the making of new clothes and repairing of old garments but the whole process of preliminary preparation of the skins. We have no idea of their costume, but there is no reason to believe that it was in any way inferior to that of the present Eskimo. Judging from the extremely fine needles which were abundant in the houses and the people's highly artistic sense, we can probably most accurately visualize them as being well dressed in some caribou skin costume, probably consisting of different colors of skin to form a decorative pattern.

Various kinds of scrapers were used in the preparation of skins; some were used with one hand and others with both hands. Of the first category, only the flint blades were found. These will be described with the other flint implements. Two types of two-handed scrapers occur at Ipiutak. Type 1 is made of caribou bone. Type 2 consists of a wooden handle with a groove for a stone blade. Type 1 scrapers were all made of the metatarsal bone, the diaphysis of which was split lengthwise in the back, leaving two edges that were sharpened. The epiphyses form the handles (Pl. 22, Fig. 15; Pl. 44, Fig. 6). A single example of the second type (Pl. 22, Fig. 16) was found at Ipiutak. This does not necessarily mean that this tool was rarely used, as very few wooden implements were preserved. No blade was found in the socket, but we feel confident that one of the types of the discoidal blades, most probably Type 1 (p. 103), was used with this handle.

The occurrence of two-handed scrapers at Ipiutak is very interesting from the point of view of their distribution. The two-handed scraper was at one time not considered an ele-

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1 Mathiassen, 1934, Pl. 6, Fig. 8.
2 Boas, 1907, Fig. 176a–b.
3 Collins, 1937, 163, 237.
4 De Laguna, 1934, 99 or Pl. 46, Fig. 10.
5 Jochelson, 1925, Pl. 26, Fig. 21.
6 Mathiassen, 1930b, Pl. 6, Fig. 2.
7 Mathiassen, 1930a, 196 and Pl. 8, Fig. 5.
8 Larsen, 1934, 107.
Birket-Smith thinks the two-handed scraper represents an intrusive element which the Caribou Eskimo adopted from the Indians. Originally, they were not listed among the Thule culture traits and, so far, only one specimen, of bear ulna, has been found in an Eastern Thule site on Southampton Island. In this connection it is worth noting that only one specimen made of the metatarsal bone of a reindeer has been found in the Old Bering Sea phase of the Arctic Whale Hunting culture. On the Alaskan mainland, they have been found in a number of localities, usually made of caribou leg bones. In the middens east of the Ipiutak site, three scrapers were found. These were all made of caribou metatarsal bone, but were split in a direction at right angles to that of the Ipiutak specimens (Pl. 86, Fig. 15). The same forms occur on the upper Kobuk River and at Cook Inlet. One specimen made of a metacarpal bone was found in a Tigara grave at Point Hope (Pl. 89, Fig. 25), and similar examples were found in the Old Kotzebue site. At Point Barrow two-handed scrapers of both metacarpal and metatarsal bones have been found in earlier as well as in later deposits. At Ambler Island on the upper Kobuk, Giddings found a scraper made of a caribou radius and ulna, with the ulna forming the scraping edge. From Mission, Alaska, we have scrapers of a split caribou radius (?) and a deer rib. A scraper of caribou leg bone is also reported from Norton Sound. Outside Alaska we find caribou bones used as two-handed scrapers by the Caribou Eskimo, the Labrador Eskimo, and in West Greenland. Caribou metatarsus is the bone most commonly used in West Greenland, but we also find scrapers made of other hard bones, such as bear ulna and seal tibia and fibula. In East Greenland, bear ulna, femur, and radius have been used and from the Thule district we have one carved of ivory. The occurrence of the two-handed scraper in Ipiutak houses and graves and its wide distribution within the Eskimo area leave little doubt that it belongs to the Eskimo culture and is not a recent adoption from the Indians.

As this tool became obsolete in prehistoric times in most places, we have only a few accounts of how it was used. Two of these accounts concern the Caribou Eskimo. One is by Boas, who states that it is used for scraping the inner side of the skin; the other, by Birket-Smith, who did not observe a scraper in use, but records its name, states that it was used as a fat scraper. The Labrador Eskimo use it for de-hairing and fleshing. Mason illustrates a "beaming tool" from Bristol Bay about which he says, "This is an excellent specimen showing the hair in the interstices," indicating that it had been used as a de-hairing tool.

The North American Indians, among whom this tool is very widespread as shown by BirketSmith, use it primarily or exclusively for de-hairing skins. The name "beaming tool," frequently applied to it, refers to the method of hanging the skin to be worked over a "beam," branch of a tree, or a log. Certainly this tool can be used only when the skin is firmly supported from below, and the support must be rounded, corresponding to the curve of the scraping edge. The skin could, of course, be worked on either side in this way, but we must assume that the Eskimo used it with a beam in the Indian fashion.

The second type of two-handed scraper that occurs at Ipiutak, with a stone blade set in a wooden handle, is probably also a skin-dressing tool, probably used in a different stage of the...
process. Skin scrapers of this type have never been reported from the Eskimo. They occur among the North American Indians, but have a much more limited distribution than Type 1. One specimen with a chipped stone blade was collected among the Bannock with the information that it was used for skin dressing.1 Several examples from the Southwest are erroneously described as mescal knives. That many of the so-called mescal knives really are skin scrapers is quite obvious, especially those with a stone blade. Contrary to authentic mescal knives, which have a wide iron blade set into a relatively short handle and are used with one hand, the specimens in question have a narrow stone blade and a long handle which was undoubtedly held with both hands. Fewkes, the first to describe an implement of this kind, identified it as a scraper, but later students have ignored his statement and group his specimen with the mescal knives.2 Typical examples have been found in southern Nevada and Arizona,3 the same general region where the other type of two-handed scraper is used as a beaming tool.

A third region where the two types are used side by side is northern Eurasia. Although they are now made of iron, among most tribes, they have retained their original form. Type 1 has a long blade and a concave scraping edge; Type 2 has a short blade and a convex scraping edge. Typical examples are found among people living as distant from each other as the Ostyak4 and the Chukchee.5 Only among the latter and in the extreme west are two-handed scrapers known in their original form. Type 1, made of reindeer tubular bone, occurs in the Kjelmsøy find from Finnmark, Norway (p. 161), and Type 2, with chipped stone blade, was used by the Chukchee in historic times (70-6770). To our knowledge, there is no record of Type 1 having been used as a de-hairing tool in Eurasia. Sirelius gives different names to the two types, “Schabehsen” for Type 1 and “Krätzeisen” for Type 2, but both were used on the inner side of the skin,6 the former being used last. As the Eskimo resemble the tribes of northern Eurasia in that they both dress in fur and use de-hairing skin to a lesser extent, it is possible that the Eskimo and the Eurasian peoples used these two types of scrapers in the same way, and that only the American Indians used Type 1 as a de-hairing tool.

Needles

Needles were made of bird bone (Pl. 24, Figs. 1-4; Pl. 43, Figs. 1-2). Ipiutak houses and graves yielded a total of 148 needles, to which we should add 163 unfinished needles and bird leg bones from which needles have been cut. Several needles were cut from each bone in the form of slender rectangular strips which were probably later sharpened on a whetstone (p. 86). Some of the needles are only 1 millimeter in cross-section and the eye consequently less than 1 millimeter in diameter, that is, smaller than in many steel needles. How these eyes, which are all circular and perfectly shaped, were achieved is difficult to understand. The only explanation we can offer is that they were drilled from two sides with an engraving tool. The extremes in size are illustrated in Pl. 24, Figs. 1 and 4; the first was probably used to sew thick hides, like that of the walrus and polar bear, the second for fine needlework. Similar needles are known from most Eskimo.

Needle Cases

Needle cases were not positively identified at Ipiutak. We are uncertain whether the Ipiutak people had special containers for their needles, and we cannot suggest how they kept them. It is possible that they may have used bird bone tubes as did some Eskimo,7 but the number of such tubes found is very small compared to the number of needles. We have only one from the houses. Five were found in three different graves, none of which contained any needles. These tubes are classified as needles cases or drinking tubes (Pl. 23, Fig. 6; Pl. 48, Fig. 4). We have no supportable suggestion for their use. One feature that may be a favorable argument that these tubes are needle cases is the engraving on one tube (Pl. 48, Fig. 4), similar to that

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1 Museum of the American Indian, Heye Foundation, 13-1490, Fort Hall Reservation, Idaho.
2 Harrington, 1934, 19; Baldwin, 1944, 322.
3 Harrington, 1937, Fig. 23; 1942, 67 (double-bladed); Bartlett, 1934, Fig. 17; Fewkes, 1898, Fig. 251 and Pl. 171a.
4 Sirelius, 1904, Figs. 11, 17.
5 Bartlett, 1934, 19; Baldwin, 1944, 322.
6 De Laguna, 1934, 198.
on the antler tubes (Pl. 26, Fig. 17; Pl. 76, Fig. 11), which undoubtedly have been used as containers.

**Awls and Bodkins**

A large number of pointed antler and ivory implements have been classified as awls (Pl. 24, Figs. 5–9; Pl. 43, Figs. 5–6). Of the 338 specimens, only a few were originally intended to be awls. Most of them are merely scraps of antler and ivory or broken implements, such as arrowheads, which have been sharpened to a point at one end. Only one specimen is made of bone. Four specimens with a distinct head or handle are classified as bodkins (Pl. 24, Figs. 10–13). The points are not so sharp as those on the awls. It is doubtful whether or not they have been used for the same purpose as the awls. While simple, undecorated awls are known from the whole Eskimo territory, decorated awls or bodkins are reported only from Alaska, including the Aleutians, and Greenland. Among the bodkins from Alaska illustrated by Nelson are several reminiscent of the Ipiutak examples. Some of these have transverse grooves as shown in Pl. 24, Fig. 11, with a handle as in Fig. 12, and with an animal head as in Fig. 13. According to Nelson these bodkins have been used to pierce holes for the stitches. The form with transverse grooves around the head occurs in early finds from all parts of Greenland. One specimen from Inuguskut has not only the transverse grooves, but also longitudinal lines as in Pl. 24, Fig. 11. Despite the similarity between the Alaskan and Greenland bodkins, Mathiassen thinks they are not related, but considers the Greenland examples to be a local type. He argues that these forms are not known from the Point Barrow district or from early Eskimo finds. The fact that we have bodkins with transverse grooves on or below the head as well as some with a chain-link in both regions and the occurrence of similar bodkins at Ipiutak are strong indications that there is a connection. No bodkins of this kind are known from the Arctic Whale Hunting culture. In connection with sewing it should be mentioned that no thimble holders, a widespread Eskimo element, were found at Ipiutak.

**FLINT INDUSTRY**

The Ipiutak culture deviates from the general Eskimo pattern in two main features: in art and its flint industry. The first is best represented in the grave finds, the second in the house materials. Every house excavated, whether rich or poor in artifacts, yielded so large a quantity of flint that the manufacture of flint tools appeared to be one of the main occupations of the inhabitants. The actual number of flint tools found illustrates better than any description the prominent place the flint industry held in the material culture of the Ipiutak people. We found 4990 flint implements, of which 3925 were excavated in the houses. If we compare this figure with the total number of specimens excavated, 9535, at Ipiutak, we find that 52 per cent, or a little over half of the specimens, are made of flint. This figure does not include 200 flint blades found in the sockets of arrowheads, harpoon heads, lance heads, daggers, and knives, nor does it include thousands of flint chips, flakes, and spalls which bore no evidence of use as implements, and of which only samples were retained.

**The Material**

Flint is here used with its archaeological rather than its mineralogical definition. In the first place, not one but several kinds of minerals have been used; second, mineralogists seem to be somewhat uncertain as to the definition of flint. However, the exact mineralogical term is of minor importance; it is the way these minerals react to a blow or pressure that is significant. In this respect the different varieties of “flint” used by the Ipiutak people are alike. With few exceptions they are all varieties of impure crypto-crystalline quartz, and they break with the

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1 Nelson, 1899, Pl. 46.
2 Ibid., 106.
3 Mathiassen, 1930a, 226; 1933, Pl. 4, Figs. 1, 3.
4 Mathiassen, 1930a, Pl. 14, Fig. 11.
5 Ibid., 227.
6 Ibid., Pl. 14, Fig. 18; Nelson, 1899, Pl. 46, Figs. 9–10.
characteristic conchoidal fracture of all flints. The Eskimo who worked for us used the word *angmág* for the different minerals and rocks in question; the Greenland Eskimo used the same word for varieties of quartz, as well as siliceous slate.¹

About 80 per cent of the specimens in question are made of a gray, greenish, or brown, slightly translucent mineral, which most mineralogists would probably identify as jasper. Next in importance is chalcedony, in various shades of gray, sometimes streaked with dark veins, translucent, and with its characteristic waxy luster. Almost as common are implements made of a compact, very hard, black or gray material, a silicified slate, the identical material used for adze blades. There are a few specimens of rock crystal and one of a black, finely crystalline quartzite.

The source of the material for the stone tools is in the countless pebbles on the Point Hope spit. The sand and gravel that form the spit originated in the Paleozoic formations of the mainland to the east of Point Hope, most of it probably carried there by the Kukpuk River.² One of these formations, the Lisburne, which, according to Collier, is Lower Carboniferous, consists of massive, thick-bedded limestone, massive white cherts and occasional thinner beds of black slate or shale.³

A crust of limestone on some of the implements and the occurrence of bryozoes characteristic of the fauna of the Lisburne formation⁴ in others indicate that they belong in that formation. While the material for the heavy adze heads possibly has been mined, there is reason to believe that the material for scrapers, knife blades, etc., has been gathered on the spit itself. For instance, many blanks and flakes still retained the original surface which had all the characteristics of water-worn stone. We see then that the Ipiutak people have had an abundance of easily accessible and excellent material, which to some extent accounts for the tremendous quantity of flint in the Ipiutak finds. It may also be one of several reasons for the dense population on the Point Hope spit. Their great skill in working flint, their specialized flaking tools, and the great variety of flint implements demonstrate not only that they were well acquainted with flint, but that it formed an essential part of their material culture.

The thousands of flint implements, blanks, cores, and flakes, together with the flaking tools, assist us in the reconstruction of the technique applied. All Ipiutak flint implements have been subjected to percussion as well as pressure flaking. The procedure was probably the same as that used by the modern Eskimo of that part of Alaska, who until recently made similar stone implements and used the same kind of flaking tools as the Ipiutak people. According to an old Utorgarmiut,⁵ they first split the flint (*angmág*) boulder with a rock. Then they knocked off flakes with a little hammer which had a bent handle and a head made from a walrus tusk, and, finally, they used the flint flaker. No hammerstones were found at Ipiutak, so we must assume that the Ipiutak people did not have a special stone for that purpose and that they either used their somewhat heavier hammer or struck two pieces of flint together, as described by Mathiassen and Rasmussen from Point Barrow.⁶ Following this stage, the procedure probably differed according to the kind of implement the craftsman wanted to make, whether a core implement or a flake implement. Most of the larger blades, which are always chipped on both faces, are made of cores, while the scrapers and gravers, worked only on one face, and probably the smaller blades are made of flakes. Numerous blanks in different stages of manufacture show how the craftsman knocked off flakes until the object reached its approximate final size and shape. To give the implement its final shape and, in particular, its cutting edge, the flaker was used. For a flake implement, the purpose of the first strikes was probably to create a striking platform from which it would be possible to strike flakes of the desired size and shape. The amount of additional work on the implements varies; some were only slightly trimmed along the edge with a flaker; others, like the core implements, were first shaped with the hammer. It should be noted that not a single fluted core, and hardly

¹ Solberg, 1907, 23.
² Collier, 1906, 34.
³ Ibid., 21.
⁴ Ibid., 16.
⁵ Amos Aqernerersaq, now living at Point Lay (Larsen's field notes, 1942).
⁶ Mathiassen, 1930b, 44.
any regular, oblong, thin flakes, were found at Ipiutak. The cores are bilateral or irregular and cannot always be segregated from the blanks, and the unused flakes or spalls are usually angular rather than oblong.

**Flaking Implements**

There are good reasons to believe that 23 hammer heads found at Ipiutak were used for flint flaking (Pl. 11, Figs. 1–5; Pl. 43, Fig. 8). Most of them are made of the hard and heavy walrus penis bone. They have a battered face and a deep groove for a lashing which assured a firm connection with the haft. A complete hammer made out of a single piece of antler (Pl. 11, Fig. 6) has probably served the same purpose; another specimen (Pl. 11, Fig. 7), also of antler, is more dubious. Some of the heads, like so many other tools, are decorated with incised lines. Similar heads were found in the middens (Pl. 86, Figs. 4–6), while a head from a Near Ipiutak burial (Pl. 81, Fig. 14) and one from House 24 (probably Near Ipiutak, Pl. 83, Fig. 18) have a medial lashing groove. The latest form, the one referred to by the old Utonqarmiut, is quite different in shape. It is triangular, with a hole for the lashing (Pl. 89, Fig. 27). In shape these recent hammers remind us of the heart-shaped objects first described by Collins from the Hillside site, St. Lawrence Island.¹ Rainey interprets these as flaking hammer heads.² They probably belong to the Okvik rather than to the Old Bering Sea phase. Flaking hammer heads are known only from Alaska.

The hammer could be used only to shape the implement roughly; for the finer work the flint flaker was employed. The amount of flaking varies according to the type of implement; for instance, the small delicate blades are made largely with the flaker, while on some rude scrapers only the scraping edge was made with the flaker. The flaker consists of two pieces, an antler handle with a bone point lashed to it. Thirty-nine flaker handles were found; strangely enough, most of them in the burials. Their common features are the material, a shallow longitudinal groove on one side, and a knob to support a lashing near the point on the side opposite the groove. We have divided them into three types, according to the shape of the butt. Type 1 (Pl. 11, Figs. 8–11; Pl. 43, Figs. 11–15), the most common, has a spatulate butt; Type 2 (Pl. 11, Fig. 12; Pl. 43, Fig. 16) is parallel sided and is not expanded at butt; and Type 3 (Pl. 11, Fig. 13; Pl. 43, Figs. 17–19) has a flanging or forked butt. Most of the specimens of Types 1 and 3 have incised designs; one (Pl. 43, Fig. 12) is decorated with a human face in low relief. Some of the finest examples of decorative art in characteristic Ipiutak style are found on flaker handles (Fig. 19a–e). The great care and skill with which these flaker handles have been made indicate that we are dealing with an artist's tool, and from this point of view, these are in the same category as certain adze heads, knife handles, and engraving tools.

The flaker point, a piece of bone, was placed in the groove and firmly secured to the handle, probably by means of a leather thong, which was prevented from slipping off by the flat knob on the end of the handle. These points are all made of the under side of walrus ribs, a very hard material. They are more or less curved and follow the curvature of the handle. Most of them are elliptical in cross-section; some are round. The distal end is usually flat and slopes to the right, or more rarely to the left, depending on whether the craftsman was right-handed or left-handed. Points with rounded ends also occur. The rear end is very often grooved, probably in order to prevent the lashing from slipping. A very few heavy and crude examples, like those illustrated in Pl. 11, Figs. 17–18, have, in all probability, been used without a handle.

It is quite possible that the composite flint flaker remained in use in this part of Alaska up to modern times. Murdoch found it in use at Point Barrow in 1881, and as late as 1942 flint flakers could still be found in old men's tool boxes. Considering the long lapse of time, the tool has changed very little. The modern form has the same spatulate butt as Type 1, though it usually is bent to form an angle.³ The groove is narrow and deep. The point, which is thin and straight, is set in the groove on the edge instead of on its flat side (Pl. 93, Fig. 6). Except for the closely related Near Ipiutak culture, in which the same types of flaker handles occurred (Pl. 82, Figs. 6, 13; Pl. 86, Figs. 1–3), we know nothing about the intermediate forms at Point Hope. On the other hand, a nicely decorated

¹ Collins, 1937, Pl. 30, Figs. 18–20.
² Rainey, 1941a, Fig. 35, Nos. 1–3.
³ Nelson, 1899, Pl. 26, Figs. 3–5.
flint flaker from Point Barrow is described. It is not grooved and has a slightly bent butt. As we have no excavation records, we do not know its stratigraphical position, but there are reasons to believe that it can be assigned to the Birnirk phase. The decoration, with deeply cut, slightly curved lines, reminds one of the harpoon heads of that period. It has had a flat point like the one now lashed to it. In the collections from the Birnirk site in this museum are 10 similar flaker points, slightly bent, and with a wedge-shaped tip.

Outside the mainland of northwestern Alaska we know of composite flint flakers from the Okvik phase of the Arctic Whale Hunting culture. They are slender, lack the spatulate butt, and have the same long, narrow groove as the recent form from the mainland. No flaker handles have been found in the later culture phases on St. Lawrence Island, but this may be accidental, as bone flaker points occur both in the Old Bering Sea and in the Punuk culture phases. In the collection from Port Möller, Alaska, are a flaker handle (60.1-6374) and several points which show the closest resemblance to the Ipiutak flakers. The long, slender bone handle is curved and has a shallow groove for the point and a flat knob on the under side. The points have a conical or rounded bit. Composite flint flakers are known from the Aleutians, the lower Kuskokwim (60.1-4044), and from Greenland. The handles are of wood. In the first case, the handle is in the shape of a sea lion; in

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1 Mathiassen, 1930b, Pl. 10, Fig. 13.
2 Rainey, 1941a, Fig. 20, Nos. 14-15.
3 Collins, 1937, Pl. 48, Figs. 18–20; 237.
4 Jochelson, 1925, Fig. 43.
5 Thomsen, 1928.
the second it has a socket to hold a curved bone. The Greenland specimens are more like those from Ipiutak. Handleless flint flakers made of ribs were found at Cook Inlet. 1 Few flint flakers, none of them composite, have been reported from the central and eastern part of the Eskimo territory. Best known are the heavy flakers of walrus rib from Southampton Island, 2 but Mathiassen is undoubtedly right when he suggests that a flat curved strip of walrus bone from Naujan is a flaking tool, like those used with a handle in Alaska. 3 A similar specimen is described by Mathiassen from Inugskuk, Greenland. 4 As handles are much more rare than points, it is still possible that the specimens from Naujan and Inugskuk originally were used in a handle and that the composite flint flaker was at one time used over the entire Eskimo area.

**Arrowpoints**

As described previously (p. 64), most Ipiutak arrowheads had flint blades, either end or side blades or both. In order to distinguish the two kinds of blades, which differ in shape as well as in function, we have chosen to use the term arrowpoint for the end blades and inset blades for the side blades. Contrary to most other Ipiutak blades, we can be sure that our identification of the arrowpoints is correct, as more than 80 were found in their arrowheads.

Plate 35, in which the various forms of arrowpoints are represented, gives an impression of uniformity despite the fact that the specimens shown were selected to show the range of variation. Their uniformity would naturally be more obvious if all the arrowpoints were illustrated, and the extreme forms would consequently be less conspicuous. Like many other Ipiutak implements, the arrowpoints have common characteristic features which distinguish them as Ipiutak types. The typical Ipiutak arrowpoint is lanceolate and extremely thin, with a sharp point and edges, and carefully chipped faces (Fig. 20a). It has been chipped from both edges. The flake beds are very narrow, parallel, horizontal, or, more often, oblique, usually running upward from the right edge. In some cases the flake beds extend from one edge to the other, but these are exceptional. In some of the finest arrowpoints, parallel, oblique ripples cover the entire face. These result from an obvious effort to make the flake beds from both sides meet. A slight ridge is formed at the point of juncture of the two flake beds. This is usually visible near the tip of the point, but sometimes it extends over the whole length of the blade. The base, usually as sharp as the edges, is formed with short flakes taken off from the end. Without claiming any connection, it is interesting to compare the Ipiutak arrowpoints with Yuma points to which they have some similarity. The technique corresponds in detail with that employed in the Yuma points, as described by Renaud, 5 except that secondary marginal retouching was never applied in the Ipiutak points. If we use Renaud's method of measuring the fineness of the flaking by counting the flake beds in units of 2 centimeters, we find that the Ipiutak arrowpoints, with an average of about seven flakes per unit, can compete favorably with most Yuma points. However, it should be borne in mind that the Ipiutak points are much smaller and more delicate than most Yuma points. 6

Not all of the Ipiutak arrowpoints have such fine workmanship as described above. Some are small and irregular; others are rather crude. In some, only one face is carefully chipped, the opposite face being chipped only along the edges with the original surface of the flake untouched. One specimen, made of siliceous slate, has been rubbed on both faces (Pl. 35, Fig. 20). Poorly worked blades are very rare in the burials, but rather common in the houses.

In the foregoing, we have considered Ipiutak arrowpoints as a whole, disregarding the differences in shape and craftsmanship. We have decided to segregate them into types, not because we find these types significant at the moment, but partly to simplify the description so that any future finds from the same or a related culture may be readily compared, and thus prove or disprove the significance of the types. We have used the shape of the base as the main criterion for our classification, and have added a few odd forms as rare types. This classification should be accepted with some reservation as many transitional forms occur which, with

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1 De Laguna, 1934, 99 and Pl. 45, Figs. 1–4.
2 Boas, 1901, Fig. 83; Mathiassen, 1927, p. 1, 83.
3 Boas, 1901, 84; Mathiassen, 1927, pt. 2, Pl. 34, Fig. 9.
4 Mathiassen, 1930a, 218 and Pl. 11, Fig. 12.
5 Renaud, 1931, 10.
equal logic, would fall in one or another group. This is especially true of the subtypes. Type 1, with a straight base, with a total of 176 from both houses and graves, is by far the most common (Pl. 2, Figs. 1–6; Pl. 35, Figs. 1–20).\(^1\) As a whole, the points found in the graves are more delicate than those from the houses. The average thickness of the finds is 2.75 millimeters; of the house finds, 3.25 millimeters. Of Type 1a, which has a straight, slanting base, 40 specimens were found (Pl. 2, Figs. 7–8; Pl. 35, Figs. 21–24). This type is often most difficult to distinguish from Type 1. Type 2, of which 37 specimens were found, has a concave base (Pl. 2, Figs. 9–11; Pl. 35, Figs. 25–32). The Type 2 points from the houses are of the same fine workmanship as those from the graves. Type 2a, consisting of 23 specimens, has a concave, slanting base (Pl. 2, Fig. 12; Pl. 35, Figs. 33–36). All the points of this type are extremely

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\(^1\) The points found in the arrowheads are not included in these figures.
thin and are often difficult to distinguish from Types 1a and 2. Four specimens from two graves, with the slanting base extended to form a barb (Pl. 35, Figs. 37–38), are a rare form. Of other rare forms, the example in Pl. 35, Fig. 39, shows one of five points with a concave, but unusually broad base. Two specimens from two graves have a restricted body like that in Pl. 35, Fig. 40. A rare form with a pointed base occurred in both houses and graves (Pl. 2, Fig. 16; Pl. 35, Fig. 41), while the semi-stemmed point shown in Pl. 2, Fig. 15, is unique. Five points, which are unusually broad in proportion to their length (Pl. 2, Figs. 13–14; Pl. 35, Figs. 42–43) and which have a straight base, are probably harpoon blades rather than arrowpoints.

As noted above, this classification is probably of little significance now. The four types and subtypes occur in all forms of arrowheads with end blades, and they were also found together in five graves (Burials 7, 9, 11, 73, and 105) which means that they were in use simultaneously. It might be significant, however, that arrowpoints of Types 2 and 2a only were found in burials of the “midden-like” type.

Harpoon Blades

Closely related to the arrowpoints in shape and technique are the end blades for harpoon heads (Pl. 2, Figs. 34–39). As a rule, they are larger, especially wider, than the arrowpoints (Fig. 20b). Their average thickness, which is 4.5 millimeters, also exceeds that of all the arrowpoints. A few end blades (Pl. 2, Figs. 13–14), which are smaller and thinner than most of the harpoon blades, have been classified as arrowpoints or harpoon blades. As 10 blades of this type were found in harpoon heads of Types 2 and 4 (Pls. 4, 37), with these few exceptions we are in no doubt as to the identification of this group of blades. They are probably all made from flakes, as, of a total of 29, 13 were only partly chipped on one side, leaving part of the original flake surface untouched. The chipping varies in fineness according to the size of the blade, but most of the blades are symmetrical with sharp edges and points. The base is always straight, and the finest chipping usually occurs there. Harpoon blades of a similar shape as these have been found in various parts of the Eskimo territory. Chipped harpoon blades of this particular shape are rare outside northwestern Alaska. At Point Hope and Point Barrow they were still in use in the Birnirk period (Pl. 87, Figs. 3, 4). The Birnirk blades are thicker than the average Ipiutak blade; some are more oval in shape and have a shorter base.1 A similar blade is also found in Birnirk arrowheads,2 and cruder chipped blades somewhat resembling these in form are known from the Okvik phase3 and Cook Inlet,4 but it is doubtful that they are harpoon blades.

The limited distribution of this type is probably due to the early adoption of ground slate blades. We find slate harpoon blades in the Old Bering Sea phase of the Arctic Whale Hunting culture,5 and they continue to dominate throughout the later phases of this culture. The similarity in shape between the Ipiutak harpoon blade and the characteristic Eskimo harpoon blade of slate or bone, often ground in three distinct facets, leads us to conclude that the well-known Eskimo form is derived from the Ipiutak blade. Like the Ipiutak blades, they were wedged into the blade slit, with no support or lashing, but were often held in place by a rivet.

Harpoon blades of chipped flint also occur in the central and eastern part of the Eskimo territory, but they differ from those previously mentioned in having a pair of notches above the base. Mathiassen's explanation of these notched harpoon blades is that

When flint is to replace slate—the shape must be altered a little. Holes cannot be bored through flint, and it can only with difficulty be ground to make it fit exactly into the blade slit; therefore they must be furnished with tangs or notches . . . .

We know now that flint can be chipped sufficiently thin to fit into a blade slit and because of its rough surface a rivet is not required to hold it. We know also, from the fine flint work from Southampton Island and West Greenland, that the Eskimo were skilful in chipping flint very thin. The usually short, stocky, notched flint blades, which are quite common in central and eastern finds, do not occur in the western part of the Eskimo area. Apparently notched blades are a foreign element in Eskimo culture.

1 Wissler, 1916, Fig. 3c.
2 Mason, J. Alden, 1930, Pl. 3.
3 Rainey, 1941a, Fig. 32, No. 8.
4 De Laguna, 1934, Pl. 30, Figs. 5, 35.
5 Collins, 1937, Pl. 39, Figs. 1–5.
Where they do occur, for instance, in the Aleutians, it is probably owing to foreign (Indian?) influence. Notched blades are common in the Dorset culture where they were probably adopted from the Indians. It is more than likely that the notched blades occurring in Eastern Thule finds and in Greenland are either Dorset type blades or a trait adopted by the Thule people from the Dorset culture. In Mathiassen's collection from Button Point, which seems to be a pure Dorset find, there are several notched flint blades of which a few can be duplicated in Greenland. The most delicate of these Greenland points, usually made of siliceous slate (angmaq), are rubbed on both faces, but have chipped edges such as are shown in Pl. 35, Fig. 20.

**Inset Blades**

The term inset blades is used here for small, thin, usually slender side blades, which were used in arrowheads, harpoon heads, lance heads, and daggers. Some of these may be side blades for knives, but the latter are usually much larger and thicker. The average thickness of the inset blades is 2.8 millimeters; some are as thin as 1.5 millimeters, and none is thicker than 4.9 millimeters. The knife blades, on the other hand, range in thickness from 3.3 to 8.7 millimeters, with an average thickness of 5.6 millimeters. A few transitional forms are of doubtful classification. Except for these transitional forms and perhaps Type 5, which may be classified as small knife blades, we are fairly certain that the group here termed inset blades includes side blades for weapons.

When confronted with the problem of the identification of the inset blades according to the weapon in which they were used, we cannot be certain whether we are dealing with a long harpoon blade or a short lance blade, since the types overlap. We have one reliable guide, however, in the blades found in position in the respective weapons. In 58 arrowheads, 17 harpoon heads, and six lance heads and daggers, one or more side blades are preserved, so our conclusions are not based on surmise. The inset blades have several traits in common. They are undoubtedly made of flakes and as a rule are chipped on both faces. Some specimens, especially those from the houses, are only partially chipped on one face, and a part of the original surface of the flake is untouched. Most of the flakes are shaped like the segment of a circle, some have a very flat arc, others approach a semilunar form. Sometimes the arc is broken in the middle, producing a subtriangular shape. The other edge is very rarely absolutely straight; it is usually slightly curved, especially towards the points. In one small group of inset blades, Type 2, both edges are equally curved, resulting in a lanceolate, symmetrical blade. The remainder are asymmetrical in relation to the long axis.

The flaking technique is the same as that used in making the arrowpoints. Tiny, oblong flakes were taken off from both edges, leaving a row of parallel, usually oblique scars. Some points have a longitudinal ridge where the flake scars meet; others have a very smooth, curved face. Some of the best points can compete in fineness with Danish and Egyptian flint work. Especially admirable are some of the lance blades, which were made with an almost incredible skill. Probably the best work of an Ipiutak craftsman is illustrated in Pl. 40, Fig. 5. The longest of the three complete side blades is 9.9 centimeters long, 1.2 centimeters wide, and 2.5 millimeters thick. To flake a piece of flint of such proportion without breaking it, the blank must be firmly supported. It was probably supported on a piece of wood or rawhide, at least during the latter part of the flaking process. A similar method was possibly employed in making the very small inset blades, of which some measure only 20 by 7 by 1.5 millimeters. In several blades obviously more care was given to the curved or subangular edge, the cutting edge, than to the straight edge, which was hidden in the blade groove. As a whole, the inset blades from the graves exhibit better craftsmanship than those from the houses.

Using the mounted specimens as a guide, we have classified the inset blades into five types, based mainly on size. As already stated, the types are not clearly distinguishable, so that the divisions are somewhat arbitrary. The great majority of the side blades for arrowheads fall into Type 1 which includes moderately long (2.1–6 centimeters), slender, and delicate blades, asymmetrical in relation to their long axes (Pl. 2, Figs. 17–23; Pl. 36, Figs. 1–36). The upper limit, based on the longest blade slot

Mathiassen, 1927, pt. 1, Pl. 61.
found in arrowheads, is set at 6 centimeters. It is by far the most common type, not only of the inset blades, but of all flint implements. The total number of loose inset blades of this type, excluding the mounted specimens, is 289. Of these, 218 are from the burials that contained a great number of arrowheads, offering additional proof that most of the side blades for arrowheads are included in Type 1. But this type included more than arrow blades. Some of the smallest specimens are undoubtedly side blades for harpoon heads, and some of the largest examples may be for lance heads or daggers.

Type 1 and Type 2 differ in that the blades of the latter are symmetrical in relation to their long axes. Obviously this is not a good distinction, as many transitional forms occur, but it is barely possible that these symmetrical blades are end rather than side blades. Only seven specimens (Pl. 36, Figs. 37–39), all from the burials, can be classified as Type 2.

Thirty-five specimens, all but one from the houses, have been classified as Type 3 (Pl. 2, Figs. 24–25; Pl. 36, Fig. 40). They are short and broad, subtriangular to semilunar, usually cruder and thicker than blades of Types 1 and 2. Some of them have probably been used in harpoon heads, but others may be small side blades for knives.

Type 4 (Pl. 2, Figs. 26–29; Pl. 36, Figs. 41–44) includes the largest of the inset blades, from 6 centimeters to 9.9 centimeters in length. They range from very slender to almost semilunar forms, as may be seen in Pl. 2. Undoubtedly the majority of the 24 specimens classified in Type 4 were made for lance heads or daggers, but, as already remarked, some may be arrow blades. We cannot deny the possibility that some of the wider and thicker specimens may be knife blades.

Blades classified in Type 5 (Pl. 2, Figs. 30–33) were found in the houses. They are similar in shape and workmanship to those of Type 3, but larger. They differ from the rest of the inset blades in having rounded ends. Some are rather crude. No mounted specimens were found to indicate their purpose. It is not unlikely that they are knife or lance blades.

The use of side blades in weapon heads has a very limited distribution among the Eskimo.

Arrowheads with side blades, for instance, the most common form at Ipiutak, have not been recorded from any other site. Side blades in harpoon heads are known from the early phases of the Arctic Whale Hunting culture, Okvik, Old Bering Sea, Birnirk, and Punuk, but the blades are cruder than those found at Ipiutak, and are usually flakes chipped along one edge, or are made of shell instead of flint. The closest resemblance to the Ipiutak inset blades may be seen in the well-known knife or lance head from Southampton Island described by Boas.

The side blades, made of the same material as the Ipiutak blades, are oval in shape, carefully chipped on both faces, and have sharp, regular edges.

Knives Blades

In addition to the arrowpoints, harpoon blades, and inset blades, the Ipiutak collection contains 496 complete flint blades and 688 fragments. These are chipped on both faces and were undoubtedly made for cutting. Some are similar in shape to the Type 4 inset blades and may be side blades for lance heads, just as some specimens classified as inset blades may belong in this group. These doubtful specimens are relatively few; as a rule the inset blades are easily distinguishable from the knife blades. The latter are larger and thicker and, except for one type, side blades Type 2, also differ in shape. We have called the whole group knife blades, and we have good reason to believe that the great majority of them have been so used. In the first place, they could not be used in any other implement; second, we found three wooden handles and one of antler with blades of this form. In all cases the blade was set into a groove in the side of the handle, and, as we shall presently see, most of these blades are side rather than end blades. An examination of the chipping revealed a great variation in the care with which the edges were chipped; some have fine chipping along both edges, others only along one edge. The former may be either end blades or side blades; the latter undoubtedly are side blades.

Side Blades

A number of knife blades, varying in shape but similarly chipped, are shown in Fig. 20d–h.

1 Two hundred and ninety-one unclassifiable inset blades are not included in the figures.

1 Boas, 1907, Fig. 178.
Judging from the flake scars, a large number of small flakes were taken off one edge, while larger and fewer flakes were taken from the other edge. The large flake scars cover most of the face of the blade; the small scars form a fringe along its edge. The blade is thickest where the two kinds of scars meet, that is, close to one edge. This kind of chipping creates a solid, smooth cutting edge and provides a suitable edge for the other side of the blade, so that it can be wedged into the blade groove. This edge, the back of the blade, is often thinner and in places sharper than the cutting edge. It can be mistaken for the cutting edge, except for its irregular shape and its alternating dull and sharp places. The unevenness of this edge also helps to secure the blade in the groove, which is important as no cement was used. This description applies to the typical blades which are in the majority. It should be mentioned that in several blades the small and large flakes, as described for the typical blade, are not clearly distinguishable. In most cases the cross-section is a good indication of which is the front or back. This evidence, further supported by the four specimens mounted as side blades, should leave no doubt as to the accuracy of our identification.

Plates 12 and 13 illustrate the variation in size and shape of these blades. Using the shape as a criterion, we have classified the side blades into seven types. In addition to the range in shape, we note differences in the method of insertion in the handle. Blades of Types 1 to 3 are undoubtedly standard side blades, while blades of Type 4 and most of Types 5, 6, and 7 can be classified as end-side blades, since part of each blade extended beyond the tip of the handle.

Types 1 to 3 (Pl. 12, Figs. 1–18; Pl. 46, Figs. 1–2) are often indistinguishable; hence this classification should not be taken in too strict a sense. A definite difference in the shape of the back may reflect variation in the shape of the grooves, but it is possible that Type 3 blades, with a curved back and a more or less straight edge, are merely resharpened examples of the symmetrical Type 1. Of the three types, Type 2 is the most common. Type 4 (Pl. 12, Figs. 19–23; Pl. 46, Fig. 3) differs somewhat in shape from the three types just mentioned, but also in use. Fig. 21 is a sketch made in the field. The wood was in too poor condition to preserve, but the blade is illustrated in Pl. 12, Fig. 23. We assume that the other blades classified with this

*Fig. 21. Knife with blade, Type 4. Blade, 60.2-3753, H65.*
were mounted in the same way. The blade shown in Pl. 12, Fig. 19, one of the extremes of the type, might be an exception. The distribution of knives with side blades has been discussed in another section (p. 81). The criterion used for classifying blades of Type 5 is the flat, straight base. As may be seen in Pl. 13, Figs. 1–11, and Pl. 46, Fig. 4, the blades of this type vary considerably in shape, some being long and slender, others short and broad. The fact that these blades have a definite base leads us to believe that they were used individually rather than as one of a series of side blades. They were probably mounted near the end of the handle, and some may even have served as end-side blades. The less common Type 6 (Pl. 13, Figs. 12–16; Pl. 46, Fig. 5), which has a flat base with a right or left slope, may also have been mounted in this way. Type 7 (Pl. 13, Figs. 17–22; Pl. 46, Fig. 6) is distinguished by a concave back which seems a strange feature for a side blade intended for insertion in a groove. This peculiarity may be explained by the fact that these, too, were mounted near the end of the handle, partly protruding from it, a method of mounting undoubtedly applicable to forms like those shown in Pl. 13, Figs. 20–22.

Knife blades like those described above are extremely rare among other Eskimo finds. We know of only two examples of flint blades comparable to the Ipiutak forms; both are from the Point Barrow district. One, similar to Type 1, comes from the Birnirk site (60-9558), and the other, like Type 7, is from Cape Smythe (60.1-431). Their chronological position is uncertain, but since a knife blade of Type 1 occurs in a burial from Point Hope definitely belonging to the Birnirk phase (Pl. 87, Fig. 14), there is good reason to believe that flint side blades for knives existed at least up to that period in northwest Alaska. Of the three examples of flint side blades for knives we know from the east, the one from Rensselaer Harbor in northwest Greenland is the most closely related to the Ipiutak forms. The blade in the knife from Southampton Island described by Boas is merely a flake chipped along the edges. The raw flake which supposedly constitutes the blade in a knife from Disco Bay, West Greenland, is probably a substitute for the iron blades usually used in that type of handle. As previously shown (p. 81), knives with end-side blades of slate or metal are widely distributed among the Eskimo in time as well as in space.

The scarcity of flint side blades in the later stages of Eskimo culture may undoubtedly be attributed to the fact that polished slate blades were introduced about the same time the Ipiutak people had settled in Alaska, and since this material was easier to work, it replaced the flint. The few flint side blades that are known outside Ipiutak all came from regions such as northwestern Alaska, Southampton Island, and northwest Greenland where the flint industry survived until modern times, partly on account of tradition and partly because of the abundance of good material available.

**Semilunar Blades**

A number of single-edged blades may be distinguished by their unusual width; consequently we have placed them in a separate group. They vary in shape from semilunar to subtriangular, the former being the more common (Fig. 22). The finest chipping is along the curved edge; the straight or slightly curved back shows no sign of secondary chipping. According to size, these blades fall in two rather distinct types. Type 1, the larger form, is the more common (Pl. 14, Figs. 19–22; Pl. 46, Figs. 11–12). We have no information as to their use. They may have been hafted as were the side blades which they resemble closely. They may also have been hafted as is an ulu blade. No handles resembling an Eskimo ulu handle were excavated, but these may have been of wood, in which case the chance of finding one was extremely slight. On the other hand, instead of a handle they may have had a wrapping around the back, for instance, of strips of willow bark, like an ulu from Hotham Inlet illustrated by Mason. The blade illustrated in Pl. 14, Fig. 20, which is squared at both ends, may easily have been wrapped in this fashion. The shape of the handle is of minor importance compared to the form of the blade. The similarity between these blades and the ordinary ulu blades is so close that we believe we are justified in interpreting them as such. Chipped ulu blades of flint or

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1. Wissler, 1918, Fig. 8.
2. Boas, 1907, Fig. 179.
3. Porsild, 1915, Fig. 41E.
4. Mason, Otis T., 1891, Pl. 61, Fig. 1.
related material remained in use in northwestern Alaska until historic times. They have also been found archaeologically on Southampton Island.

The blades of Type 2 (Pl. 14, Figs. 23–25) are too small to be called ulus. Like the large form, Type 1, they have secondary chipping along the curved edge. They were probably made for a special purpose. They could, for instance, have been used by the women for fine skin work, but no comparable tools have ever been found.

**End Blades**

We found a number of blades, similar in shape to some of the knife side blades, but with both edges finely chipped (Fig. 22b–d). We have identified these as end blades and believe our interpretation is correct for at least a part of the series, although none were found hafted. We have classified them into three types; the first two closely resemble the side blades. Type 1, for instance (Pl. 14, Figs. 1–6; Pl. 46, Figs. 7–8), is readily interchangeable with the symmetrical side blades, but a careful examination of the chipping reveals the differ-

![Fig. 22. Semilunar blade and end blades, Types 1–3. a. Semilunar blade, Type 1. 60.2-3256. H54. b–d. End blades. b. Type 1. 60.2-7303b, B8. c. Type 2. P2831, H7. d. Type 3. 60.2-3858, H53.](image_url)
3 are pointed and could be used as lance blades (Pl. 14, Figs. 13–16). A few have rounded points and one (Pl. 14, Fig. 17) is asymmetrical, two features which eliminate the possibility of their use as projectile points. Granted that the examples with round points are knife blades, it is very likely that the sharp pointed specimens were also used for this purpose. The accuracy of this conclusion is borne out by the fact that knives with similar blades occur in the Old Bering Sea phase.\(^1\) It is true that only rubbed blades were found hafted, but Collins has undoubtedly correctly identified chipped blades of similar form as knife blades.

Lanceolate, two-edged, chipped knife blades, symmetrical or asymmetrical, have been found from South Alaska to Greenland, though not in large numbers. The specimens showing the closest resemblance to the Ipiutak Types 1 and 2 come from Cook Inlet,\(^3\) Naujan,\(^4\) and West Greenland.\(^4\) Type 3, the stemmed or semi-stemmed form, is not so widely distributed, but is very common in certain areas. As previously mentioned, it occurs in the Old Bering Sea phase.\(^5\) In the earlier Okvik phase,\(^6\) this type has been reported as of chipped slate. In its semi-stemmed form it occurs at Cook Inlet,\(^7\) and Port Möller (60.1-6183). An asymmetrical stemmed example is illustrated by Jochelson from the Aleutians.\(^8\) While in most places this particular form of chipped flint blade was replaced by rubbed slate blades early in the cultural chronology, it continued in use in northwestern Alaska as a lance blade until modern times. Murdoch and Nelson illustrated a considerable number of blades of precisely this shape (Pl. 14, Fig. 13). Even if these modern blades are usually larger than the older form, there seems little doubt that they had their origin in the Ipiutak form.

**Discoidal Blades**

The term discoidal blades has been applied to a group of bifacially chipped flint blades which, in spite of variation in shape, form one easily distinguishable and well-defined group. Judging from a considerable number of blanks, most of the discoidal blades seem to have been made from cores rather than flakes, in contrast to most of the Ipiutak flint implements, with the possible exception of the end blades of Type 3. The discoidal blades, which are thicker than the other blades, average 7.17 millimeters in thickness, as compared to the knife blades which average 5.62 millimeters. They are thickest in the middle and taper off towards a very thin edge. The two faces and part of the edge are shaped by rather coarse flaking. The remaining part of the edge is finished with delicate secondary chipping from both sides, producing a perfectly even, sharp, cutting or scraping edge. The extent of the finely chipped edge varies with the shape of the blades. Four different types of discoidal blades are distinguishable. The number of transitional forms is relatively small. The classification is based on the shape of the blade and on the extension of its working edge. Type 1, which is subquadrangular in outline, is by far the most common and has the greatest variation in size and shape (Pl. 15, Figs. 1–8; Pl. 46, Fig. 13). Except for the blade shown in Pl. 15, Fig. 1, the secondary chipping is limited to the more or less curved lower edge (Fig. 23a). Type 2 (Pl. 15, Figs. 9–12; Pl. 46, Fig. 14), which is subtriangular in outline, has two working edges with the third side roughly chipped or unworked (Fig. 23b). Type 3 (Fig. 23c) is oval or elliptical in outline (Pl. 15, Figs. 13–16; Pl. 46, Fig. 15). Some specimens of this type resemble Type 1 in shape, but an examination of the secondary chipping reveals that the working edge is longer than on Type 1. In a few cases, as in the blade shown in Pl. 15, Fig. 13, secondary chipping occurs along the entire edge, but usually it is absent at the narrow oval end. Type 4 (Pl. 15, Figs. 17–20; Pl. 46, Fig. 16) resembles Type 3 in this feature (Fig. 23d). Some blades have secondary chipping along the entire edge, others only along a major part of it. Types 3 and 4 differ in shape, Type 4 being circular. The blades from the houses are rather irregular, while those from the burials, like those from the middens, are perfectly disc-shaped (Pl. 85, Figs. 16–17).

That the discoidal blades were in common use at Ipiutak is evident from the number excavated, 196 in all. However, we have no definite evidence on which to base a suggestion as to method of use. The sharp, carefully chipped
edge would serve equally well for cutting or scraping. Some types may be scraper blades, others knife blades. We are inclined to consider them as scraper blades. We have a large number of knife blades that vary somewhat in shape but have a common general appearance. They are thinner than the discoidal blades. Furthermore, hafted scraper blades, similar to Type 1, are known from at least two localities in the Eskimo area. Finally, the Ipiutak collection contains a wooden handle (Pl. 22, Fig. 16) with a socket in which several of these blades can be fitted. Thus there is little doubt that at least some of the discoidal blades are scraper blades. While some of the blades probably have been hafted, the extent of the working edge on Type 4 indicates that it was used without a handle. Outside Point Hope very few scraper blades similar to this group have been found. De Laguna reports two oval and one round scraper blade from Cook Inlet. Judging by her illustrations they are undoubtedly the same kind of blades.\(^1\) A round scraper blade from the Aleutians\(^2\) fits into the same classification. A number of scraper blades of the same shape as Type 1 occur in a collection from Port Clarence. Most of these are ground slate, but a few (like 60-1537) are of chipped flint exactly like the Ipiutak specimens.

The slate blades, which probably represent a later form, were replaced by metal blades. The slate blades are identical with the blades found in one-handed scrapers with a plain wooden handle, a form of scraper common in Alaska.\(^3\)

The same type of scraper, but with a chipped flint blade, is reported from Southampton Island. Those illustrated by Boas\(^4\) have a flat lower side and a rounded back, but other blades from that island are shaped like the discoidal blades of Type 1, except for a tang or two side notches to hold the lashing (60-4718).

**Rare Flint Blades**

A number of bifacially worked blades do not fit into any of our classifications. They are few in quantity, of unknown use, and, with one exception, unknown from other Eskimo localities. For our purpose they are of little or no significance. A sample of the different forms is

\(^1\) De Laguna, 1934, 68 and Pl. 30, Figs. 24, 32.

\(^2\) Jochelson, 1925, Fig. 35.

\(^3\) Nelson, 1899, Pl. 46, Fig. 13. This is not to be confused with the one-handed scraper with a snub-nosed blade.

\(^4\) Boas, 1907, Fig. 182d–f.
shown in Pl. 20, Figs. 17–26. The only form known outside Point Hope is shown in Pl. 20, Fig. 21, of which six examples are known from Point Barrow (60.1-7198).

**Drill Points**

The drill points form a transition between the bifacially and unifacially worked flint implements. Some are chipped on both surfaces, some on only one, and in others only the point is worked on both surfaces. Considering the thousands of flint implements found at Ipiutak and the frequency with which drill points occur in other Eskimo finds, their representation at Ipiutak is surprisingly small. The classification of the 22 specimens as drill points was made with some reservations. This poses the question as to whether one of the most characteristic Eskimo implements, the bowdrill, was used at Ipiutak. All the evidence points to the fact that it was not used. In the first place, none of the drills appears to have been hafted. Furthermore, no drill shanks, bows, or mouthpieces were found at Ipiutak. The shanks and bows could, of course, have been made of wood, in which case they probably disintegrated. The mouthpieces, however, are usually of bone or ivory, and considering the large number of specimens found at Ipiutak, it would be a strange accident if we missed so common an artifact as a drill mouthpiece. The absence of the bowdrill is also suggested by the frequent occurrence of oblong, gouged-out holes on Ipiutak specimens rather than round holes. In this connection also, it should be noted that the technique of splitting ivory and antlers by drilling rows of holes was absolutely unknown here. The round holes in Ipiutak specimens, for instance in harpoon heads, could very easily have been made with a hand drill, like those illustrated here.

The Ipiutak drills have been classified, according to shape, into three types. Type 1 (Pl. 20, Figs. 9–11; Pl. 46, Fig. 18) has a broad base and a slender point. The specimen from Burial 94 has a finely chipped base, the others a crudely worked base. Type 2 (Pl. 20, Figs. 12–13) is slender and thick. Type 3 (Pl. 20, Figs. 14–16) is slender and thin and has a flat point. We are in some doubt as to whether these were used as drills. Similarly shaped drill points occur almost everywhere in Eskimo territory.

**Unifacially Chipped Flint Implements**

The second of the two main groups consists of flint flakes chipped on one face only. This group includes most of the flint scrapers, all the gravers and retouched flakes which are among the commonest implements found in the Ipiutak houses. As with most other tools, they seldom occur in the graves. Approximately 1600 were found at Ipiutak.

In general the material is the same as that used for the blades and points, but fewer blades are made of the translucent varieties of chalcedony. With very few exceptions the flakes selected for this purpose are sturdy, curved, and of approximately the same size. A bulb of percussion and ripples are in many cases visible on the concave, unworked inner side. The outer side of the flake is usually shaped by percussion flaking, but in some flakes the surface of the boulder is preserved (Pl. 18, Fig. 15). The labor expended in shaping the tools varies from type to type. Some types are very carefully formed by percussion and pressure flaking; others are merely raw flakes chipped along one or two edges. The sidescrapers, in particular, belong to the latter category. The retouched flakes are also scrapers, but of a more casual character. The edges, which naturally received the most attention, are in all cases shaped by pressure flaking.

The classification of these implements was made in two steps, first according to function and then according to shape. The first sorting resulted in three main groups of tools, sidescrapers, endscrapers, and gravers, each with certain common characteristics. A fourth group, the retouched flakes, comprised the remainders from this classification. The significance of the secondary classification, based upon shape, may in some cases seem problematic because of the great number of transitional forms. Meanwhile the classification has one virtue—it simplifies the description. Future finds of Ipiutak or related cultures will prove or disprove its validity.

**Sidescrapers**

Of the four groups, the sidescrapers constitute not only the largest number but the greatest variety of forms. A characteristic of all the sidescrapers is that one or two long margins were made by pressure flaking into a sharp and sturdy scraping edge. This scraping edge may
be concave, convex, or straight, and we have used this feature as a criterion for our classification (Fig. 24). Single-edged and double-edged scrapers occur. In addition to the scraping edge, some single-edged scrapers are chipped arbitrarily classified. Before the various forms are described, some consideration should be given to the methods of using these sidescrapers. We believe that the sidescrapers are men’s tools and were probably used to scrape wood, ivory, antler, or bone. About two thirds of the scrapers have at least one concave edge, indicating that they have been used to scrape rounded surfaces like those on shafts. None of these scrapers appear to have been hafted. Some carefully made specimens of very distinctive form are undoubtedly permanent tools which could

Fig. 24. Sidescrapers. a. Concave edge. 60.2-3863, H53. b. Convex edge. UA, H58. c. Straight edge. P4213, H58. d. Double-concave edge. P4213, H55. e. Concave and convex edge. 60.2-3698, H64. f. Concave and straight edge. UA, H25. g. Convex and straight edge. 60.2-2942, H45. h. Double straight edge. 60.2-2373, H27.

along other parts of the margin to form a sort of finish. This finish is distinct from the scraping edge, as it is usually rather casual and is never, as is the scraping edge, chipped to a steep angle. Where a scraping edge is almost straight or slightly curved, the classification is admittedly difficult. In such a case the specimen is arbi-
be found in a man’s tool bag. Others may have been made for temporary use and immediately discarded afterwards. All the single-edged side-scrapers seem to belong to the latter category, while most of the double-edged scrapers belong to the former classification. The most common form has one concave scraping edge (Pl. 16, Figs. 1–5; Pl. 46, Fig. 21). Like the great majority of the single-edged scrapers these are un-worked flakes; only a few have been trimmed along other parts of the margin. This is also true of the two other types of single-edged side-scrapers, one with a convex scraping edge (Pl. 16, Figs. 6–10) and one with a straight scraping edge (Pl. 16, Figs. 11–15; Pl. 46, Fig. 22). The first is the more common of the two.

With few exceptions the double-edged side-scrapers, made of sturdy oblong flakes, are usually chipped along the entire margin. The chipped surface sometimes includes the entire upper face or a large part of it. The forms with two concave edges or with a concave and a convex scraping edge are most common. Among the double concave scrapers (Pl. 16, Figs. 16–20) we find the most carefully made side-scrapers in the entire collection. The two finest examples (Pl. 16, Figs. 16, 17) have a characteristic graceful shape, a worthy product of the artisans who made the delicate arrowpoints and inset blades. A number of carefully made concave-convex scrapers are also illustrated (Pl. 17, Figs. 1–6; Pl. 46, Fig. 23). The type is represented in its most characteristic form in Pl. 17, Fig. 1. The concave-straight scrapers (Pl. 17, Figs. 7–11) are irregular in shape, and only two (Pl. 17, Figs. 7, 10) have been trimmed on the surface. The classification of some of these specimens is rather problematic. For example, those shown in Pl. 17, Figs. 7 and 8, have some of the characteristics of the gravers, in which group they may possibly belong. The convex-straight scrapers (Pl. 17, Figs. 12–16) are more uniform in form than the preceding type. In average they are shorter than the other side-scrapers. The double-straight scrapers, that is, scrapers with two straight scraping edges (Pl. 17, Figs. 17–22), are also uniform in shape. They are made from long, slender flakes which occasionally were chipped on the surface as well as along the margin (Pl. 17, Figs. 17–19).

Sidescrapers, if one may judge from their quantity and their great range in form, are one of the important elements of Ipiutak culture. It is therefore rather surprising that sidescrapers are relatively infrequent in the Eskimo culture and occur only in simple, unspecialized forms. The inexhaustible supply of excellent material available around Point Hope is an obvious explanation for the importance of the Ipiutak flint industry. However, the flint industry continued to play an important role through subsequent culture stages in northwestern Alaska, probably more important here than in any other part of the Eskimo region, but in none of these periods do we find the variety of forms excavated at Ipiutak. Slate points and knife blades succeeded most of the flint forms, but several forms of scrapers gradually disappeared. A few forms of sidescrapers are known from other regions where flint occurs, for example in Greenland, but none of these forms has been reported from Southampton Island. It is significant that outside northwestern Alaska, an early culture phase like the Old Bering Sea shows most resemblance to Ipiutak in its sidescrapers. As a whole the Old Bering Sea specimens are cruder and are more standardized. Single and double-edged scrapers occur in this culture phase, and, as in Ipiutak, concave scraping edges seem to be prevalent. As in Eskimo culture as a whole, the tendency in these scrapers is to range from complexity to simplicity. In Alaska south of Bering Strait few sidescrapers comparable to those described here have been found. This lapse may be attributable to the absence of proper material. In the collections from Port Möller in this museum are a number of sidescrapers with straight or convex edges, but these have not modified into a standardized shape. Some of the Ipiutak forms of sidescrapers have survived in northwest Alaska up to recent times. In the Jabbertown house we found a double-straight scraper (Pl. 95, Fig. 14), and the collections from Point Hope in the museum, probably from the Old Tigara ruins, include sidescrapers with concave, double-concave, concave-straight, and convex-straight scraping edges (60-7323). The later form also occurs in the collections from Cape Smythe which are of approximately the same age as the material from Old Tigara (60.1-622). The baleen shave

1 In Pl. 16 the specimens numbered 1 to 15 have the scraping edge to the right.

2 Collins, 1937, 150–155 and Pl. 41, Figs. 15–21.
with a notch at each end, which is still used at Point Hope, is probably a later development of the double-concave sidescraper. In the east, sidescrapers occur in the Dorset culture and in Greenland. Concave scrapers from the Dorset culture and from Greenland have a common feature shared by one of the Old Bering Sea scrapers, in that part of the margin forms the scraping edge and the remainder forms a sort of short handle.

**Endscrapers**

One short, usually convex margin forms the scraping edge of the endscrapers. The amount of chipping on the remainder of the margin varies. Some scrapers (Pl. 18, Fig. 1) have very fine chipping along the entire margin; in others (Pl. 18, Fig. 2) the fine chipping is confined to the scraping edge, while the shaping of the rest is haphazard. Along the edges chipping is always produced by pressure flaking; the remaining surface is usually shaped by percussion flaking. In some cases (Pl. 18, Fig. 11) both techniques are used, and in a single case (Pl. 18, Fig. 15) the original surface of the boulder is untouched except for the edge. The plane of fracture, which is more or less concave on the reverse side, is left untouched. We have divided the endscrapers into four easily recognized types (Fig. 25). Type 1 is the well-known snub-nosed form (Pl. 18, Figs. 1-5; Pl. 46, Figs. 24-25). They are made from relatively short, stout flakes, thickest near the scraping edge where the flake is chipped to a very steep angle, in some cases almost 90 degrees. The scraping edge is always convex, but varies from almost straight (Pl. 18, Fig. 5) to semicircular (Pl. 18, Fig. 3). The scraper shown in Pl. 18, Fig. 1, with the gradually tapering butt is the most common form; next in frequency are the oval or subangular (Pl. 18, Fig. 2) and the long slender forms (Pl. 18, Fig. 4). The only examples of the two extreme forms with the flaring sides are illustrated in Pl. 18, Figs. 3 and 5. They have probably all been hafted and were used in that region up to modern times in the same way as the endscrapers. We conclude the handles were made of wood because none were found. This type of endscraper is one of the most widespread elements of Eskimo culture.

Eight specimens, quite different from those just described, form a separate type. These scrapers, Type 2, are made from long, thin, slender flakes and have a short, curved scraping edge (Pl. 18, Figs. 6-10; Pl. 46, Fig. 26). They are chipped along either the entire margin or a

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1 Mathiassen, 1930b, Pl. 15.
2 Wintemberg, 1940, Pl. 6, Fig. 2; 33-34.
3 Solberg, 1907, Pl. 2.
4 Collins, 1937, Pl. 41, Fig. 22.
major portion of it, but the dorsal surface retains only the scars of the primary percussion flaking. They were probably used without a handle, possibly to work ivory, antler, and wood rather than as a skin scraper. To judge from the carefully chipped long margins, the two scrapers shown in Pl. 18, Figs. 7–8, could also have been used as sidescrapers. Oblong, thin endscrapers like these are known from the Dorset culture.1 A number of aberrant forms deviate from the ordinary endscrapers in having a slanting scraping edge. Of 58 specimens, 48 have an edge slanting to the right (Pl. 18, Figs. 11–15; Pl. 46, Fig. 27) and 10, an edge slanting to the left (Pl. 18, Figs. 16–20). Pl. 18 shows the range of variation in shape as well as in workmanship. Some specimens, such as those shown in Figs. 11, 16, and 17 of this plate, are chipped not only along the edges but also on the outer surface; the inner surface is invariably untouched. A double scraper with a slanting edge in each end is shown in Pl. 18, Fig. 14. In addition, this scraper and the one illustrated in Pl. 18, Fig. 20, have a long, concave margin chipped to a steep angle and could also have functioned as a concave sidescraper. In this respect, they resemble what we have called end-sidescrapers (Pl. 20, Fig. 6) with which they can be grouped. It is doubtful whether these scrapers with slanting edges have been hafted. We are inclined to believe that they have been used to work wood and bone rather than skin. Endscrapers with slanting edges are rare among Eskimo finds, but both of the two forms described here occur in West Greenland.2

Gravers

Gravers constitute the third of the three main groups of unifacially worked flint tools. This group as a whole contains more “finished” tools than any of the others. Not only are they chipped along the entire or larger part of the margin, but most of them have also been worked on the outer surface (Fig. 26a–d). We have classified them as gravers because it seems that the craftsman has made an effort to produce a strong, sharp point. Some, with one or two long margins chipped to a steep angle, could also be used as sidescrapers. The criterion for the classification of the gravers is the chipped point, but the distinction between the sidescrapers and the gravers is not always clear. We assume that this tool was used to work ivory, antler, bone, or wood, for gouging out holes, grooves, etc. It could also have been used to engrave the simple line decorations found on weapon shafts, but the point is too crude for making finer decoration.

In order to simplify the description we have divided the gravers into four “types,” which are merely different forms of the same implement. Transitional forms, especially of Types 1 and 2, occur. Type 1, the most common form, is made from long, slender flakes, curved in two planes (Pl. 19, Figs. 1–6; Pl. 46, Fig. 28). Type 2 is made from short broad flakes, but is otherwise like Type 1 (Pl. 19, Figs. 7–12; Pl. 46, Fig. 29). The gravers of Type 3 are extremely slender and pointed at both ends (Pl. 19, Figs. 13–15). In some, like that shown in Pl. 19, Fig. 14, the points are turned in opposite directions. Type 4 is also very slender, but in contrast to the other forms is straight and curved in only one plane (Pl. 19, Figs. 16–18; Pl. 46, Fig. 30).

Very few gravers have previously been reported from the Eskimo area. Collins mentions 11 specimens from the Old Bering Sea phase on St. Lawrence Island, but they are, on the whole, cruder than the Ipiutak forms.3 Gravers similar to those found at Ipiutak were in use at Point Hope and probably all of northwest Alaska, at least until the western Thule phase (Pl. 95, Fig. 12).

Rare Forms

In addition to the three main groups of unifacially worked flint tools, a number of forms occur with less frequency. Some are definite types, while others, of which only one or two specimens were found, might be more or less accidental. As indicated by their names, spatula-shaped scrapers (Pl. 19, Figs. 22–24; Pl. 46, Fig. 31) and S-shaped scrapers (Pl. 19, Figs. 19–21) are actually sidescrapers of a peculiar form. They are chipped along two margins, the spatula-shaped scraper also on one surface (Fig. 26e–f). The shape of the latter is reminiscent of the concave sidescrapers with a “handle” which occur in the Old Bering Sea phase, in the Dorset culture, and in West Greenland (see p. 108). Twelve specimens have been classified as oval

1 Wintemberg, 1940, Pl. 2, Fig. 2, and 26.
2 Solberg, 1907, Figs. 4, 5.
3 Collins, 1937, 150 and Pl. 41, Figs. 8–14.
scrapers (Pl. 20, Figs. 1–2). These are stout, curved flakes chipped along the entire edge and on the outer surface. One long margin and one or both ends have been chipped to a steep angle which might indicate that they were used as sidescrapers as well as endscrapers. Seven of these have a little sharp point at one end.

Far too little consideration has been given to the retouched flakes, the most numerous group of implements found at Ipiutak. This designation includes all the flakes that have marks of pressure flaking along one or more margins, but are too indefinite in form to be classified. They have undoubtedly been briefly used as scrapers and knives and then discarded. They occur in virtually all the houses and in 10 of the graves. What we have termed used flakes are raw flakes which are unintentionally retouched on one or more margins as the result of use or wear.

**HOUSEHOLD UTENSILS**

One of the most striking differences between the Ipiutak material and finds from other parts of the Eskimo territory is the absence of any traces of stone or earthenware lamps and cooking pots. In an archaeological report we usually cannot lay too much stress on the significance.

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**Fig. 26. Gravers and scrapers.** a–d. Gravers. a. Type 1. 60.2-2944, H45. b. Type 2. UA, H68. c. Type 3. UA, H35. d. Type 4. 60.1-7998b, H16. e. S-shaped scraper. 60.1-7999a, H16. f. Spatula-shaped scraper. 60.1-8308k, H3.
of the absence of culture elements, as such an absence may be accidental; in this case, however, we feel justified in doing so. In the first place, when stone and pottery implements occur in any prehistoric culture these two items are preserved even when everything else has disintegrated. In the Ipiutak houses, where we might expect to find at least fragments of lamps and cooking pots, the state of preservation was generally good, except for perishable materials like wood and skin. However, out of about 7000 specimens not a single fragment was identified as either a clay or a stone vessel. Five small potsherds found in two burials containing Ipiutak artifacts are probably intrusive, as they came from very shallow grave deposits in an area where people have camped repeatedly long after Ipiutak times, so that does not disprove our belief that pottery was not used by the Ipiutak people. The elimination of pottery does not, of course, exclude the very slight possibility that they used stone lamps or hollowed-out stones, which were so precious to them that they always were careful not to abandon them with the house. In any case, a primitive stone lamp, a hollowed partially shaped boulder, was found in association with other artifacts that did not belong in the Ipiutak culture proper but in the closely related Near Ipiutak phase. There is hardly any doubt that if any lamps were used by the Ipiutak people, they would have been made of stone and would have been used for illumination rather than for heating and cooking, since fireplaces for these purposes are common to all Ipiutak houses. The occurrence of a stone lamp in the Near Ipiutak phase supports Birket-Smith's theory of the antiquity of the stone lamp in Eskimo culture. In this connection, it is worth mentioning that stone lamps were also found at Ambler Island on the upper Kobuk. Knowing this, we must revise Collins' statement that

in all of Alaska above Norton Sound, and very likely for some distance below, there were originally no stone lamps of any kind.

The lack of any traces of stone or earthenware cooking pots leads us to ask, how did the Ipiutak people cook their food? If they had no fire-resistant vessels, they could have used wooden or birchbark vessels in which they brought water to a boil by dropping in hot stones. No traces of wooden cooking vessels were found in the Ipiutak houses, but that can be explained by the poor conditions for the preservation of wood. We know that wooden vessels were used, because we found an oblong, flat tray in House 37, so badly decayed that it was hopeless to try to preserve it. Therefore, the question as to whether or not they had wooden cooking vessels must be left unanswered for the moment, but we are certain that they had birchbark vessels. In three houses, Houses 15, 49, and 65, in which wood for some unknown reason was better preserved than in the rest of the houses we found pieces of birchbark cut straight on either two or four edges, with rows of holes, indicating they they had been sewed (Pl. 23, Figs. 7–8). They were probably fragments of walls of containers with a round or oval wooden bottom and with vertical sides made of a rectangular piece of birchbark bent around the bottom, similar to those used by most Eskimos but made with thin wooden or baleen walls. Vessels of this type with wooden walls were used with hot stones for cooking by the Utorgarmiut. It is not at all impossible that the Ipiutak vessels are the prototype of the characteristic and widespread Eskimo wooden and baleen vessel.

It is very likely that the method of heating water with hot stones was used. Usable pebbles were plentiful in the houses, but as they were in no way worked it was impossible to distinguish them from other pebbles in the floor layers since all of them were coated with black grease. This widely distributed method of cooking with hot stones was used by the Nuna-rgamiut, on the Pacific Coast, and probably also in other parts of Alaska. Another possible method of preparation of food, which may have been used by the Ipiutak people but for which we have no evidence, is to roast on a flat stone. This method is also employed by the Nuna-rgamiut and several other Eskimo groups living as far apart as West Greenland and the Aleutian Islands.

Lumps of pyrites found in 19 houses and in one grave make it fairly certain that this mineral was used to make fire (Pl. 23, Fig. 11). We

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1 Birket-Smith, 1929, pt. 2, 103.
2 Giddings, 1948, 119.
3 Collins, 1937, 345.
found no traces of firedrills; their absence, of course, may be accidental. On the other hand, charred wood is always better preserved than fresh, and as the majority of the houses contained at least some wood, there is reason to believe that the drilling method of producing fire was not known. This corresponds to the lack of evidence for the use of the bowdrill. Both methods of producing fire are widespread among the Eskimo.

The number of household utensils found at Ipiutak is surprisingly small. In addition to the few already mentioned, the collection contains seven ivory scoops (Pl. 23, Figs. 1–4; Pl. 48, Fig. 7), two antler spoons (Pl. 23, Fig. 5) possibly narrow spoons, two pointed, curved strips of antler which may be meat forks (Pl. 23, Fig. 10), three bird bone tubes which might have been drinking tubes, or, as has been suggested, needle cases (Pl. 23, Fig. 6; Pl. 48, Figs. 4–6). These specimens are too few and indefinite to be of great significance. It is worth mentioning, though, that the edges of the largest scoop (Pl. 23, Fig. 1) are sharpened as if they had been used as a scraper. This is the only parallel to the cup-shaped scrapers which are so common in the Arctic Whale Hunting culture.

CLOTHING AND PERSONAL ADORNMENT

The collection from Ipiutak provides no hints as to the costume of the Ipiutak people. We take it for granted that they dressed in fur, and we can be fairly certain that caribou skins were preferred. The large number of skin-dressing tools recovered indicates considerable attention to the preparation of skins. Judging also from the extremely fine needles, which were more abundant at this site than in any other known excavation in the Eskimo area, we may assume that, whatever its form, the costume was carefully made. We are left completely in the dark as to the pattern of the garments, but we have neither evidence nor reason to believe that they were very different from those of the modern Eskimo who still wear native clothing.

Included in the collection are a number of ivory and antler objects which may have been attached to garments for either practical or ornamental purposes. Some of these (Pl. 24, Figs. 26–28; Pl. 48, Figs. 2–3) have been interpreted as buttons. One (Pl. 24, Fig. 28) resembles a belt fastener from the Okvik phase; another has parallels in both the Okvik and the Old Bering Sea phases. As possible attachments to belts, we have suggested the otherwise unidentified rings (Pl. 28, Figs. 24–25). These may have been used in connection with hooks, for instance like that illustrated in Pl. 27, Fig. 3. We are even more uncertain as to the purpose of a number of ivory and antler objects which we have tentatively classified as ornaments and ornamental bands. Some of them may have been sewed or tied to garments; others are grouped with these merely on the basis of their similarity in shape.

Of the six specimens, all from the houses, that have been classified as ornaments, three are of a shape somewhat similar to the ornamental plates found in Northeast Greenland (Pl. 24, Figs. 22–24), and three resemble buttons (Pl. 24, Fig. 25).

ORNAMENTAL BANDS

The ornamental bands, most of which were found in the graves, have been divided into two types. Of these, Type 1 constitutes a fairly homogeneous group, while Type 2 consists of a number of ivory strips with incised or openwork decoration. Both types vary a great deal in shape, and some of them have probably not been attached to clothing. The majority of the Type 1 bands are made of antler (Pl. 27, Figs. 15–18; Pl. 50, Figs. 3–5). They have small holes that seem to have been designed to facilitate their attachment, by tying or sewing, to some object. They were often found near or on the legs of the skeletons, indicating that they may have been attached to the lower part of the coat or pants. On the other hand, it is equally plausible that they were fastened to a quiver, a tool bag, or some other object made of perishable material.

Most of the Type 2 bands are made of ivory and were undoubtedly intended for decorative purposes (Pl. 26, Fig. 19; Pl. 51, Figs. 1–12). All except two (Pl. 51, Figs. 1, 11) have one plain

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1 Rainey, 1941a, Fig. 23, No. 10.
2 Ibid., Fig. 23, Nos. 11–12; Collins, 1937, Pl. 58, Fig. 3.
3 Larsen, 1934, Pl. 10, Fig. 19; Pl. 15, Fig. 7.
ornaments are described. We pose work on conventionalized bird to fined in position. We show people in Pl. 51, Figs. 2, 5, 69, and smaller side by side; not exclude that houses. Ipiutak between Island to attached the houses. Undecorated in the same grave. They are rough on the concave side; the reverse side is polished and completely covered with incised decoration, which will be described later (p. 136). The two small holes in each end of these two pieces and a row of still smaller holes along one of the edges of that shown in Pl. 51, Fig. 5, indicate that they were attached to some other unknown object. The position in which they were found, lying side by side near the hip of an adult, offers no further clue. Undecorated and apparently unfinished bands like these also occur in the houses. We have no explanation to offer regarding the objects shown in Pl. 51, Figs. 1 and 11, except that the latter, which has a sharp, slightly curved edge, may have been used as a scraper.

**Snow Goggles**

Four snow goggles were found, two in the houses and two in the graves (Fig. 27). Of the two complete specimens (Pl. 24, Fig. 14; Pl. 48, Fig. 1), both of ivory and decorated on one side, that illustrated in Pl. 24, Fig. 14, is of particular interest because of its round eye holes. Usually snow goggles have one or two narrow slits, but we know of few specimens with round eye holes, among them one wooden example from the Caribou Eskimo and one of ivory from the Okvik phase. Furthermore, the latter is decorated with scratchy designs in which we find the same element, a dot and circle with long radiating lines, as in the Ipiutak specimen. If we take into consideration the fact that the two houses (Nos. 11 and 69) in which snow goggles were found are the same that yielded the two rare forms of harpoon heads (Pl. 5, Figs. 15, 16), which we believe are intrusive in the Ipiutak culture, we must consider the possibility that snow goggles are also intrusive. Other facts seem to point in the same direction. The goggles shown in Pl. 48, Fig. 1, for instance, were found in Burial 25 with two harpoon socket pieces (Pl. 38, Figs. 6, 7). These are decorated in typical Okvik style and are of a form different from other Ipiutak socket pieces, but known from St. Lawrence Island. Burial 79, in which the fourth specimen of snow goggles was found, also yielded an adze head of the rare form with a slot in the center (Pl. 44, Fig. 4) and a flaker handle of Type 2 (Pl. 43, Fig. 16), both of which are associated with the Near Ipiutak and other cultures. We do not have conclusive proof, but there are indications that snow goggles were introduced into the Ipiutak culture from some other contemporary culture, probably an early phase of the Arctic Whale Hunting culture.

Of personal adornments we have 28 strips of antler and ivory which we have interpreted as brow bands. With one exception they were found in the houses (Pl. 24, Figs. 15–21; Pl. 50,

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1 Nelson, 1899, Pl. 64, Figs. 18 and 22, Fig. 45, Nos. 6 and 7; Ivanov, 1930, Pl. 2, Fig. 2; Pl. 4, Figs. 3–13.
2 Nelson, 1899, Fig. 45; Ivanov, 1930, Pl. 4, Figs. 14–15.
3 Boas, 1901, Fig. 159c.
4 Rainey, 1941a, Fig. 17, No. 12.
Fig. 2). Most of them are ornamented on the outer surface, but except for the style of decoration they differ in no respect from ordinary Eskimo brow bands. The pin illustrated in Pl. 50, Fig. 1, was found near the head of an articulated skeleton and might be a hair pin. It is the only one found at Ipiutak; no others are known from Eskimo territory.

Labrets

The discovery of labrets is very interesting and rather surprising as they were generally believed to constitute a late element in the Eskimo culture of arctic Alaska. We do not know how commonly labrets were used by the Ipiutak people, but even though a very small number were found, six complete and one incomplete labret, we cannot draw the conclusion that they were scarce. From several accounts of the historic Eskimo of that area, we know that labrets were considered too precious to be buried with the owner; furthermore, we have additional evidences of their use at Ipiutak. The most obvious are the round jet insets in the two mask-like sets of ivory carvings (Pls. 54, 55). Suggestions of labrets are also clearly visible in the carvings of human faces (Pl. 25, Figs. 1, 4, less so in Pl. 25, Fig. 3, and Pl. 52, Fig. 2). They also occur as a characteristic element on most of the schematic faces incised on the antler tubes (Pl. 76, Fig. 11), the ornamental band (Pl. 51, Fig. 6), the pendant (Pl. 50, Fig. 7), and the human head (Pl. 25, Fig. 3; also Text Fig. 28a–c). The mere fact that, with few exceptions, labrets are suggested on all representations of human faces found at Ipiutak leads us to conclude that they were generally used.

The next question that confronts us is whether they were used by men or women or by both sexes. In historic times only men wore labrets in arctic Alaska, but south of the Yukon there was no sex distinction. At Ipiutak labrets were found in three graves, but only the skeleton in one of these graves (No. 90) was sufficiently complete for the sex to be determined. When the size of the two labrets (Pl. 48, Figs. 11, 15) that were found near the mandible is considered, it is rather amazing to learn that the skeleton was that of a young girl, hardly more than 15 years old.¹ If she actually wore these, as their position in the grave seems to indicate, she must not only have had some ghastly holes in her cheeks, but have received her first labrets as a little girl. She can hardly have worn them constantly. It is possible that they were made in two parts to facilitate their removal and insertion. Another possibility, of course, is that she never wore them, but that they were inherited from her father or mother and were buried with her as her heirloom. The contents of the graves in which labrets were found do not offer any further clue. A Jabbertown burial (JB21), which yielded the other pair of labrets (Pl. 48, Figs. 13–14), also contained 20 arrowheads. These are usually an index of a male burial, but Burial 90, that of the girl just mentioned, also contained arrowheads. Unfortunately the sex of the small carved human heads and the schematic faces is also undeterminable. The incised lines on these faces, undoubtedly representing tattooing, remind us very much of the tattooing of Central Eskimo women, but we also know of Eskimo men tattooed with the same pattern (see p. 117). Though the proof is not conclusive, we believe that labrets were used by both sexes at Ipiutak.

While we have many indications of the use of two lateral labrets like the pairs from Burial 90 and Burial JB21, in the mask-like sets of carvings (Pls. 54, 55), in the small heads, and in most of the schematic faces, we have only rather inconclusive evidence of the use of one medial labret. The only evidence that can possibly be interpreted as such is a short horizontal line incised under the mouths of three of the schematic faces (Fig. 28). The two largest labrets (Pl. 48, Figs. 13, 14), in spite of their size, are definitely a pair of lateral labrets. In the first place they are identical in size and shape; furthermore the inner flange is not sufficiently curved to fit the chin. Again we may question whether they were actually worn. This is possible, even though it does not seem very likely, considering their size and their weight of 6 and 7 ounces, respectively. On the other hand large stone labrets were used in that region by the historic Eskimo. Nelson illustrates one of nephrite 3½ inches long and 1½ inches wide.² If these were not worn by the deceased, their presence in the grave, like so many other grave objects, arrowheads, swivels, etc., can be explained by

¹ Sex and age determined by Dr. Franz Weidenreich.
² Nelson, 1899, Pl. 22, Fig. 14.
the assumption that they were not utilitarian, but had some symbolic significance.

The distribution of the various types of labrets has been considered in detail by De Laguna. In the following, therefore, we can confine our discussion to the Ipiutak forms, their relation to other labrets, and their bearing on the distribution of Eskimo labrets. Characteristic of the labrets found at Ipiutak is the longitudinal decorative groove on the outer side. This feature persisted in arctic Alaska up to the late nineteenth century. Nelson obtained one at Hotham Inlet; a similar one of jade (0-546) is in the American Museum collection from Kotzebue, and a third rectangular specimen of soapstone (60.1-8758), 7 centimeters long, was found at Cape Smythe. Composite labrets have a wider distribution. Nelson illustrated an ivory composite labret very similar to the Ipiutak from the lower Yukon. It is undoubtedly a labret of this type that De Laguna describes from Yukon Island which, as were the Ipiutak specimens, was found "beside the head of a woman's skeleton." The composite labrets from Nunivak Island, King Island, and Point Hope described by Nelson, are quite different from those mentioned above, but might possibly be

1 De Laguna, 1934, 204.
2 Nelson, 1899, Pl. 22, Fig. 15.
3 Nelson, 1899, Pl. 22, Fig. 16.
4 De Laguna, 1934, 110.
5 Nelson, 1899, 46, 47, 48.

Fig. 28. Decorated antler tubes with schematic faces. a. 60.1-7452, B21. b. 60.1-7455, B21. c. 60.1-7451, B21.
later developments of the Ipiutak form. The occurrence of labrets in the Ipiutak culture naturally raises the question of their origin in Eskimo culture. De Laguna states that as far as the Eskimos are concerned, the labret came to them from the south, and dates from the oldest stage of culture in Kachemak Bay.¹

When this statement was published, it was the only possible conclusion, but the new finds in an unquestionably ancient culture to the north have created a new situation. There is undoubtedly a close connection between the Kachemak Bay and the Ipiutak cultures, and if the Ipiutak culture is the older, a diffusion of labrets from north to south is more likely. Though none of the smaller, hat-shaped, or button-like labrets was found at Ipiutak, they were very common among the historic Eskimo of arctic Alaska. It is possible, of course, that this type developed somewhere in the southern part of Alaska and spread from there to the remainder of the territory and the Aleutians. St. Lawrence Island is an exception. No labrets have been found there, in spite of the fact that it is one of the most thoroughly investigated localities in Alaska. It appears then that the labret was not an element of the Arctic Whale Hunting culture and that its occurrence in historic times at Cape Prince of Wales, Point Hope, and Barrow, all typical whale hunting villages, is either a survival from the Ipiutak culture or a late introduction from the south or from the interior. Several facts argue in favor of the latter conclusion. No labrets were found in Point Hope graves of the Birnirk, Thule, or Tigara phases, or in the Jabbertown house. Even if labrets were seldom buried with their owners, it is strange that not a single example was found in the hundreds of Tigara graves that were opened. It appears very much as if they became obsolete for a long intermediate period. On the other hand, in historic times we do find labrets of a similar shape and with exactly the same decorations as the Ipiutak specimens, proving that the tradition must have been carried on by some group. As these particular labrets were found or purchased in the same general region, we conclude that they could have been continuously in use among the Nunatarmiut, who, according to Nelson, wore large labrets.² Their origin still remains obscure. Labrets have been found in Kamchatka and the Kurile Islands, but the line of diffusion may have been from east to west by way of the Aleutians, as Collins has suggested.³

**Tattooing**

The small, carved human heads, and the schematic faces mentioned in connection with the labrets bear evidence of another style of personal adornment used by the Ipiutak people, namely, tattooing. Across the faces of five of these heads are incised lines which can only be interpreted as tattooing, one of the four elements of the schematic faces. The patterns vary somewhat from face to face, but one element, the cheek lines, is always present. These vary in number from one to four, usually extend from the nose to the ears, but are sometimes shorter. The face shown in Pl. 52, Fig. 3, for instance, has three short lines in the middle of the cheeks. If there are several lines, they are always parallel; in most cases the lines are horizontal, but slanting cheek lines are not infrequent (Pl. 52, Fig. 1; Text Figs. 28c, 29). A single, unbroken line across the face is shown in Pl. 25, Fig. 3, a feature which also occurs in several of the schematic faces (Fig. 28a–c). In one case (Fig. 28b) the distal end of the line is forked. In addition

¹ De Laguna, 1934, 206.
² Nelson, 1899, 49.
³ Collins, 1937, 376.
to two parallel cheek lines, the face illustrated in Pl. 25, Fig. 1, has one long, curved line on each side extending from the alares to below the ears. In one of the schematic faces on the ornamental band (Fig. 38) broken lines separate two solid lines. Unlike most of the schematic faces, only one of the heads (Pl. 25, Fig. 3) has a nose line, a vertical line along the ridge of the nose. As may be seen on Pl. 25, Fig. 3, as well as on many of the faces, the nose line is forked from the root up, producing a Y-shaped figure (Figs. 28b–c, 29). Occasionally the nose line is broken near the upper end by a short horizontal line (Fig. 28b–c). Tattoo lines are also found at the corners of the eyes and the mouth. Eye lines occur only on a few of the schematic faces, in the form of indistinct, short or arrow-shaped lines (Fig. 28c). Arrow marks are also found around the mouth (Fig. 28c). Three short lines extending from the corners of the mouth and one vertical line in the center of the chin may be seen on the face in Pl. 25, Fig. 4. Above the cheek lines each side of the face shown in Pl. 52, Fig. 1, has a spurred ellipse, one with a dot in the center, and below each is a trident-shaped figure, the same motive Nelson has called a raven totem.  

Tattooing was formerly practiced by all the Eskimo, but in most groups the custom has died out. Judging from studies of living Eskimo, facial tattooing, the only form here under consideration, was confined to women. Though the reports of men with facial tattooing are rare, there are reasons to believe that in prehistoric times facial tattooing among men was more common than it is now. It is difficult to conceive that the numerous examples of tattooed faces and the great variation in pattern found in the Ipiutak collection should all represent women. Furthermore, archaeological collections from other parts of the Eskimo territory contain carved faces, undoubtedly male, bearing indications of tattooing. One is from Cook Inlet and another from East Greenland. From the intermediate area we have accounts of facial tattooing of men from Bering Strait, Barrow, the Mackenzie River, Baffin Island, and Labrador, demonstrating that this trait is not a local phenomenon, but rather an element of the basic Eskimo culture which for some reason disappeared in most places earlier than the face tattooing of women. Is it possible to determine the sex of the tattooed Ipiutak faces? Both the cheek lines and the lines at the corners of the mouth that occur on all Ipiutak representations of faces have undoubtedly been used interchangeably by both sexes. However, the nose lines, especially the characteristic Y-shaped figure, are found only on women’s faces. It is possible that we can use these for identification.

When we compare the tattoo patterns of the Ipiutak people with those of the historic and prehistoric Eskimo, we note that all the Ipiutak elements occur in some part of the Eskimo territory. Beginning in the north, we have already mentioned the double-faced ivory carving from Yukon Island II, Cook Inlet, each face, a male and a female (?), with two slanting lines (cheek) such as are shown in Pl. 52, Fig. 1. In Sauer’s report of Billing’s journeys, 1785–1794, we find the picture of a man from Kodiak with several curved lines across the cheeks and the bridge of the nose. From the Aleutians we have Webber’s drawing of a woman from Unalaska with two curved, spurred cheek lines. According to Nelson, the women of Nunivak Island had “straight lines on their cheeks,” and the women on the mainland, south of the mouth of the Yukon, had “a pair of lines across the chin from each corner of the mouth.”

We have additional archaeological evidence from St. Lawrence and the Punuk Islands in the form of carved human figures with two short lines or a single dotted line across the cheeks from the Okvik phase, a head with seven slanting lines on each cheek, probably attributable to the Old Bering Sea phase, and a woman’s head with three horizontal lines from the Punuk phase. A human figure from northeast Asia, probably belonging to the Okvik phase, has a cheek and nose line very much like that in Fig. 28. The elaborate facial tattooing of present-

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1 Nelson, 1899, 324–325, Fig. 116.
2 De Laguna, 1934, 115.
3 Thalbitzer, 1914, 636.
4 Gordon, 1906, Pl. 9.
5 Murdoch, 1892, 139.
6 Stefansson, 1914, 168.
day Asiatic Eskimo women, on the mainland as well as on St. Lawrence Island, is unique for the Eskimo but similar to that of some of the Maritime Chukchee. It is probably a local development of an original simpler pattern, for upon analysis we find that it includes most of the basic design elements known among other Eskimo. Some of the Reindeer Chukchee women are also tattooed. According to Bogoras, "childless women tattoo both cheeks three equidistant lines running all the way around." In the Bering Strait region, as already mentioned, we find facial tattooing on men as well as women. Common to the Asiatic Eskimo and the Maritime Chukchee of both sexes are two concentric circles near the corner of the mouth, possibly a reminder of the earlier use of labrets. The Diomedes men also have V- and Y-shaped figures in the corners of their mouths (cf. Fig. 28b). The St. Lawrence man just referred to also has two short horizontal eye lines (cf. Fig. 28c), and the Diomedes man a cross-shaped mark on the upper part of each cheek, reminiscent of the trident figure shown in Pl. 52, Fig. 1. Murdoch reports from Barrow that one or two men had a narrow line across the face, over the bridge of the nose (Fig. 25, Fig. 3; Text Fig. 28). M'Clure reports the same from Cape Bathurst. From the same region we have other accounts of men with horizontal tattoo lines across the face. Petitot says that a man who has killed an enemy has two or three blue lines tattooed across his face, and Franklin notes that the Eskimo living east and west of the Mackenzie can be differentiated by their tattooing: the men to the east of the river are tattooed across the face, while among the people west of the river only the women are tattooed (with the usual five to six lines under the lower lip). Stefansson, who cites several examples of men with tattoo lines reaching from the nose to a point below the ear, states that this style of tattooing was formerly common to both sexes.

at Kopuk, west of the Mackenzie.

Among the Central Eskimo facial tattooing is again confined to the women. Among them we find not only the most elaborate tattooing outside of St. Lawrence Island, but also the pattern which resembles Ipiutak most closely. In addition to the usual lines on the chin, they have the nose lines which form a Y-shaped figure, a number of cheek lines, mouth lines, and in some cases eye lines. The cheek lines of the Copper Eskimo "are parallel till about two inches from the nose, when they converge. In one case they do not meet." Eye lines in the form of a row of "arrows" are found among the Copper and Netsilik Eskimo (cf. Fig. 28c). The number and shape of the cheek lines vary, but in most cases they converge at the nose and sometimes at the ears. Among the Baffin Islanders, we find two or three parallel lines across the cheeks or one line split into three near the ears (cf. Fig. 28a-c). In Baffin Island and Labrador, we again find facial tattooing among men, as illustrated by Hawkes. The Baffin Islander has a V or Y in each corner of the mouth; the Labradorian has nine short lines in groups of three extending from the lower lip. The tattooing of the women on the east coast of Hudson Bay is similar to that of the Caribou, Iglulik, and Aivilik Eskimo. The main difference is that the lines across the face converge at the corner of the mouth instead of at the nose.

In West Greenland, facial tattooing has not been practiced for a long time, but we know from Olearius' description of two women who were brought to Denmark in the middle of the seventeenth century, that they had a line passing from the bridge of the nose above both eyes and toward the temple, where it divided in the shape of a Y. Below the eyes there was a similar line.

In addition, the chin was tattooed with vertical lines, suggesting that the facial tattooing of the

1 Bogoras, 1904–1909, Fig. 186b, c, f, g, h.
2 Ibid., 254.
3 Nelson, 1899, Fig. 15a–b; Bogoras, 1904, Fig. 186b–c, f–i.
4 Gordon, 1906, Pl. 9, Figs. 3, 6.
5 Ibid., Pl. 9, Fig. 6.
6 Murdock, 1892, 139.
7 M'Clure, 1855, 93.
8 Petitot, 1876, xxxv.
9 Franklin, 1828, 120.
10 Stefansson, 1914, 349, 378.
11 Ibid., 168.
12 Ibid., 233.
13 Ibid.; Boas, 1907, Figs. 157d, 267c; Birket-Smith, 1929, pt. 1, 135.
14 Boas, 1907, Figs. 157, 167; Birket-Smith, 1929, pt. 1, Fig. 88; Mathiassen, 1928, Fig. 157.
15 Boas, 1888, Figs. 515, 535; Hawkes, 1916, Fig. 31c.
16 Boas, 1907, Fig. 169.
17 Hawkes, 1916, Fig. 32a–b.
18 Ibid., Fig. 31a–b.
19 Birket-Smith, 1924, 215.
women in West Greenland was very similar to that of the modern Central Eskimo. In East Greenland facial tattooing was still in vogue in 1884 when Gustav Holm, the first white man to reach Angmagssalik, reported that nearly all the women are tattooed, having a couple of short lines between the eye-brows and just below the root of the nose, and also a few short lines on the chin.\(^1\)

The short lines to which he refers are undoubtedly the remains of the Y-shaped nose lines, one or more cheek lines, and the usual lines on the chin. The double-faced wooden head found in a grave in Angmagssalik Fjord\(^2\) supports our assumption. The carving probably portrays a man and a woman. Thalbitzer is undoubtedly correct in interpreting the carved furrows covering part of the face as tattoo markings.\(^3\) Among the lines on the man’s face we recognize seven parallel cheek lines sloping downward from the ridge of the nose and five curved lines on the woman’s face, as well as nose lines spreading out over the forehead. The deep furrows with which Angmagssalik masks, dolls, and \textit{tupilait} are decorated probably also have their origin in tattoo marks.\(^4\)

These examples demonstrate that the elements composing the Ipiutak facial tattoo patterns are distributed throughout virtually the entire Eskimo territory. The only widespread element that is not represented in the Ipiutak finds proper, the characteristic vertical lines on the women’s chins, occurs in the closely related Near Ipiutak culture phase (Pl. 81, Fig. 17).

**Combs**

The complete absence of combs at Ipiutak undoubtedly signifies that this culture trait, common to most phases of Eskimo culture, was not an element of the Ipiutak culture. The huge number of specimens and their state of preservation eliminate any reasonable possibility that the absence of combs is accidental. In this connection it is interesting to point out that combs were also not present among De Laguna’s extensive and ancient finds at Cook Inlet.

**Objects relating to intellectual culture**

In the preceding we have attempted to present a picture of the material culture of the Ipiutak people based on the artifacts excavated from house pits and graves. Occasionally we encountered objects which apparently had some bearing on the intellectual culture as well. We also excavated numerous specimens that had no obvious practical purpose, but were related to the mortuary customs or to the spiritual life of these people. The majority of these objects were excavated in the burials, surprisingly few in the houses. Their great number and their strange character so distinguish the grave finds that, were it not for the few examples from the houses, we would be inclined to regard the village and the cemetery as the remains of two different cultures.

The interpretation of the objects uncovered is extremely difficult, largely because of the dearth of comparative material. This is especially true of the large number of pieces which, for lack of a better designation, we have grouped under the term openwork carvings. Even though we cannot offer any adequate or final interpretation for these openwork carvings, which have no duplicates in any other area, we feel justified in considering them with this group, first, because all, except for one series, had no practical purpose and, second, because they were almost exclusively found in burials. Our description will proceed from the identifiable to the more uncertain objects.

If the many traits the ancient cultures of Point Hope have in common with those of the Cook Inlet-Kodiak area be considered, it is not surprising that skulls with artificial eyes, previously reported from that region, also occur at Ipiutak.\(^5\) A skull with large, round, artificial eyes with round holes for pupils was also found at Monte Alban, Mexico.\(^6\) Pl. 98, Figs. 1 and 2, illustrate two of the skeletons with artificial eyes.\(^7\)

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\(^1\) Holm, 1914, 28.
\(^2\) Thalbitzer, 1914, Fig. 356.
\(^3\) \textit{Ibid.}, 636.
\(^4\) \textit{Ibid.}, Figs. 357–358; Mathiassen, 1933, Fig. 62c. Compare the wooden mask of the Baffin Islanders, Qailertetang, Boas, 1888, Fig. 535.
\(^5\) De Laguna, 1934, Pl. 51, Figs. 14–16; Hrdlička, 1944, Fig. 41.
\(^6\) Caso, 1932, Fig. 6.
eyes, both found 75 centimeters below the surface. They were perfectly articulated, but the artificial eyes (Pl. 49, Figs. 10–11) were too large to fit the eye sockets, together with the real eyes, indicating that before the entombment these had been removed from the body and replaced with the artificial eyes. Burial 41 tells a different story. Here the remains of two bodies were found in a rectangular log structure, 120 by 50 centimeters. The bones were partly disordered, implying that either the burial was secondary or the bodies were dismembered before they were buried. That the latter is true is indicated by the disarticulation of the pelvic bones and the femurs. An artificial eye (Pl. 49, Fig. 9) found in Skull 41A differed from the others in being flat, deeply grooved around the edge, and with a slightly concave back that would fit over an eyeball, which probably means that it was buttoned into the eyelids over the real eye.

The artificial eyes from Cook Inlet and Kodiak Island, previously mentioned, are thin and curved and were probably also placed over the original eyeballs before the burial. Jet pupils, which were found in all the Ipiutak eyes, are also present in the Kodiak eyes. The round holes in the Cook Inlet eyes might have had a similar inlay.

It should be noted that not until the artificial eyes were found at Ipiutak did the Eskimo at Tigara recall any tradition related to the Ipiutak village and cemetery, a surprising circumstance, but probably indicative of the great age of the Ipiutak site. After the excavation, when the Eskimo saw the skeletons with their big, glaring eyes, the old people recollected that in the past parents used to warn their children not to stay out late at night as they might meet a man with ivory eyes! This is not only a demonstration of the antiquity of Eskimo tradition, but also indicates that there may be a basic grain of reality behind an apparently fantastic Eskimo tale.

Artificial eyes were not confined to human skulls. The skull of a loon (Pl. 49, Fig. 7) has artificial eyes. These eyes, like the rest, are made of ivory with jet pupils and are cylindrical with a narrow groove encircling the front part. A small ivory cylinder (Pl. 49, Fig. 8) was found near this skull and probably had some connection with it. The significance of the eyes and the loon skull will be discussed below. Some of the other artifacts found with the ivory eyes may have some bearing on their interpretation.

Two graves (Burials 41 and 21) are of special interest in this connection. The skull (Burial 41a) in which the eye (Pl. 49, Fig. 9) was found had two ivory carvings (Pl. 49, Figs. 5–6) in the nasal cavity. These have a bird-like head, inlaid jet eyes, engraved eyebrows, and a trident design between the eyes. A beautifully carved mouth cover (Pl. 49, Fig. 14) rested on the mouth. From the shape of the eye we assume that the skull was prepared before the body decayed, and a noseplug placed in each nostril. Holes in the ends of the mouth cover indicate that it was tied around the head. A similar mouth cover was found on Skull 99.1–110 (Pl. 49, Fig. 16), while a third (Pl. 49, Fig. 15) is of a different type and was not found with a skull.

The eyes, the noseplugs, and the mouth covers are undoubtedly related to the ghost cult, one of the most important features in Eskimo spiritual life. The noseplugs and the mouth covers are intended to close the body openings, a widespread custom which, for instance, occurs among the Finno-Ugrian people. It is possible that a mouth cover is a substitute for the practice of sewing up the mouth of the deceased. This assumption is based on the carving on the outer side of a mouth cover (Pl. 49, Fig. 14) which clearly represents a mouth with lips tightly closed. At the edge of both lips are small round holes; from each of these, engraved lines separated by shallow grooves radiate, giving an impression of wrinkles. The combination of lines and grooves leaves us with the impression that the lips are represented as sewed together. We find the same holes and wrinkles on the mouth cover illustrated in Pl. 49, Fig. 16, and on the mask-like set of ivory carvings (Pl. 54). These also appear in another set (Pl. 55), but there they are merely decorative. A mouth cover of gold from Tell Halaf, Syria, is strikingly similar in shape and ornamentation to the cover in Pl. 49, Fig. 14. Oppenheim interprets the small enamel inlays and lines as representing a mustache and explains the presence of the mouth cover on the skull as a protection against evil spirits entering the body. The Tell Halaf find contains another similar to Pl. 49, Fig. 14, and others are known from the Near East and farther west. The Ostyak cover the eyes, nose, and

1 Holmberg, Uno, 1927, 20–21.
2 Oppenheim, 1933, 193 and Color Pl. 3, Fig. 5.
mouth with coins or buttons as a protection against the ghost, a trait also known among the Eskimo. We do not know which of the two motives was the guiding principle at Ipiutak.

We meet the same difficulty when we try to explain the artificial eyes. Were they put in because of the fear that the glance of the deceased was evil? This is said to be the motive among the Eskimo and the Finno-Ugrian. Or were the eyes inserted to protect the deceased against evil spirits? When the effort involved in producing these realistic eyes is considered, the latter possibility seems to be the more likely. A third possibility may have been a desire to make the skulls as life-like as possible, and thereby more attractive to the ghost, corresponding to the treatment of skulls in various parts of Oceania.

That a loon's skull was treated like that of a human is not surprising when we consider the attitude of the Eskimo and most other boreal peoples towards animals. Numerous tales have been recorded relating the adventures of animals who were once human beings, and vice versa. The burial of animals in the same manner as humans is a widespread practice in northern Eurasia. A few examples will illustrate the variations.

If a Yakut finds a dead eagle or the skeleton of one he regards it as his duty to bury the bird on a special erection of wood, or in a tree, in the manner in which human beings, particularly shamans, were earlier buried. . . . With similar respect do the Tungus also treat shaman animals.3

The Yukaghir gather bear bones and put them on a scaffold "as was formerly done with honored dead people," and it was addressed as "grandfather" and a "great man." The Ostyak and Vogul also treat a dead bear as they would a human being. The skin, with the head resting on the forepaws, is placed on a scaffold.

Round pieces of birch-bark are sewn on to the eyes of the bear, or these are covered with silver or copper coins, and the nose is covered with a piece of tin-plate which is fastened from its sides by threads behind the ears.4

From the Ipiutak site we have another ex-

ample of an animal buried in the same way as a human. In Burial 109 a dog was buried in a tomb-like log structure with the head towards the west, exactly as in the human burials. Wedel reports the burial of a wildcat skull with copper eye insets from the Platte River. Like the eagle and the bear, the loon is also a sacred animal.

Among the Tungus, as among many other northern Siberian peoples, certain birds, water-fowl in particular, such as the loon, sea-gull, swan, crane, etc. are sacred.5

According to Jochelson, loons were the most common guardian spirits of shamans among the Yakut as well as among the northern Tungus. On the grave of a Tungus shaman, who died around 1800, were four posts, each with a wooden figure representing a loon.6 Among the Eskimo we also find that loons are related to shamanism. For instance, among the Copper Eskimo, caps with a loon's bill are part of the dance costume. At Barrow a loon's bill is tied to the forehead of a dancer. Fillets made of a loon's head, neck, and back were worn as part of dance costume at Kotzebue and at Sledge Island. That the loon had some special significance to the Ipiutak people is evident from the many ivory carvings representing loon heads that were found in the graves (Pl. 69, Figs. 2–8; Pl. 70, Figs. 9–11; Pl. 72, Figs. 5–6). These carvings, together with the loon head with the artificial eyes, demonstrate that the loon played a role in the religious beliefs of the Ipiutak people, but its real significance remains obscure. It may have represented a shaman's protective spirit, or it may have been considered an ancestor. The transition between these two concepts is, however, not great. As Holmberg remarks of the Finno-Ugrians:

It is not always easy to define the difference between shaman animals and such as are regarded as the forefathers or mother of a clan or a people.11

Whatever the correct explanation may be, the skulls with the ivory eyes and the dog burial lead us to conclude that the Ipiutak people, like

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1 Holmberg, Uno, 1927, 21; Weyer, 1932, 258.
2 Holmberg, Uno, 1927, 501.
3 Jochelson, 1926, 228 and Pl. 14.
4 Jenness, 1922, Pl. 1.
5 Simpson, John, 1875, 243.
6 Nelson, 1899, Fig. 145; 355, 416.
7 Holmberg, Uno, 1927, 500.
the modern Eskimo, did not draw any line of distinction between human beings and animals. It is possible that the small ivory cylinder found with the loon skull originally was fitted over the bird’s bill and thus served as a mouth cover, analogous to the bear with the mouth cover already mentioned.

Bearing this concept in mind, we may better understand a unique feature of the same grave (Burial 21). An ivory rod (Pl. 73, Fig. 1) lay against the inner surface of the lumbar and thoracic vertebrae and inside the four uppermost cervical vertebrae. The corpse was undoubtedly partly dismembered before interment, and an attempt was apparently made, after removal of the head, to push this rod down through the spinal canal. But it slipped out in the neck region and lay along the spine outside the vertebrae. To explain this strange procedure or, at least, to find a parallel, we have had to go as far afield as the Lapps who perform an elaborate bear ceremony. After the bear meat has been eaten, the vertebrae are threaded on a twig or wooden rod in the proper order, and the skull and the rest of the bones returned to their correct relative position. According to one source, the bones are covered with logs to prevent dogs and other animals from touching them. Other sources have it that the men dig a grave and place the bones in it.3

Despite the distance between the Lapps and the Eskimo and the fact that this is part of a bear ceremonial, we cannot dismiss the possibility that these two customs are related. In the first place, the Lapp culture is closely allied to that of various northern Siberian tribes among whom are several points of resemblance with the Ipiutak culture. We have already noted how bears are frequently treated like humans, and four perforated jaws of brown bear found in Ipiutak burials (Pl. 48, Fig. 16) indicate that the Ipiutak people, too, had some form of bear cult.

Burial 21 offers an additional example of the Ipiutak concept of humans and animals. In Pl. 98, Fig. 3, are shown four curved antler tubes on the body. One has been removed so that the ivory rod mentioned above is visible. All the tubes have anthropomorphic or zoomorphic figures incised on the surface; two also have geometric designs. Figs. 28 and 29 show that schematic human faces are the most frequently repeated motive. Some of the faces, like that in Fig. 28b, with realistic eyes and an open mouth with teeth are easily recognized as such; the others are more or less conventionalized, but have some or all of the following features: eyes, nose, mouth, tattoo marks (p. 116), and labrets. As already mentioned, similar faces occur on the ornamental band (Fig. 38a), on the pendant (Pl. 50, Fig. 7), the human head (Pl. 25, Fig. 3), on a fragmentary tube and a piece of walrus tusk from House 9. The significance of these schematic faces is not known, but attention should be drawn to their resemblance to the petroglyphs from Alitak Cape on Kodiak Island, illustrated by Hrdlička.4 The majority of these also represent human faces, not outlined, and consist of eyes, nose, mouth, and labrets, as do the Ipiutak faces. We also find the characteristic Y-shaped figure on the nose and forehead. The nose on some of the Kodiak figures ends in a circle, for which we have no parallel at Ipiutak. With the Kodiak petroglyphs as an intermediate link, there seems to be some relation between the schematic faces of Ipiutak and the petroglyphs from southeastern Alaska4 and British Columbia.5 One of the Kodiak faces has circular eyes like those from farther south, and the same design represents the nose and eyebrows in all three localities. The main difference between the Kodiak and the British Columbia pictographs is that the faces of the latter are outlined and are usually part of a complete figure.

Another interesting feature of the tubes is that one of the apertures in two of the tubes has been incised to represent an animal head with an open mouth. A third tube has suggestions of the same treatment, but is apparently unfinished. The identity of the animal, which may be a bear, a wolf, or a dog, is of minor importance. More interesting are characteristic tattoo marks on one of the animal heads (Fig. 28b) identical with those on the human faces, i.e., four parallel horizontal cheek lines and the Y-shaped nose line. This is not an isolated phenomenon. Thus we find the four cheek lines and

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1 Weyer, 1932, 302–303.
2 Reuterskiöld, 1912, 34.
3 Hrdlička, 1944, Figs. 17, 18.
4 Emmons, 1908, Pl. 12.
5 Smith, 1907, Pl. 10 and Fig. 115.
the Y-shaped figure on the first animal head (probably a bear) of the ornamental linked object (Pl. 72, Fig. 1) from the same grave. Only two cheek lines appear on the second animal head on the same object. Three examples were found in Burial 32. Incised on one end of a bird bone tube (Pl. 48, Fig. 4) is an animal head, exactly like the one on the antler tube. At the rear of the open mouth with teeth are four parallel cheek lines. The bear head and the bear figure (Pl. 52, Figs. 9–10) from Burial 32 both have the Y-shaped figure and, at right angles to it, a single line over the nose. Pairs of cheek lines also appear on the three animal heads (seals?) on the mask-like set of ivory carvings from Burial 64 (Pl. 55). We have several examples from the houses: for instance, the cut end of a tube from House 51 (Pl. 26, Fig. 17) does not have the fine smooth surface of those from the graves, but the animal head with the two cheek lines is very similar to Fig. 28b. A bear head from House 38 (Pl. 25, Fig. 12) has the Y-shaped nose line. Cheek lines are also found on a bear figure from House 7 and a bear head from House 2.

The contents of Burial 21 offer no clue to the use of these antler tubes, but we have reason to believe that they served as containers. An undecorated tube, similar in shape to those from Burial 21, found in a cache with the elaborate mask-like set of ivory carvings (Pl. 55) contained nine arrowheads. Hollowed antlers, usually with incised decoration, were used by the Alaskan Eskimo as containers in historic times. Nelson describes them as fungus ash boxes¹ and Murdoch as trinket boxes.²

The widespread custom of covering the face of the dead was also practiced by the Ipiutak people. A thin antler plate incised with concentric circles, undoubtedly representing eyes (Pl. 49, Fig. 1), was found on the face of an articulated skeleton in Burial 107A. A similar plate, with circular holes surrounded by concentric circles in the position of the eyes, is illustrated in Pl. 49, Fig. 4. The identification is uncertain, partly because it was not found associated with a skull and partly because of its size. One small fragment of an antler plate with incised concentric circles was found in House 11 (Pl. 26, Fig. 14). The antler plate illustrated in Pl. 49, Fig. 1, has the character of a cover rather than an actual mask. It is possible that its purpose was similar to that of the mouth cover. Wooden death masks are known from the Aleutian Islands, Kodiak Island, and Prince William Sound.³ The face of a Yukaghir or Yukaghirized Tungus shaman buried in an elevated log coffin was covered with a leather mask.⁴

We do not know whether functional masks were used by the Ipiutak people. As they were very likely made of wood, the probability of recovering any specimens is very slight. The only objects with any resemblance to masks are the two sets of ivory carvings illustrated in Pls. 54 and 55. We shall consider the smaller and simpler one first (Pl. 54), as it was found in position and gave us the clue to the arrangement of the second, which was excavated the previous year. The position of the mask to be seen in Pl. 54 is shown in Pl. 98, Fig. 4. It lay on the skeleton of a small child and partly on the knees of a male adult, the child’s body having been placed between his legs. Under the “mask” was a brown paste, the remains of wood. When tied together the pieces form a concavo-convex mask; presumably the wooden base had a corresponding convex surface. We are unable to determine whether the ivory pieces were attached to the wood or embedded in it. The latter is the most plausible supposition because the carved sections have no holes for pegs, and the holes at the top and the bottom are too small for a firm lashing. Furthermore, since two cheek plugs among the loose pieces inside the frame were actually found embedded in the wood, it seems reasonable to assume that all the carved pieces were held in position in the same way. The tear-drop-shaped jet pieces, of which one was lost, probably were insets representing the pupils of eyes which were either painted on or carved in the wood. The position of the two flat, decorated pieces and the pendants is uncertain, but they were probably attached to the edge of the wood.

The second set (Pl. 55) is larger, better preserved, and more elaborate. The major difference is in the mouth section which is composed of five separate pieces in contrast to the single piece in the other mask. The intricate manner in which the two parts of the mouth were joined

¹ Nelson, 1899, Pl. 87, Figs. 3, 4.
² Murdoch, 1892, Fig. 329.
³ Dall, 1878, 29, 32.
⁴ Jochelson, 1926, 225.
with the zoomorphic cleets is worthy of note and leads to the assumption that similar cleets were used in the upper corners of the mask. This much heavier mask was probably also embedded in a wooden base which apparently had a plane surface. The three narrow cleets in the bottom row of Pl. 55 were probably embedded in the wood inside the frame and may have represented tattoo lines. It is possible that the pendants were suspended from the holes in the two flat, decorated pieces below the frame.

We can make no definite conjecture as to the purpose of these unique specimens. The similarity between the mouth cover from Burial 41A and the mouth of the mask in Pl. 54 has already been noted and may indicate that they were mortuary masks. The seal (?) head and the seal or fish figure on the forehead remind us of the belief among the Eskimo of arctic Alaska that animals in human shape have small heads on the forehead and are usually identified by the animal’s snout or beak. Probably the same concept is reflected when an animal snout or beak is tied to the forehead when dancing (see p. 121) and the presence of a seal head at the front of a wooden mask from the mouth of the Yukon River.¹

Parts of mask-like sets were also found in the houses. An unfinished forehead piece with eyebrows in relief and a zoomorphic figure in the center was found in House 2. An uncompleted side piece is shown in Pl. 26, Fig. 16. A flat, decorated piece of ivory (Pl. 26, Fig. 15) is similar to those below the mask illustrated in Pl. 55. In Pl. 26, Figs. 1–8, may be seen a series of 14 pendants similar to those found with the masks. Some of the pendants found in the houses are zoomorphic, a form which was not found in connection with the masks. Most of these are crude pieces of ivory or antler, sometimes with simple line decoration. Three from Burial 77 are flint flaker points. An excellent carved human head (Pl. 52, Fig. 1) from Burial 77 is probably a pendant belonging to the mask. The pendants (Pl. 50, Figs. 6–7) which were found in Burial 29 in association with an articulated skeleton are of the same type. The shape and decoration of the pendant illustrated in Pl. 50, Fig. 6, suggests a human figure with crude facial features and ribs, spine, and sternum. A schematic face is engraved on the back of the pendant illustrated in Pl. 50, Fig. 7.

Anthropomorphic carvings were relatively scarce at Ipiutak, and complete figures, dolls, and figurines were totally absent. In addition to the schematic faces and the masks already described, we uncovered only 13 specimens in which human heads and other parts of the body are represented. Some of these, like the harpoon socket piece (Pl. 25, Fig. 1), the flaker handle (Pl. 43, Fig. 12), and the pendant (Pl. 52, Fig. 1), have already been described. The crude human features on the wedge-shaped object (Pl. 25, Fig. 5) need no further comment. The swivel-like object (Pl. 59, Fig. 3) is so corroded that we cannot be certain that the head and the arm are human. The ivory carving, composed of a bird head, a seal body, and a human face (Pl. 69, Fig. 2), will be discussed later (p. 134). A rather crude little head with inset jet eyes was found in Burial 74. Remaining are six small human ivory or antler heads, three of which (Pl. 52, Figs. 3–5) were found together in Burial 108 which lay closest to the Ipiutak village and had grave furniture very similar to the material found in the houses. The other three heads (Pl. 25, Figs. 2–4) were found in houses. Four of these six heads are hollow and two have a curved back as if they had been mounted on a round stick. The small holes in the upper corners of the head shown in Pl. 25, Figs. 3 and 4, and the flat extension from the chins of the heads in Pl. 25, Fig. 3, and Pl. 52, Fig. 3, were probably intended to hold lashings and support our supposition.

We do not know how these were used, but we assume they were shamanistic paraphernalia. That they have some spiritual significance is evident because one carving (Pl. 52, Fig. 4) definitely represents a human skull. The head in Pl. 52, Fig. 3, is probably also intended to depict a skull; at least an opening suggests a nose, and a nose septum is indicated. If it is meant to be a skull, we have another example of artificial eyes here in the form of round jet inlay. Probably the most interesting of the heads is illustrated in Pl. 25, Fig. 3. It is uncertain whether it represents the face of a living individual or a skull. As already pointed out, it has nose and cheek tattoo marks which favor the former identification; on the other hand, its large round eye holes and wide mouth, with the teeth showing, suggest a death’s head. It resembles very much the death’s heads found on

¹ Nelson, 1899, Pl. 96b.
Lamaistic masks, headbands, etc. A third possibility is that it represents a skull, partially covered with a death mask. This would explain the relief on the upper part and the concentric circles surrounding the eyes. A schematic face with the same tattoo marks and incising on top of the head has already been mentioned.

It is evident that it was not always among his fellow beings but in the animal kingdom that the Ipiutak artist found inspiration for his work. Animals, and especially animal heads, were one of his favorite decorative motives. We have already described harpoon socket pieces, daggers, knife handles, adze heads, and pendants shaped like animal heads or decorated with them. But these constitute only a minor portion of the animal carvings. Most of them are found in connection with the elaborate ivory carvings, characteristic of the midden-like type of Ipiutak burials, which will be considered later. There is, however, a marked difference between the majority of the animal carvings from these burials and the carvings found in the houses and burials of other types. The difference lies in the kind of animals represented. In the houses and the graves with similar furniture we find realistic carvings of animals native to Point Hope, such as bear, wolf, seal, and walrus. Most of the animal carvings in the midden-like burials either are so stylized that the species are difficult to identify or they represent animals that are foreign to that particular location, for instance reptiles and amphibians.

In the first group bears and seals are most frequently portrayed. The only two complete figures, one (Fig. 30) from House 7 and one il-

![Fig. 30. Ivory carving of bear with skeleton design. P2932, H7.](image)

unfinished, they all have the Y-shaped figure and the cheek lines mentioned in connection with the schematic faces (p. 123). Inset eyes and ears carved in relief may be seen on the heads in Pl. 25, Fig. 12, Pl. 52, Fig. 9, and Pl. 72, Fig. 1. A very interesting feature, to which we shall return later and which is visible on Pl. 52, Fig. 10, but also occurs on the bear figure from House 7 (Fig. 30) and in a stylized form on Pl. 25, Figs. 12 and 13, and Pl. 72, Fig. 1, is the skeleton motive, a ladder-like design representing the spine, with ribs extending from it.

Sixteen seal figures were found in houses and graves (Pl. 25, Figs. 6–10; Pl. 52, Figs. 6–8). Except for the figure in Pl. 25, Fig. 10, they are carved in the same fashion with minor variations. Characteristic is the slot in the throat, probably for suspension. A skeleton design similar to that on the bear figures may be seen on Pl. 25, Fig. 6, and Pl. 52, Figs. 6, 8. An unfinished seal or walrus (Pl. 25, Fig. 14) has deep grooves indicating the ribs.

Probably the finest piece of ivory carving to come out of Ipiutak also belongs to this group (Pl. 53, Fig. 1). The animal portrayed is un-

![Fig. 31. Ivory carving of young walrus. 60.1–7665, B42.](image)
doubtedly a young walrus (Fig. 31). From the uneroded portions of the carving it appears that it once had a fine polished surface. We may assume that the eye sockets originally had jet inlays. The graceful lines of the body and limbs are probably the most attractive from an artistic point of view, but it is the surface decoration that makes this specimen one of the most significant of the entire collection. The decoration is composed of realistic and purely geometric elements skilfully blended so that they form a pattern which fits the shape of the animal perfectly. The realistic part of the decoration is the familiar skeleton design which here

![Image](Fig. 32. Decorated swivel-like object. 60.2-4276, B106.)

appears slightly elaborated with short spurs along the spine and with the ribs represented by alternating heavy and delicate lines. The feature of particular interest is the pear-shaped boss on each hip. These bosses are accentuated by a surrounding groove with raised edges, proving that they were intentional and not merely an accidental part of the general pattern. The shape of the boss, its position, and the fact that it is surrounded by a deep groove emphasizing the relief leave little doubt that as far as we know this is the first American example of one of the fundamental elements of the Scytho-Siberian animal style. Another, though less obvious example may be seen in Fig. 30, in which the pair of oval designs on the back probably are reminiscences of pear-shaped bosses. The fact that the pear-shaped bosses occur in conjunction with the skeleton motive is significant when we consider that the latter also is an element of the Scytho-Siberian animal style, and that they are found together on animal figures from places so widely separated as the Urals6 and Finland and Denmark.5

There are several other examples of Eurasiatic occurrences of the skeleton motive, not only on animal but also on human figures (see p. 159). Let us, however, return to its occurrence in America. First, we have a few more examples from Ipiutak. From the houses we have two unidentifiable animals (Pl. 25, Figs. 15, 17), with the ladder-like spine design. A bird bone tube (Pl. 48, Fig. 4) with the animal head has a long ladder-like design on the under side. The ornamental chain (Pl. 72, Fig. 1), besides the decorations already mentioned, has a ladder-like design under the chins of both heads. Finally, in a swivel-like object (Pl. 59, Fig. 9), where the element has been split up into what seems to be a purely geometric design, we find the ladder-like motive and lines which undoubtedly represent ribs (Fig. 32).

In the Eskimo culture, we find the skeleton motive on the tupilair figures from Angmagsalik.4 The skeleton design also occurs on animal carvings in the extreme western limits of the Eskimo territory. Here, from several localities—Bristol Bay,6 Seldovia,4 and Kodiak Island7—we have three almost identical animal carvings, supposedly representing a sea otter. The animal is lying on its back and the ribs are shown on the belly. The spine, here represented on the under side of the animal, is in two cases indicated by a single line with round dots, but the Bristol Bay specimen has the typical ladder design with the dots in the spaces. (The seal, Pl. 52, Fig. 6, has a short line instead of dots.) Several identical figures occur in the Museum collections from the Tlingit area. Of two of

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1 Karlgren, 1937, 102 et seq.

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* Aspelin, 1877, Fig. 568.
* Stjerna, 1905, Figs. 49, 46.
* Mathiassen, 1933, Fig. 62; Thalbitzer, 1914, Fig. 365a.
* Collins, 1929, Pl. 18a.
* De Laguna, 1934, Pl. 52, Fig. 9.
* 19-616, "attached to bidarka," according to the catalogue entry by Lieut. G. T. Emmons.
these (E-645, 646) the collector, Lieut. G. T. Emmons, says:

These ivory carvings were found in a dilapidated doctor's grave house, some 12 miles to the northward of Sitka, and were used as charms or ornaments attached to dancing robes. They are carved to represent sea otters and are not of Tlingit workmanship, but were evidently introduced by natives of the Aleutian Islands in the early Russian days and having come into the possession of the Tlingit were used as ornaments for dancing robes.

The Tlingit and other Indians of the Northwest Coast frequently used the skeleton motive on animal as well as on human figures.1 It would take us too far afield to cite examples from the different tribes, but one deserves special mention because of its close similarity to Ipiutak. This is from the Fraser River, a stone figure of a man holding a bowl; the skeleton motive is obvious and consists of ribs and a straight ladder design on the back.2 The distribution of the skeleton motive in the Columbia River region has recently been demonstrated by Strong.3 It is also a rather common feature in Mexican art. This widely distributed skeleton motive can hardly be purely decorative; at least, that cannot have been its original intent. Strong is undoubtedly right when he connects it with a "ghost cult." Obviously it has some relation to death. But, on the other hand, the animals and human figures on which the motive occurs are not portrayed as dead; the bear, the walrus, and the man holding the bowl are definitely alive. The only sensible explanation seems to be that it is a method of portraying the spirit of a dead animal or person. We might go farther and suggest that they represent guardian spirits, when a person is represented, probably a shaman or some other important individual. That the skeleton motive is related to shamanism is obvious from the fact that attachments imitating parts of the skeleton, especially the ribs, frequently occur on shamans' dresses among various Siberian tribes.4

Returning now to the walrus figure, we note (p. 235) that it was found near the shoulder of the skeleton. The holes through the legs and body indicate that it was attached to another element. If it were sewed on the shoulder section of the dress, we have an analogy to the animal figures, usually birds, found on the shoulders of shamans' dresses from Siberia and Mongolia. The bear also has a hole for attachments, while the seals probably were suspended.

Zoomorphic as well as anthropomorphic carvings in ivory, bone, and horn were also worn by the shamans of Northwest Coast Indian tribes, especially the Tlingit. The Museum collection contains a great number of these carvings, which are comparable to the Ipiutak carvings in craftmanship as well as in other respects. For instance, the skeleton motive is frequently used, as in the Tlingit ivory carving illustrated by Vaillant.6 Most of these carvings were collected by Lieut. G. T. Emmons in the years 1882 to 1887 and from his personal entry in the catalogue in 1891 we quote the following general statement concerning a group of carvings of this type, which he calls shamans' charms:

Carved ivory, bone, and horn charms attached to dancing robes or for neck wear are an important feature in shamanism and are most valuable auxiliaries in the practice. The carved figures are representative of dreams and visions and though generally resembling in form some animal sacred to the practice of shamanism as the otter, devil fish, frog, etc. yet mythical forms are presented and the imagination is brought into play and forms are reproduced which are purely imaginary with the shaman and are supposed to have wonderful spirit power wholly at the doctor's command, the original spirit having first come to him in this fasting and trance. When attached to dancing robes of moose or deerskin they are distributed over it attached by sinew cords and make a rattling noise. When worn around the neck they are touched to the affected part to drive out the evil spirit which has possessed the sick or may be transferred to the patients neck. (See Catalogue 19, 56.)

In the entries for individual specimens, animal figures with skeleton design are frequently referred to as spirits. Some were found in shaman's burials (Cf. 19-450-455).

The remaining figures either are highly stylized or represent fantastic animals. The majority were found in the midden-like burials and are either part of, or have been attached to, some other object. Plate 53, except for Fig. 1, illustrates some of the fantastic animal figures

1 Numerous examples in the Museum collections.
2 Smith, 1907, Fig. 185c.
3 Strong, 1945.
4 Niordzze, 1925, 70, Fig. 27, Pl. 16; Holmberg, Uno, 1927, Fig. 28.
5 Vaillant, 1939, Pl. 91.
carved in ivory and supposedly attached to some other object. The under side of the carving shown in Pl. 53, Fig. 5, is flat. It has hind legs and a tail like a seal, the arms are human-like, and the strange, flat, broad head has a wide open mouth. The rear of the carving shown

![Image](https://example.com/image1)

**Fig. 33.** Ivory carving probably representing a wolf. 60.2-4784, B23.

in Pl. 53, Fig. 4, also has the characteristics of a seal; the head is somewhat similar to that shown in Fig. 5 and the body looks like a triple repetition of the head. Virtually no animal features are left in the specimen shown in Pl. 53, Fig. 6. Nevertheless, we interpret it as a highly stylized form of that illustrated as Fig. 5 on the same plate, with the "arms" repeated four times. The front legs of the specimen shown as Fig. 7 resemble seal flippers, but the wide flat head partakes more of the character of an amphibian or reptile.

Superficially, the carving shown in Pl. 53, Fig. 8, and Text Fig. 33, with its flat head and evil-looking eyes, bears some resemblance to a reptile, or, to be more specific, to an alligator. The corroded surface, which is due to the effect of the grass roots, contributes more than anything else to this impression. A careful examination offers no further clue to support the first impression. Whether the carving represents a particular animal or is simply a product of artistic imagination is difficult to decide. We are inclined to believe that the latter approaches the truth; if not, a wolf's head is probably as good a suggestion as any, the criteria being the long nose, the vicious eyes, and the faintly perceptible ears behind the head. The perforated projection on the reverse side indicates that the head has been attached to some other object.

The last two animals shown on Pl. 53, Figs. 2 and 3, are definitely fantastic. Fig. 2 seems to be composed of two animals, one of which shows some resemblance to the animal figure on the dagger (Pl. 41, Fig. 1). The body of the carving represented in Pl. 53, Fig. 3, resembles that of a bear, but the head, except for the large "ears" (see Fig. 34), appears almost human. Another composite "animal" figure may be seen in Pl. 52, Fig. 14. It has two heads, which may be either anthropomorphic or zoomorphic, on a common body. The heads, as well as the worm-like body, are reminiscent of the clefts on Pl. 55. The carving was found with the mouth cover (Pl. 49, Fig. 16) in a coffin. Figures composed of two or more animals or of animals and humans also occur in later Eskimo cultures, especially in Alaska.\(^1\) The bird figures with a human upper body and the *tupilait* from East Greenland also belong in this category.

Other animal figures and parts of animals are shown on Pl. 52. The heads of fantastic animals appear in Pl. 52, Figs. 16 and 17; the first is tubular and resembles a snake's head. Fig. 11 on this plate is obviously a fish; Fig. 12, a caribou foot, is also tubular; Fig. 13 is the leg of another animal. Limbs of animals are quite common. One, a caribou foot (Pl. 51, Fig. 7), has already been described; limbs also occur on several of the openwork carvings. Among the numerous animal carvings from the historic

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\(^1\) Nelson, 1899, Figs. 157, 158, 161, 163–164; Murdoch, 1892, Fig. 416.
Bering Sea Eskimo, we find a pendant in the shape of a caribou foot.1

The most interesting of the animal heads is illustrated in Pl. 52, Fig. 15. It is carved of jet and has a curved beak, two large round eyes, and, behind them, indications of ears. These features are even more pronounced on an antler head from House 27 (Pl. 25, Fig. 11). These two heads definitely belong in the category of fantastic animals, but in this case a familiar fantastic animal is represented, the eared bird of prey, another of the fundamental elements of the Scytho-Siberian animal style. We find the representation of the eared bird head, which is actually the head of a griffin, either as a part of this monster or as a separate carving, distributed in Eurasia over an area extending from the Pacific to the Atlantic Ocean, a distribution similar to that of the pear-shaped boss.

The presence of the pear-shaped boss at Ipiutak, together with a number of other parallels in the animal style, convinces us that these fantastic heads are actually related to the eared bird heads of the Scytho-Siberian animal style and that the resemblance is not purely accidental. In this connection it is worthy of note that in the area where we must assume that either the Ipiutak people themselves or their Asiatic ancestors were in contact with the bearers of the animal style, which naturally would be in Siberia, we find that the eared bird head rather than the original griffin is a favorite decorative motive. This is especially true of the Minussinsk area,2 and to some extent of the Ordos.3 In the rake-like implement (Fig. 50 and Pl. 75, Fig. 14) we see another example of the animal style. We have been unable to identify the implement itself, but the bear head between the two front legs on the back of the implement is strikingly similar to a familiar motive in the animal style. At least 13 bronze plates, belt clasps, and brooches with this kind of decoration have been found in the Perm District of east Russia and Siberia. Of these, five plates and three clasps are from Perm,4 one plate and two clasps are from Tomsk;5 a brooch of the so-called Pyanobor type is from Yamal Peninsula (see p. 158), and a shoulder decoration from central Siberia.6

In addition to the animal carvings already described, fantastic or highly stylized animal heads and other parts of animals constitute one of three major elements comprising the group of artifacts we have classified as openwork carvings. In order to understand these peculiar objects, the most puzzling in the entire Ipiutak collection, we must familiarize ourselves with the other two elements, the swivel and the chain. When we place an artifact like the swivel, which seems to be strictly utilitarian, among objects connected with intellectual culture, it is partly because the majority were found with burials and partly because they seem to have had some significance in addition to their purely practical purpose. We offer no suggestion as to their significance, but their occurrence in the burials in considerable numbers, the elaborate carving, and the fact that some of them have no obviously utilitarian purpose seem reason enough to treat them here.

Of 52 specimens, four from the houses, which we have termed swivels, some bear no suggestions of use. They are classified with the functional swivels because they possess one or more of their characteristic elements. A typical Ipiutak swivel, as illustrated in Pl. 56, Fig. 1, usually consists of a grooved neck, with a perforation for the rotating shaft, and a body consisting of two bars connected at the end. Its function, of course, is to prevent lines from kinking, and it is used by the Eskimo from Alaska to Greenland. However, swivels are not used for the same purpose by all Eskimo. In Alaska, they are used when dogs are tied to stakes or other objects7 as well as when harnessed,8 or they are attached to floats.9 The Central and eastern Eskimo also use swivels for tying up dogs,10 and they use a small swivel on the harpoon line.11 These swivels occur in two main forms: one is

1 Nelson, 1899, Pl. 44, Fig. 26.
2 Von Merhardt, 1926, Pl. 10-11, Fig. 5; Martin, 1893, illustrates several examples, especially on daggers.
3 Aspelin, 1877, Fig. 569; Spitzyn, 1902, Pl. 16, Fig. 10, Pl. 17, Fig. 12; Spitzyn, 1906, Figs. 378, 380; Tallgren, 1918, Fig. 30; Borovka, 1928, Pl. 65A; Tallgren, 1934, Fig. 37, No. 6.
4 Spitzyn, 1906, Fig. 376; Heikel, 1894, Pl. 13, Figs. 6, 10.
5 Merhardt, 1926, Figs. 6, 7.
6 Salmony, 1938, Fig. C.
8 Loc. cit.; and Larsen's field notes from the Utorqar-miut.
9 Nelson, 1899, 144.
10 Birket-Smith, 1929, pt. 1, 181; Thalbitzer, 1914, 376.
11 Mathiassen, 1928, 52; Birket-Smith, 1924, 292; Porsild, 1915, 152f.
oblong or round, with the shaft head enclosed in the body; the other is disc-shaped with the shaft head exposed. The former has a great resemblance to the Ipiutak swivels, to which it undoubtedly is closely related. A swivel from Cape Prince of Wales is almost identical to the Ipiutak specimens, and we find very similar examples as far distant as Greenland.\(^1\) A third form, common in Alaska, with a single instead of two bars\(^2\) is probably developed from the Ipiutak type. In fact in the Ipiutak houses we found an intermediate form with the bars extending from one side of the neck (Pl. 27, Fig. 6). There is a similar one from the Mackenzie Eskimo in the Museum collections (60-4250).

We do not know how the Ipiutak swivels were used. The swivels from Baffin Island and Greenland, which are of the same general type, were used on the harpoon line, and it would be logical to assume that the Ipiutak swivels were also used in this way. The only objection to this assumption is the size of the majority, especially those found in the burials. They may have been used to tow walrus which would account for their size. But we have no parallels from the modern Eskimo to prove this assumption. The swivels are definitely too heavy for dog traces, but not for tying dogs. An old custom at Point Hope is worth mentioning in this connection. We learned from the Point Hope Eskimo that elaborate swivels were used by their ancestors on the lines with which they fastened captive wolves to a stake. If possible, a wolf was taken alive each summer and held captive at a certain spot in the village until the first seal was killed in the fall. Although men still living observed this procedure, its ceremonial significance is not understood now. The large number of swivels found in the burials, many of them obviously not usable, suggests that they had some ceremonial or supernatural significance. Like the fantastic arrowheads (p. 65), these may be merely symbolic.

Grouping them according to size and shape, we have classified the swivels into four types. Types 1 and 2 (Pl. 56; Pl. 57, Figs. 1–3) are fairly normal swivels, except for the size of Type 1, and a few elaborations like the head on Pl. 56, Fig. 5, and the jet inlay on Pl. 56, Fig. 7. Most of them, and all of the shafts, are made of antler. Type 3 (Pl. 57, Figs. 4–13) consists of ivory swivels which could have been used as such, but are decorated with incised lines and more elaborately carved than the two preceding types. In contrast to Type 2, they are perforated at both ends.

This group contains specimens which approach the openwork carvings in style. The necks of the swivels shown in Pl. 57, Figs. 12 and 13, are carved in the form of stylized animal heads. Type 4 (Pl. 58) is a step further in the direction of the fantastic openwork carvings. The elements of the swivel, the bearing for the shaft and the body, are present, and at least some of them could have been used as swivels. The bars that compose the body are spirally twisted. In some cases the neck is missing; in others it is transformed into a stylized animal head (Pl. 58, Fig. 5) or into two curved flanges (Pl. 58, Fig. 10). Where the surface is preserved, we find decoration in the form of parallel incised lines which follow the contours of the objects. The best-preserved and most elaborate specimen (Pl. 58, Fig. 10) has a beautiful design composed of parallel lines and circles with a cross or a dot in the center. The compound object (Pl. 58, Fig. 9) consists of a twisted swivel inside another twisted object (openwork carving, Type 3) with a flange in the place of the neck. The labor involved in producing these elaborate carvings definitely shows that these artifacts had a significance beyond their utilization as swivels. We doubt that they ever had any practical use and consider them symbolic or ceremonial rather than utilitarian objects. The idea of the swivel is further elaborated in the openwork carving, but before discussing that category, we must consider the third element of which they are composed, the chain links.

Three chains consisting of several links carved out of a single piece of ivory were found in the Ipiutak burials (Pl. 70, Figs. 1–3). Fig. 1 on this plate is a plain chain consisting of 11 links of the same size and shape. The terminal links of the other two chains are shaped differently from the rest. Additional chains, or, as we have called them, ornamental linked objects, consisting of three links are shown on Pl. 71, Figs. 6 and 7, and Pl. 72, Figs. 1 and 5. The central links are plain; the terminal links are in the shape of animal heads (Pl. 72, Figs. 1, 5), swivels (Pl. 71, Fig. 6), double loops, etc. We find the same motive on ornamental linked objects

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1. Porsild, 1915, Fig. 17c; Larsen, 1934, Pl. 8, Fig. 6.
with only two links: a swivel and a fantastic animal with jet-inlaid eyes (Pl. 72, Fig. 2), a loon's and a wolf's head (Pl. 72, Fig. 6), and a swivel (Pl. 71, Fig. 5). A chain (Pl. 71, Fig. 3) composed of two links, each with a wide opening in one end, is really composed of transformed swivels. The lower link of the chain in Pl. 71, Fig. 4, is a similar swivel-like object. A stylized animal head (Pl. 71, Fig. 8) with a wide open mouth is attached to a looped object. Some of the links are spirally twisted like the swivels, and in Pl. 71, Fig. 2, one link terminates in a pair of seal flippers. Pl. 72, Fig. 7, has a stylized animal head. A very elaborate linked object is illustrated in Pl. 71, Fig. 1, and a linked animal carving which can be separated is shown in Pl. 72, Fig. 4.

Ivory chains and chain links are widely distributed elements in the Eskimo culture, but nowhere have they been used more extensively and in such a multitude of forms as in Alaska. Here we find them from the earliest cultures to the present-day Eskimo, very often in forms resembling the Ipiutak specimens. We have several examples from the Okvik phase, one of which has a double-looped link and a link terminating in a bird head as in Pl. 72, Fig. 5.1 From the Old Bering Sea phase Collins illustrates a small chain with three plain and one ornamental link,2 and from the Punuk phase several ornamental links.3 An unfinished chain has also been reported from late prehistoric times.4 From the historic Alaskan Eskimo, especially the inhabitants of the Bering Sea region, we have numerous examples of the use of chains and chain links for ornamental purposes, especially on handles, bodkins, and floats.5 The links are frequently carved in the shape of animals or parts of animals. On a float from King Island in the Museum collections, a swivel similar to the Ipiutak swivels of Type 2 constitutes one of the links in a chain, while two others are carved in the form of whales' tails. Thus we see that the chain not only survived in Alaska, but, as at Ipiutak, it was combined with swivels and animal carvings. We do not know how common chain links were in other parts of Alaska, but they occurred as far south as the Aleutian Is-

1 Rainey, 1941a, Fig. 24.
2 Collins, 1937, Pl. 12, Fig. 10.
3 Ibid., 1937, Pl. 82, Figs. 29–34.
4 Geist and Rainey, 1936, Pl. 42, Figs. 11–12.
5 Nelson, 1899, Pls. 43, 46, 64.
7 Mathiassen, 1930a, Pl. 18, Fig. 11.
8 Ibid., Pl. 14, Fig. 18.
9 Nioradze, 1925, Fig. 28.
das Festhalten an dem Shamanentum.” But whatever they may symbolize, they are related to shamanism in Siberia and probably also at Ipiutak.

A similar interpretation may apply to swivels. On the back of a shaman’s dress from the Yukaghir (70-8336) is an iron swivel with a leather strap attached to it. Certainly this swivel served no practical purpose, but it undoubtedly has a symbolic meaning. In this connection, it is worth mentioning that the Koryak, who are also excellent ivory carvers and in whose material culture we find many parallels to Ipiutak, also make fine ivory chains and sometimes substitute one link with a swivel.

Our knowledge of the Ipiutak animal carvings, swivels, and chains will help us to understand the fantastic ivory carvings which already have aroused the interest of many people and have been the subject of much discussion. In spite of their strange character and our failure to find parallels anywhere in the world, we should be very careful not to allow them to carry too much weight in our judgment of the Ipiutak culture. In the first place, the fewer than 200 specimens we have classified as openwork carving represent only a fraction of the entire collection. Second, many of them can be explained as derivations and combinations of animal carvings, swivels, and chain links which, as we have seen, are familiar culture elements in arctic America as well as in Eurasia.

In order to simplify the description, we have arranged the specimens in 16 types. The word “type” is used here for lack of a better term, because it is obviously inaccurate to define types when we are dealing with a group of objects that are all different. Of the 200 carvings, no two are identical. Great variation occurs within the “type,” and a large number of the specimens are transitional forms which, with equal accuracy, fit in two or more of the “types.” This classification, which is the result of many futile attempts, has no stratigraphic significance, as virtually all the carvings, like most of the swivels and chain links, were found in a limited number of graves, all of the shallow, midden-like type.

In all the openwork carvings of Type 1 (Pl. 59), we find one or more of the features that characterize the swivels. Most of them have the neck, some even have the characteristic grooves and ridges, but none are practical swivels. Either the neck is not perforated at all, or the perforation is too small for a shaft. Spirally twisted forms like the swivels of Type 4 are illustrated in Pl. 59, Figs. 1 and 5. The carving shown on Fig. 3 of this plate has a human head and an arm carved in one end. Combinations of swivel and bird heads appear in Pl. 59, Figs. 2 and 4. In Fig. 9 (which, as well as Figs. 7 and 8, has a suspension hole) the carving represents a fantastic, highly stylized animal, with eyes, an open mouth, and skeleton design on its back (cf. Fig. 32).

The carvings classified as Type 2 (Pl. 60) are also swivel-like. They are composed of the same elements as the swivels—the bars and the shaft bearing—and, if we disregard certain elaborations, they also resemble various types of swivels. They are characterized usually by an oval shaft bearing and one or two flanges which can be simple as in Pl. 60, Figs. 1 to 4, or loop-shaped as in Pl. 60, Figs. 7 and 8. A double shaft bearing is shown in Fig. 6 of this plate, and a bearing with three bars instead of two in Figs. 2 and 8.

In Type 3 (Pl. 61) the flange at the base is like that of Type 2, but the base is not perforated. The resemblance to the swivels is less conspicuous, but is still present. The spirally twisted specimens (Pl. 61, Figs. 3, 5, 7, 9) recall swivels of Type 4 and, except for the grooved projection or the loop (Pl. 61, Figs. 2, 4, 6), have the general shape of the simpler Ipiutak swivels. In two of these specimens, the animal carving element is present: in the flipper-shaped flange (Pl. 61, Fig. 1) and the animal head or heads shown in Pl. 61, Fig. 5.

The only difference between Types 3 and 4 is that Type 4 is still further removed from the actual swivels (Pl. 62). They are all spirally twisted, and some have remnants of the flange, characteristic of Type 3. The concept of the swivel has disappeared completely in some specimens (Pl. 61, Figs. 8–10).

Plate 63 shows five different “types” of openwork carvings, each represented by a small number of specimens. Type 5 (Pl. 63, Figs. 1–3), the shape of which is suggestive of the swivels, has a flaring base like other types of openwork carving and linked objects (Pl. 71, Figs. 3–4). Type 6 (Pl. 63, Fig. 4), with three slender
curved elements, is represented by only two specimens. Type 7 (Pl. 63, Figs. 5–8) and Type 8 (Pl. 63, Figs. 9–12) both have a wide opening at the base; the latter, in addition, has a similar opening in the opposite end. Type 8 is an exception in that the similarity between the specimens to some extent justifies the use of the term “type.”

With Type 9 (Pl. 63, Figs. 13–16) we approach another category of openwork carvings, the flat. While the great majority of the types previously described are three dimensional, this and especially the following type are two dimensional. Pl. 63, Fig. 16, is definitely two dimensional, while Figs. 13–14 are transitional forms. Engraved lines on Fig. 13 indicate a flipper.

The following types (Types 10–12) have much in common, but it is difficult to see any connection between them and the other openwork carvings, except for a few examples of animal carvings such as the hand or flipper on Pl.

Type 14 consists of openwork carvings, the shape of which suggests that they were used for a practical purpose. This does not mean that we believe they were functional. In fact, as we shall point out presently, we have just as much reason to believe that they are merely aberrant forms of types already described. Suggestions as to their supposed practical use accompany the illustrations (Pl. 67). We shall try to point out their similarities to other openwork carvings. Of swivel-like objects, there are two (Pl. 67, Figs. 4, 5). Figs. 1 and 15 of Pl. 67 resemble the flat forms; and Figs. 2, 8, 9, 11, and 12, the chain link-like objects (Pl. 66). If we disregard the projections on the carving shown in Fig. 12, we also have some similarity to the swivels. If anything, two handle-like objects (Pl. 67, Fig. 6) remind us of the bird heads (Pl. 69). The most significant negative argument is that, as are the rest of the openwork carvings, every specimen is unique.

So far we have considered only a few exam-

![Fig. 35. Openwork ivory carving representing a bird head. P3379, H2.](image)

64, Fig. 8, the flippers on Pl. 65, Figs. 2 and 7, the fish tail (?) on Pl. 64, Fig. 6, and the head on Pl. 65, Fig. 11. The specimens of Type 10 (Pl. 64) are flat, while those of Type 11 (Pl. 65, Figs. 1–4), and Type 12 (Pl. 65, Figs. 5–13) are concave on the reverse side. The prevailing feature of Types 10 and 12 is a repetition of more or less identical loops, which might be a further development of the spirally twisted objects.

Type 13 (Pl. 66), which comprises the largest number of specimens, resembles the ornamental chain links. Some of them (Pl. 66, Figs. 2, 8, 10), might actually be chain links; others are either too thick or have projections which do not occur on the true chain links. Examples of this may be seen in Pl. 66, Fig. 1, which resembles Fig. 2; the specimens in Pl. 66, Figs. 3, 4, and 11, are very similar to Fig. 8. A duplicate of the lower link of Pl. 72, Fig. 7, is shown in Pl. 66, Fig. 9. Pl. 66, Fig. 12, recalls the terminal link of the chain shown in Pl. 70, Fig. 3.

Samples of the third element of which the openwork carvings are composed, the animal figure. We have mentioned animal parts, usually highly stylized, as decorative elements on openwork carvings. But in every case the zoomorphic features were subordinate to one of the other elements. We have classified objects in which the animal character is most obvious as Types 15 and 16, but they are still in the same category as the openwork carvings. This is obvious when we compare them with those previously described. We find, for instance, link-like objects (Pl. 68, Figs. 1, 2, 14, 15), swivel-like objects (Pl. 68, Figs. 3, 4), and flat bands with openwork (Pl. 68, Figs. 8–11). This is to some extent also true of the bird heads (Pl. 69; Text Fig. 35). On Pl. 69, Figs. 6 and 8 represent link-like objects, and we find parallels to Figs. 1, 3, and 7 in Types 8 and 9 (Pl. 63).

The favorite motives of the Ipiutak artists are the loon and a wide-faced creature that may
represent a frog but may also be purely imaginary. In no instance do we find carvings of complete animals; the closest approach to a complete representation may be observed in Pl. 68, Figs. 8, 9, 11, which, in addition to a head, have indications of feet. As already mentioned, it is the animal head that has either appealed to the artist or has some symbolic significance. Contrary to the realistic bear and seal figures already described, these heads are all more or less conventionalized. We can be fairly certain that all the bird heads with long beaks represent loon heads, because we know that the loon was of religious significance to the Ipiutak people. Most of the carvings represent long beaks. Some have eyes, too, but only a few show signs of realism. They are either symbolic or purely decorative.

The only other bird represented in the collection is a puffin or auk (Pl. 69, Fig. 1) which is recognizable from its beak, but still somewhat conventionalized. This is even more true of the frog-like heads which might be the heads of any amphibian; some of them might even represent a fish. The carvings on Pl. 68, Figs. 1 and 2, are more realistic, especially Fig. 1, which shows an attempt to portray a beaver or ground squirrel with the characteristic incisors of the rodents. Those on Pl. 68, Figs. 9 and 11, are unidentifiable, and Pl. 68, Figs. 13 to 14, are definitely in the category of fantastic animals. Of especial interest are the composite animal heads: a frog-like head and a loon bill (Pl. 68, Fig. 5), and a loon head combined with a human head and a seal (?) body (Pl. 69, Fig. 2).

Before concluding this discussion of openwork carvings, we should mention the resemblance between these and the ivory rods (Pl. 73, Figs. 7–9; Pl. 74, Figs. 1–3, 10–12). Like some of the openwork carvings, for instance Type 10 (Pl. 64), they have cut-out designs. One (Pl. 73, Fig. 7) ends in flippers; another (Pl. 73, Fig. 8) is spirally twisted. Figs. 1 to 3 of Pl. 74 resemble Fig. 1 of Pl. 64; Figs. 10 and 11 of Pl. 74 are very similar to Fig. 3 of Pl. 64; and we find the same repetition of identical loops on Pl. 74, Fig. 12, as on Pl. 64, Fig. 10. Found in the same graves as the openwork carvings and, like them, apparently not made for any practical purpose, there is little doubt that they belong in the same category. The dagger-like objects (Pl. 74, Figs. 4, 5) are probably ceremonial or symbolic as are the fantastic arrowheads.

This brings us back to the beginning of our analysis, where we first noticed the astonishing fact that the Ipiutak people made great efforts to produce elaborate arrowheads which under no circumstances could be utilitarian. It is doubtful whether some of the lance heads, daggers, or knives (Pl. 41, Figs. 9–11), of which the one shown on Pl. 41, Fig. 9, is shaped like a bird head, were ever used as weapons. The Type 10 openwork carvings shown on Pl. 41, Figs. 5 and 6, are not functional, nor in all probability are the lances or daggers on which they were found.

Finally, in the swivel-like openwork carvings we have a perfect parallel to the non-utilitarian arrowheads. All these objects, together with the ornamental chains and chain links, have two things in common: first, they are all unique, that is, there are no two exactly alike; second, they were all found in the shallow midden-like burials and, with few exceptions, neither in the houses nor in the deep burials, the grave furnishing of which closely correspond to the material found in the houses.

The fact that all the specimens differ favors our assumption that they were not utilitarian. If they were, we would also have found a substantial number in the houses, which yielded more than two thirds of the entire collection, provided, of course that the houses and this particular type of grave are contemporaneous. We believe they are contemporaneous, first, because fragments of openwork carvings were also found in the houses and, second, because the rest of the material found in these graves conforms with that from the houses. It is true that, as a whole, the grave material shows finer workmanship, but it happens in other parts of the world, too, that the grave furniture is of finer workmanship than the implements in daily use. Whatever the reason for this difference, it is so slight that we feel safe in considering all the material described here, both from the houses and the various types of graves, as part of the same culture.

The most important, but also the most difficult, question to answer concerning these elaborate arrowheads, daggers, and openwork carvings is, why did the Ipiutak people make them? We can be almost sure, as we have pointed out repeatedly, that they were of some religious significance. It is quite certain that the burials in which they were found are not burials of ordinary people, but of individuals who have dis-
tungished themselves as great warriors or hunters, or of spiritual leaders. The great num-
ber of extremely well-made arrowheads found in many of these graves argues in favor of the
former, the openwork carvings of the latter.
In this section we have pointed out certain parallels between the Ipiutak culture and Si-
berian shamanism, and we have good reason to believe that the Ipiutak shamans were as im-
portant personages in their community as were their Siberian colleagues. It is well known that
Siberian shamans' dresses are covered with numerous metal appendages, such as Chinese
mirrors, bells, iron plates of various shapes, chains, and pendants, each with a symbolic or
religious significance. Since the openwork carvings are non-utilitarian and probably symbolic
and since the majority are either derivations or combinations of animal figures, swivels, and
chains, all of which are found among the regalia of the Siberian shamans, we believe that they
may be the Ipiutak equivalent of shamanistic regalia. Some of these may have been sewed
onto the dress, others suspended, and some held in the hand or attached to a staff. In this con-
nection, we want to draw attention to the Tlingit carvings worn by shamans (p. 146). They,
too, are of fantastic shapes, all different, and very often they represent fantastic animals. The
religious significance of the loon among arctic peoples, the special attention given to it by the
Ipiutak people, and the frequent use of bird figures and chains on Siberian shamans' dresses
are the principal facts on which we base this assumption. It is highly probable that these
openwork carvings, like the chains, are imitations of metal objects which the Ipiutak people
or their immediate ancestors saw in Siberia. Some of these openwork, curiously shaped
bronze figures from Raskat, Tobolsk, have been tentatively interpreted by Tallgren as belong-
ing to shamans' dresses.1 Lacking sufficient metal and the knowledge of working it, the
Ipiutak people or their predecessors have copied them in their most precious available
material, walrus ivory. This might explain the frequent use of the spiral-twisted motive which
seems better fitted to metal work than to ivory carving.

ART

The closest parallel may be found in the Okvik phase of the Arctic Whale Hunting culture. In
the Old Bering Sea phase, Eskimo decorative art attains its climax, especially in the extreme
elaboration of surface ornamentation, but the decoration is limited to a few types of artifacts,
such as harpoon heads and socket pieces, needle cases, scrapers, and winged figures. In later
phases of the Arctic Whale Hunting culture, ornamentation is simpler and occurs less fre-
quently. Of the historic Eskimo only the Bering Sea Eskimo and the Angmagssalik Eskimo, far
to the east, are comparable in craftsmanship and artistic achievement to the Ipiutak people.

Since virtually all ornamented artifacts have been described previously or are listed in the
captions accompanying the plates, we will here confine ourselves to a brief discussion of Ipiu-
tak art as a whole. To simplify the discussion we will treat surface decoration and sculptural
art separately. In the first, we find examples of realistic and geometric motives and combina-
tions of both. We have already described in de-

1 Tallgren, 1928b, 159 and Fig. 29.
tall the schematic human faces, the best known of which are on the antler tubes (p. 122). The significance of these schematic faces is unknown, but it highly improbable that they are purely decorative. The tube in Fig. 28a, for instance, is decorated with a geometric design in which most of the schematic faces do not fit at all. They seem to have been superimposed regardless of the basic pattern which they definitely disturb. The animal heads on the same tubes are somewhat different. The head shown in Fig. 28b is definitely realistic; in Fig. 28c the animal head is merely suggested; in Fig. 28a it forms part of the geometric pattern. In the last-mentioned head the mouth is still recognizable by the large canine teeth, but the rest of the teeth are transformed into simple spurs, and the face becomes an inverted T and two round dots. In Fig. 36 the transformation from realistic design to pure ornament is complete. Here the mouth became a row of spurred arches which alternate with tridents corresponding to the Y-shaped figure seen on the nose and forehead of Fig. 28b. On the basis of this typical example of a transformation from a realistic design to one that is purely decorative, we believe that the explanation of the Y-shaped figure first given by Hoffman and adopted by Mathiassen should be revised.1 Hoffman believed that the Y-shaped figure was derived from the trident which he considered a conventionalized tree. It seems more likely that the Y-shaped figure and the trident were originally tattoo marks which were also used as ornamental designs on various objects. We noted also how teeth may be transformed into a spurred line, another very widespread Eskimo motive, but it would probably be difficult to demonstrate with assurance that all spurred lines originally represented teeth.

In the bear (Fig. 30) and the baby walrus (Fig. 31), we have additional examples of the transformation of realistic designs into more or less decorative patterns. Like the bears and seals in Pl. 52, Figs. 6, 8, and 10, the bear has a simple skeleton design, while the ribs on the walrus form part of an ornament as well. It is noteworthy that the “spine” of the walrus forms a pattern well known in Eskimo art.2 Figs. 32 and 37 illustrate two more examples of the skeleton motive transformed into a geometric design. In Fig. 32 the “spine” and the “ribs” are split and form two different designs; in Fig. 37 the skeleton design becomes a row of spurred circles. We find another example of a conversion from realism to pure decoration in the two elaborately decorated bands (Fig. 38a, b). These were found together, but despite the fact that the decorative motive is probably the same on both bands, they vary so much in execution that we must ascribe them to two different artists. The band depicted as Fig. 38a is the more interesting of the two, although it is technically not so good as the one in Fig. 38b. In the middle (Fig. 38a) is a large, turned-down, open mouth

1 Hoffman, 1897, 829; Mathiassen, 1927, pt. 2, 23.
2 Mathiassen, 1927, pt. 2, 122 and Fig. 7c.
with teeth and beard (?), above which are two irregular concentric circles which may represent eyes. The design on either side of the mouth may be purely geometric, but it may also represent a monster with an open mouth and an eye. In Fig. 38b the elements are combined to form a purely decorative pattern, which with gracefully curved, heavy and light lines fills out the space perfectly. Analyzing this pattern we find

base of the two side bars and, finally, two double-headed, worm-like creatures at the corners of the mouth. The rest of the decoration is purely geometric, unless we interpret the lines around the mouth as another instance of transformation from realistic to geometric design—in this case, lines symbolizing a mouth sewed together (p. 120 and Pls. 54 and 49, Fig. 14).

The number and variety of objects decorated

again the curved mouth with teeth, the eyes (small circles with a dot) and the two monsters here transformed into kidney-shaped figures. With no opportunity to compare the two bands, one would probably consider this one a purely geometric design like the animal head on the tube (Fig. 36). It is very likely that some of the geometric designs on the objects we will describe later likewise contain originally realistic motives. The mask-like set of carvings (Fig. 39), one of the most beautiful examples of Ipiutak art, is a striking demonstration of the ability of the Ipiutak craftsman to blend realistic and geometric designs to form a well-balanced unit. Contrary to most of the Ipiutak art objects, the surface decoration is in low relief. The principal motive is a human face with eyes, nose, mouth, and labrets. There are three more or less stylized animal heads on the forehead and at the

with realistic designs are rather limited; in contrast, more than 70 types of implements and numerous specimens of each are decorated with geometric designs. Because of the considerable number of elements employed and the great variety of patterns ranging from simple straight lines to great complexity, it is not feasible to give a detailed description of this form of Ipiutak art. Since the decoration on each type of implement has been described elsewhere, we will here list the design elements of the composition. The description will be accompanied by typical examples of the occurrence of each element, and the illustrations should give an adequate conception of Ipiutak geometric surface decoration.

The two elements occurring most frequently are plain straight and plain curved lines. Besides forming part of the composition of many
different designs, straight lines form a pattern of their own, the most common being four equally spaced, longitudinal lines. They are found on most arrowheads and, in addition, on bird arrowheads, harpoon heads, harpoon foreshafts, leister prongs, gull hooks, salmon spear prongs, and barbs and ornamental bodkins. We believe, therefore, that it is with good reason that we have used the term "the Ipiutak trade mark" for this design. In arrowheads with side-blades and harpoon heads of Type 1, two of the lines are deepened to make room for the side blades; otherwise, the lines are purely ornamental. In addition to these lines harpoon heads of Type 1 usually have four straight lines that branch off to form an acute angle with the main
branching straight lines occur, though rarely, on other objects, for instance, on a flaker handle (Fig. 19a). The same implement also has the Y-shaped figure and the trident. Lines with various degrees of curvature occur even more frequently than straight lines and need no further comment. A characteristic feature of Ipiutak surface decoration is a very effective combination of light and heavy lines. Usually a heavy line is accompanied by one light line, but on several objects one heavy line is flanked by light lines. Typical examples may be seen on harpoon heads Type 2 (Fig. 13), lance heads or daggers (Fig. 40a–c), flaker handles (Fig. 19),
the engraving tool (Fig. 18a, b), the snow goggles (Fig. 27), and the ornamental band (Fig. 38b). Spurred lines form another very common element. The spurs are usually short, straight, unilateral, and equally spaced, but long, oblique, and bilateral spurs also occur (Fig. 41a–e). On the flaker handle (Fig. 19c, d), the spurs are placed in pairs; on the ornamental band (Fig. 38b), in groups of two and three. Broken and dotted lines are less common. The most characteristic examples of the first are the ornamental band (Fig. 38b) and the harpoon heads (Type 3, Fig. 42a–c); dotted lines are found on the engraving tool shown in Fig. 18b. More common than dotted lines are rows of triangular dots; the best example is the ornamental band in Fig. 43.

Closed rounded motives occur frequently and in various forms as circles, ellipses, pointed ovals, and kidney-shaped figures. Most common are circles. These may be plain as on the lance head (Fig. 40a, b) or spurred as on the spatula-shaped implement (Fig. 41c). The circles and other rounded elements may be concentric, as in Figs. 40c and 41a. In the center of the circle we may find a dot, a cross (Figs. 19c–e and 41e), two or three short lines (Figs. 19b and 40b), or an asterisk (Fig. 41a). Wheel-like figures occur on the ivory implements of uncertain use (Fig. 44) and on the mask-like set of carvings (Fig. 39). In both cases there are eight radiating spoke-like lines inside two concentric circles. In Fig. 39 there is an additional small circle with a dot in the center. The dot and the circle are the commonest of these elements. Despite the fact

Fig. 41. Spatulate-shaped decorated objects. a–b. Obverse and reverse. 60.1-7346, B9. c. P4493, B89. d–e. Obverse and reverse. 60.2-4080, B96.

Fig. 42. Decorated harpoon heads, Type 3. a. 60.2-2960, H46. b. 60.1-8149a, H21. c. 60.2-2499, H34.
that some of the circles are extremely regular in shape, they are doubtless all free-hand drawings. The dot and circles are used not only in geometric design, but also as a realistic motive. In the mask-like set of carvings (Fig. 39), some dots and circles are purely ornamental, but those representing the eyes of the mask and on the three small heads on the frame are realistic. The dots on this, as well as on other specimens (Pl. 25, Fig. 3; Pl. 27, Fig. 19), are actually sockets which now contain or originally held jet inlays, the two larger sockets representing labrets. The jet inlays so frequently found in Ipiutak art, like the dot and circle, are sometimes purely ornamental, but more often represent eyes. The effect of the inlay is seen in Fig.

animal carvings have jet eyes or, at least, the sockets for an inlay (Fig. 46a, b). Only in one case, the harpoon socket piece (Pl. 6, Fig. 1), is the inlay a red mineral and not jet.

Among the rarer elements are the rows of small squares or rectangles separated by cross hatching as on the brow bands (Pl. 24, Figs. 19, 20). Hachure is used very sparsely. The upper corners of the button (Pl. 24, Fig. 20) contain small hachured panels and hachure occurs sometimes where straight or curved lines join circles as in Pl. 24, Fig. 16, and Text Fig. 19b-e. In Text Fig. 15a the hachured panel forms part of an eye. Finally, in a few cases red paint was found in the incised lines. We are reasonably certain that these are not exceptions, but that all the lines were filled with some pigment, making the design more effective.

We are now confronted with the question as to whether these elements, when combined in a pattern, are of such uniformity that they are always recognizable as a distinct Ipiutak style. If we consider all decorated Ipiutak specimens and, for instance, compare the flaker handles and spatulate objects with the ornamental band
development of the same style. Before defining Ipiutak style we will eliminate the specimens not so decorated. The most obvious are the harpoon head, the socket pieces, and the bird spear side prongs (Figs. 14, 47) which, as we have mentioned (p. 73), are decorated in Okvik style, or "Old Bering Sea Style 1," as Collins calls it. This style is characterized by the usually straight or slightly curved double lines with tiny, triangular spurs. The space between the two lines may have triangular spurs (Fig. 47) or single or double bars (Fig. 14). Almost exact duplicates have been found in the Bering Strait region.1 Several examples of both have been reported from Punuk Island.2 The harpoon head (Fig. 48) which is unique in shape is also decorated in a style slightly different from the rest of the Ipiutak specimens. The foreign element here consists of concentric circles with parallel spurs radiating from two sides of the outer circle, an element which occurs in Okvik as well as in Old Bering Sea style.4 Since the same element occurs in the harpoon head (Fig. 14) and we found no examples of typical Old Bering Sea Style 2, we are inclined to consider the decoration on these three pieces as representing the Okvik style. The ornamental band (Fig. 38b) is also doubtful. The decoration is more elaborate than on any other Ipiutak specimen; the general character of its gracefully curved lines and figures and its alternating full or broken lines are undeniable reminders of Old

1 Collins, 1937, Figs. 8, 9; Pl. 14, Figs. 3, 4.
2 Rainey, 1941a, Fig. 26.
Bering Sea Style 2. On the other hand, since all the elements occur in Ipiutak art, it may be an example of its highest development. That its counterpart (Fig. 38a), which has a similar though more realistic motive, is definitely an example of Ipiutak art argues for the latter suggestion.

As has been pointed out, it is difficult to draw a clear line of distinction between Ipiutak and Old Bering Sea decorative art, especially in its earliest form, the Okvik style. This is only natural since its elements are more or less identical. The difference lies mainly in the compo-
position; the Ipiutak style is generally simpler than the Old Bering Sea Style 2 and the fine Okvik decoration. The Ipiutak style is characterized by relatively simple composition of plain or spurred, straight or curved, heavy and light or broken circles, often combined with circles to form a pattern fitting the surface to which it is applied. The variation in pattern results partly from the different forms of objects. It is partly a development from simplicity to complexity which probably occurred during the period the Ipiutak village existed. If, for instance, we compare the harpoon heads (Fig. 13) with the lance heads (Fig. 40), the flaker handles (Fig. 19) and the spatulate objects (Fig. 41), we note a uniformity in decoration within the type of implement which we do not find if we consider all the decorated artifacts. This impression would be strengthened were it possible to illustrate all the decorated specimens. Apparently each type of implement has had a traditional decoration. In the series of harpoon heads, Type 2 (Fig. 13), we have a suggestion of development from a relatively simple to a more elaborate design coinciding with an increasing sharpness of the point of the harpoon head, leading to the conclusion that the development occurred during the period of habitation of the Ipiutak village.

The position of Ipiutak decorative art in relation to Eskimo art as a whole is clear. It is closely related to the characteristic curvilinear style of the Okvik and Old Bering Sea phases. Since Ipiutak art in general is simpler and less conventionalized, we assume that it represents an earlier stage of the art of these two culture phases.

Eskimo decorative art seems to have increased in complexity and conventionalization, reaching its peak with the Old Bering Sea Style.

Fig. 49. Decorated fragment of ivory object. P3614, H32.

3 The decline begins with the rigorous, strictly geometric Punuk style, characterized by dots, compass-made nucleated circles, straight or slightly curved, often converging, and occasional spurred lines. In the eastern Thule phase only the dots, the single or double spurred line, the Y, and a double line with alternating blank and hachured fields remain. In later phases, in Canada and Greenland, even these elements disappear. In Alaska the development of decorative art has followed a slightly different course. In the western Thule phase, in arctic Alaska and the Bering Strait region, we find the same sparse and simple decoration as in the eastern Thule phase, but in the succeeding Tigara and Modern phases the number of decorated artifacts increases, probably under influence from the Bering Sea region. Unfortunately our knowledge of the prehistoric cultures of the Bering Sea region is practically nil, but from the numerous decorated artifacts and other art objects collected in the nineteenth century and illustrated by Nelson, Hoffman, and others we venture to suggest that Ipiutak art survived in this region, though in a modified form. We base this assumption not so much on the surface decoration, which resembles the Punuk style most closely, but more on the carvings in the round. The main decorative elements are spurred lines and concentric compass-made circles, often with red and jet inlays.

The realistic etchings so characteristic of modern Alaskan Eskimo art are a late introduction, probably from the east, as Collins has suggested. They occur, though few in number, in Canada, in the fourteenth century and in Thule District in the fifteenth and sixteenth centuries, but are not known in Alaska until late. In Alaska their distribution is north of Norton Sound.

It is in sculptural art that the Ipiutak craftsmen have shown their greatest skill and imagination. These expert craftsmen with their primitive tools managed to carve the hard ivory into any desired form, but they were also artists, so that each of their products, whether a weapon, a tool, or a ceremonial object, became an object of art. Thus it is difficult to limit the artifacts which we rightly may call art objects.

Collins, 1937, 85.
Mathiassen, 1927, pt. 2, 121, Fig. 7.
Collins, 1929, 43.
In sculptural art zoomorphic motives definitely predominate. Contrary to most phases of Eskimo culture, in the Ipiutak culture human dolls are completely absent, and 10 human heads and skulls are the sole representatives of anthropomorphic motives. The Ipiutak artists preferably derived their inspiration from the animal kingdom, and they seem to have been especially fond of animal heads. It is possible, of course, that the animal heads were the favored motives for reasons other than the purely artistic. For instance, the frequent use of bear and loon heads suggests a religious significance.

Whatever may have been the reasons, we find animal heads adorning such widely different objects as harpoon socket pieces, lance heads, knife handles, adze heads, root picks, cutting boards, and swivels, as well as the openwork carvings of which they constitute one of the main elements. In addition to heads, animal limbs have attracted the Ipiutak artist, but he does not seem to have been so interested in portraying complete animals. The number of complete animal figures in the Ipiutak find is surprisingly small, and they are limited to bear, seal, walrus, and to some animal forms that belong in the realm of fantasy.

While we have been unable as yet to trace the source of the Ipiutak style of engraving, there can be little doubt that the sculptural art is a branch of the Eurasian or Scytho-Siberian animal style, which has, for the first time, been recognized in the New World. As mentioned in a previous section (p. 126), this theory is primarily based upon the pear-shaped bosses on the walrus figure, and as there can be no doubt as to the accuracy of this parallelism, it adds support to the less well-founded identifications. Of these the bear on the rake-like instrument (Fig. 50) rates first and the "griffin"-heads (Pl. 25, Fig. 11; Pl. 52, Fig. 15) respect-}

![Image](image_url)

**Fig. 50. Rake-like implement. P4687, B89.**

ively second and third. We may also point to the similarity of the bear (?) head (Pl. 72, Fig. 1), to the head on a bone belt hook from Anani, especially the identical execution of the lips, and from the same period the double heads with a common mouth, as on the socket piece (Pl. 6, Fig. 1). Other suggestions of a connection between Ipiutak art and the animal style are of a more general character. We have already mentioned that the skeleton design also occurs in the animal style, and we may add the frequent use of realistic and fantastic animal heads as a terminal decoration on many kinds of artifacts, the use of inlays, and the combination of various animals or of zoomorphic and anthropomorphic motives on the same object. It is true that the number of close parallels is very insignificant, but considering that most objects with animal style decoration are made of metal and that we must assume that the ancestors of the Ipiutak people who adopted the style lived at a great distance from the culture centers where it originated and flourished, it is astonishing that there are recognizable traits.

The animal style changed among the Eskimo, but the predilection for zoomorphic motives survived in Alaska to modern times. It did not last long as a trait in the Arctic Whale Hunting culture. It plays a rather important role in the Okvik and Old Bering Sea phases; in Okvik we have seen close parallels to Ipiutak art, but in the Birnirk, Punuk, and western Thule phases we have relatively few and simple animal carvings, a situation which is also true of the eastern Thule phase. Meanwhile, in arctic Alaska and the Bering Strait region, carvings with zoomorphic motives seem to reappear in

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1 Tallgren, 1919, Fig. 114, No. 8; Fig. 120, Nos. 14, 15.
2 Rainey, 1941a, Fig. 24, No. 1; Fig. 25, Nos. 1, 3.
the modern phase, analogous with the ornamentation. Also in this case we are inclined to believe in an influence from the Bering Sea Eskimo. In the sculptural art of this region we find more striking parallels with Ipiutak art than in the decorative art. A glance at Nelson’s plates of earrings, belt fasteners, arrow-straighteners, handles for various objects, bodkins, and cord attachers reveals a wealth of animal heads, limbs, and complete animals, realistic as well as fantastic. In addition to these general features we may mention closer parallels in the frequent use of inlays in eyes and of ornamental chains, often with zoomorphic carvings attached. Hunting helmets are ornamented with bird heads with a long beak similar to the Ipiutak loon heads and openwork carvings.\(^1\) It is probably also a survival of the Ipiutak tradition when harpoon socket pieces were carved to represent an animal with the socket in the open mouth.\(^2\) We have previously referred to the animal figure with the skeleton design on its belly (p. 126) and to the frequent occurrence of this design on Tlingit and other carvings from the Northwest Coast. The Ipiutak find may throw some light on the relationship between Northwest Coast and Eskimo art. Comparing Old Bering Sea and Northwest Coast art, Collins comes to the conclusion that there is no real resemblance, but there still remains a vague, general similarity.

which may lead to the expectation that future archaeological work may reveal an earlier stage of Northwest Coast culture closer to the ancient Eskimo culture of Bering Sea, or even, somewhere, a culture that may have been ancestral to both the Northwest Coast and Eskimo cultures.\(^3\)

We agree with Collins in his view of Old Bering Sea-Northwest Coast art, but we believe that Ipiutak art is closer to the Northwest Coast art. As Collins points out, Northwest Coast art is inextricably linked with totemic and other cultural concepts, [and] is marked by symbolic and conventionalized representations of animals forms.\(^4\)

The same statement can to some extent apply to Ipiutak art, especially to the carvings in the round, and also to some of the engravings, for instance the tubes and the ornamented band (Fig. 38a). Many of the Tlingit carvings in bone and horn with zoomorphic motives are reminiscent of Ipiutak carving, especially those with the skeleton motive. Among other similarities we may point out the schematic faces, the eyes on the socket piece (Fig. 15a) and the tube (Fig. 45), and the mask-like carving (Fig. 37) which, in general appearance, resembles Northwest Coast ivory and bone carving. On the other hand, this beautiful carving also bears some resemblance to early Chinese art, thus suggesting, in Ipiutak, the link that connects the Northwest Coast with the Old World.

**SUMMARY**

We shall now endeavor to present a comprehensive résumé of Ipiutak culture and demonstrate its relationship to Eskimo culture as a whole. It is impossible, despite the large quantity and range of the excavated material, to give a complete picture of the culture. Many important details are still obscure, partly for lack of sufficient evidence, partly because we may have drawn incorrect conclusions from the data available. Since we are here analyzing this hitherto unknown and undescribed culture for the first time, we feel confident that further investigation will undoubtedly close the gaps in our data and correct the misinterpretations almost unavoidable in this initial presentation.

\(^1\) Nelson, 1899, 169; Pl. 64, Figs. 18, 22; Fig. 45, Nos. 6–8.


\(^3\) Collins, 1929, 13.

ing, as indicated by the great number and variety of types of arrowheads; the frequent occurrence of arrowheads as grave furniture; the preference for antler as a material for weapons and tools despite the apparently unlimited supply of walrus ivory; the use of birchbark for vessels; and the use of willow branches as bed- 
ding support. All these traits bear evidence that the Ipiutak people were following the traditions of an inland culture and that they were not adapted to life exclusively on the Arctic Coast. On the other hand, their occupation of the coast and their hunting of marine mammals were not recent traits. Their fully developed harpoon, consisting of a toggle harpoon head, foreshaft, socket piece, and ice pick, which differs only in insignificant detail from the common Eskimo harpoon, is evidence of the survival of an old trait which is also reflected in their outstanding skill as ivory carvers. Since both the inland and the coastal traits are ancient, we must assume that, for a considerable period, the bearers of this culture must have spent part of each year inland, hunting caribou, and the other part on the coast hunting sea mammals.

The Ipiutak people probably spent the fall and winter in the hilly hinterland of Point Hope and in the mountains farther inland where their main occupation was caribou hunting and fishing. The caribou were hunted with bows and arrows and we assume that rows of *inuksut* (see p. 34) were used for the hunting. Though we found no traces of kayaks, we are inclined to believe that caribou were speared from kayaks in the rivers and lakes during the fall and spring. This assumption is based on the presence of flint lance heads exactly like those found on modern caribou lances. Small game was probably trapped or snared. The salmon spear was undoubtedly primarily used in the inland rivers and lakes; in the winter, through holes in the ice. In the spring the Ipiutak people, following the migrating caribou, moved down to the coast. The excavations produced no clues to the type of transportation. Traveling in winter without sleds seems an impossible feat, and though no traces of sleds or harness were found, it is still probable that dog sleds were used. Some flat wooden boards of the size and shape of bone sled shoes, with longitudinal marks possibly caused by friction on one side, may be sled shoes.

The two major attractions of Point Hope as a summer settlement were the walrus herds that still pass and sometimes haul up on the peninsula and its excellent building sites. Walrus as well as bearded seal and ring seal were probably mainly harpooned on the pack ice in the spring and early summer. Harpoons with fixed foreshafts were used to take walrus and seal basking on the ice. We must assume that harpoons with small, loose foreshafts were used from kayaks or, at least, for game taken in the water. The bird spear with side prongs is another implement for open-water hunting, but it is questionable whether this is not an intrusive element. Another feature related to kayak hunting is the use of a float. None of the common float accessories was found; it is the absence of mouthpieces, in particular, which makes its use problematic since these are usually made of substantial materials like ivory or antler. The problem of the float is linked with that of whale hunting, at any rate in the form in which we know it from the Arctic Whale Hunting culture. We do not believe that the Ipiutak people were whale hunters. Our assumption is based on the complete absence of baleen and whaling harpoon heads in the ruins. Baleen is, of course, a perishable material; so are hair and feathers, but some of these were preserved. A somewhat dubious fragmentary whaling harpoon head was found in one of the Ipiutak burials, but its relation to it is questionable. The material for the few whalebone artifacts excavated may have originated in drift whales. Since we do not believe the Ipiutak people lived on the coast during the winter, we must assume that hunting seals at the breathing holes on the ice was not practiced. The weapons are distinguished primarily by the extensive use of finely chipped flint blades inserted in the sides of arrowheads, harpoon heads, and lance heads.

The Ipiutak dwelling, similar to that used by most Alaskan Eskimo, was a semi-subterranean hut with a wooden superstructure supported by four posts placed inside the walls and covered by a layer of sod and dirt. At the west was a passage with its floor level with the house floor. Bear and caribou skins probably served as doors. The house had no "cold trap." Generally the room was square with rounded corners. Along the three walls were low gravel benches which served as seats in the daytime and as beds at night. The bedding rested on a thin layer of willow branches. The central part of the room
was occupied by a gravel or wooden floor, in the middle of which was a round or oval open fireplace. In the roof above the fireplace there must have been an opening which served both as an outlet for the smoke and as a window. The large Ipiutak village was presumably built up gradually rather than the result of a single contemporaneous occupation.

The most conspicuous features of the tools of the Ipiutak culture are the extensive use of chipped flint implements and the absence of rubbed slate blades. Moreover, the flint industry, as demonstrated in its fine craftsmanship and multiplicity of forms, occupied a prominent position in prehistoric cultures. The delicate arrowpoints and inset blades are the best examples of the skill of the Ipiutak craftsmen, and the great variety of knife blades and scrapers implies a high degree of specialization. Most of the points and blades were made of flakes. Percussion flaking and pressure flaking were practiced. For working flint they used a neatly made hammer with a bone head and a flaker consisting of an antler handle, usually ornamented, with a bone point lashed to it. The only ground stone implements were adze blades made of a hard silicified slate and a chisel-like tool with a short, transverse edge. Though more than half of the artifacts unearthed at Ipiutak were of stone, primarily flint, we have evidence of the use of iron by the Ipiutak people. A single tiny piece of iron was found in the form of a bit in an engraving tool. This was large enough for analysis and proved to be not of meteoric origin but was most likely the product of some metalworking Asiatic people. Further evidence of the probable use of iron, and of its scarcity, is a type of knife handle designed to hold a very small blade, presumably of iron. This handle is probably the prototype of the common Eskimo composite knife handle of which only a few occurred in the Ipiutak find. Most knife handles for flint blades were undoubtedly of wood, but only three were found with the blade in situ. Some antler and ivory handles with an end socket or a side groove are of the common Eskimo type, as are adzes, mattocks, picks, etc. The engraving tool has a more limited distribution within the Eskimo area. It usually consists of an elaborately carved ivory shaft with a sharpened ground squirrel incisor as a bit. The absence of parts of the common Eskimo bow-drill is noteworthy; correspondingly, most perforations were gouged out; and round holes were probably made with a hand drill. The two-handed scraper occurs in two forms: the common type of caribou tubular bone and a wooden shaft with a separate blade in the middle. The latter type is common in Siberia and is also known from Southwestern United States, but it has not previously been reported in arctic America. Bird bone needles, some extraordinarily fine, were found in considerable numbers, but no carved needle cases and no thimble holders were excavated. It is possible, however, that hollow bird bones were used as needle cases.

Household utensils were extremely rare in the Ipiutak find. This is partly a consequence of the total absence of stone or pottery lamps and cooking pots and partly due to the poor conditions for the preservation of wood. We know that flat, oval wooden trays, probably meat trays, were used. The presence of sewed pieces of birch bark indicates that this material was used for vessels. The absence of fireproof cooking pots suggests cooking with hot stones and/or frying on a flat stone. Pyrites were used to make fire.

The collection contained no remains of garments, but these were probably made of caribou skin and, judging from the fine needles, must have been skillfully made. Relatively few types of ornaments were found; one is the brow band, a common Eskimo form. Of personal adornment two types are noteworthy: labrets and facial tattooing. The occurrence of labrets in the Ipiutak culture is rather surprising, since this element is assumed to have been recently introduced in this area. At Point Hope labrets seem to have belonged to the original culture, only to disappear there, and survive among the inland Eskimo or among the Eskimo to the south. They were then reintroduced to Point Hope in historic or late prehistoric times. The Ipiutak tattoo patterns originally had a very wide distribution and were used by the Central Eskimo until recently. Our knowledge of the tattoo patterns of the Ipiutak people derives from the schematic human faces engraved on various objects. These schematic faces constitute the most common realistic motive in Ipiutak surface decoration. Whether they were purely decorative or had some religious significance cannot be determined. Another realistic design, the skeleton motive, a stylized spine and ribs engraved on animal figures, may have religious
significance or may be purely decorative. In some instances the skeleton motive presumably represents the spirit of the animal; in others it is more or less conventionalized and undoubtedly purely ornamental. This transition from a realistic to a geometric design is a common feature in Ipiutak decorative art and one of the features in which it deviates from the otherwise similar art of the Okvik and Old Bering Sea phases of the Arctic Whale Hunting culture. Compared with the characteristic Old Bering Sea art, the Ipiutak geometric surface decoration is simpler, but it is applied to a greater range of artifacts.

It is in carving in the round that the Ipiutak culture is especially distinguished. The ivory carving and the flint industry are the two features which give the culture its characteristic stamp. Animals and, in particular, animal heads were the favorite motives of the Ipiutak artists. Harpoon socket pieces, for instance, are usually carved in the shape of an animal head. The same motive is used as the terminal decoration on implements such as daggers, knife handles, and adze heads. The motives are derived not only from the local animal life, from bears, wolves, seals, and loons, but also represent strange creatures which resemble reptiles and amphibians. Fantastic animals and carvings composed of different animals are also represented. This animal complex is suggestive of the Scytho-Siberian animal style. The presence in the Ipiutak culture of such characteristic elements of the animal style as the pear-shaped boss on the hips of animals, the griffin head, and the skeleton motive suggests the probability that the Ipiutak animal style originated in Asia.

Thanks to the numerous burials and their contents we have a better knowledge of the spiritual culture of the Ipiutak people than of any other prehistoric culture in the Arctic. The general impression is that of highly complex and elaborate burial customs. There are at least two different types of Ipiutak burials, the log coffins and the surface burials. The typical coffin is deeply buried and contains a single skeleton which is extended, supine, with the hands on the pubic region and the head at the west. The grave goods, usually scanty, are similar to the materials found in the houses. The original appearance of the surface burials is uncertain. They consist of scattered fragments of human bones and pieces of wood and generally contain more grave goods than the coffins. Each burial formed a unit; several units were often arranged in long, straight rows. Characteristic of the grave goods are elaborate, peculiarly shaped and apparently non-utilitarian, openwork carvings. Only a few unfinished examples of these were found in the houses. Our interpretation of the grave furniture leads us to conclude that the spiritual life of the Ipiutak people was basically the same as that of the modern Eskimo and the boreal peoples of Eurasia.

A ghost cult and shamanism were the two most conspicuous elements of the spiritual culture of the Ipiutak people. We have already suggested the possibility that the animal figures with the skeleton design represent spirits, possibly a shaman's guardian spirits. The adornment of the deceased with artificial eyes, a mouth cover, and noseplugs is probably also evidence of the existence of a ghost cult and was probably intended to protect the body against evil spirits. A loon skull with artificial eyes suggests that the loon played a special role in the spiritual life of the Ipiutak people, as it did until recently among the Eskimo and certain North Asiatic peoples, an impression fortified by the frequent occurrence of ivory carvings representing loon heads. It is one of two examples of the transfer of a human burial custom to an animal, a trait equally widely distributed. The second example is that of a dog burial in a log coffin. These two animal burials, together with the fact that many Ipiutak animal heads had the same tattoo marks as the human heads, prove that the circumpolar conception of the relationship between animals and humans is applicable to the Ipiutak people. Some of the animal carvings, a few carved human heads and skulls, and the fantastic openwork carvings have been interpreted as shamen's regalia. This interpretation is based on their resemblance to the carvings attached to the Tlingit shaman's costume and to a comparison with the Siberian shaman's costume. An analysis of the design composition of the openwork carvings reveals that the majority are composed of one or more of the following three elements: animal figure, chain, and swivel, all of which have been found in metal on Siberian shamans' costumes. They are considered as symbolic objects, but so far their meaning is obscure.

In our discussion of the Ipiutak culture elements, we have constantly referred to their oc-
currence in the various phases of Eskimo culture. We noted then that some elements had a general, others a more limited distribution, that some elements are endemic in the Ipiutak culture, while certain characteristic Eskimo elements do not occur in the Ipiutak culture. It is obvious that the two cultures are closely related. The question is whether the Ipiutak culture is a new form of Eskimo culture or is to be considered as a proto-Eskimo culture. To answer this question we must first define Eskimo culture. Birket-Smith has expressed his view of the Eskimo culture as follows:

That which makes the Eskimos stand out from other peoples, the sub-arctic tribes in Siberia and North America included, is their capacity for living entirely independently of the forest. It is this capacity which has enabled them to make their way further north than any other people, that which has enabled them to take the step out in the arctic archipelago and opened up access to Greenland. In other words it is their adaptation to the sea.\(^1\)

Birket-Smith is not thinking of the sea as such, but of the sea ice, and it is breathing-hole hunting and the blubber lamp which he “considered to be the main props of the Eskimo culture.”\(^2\) According to this definition, Ipiutak is not an Eskimo culture because, as we have shown above, it was not fully adapted to the sea. We do not believe the Ipiutak people hunted seals at their breathing holes, and they had no lamps. However, Birket-Smith’s definition is too limited. If we accept it literally, we must find a name for the culture of those groups of Eskimo who have no breathing-hole hunting and probably never had, for instance most of the Alaskan Eskimo. We also fail to understand why any Eskimo culture must include the use of a blubber lamp. The great significance of the lamp lies in its use for heating, cooking, and light, but not all Eskimo used it for these purposes. Most Alaskan Eskimo, that is, all those who lived in the typical Alaskan house, had an open fire and used the lamp only for light. They could have existed without a lamp as did the Ipiutak people, and yet we would not hesitate to call theirs an Eskimo culture. We agree that Birket-Smith’s definition was valid when published, and that breathing-hole hunting and the use of the blubber lamp for heating, cooking, and light are essential to life in central and eastern Arctic America, and probably originated there. But, since then, archaeological investigations in Alaska have revealed new forms of Eskimo culture that make it necessary to alter the definition. Accordingly, despite the absence of the lamp and other elements, we are inclined to consider the Ipiutak culture an Eskimo culture, providing the osteological material also proves the Ipiutak people to have been of the Eskimo type. This we believe is fundamental. A prerequisite to the formulation of a definition of Eskimo culture is that the bearers of that culture are Eskimo in physical type or, even better, speak an Eskimo language. Then we must extend its boundaries to include all variations of Eskimo culture. This cannot be done until we are positive that we have discovered all the variants, and of that we cannot be certain until all the Eskimo territory has been thoroughly investigated archaeologically.

Unfortunately we are not yet able to say whether the Ipiutak people were Eskimo in physical type, nor do we know anything of the type of language they spoke. But, as we shall show presently, we believe that in their known culture elements we have sufficient evidence to prove that the Ipiutak culture is not only Eskimo, but an ancient form as well. First of all, it includes a number of culture elements widely distributed in the Eskimo area. These are: bow; arrowheads (except the types with inset blades); harpoon, consisting of toggle harpoon head, detachable foreshaft, socket piece, and shaft; harpoon with fixed foreshaft; harpoon head with closed socket and end blade at right angles to the line hole; ice pick; bird dart side prong; gull hook; leister prong; knife handle for side blade near end, for end blade and composite knife handle; wedge; whetstone; mattock; needle; bodkin; awl; cutting board; flint endscraper; two-handed scraper of tubular bone; scoop; spoon; meat fork; pyrites for fire-making; pumice; snow goggles; brow band; tattoo pattern; swivel; animal carvings; chain links; simple ornamental design such as the dot, spurred line, and Y-figure; shamanism; and a ghost cult.

To determine its position within the Eskimo culture, we will now compare the Ipiutak culture with the variants of Eskimo culture. The greatest number of close parallels with the Ipiutak culture are found in the Okvik phase of the Arctic Whale Hunting culture. The following

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1 Birket-Smith, 1929, pt. 2, 222.
2 Ibid., 223–224.
Ipiutak types occur in identical or similar form in the Okvik phase: arrowheads, Type 3; arrowpoints, Type 1; bird arrowheads; harpoon heads, Type 1; harpoon foreshafts, Type 1; salmon spear barbs; knife handle for side blade; knife handle, Type 3; engraving tool; adze blades, Type 1; mattocks; shovel blade of walrus scapula; flaking hammer; flint flaker handle; knife end blades, Type 3; hooks; buttons; rings; snow goggles with round holes; chain links with bird head and animal carving ("snake head"). To these 21 types we may add the Okvik style of ornamentation which is not only composed of the same elements but is very similar to the Ipiutak style. To these elements we can also add the occurrence of the central fireplace in the Okvik house.

It is obvious that a close relationship exists between the two cultures. We believe that the most plausible explanation is that the Okvik phase and the whole Arctic Whale Hunting culture were based on a foundation of Ipiutak culture, either in the form as known from Point Hope or another, possibly older phase. The presence of seven typical Okvik artifacts in the Ipiutak houses and burials, a harpoon head, two socket pieces, and four bird dart side prongs, indicates that the Ipiutak village and the Okvik site on Punuk Island were probably inhabited at the same time and that they were in contact with each other. Of course this does not exclude the possibility that the Ipiutak site was established before that time. Our assumption that the Ipiutak complex antedates the Okvik phase is based upon the following evidence: In the Okvik phase we find a trace of a flint industry corresponding to that at Ipiutak. We find the same flaking tools and some chipped flint elements, but these were being replaced by rubbed slate implements, and the old flint flaking technique was transferred to slate. The Okvik house is a form transitional between the Ipiutak house type and that of the Arctic Whale Hunting culture. The use of inset blades is limited to harpoon heads. Antler was gradually being replaced by ivory and bone. The prototype of the composite knife handle (Ipiutak knife handle, Type 3) is of secondary importance compared with the true composite knife handle, while at Ipiutak the prototype is predominant. Okvik decorative art is purely geometric, while Ipiutak art contains many examples of a transition from realistic to geometric design. Finally, and not least important, the Okvik phase includes a number of significant elements which persisted until recent time, but which do not occur in the Ipiutak culture. These elements are: rubbed slate implements, whaling, pottery, finger rest, float plug, fishline sinker, sled runner and cross piece, baleen toboggan, blubber hook, ice creeper, drill mouthpiece, carved needle case, drum handle, and human figurine. If the Okvik phase preceded Ipiutak, it is incomprehensible why even the most essential of these elements, such as slate, pottery, whaling, and the sled, were not adopted by the Ipiutak culture. We must, therefore, assume that Okvik and with it the entire Arctic Whale Hunting culture must have had a special development on an original foundation of the Ipiutak complex. It is obvious that the development has been in the direction of an adaptation to the sea, to the open sea as well as the ice.

It seems natural to assume that this development has occurred on the islands in Bering Strait and the northern part of the Bering Sea where we find the earliest culture phases. There were no caribou, but the absence of this game, so important to the Ipiutak complex, was greatly compensated for by the abundance of sea mammals. Whales and walrus passed the islands in large numbers twice every year. Seals were also abundant. What then was more natural than that the people stayed on the islands and developed the techniques necessary to catch these migrating masses of meat. The invention or adoption of the inflated float enabled them to secure the large whales and thus made whales a dependable source of food. Naturally, it became the fundamental element in the new culture. It is not very likely that all of the new elements developed in this region; for instance, it is unthinkable that pottery developed here independently. It must have been adopted from another culture, and we consider east Asia as the most likely place of origin. We base our assumption on the fact that exactly the same kind of ornamented pottery with "check stamped" and paddled design, which is characteristic of the two early phases of the Arctic Whale Hunting culture, occurs in China1 and at the Amur River (Cat. No. 70-1062). It is also possible that the use of slate

1 Bylin-Althin, 1946, Pl. 4, Nos. 13, 17.
and the bowdrill were introduced from east Asia. We also suggest the possibility that the East Asiatic strain in the Eskimo population, which in northern Alaska is more pronounced among the Tareormiut than the Nunatarmiut, results from this contact with east Asia. The other culture elements may be local inventions. The abundance of whalebone explains the beginning of its use in the house structure and later the development of the whalebone house. The possession of pottery and the easy access to blubber make the transition from open fireplaces to blubber lamp understandable.

The farther we move from the Ipiutak culture in time and space, the fewer and less conspicuous parallels are observable in the Arctic Whale Hunting culture. This is noticeable in the Old Bering Sea phase even if the Ipiutak find includes some features, especially in the ornamental art, which may be interpreted as the result of direct contact. Of Ipiutak types that have more or less close parallels in the Old Bering Sea phase, we may mention arrowheads, Type 3; harpoon heads, Type 1; rare harpoon head with serrated point; socket piece with animal heads; wooden knife handle for side blade; adze head, Type 1; adze blade, Type 1; chisel; mattock; pick; marlin spike of walrus rib; hook; flaker point (no handles); of chipped flint: end blade, Type 3; sidescraper; endscraper; drill point; and grave. The Birnirk phase is not well enough known to provide data for a valid comparison. The only noteworthy parallel is to be found in the use of flint blades in harpoon heads and arrowheads and the composite flint flaker. In the Punuk phase we find the closest parallel to the Ipiutak harpoon head, Type 1, and the engraving tool. At Point Hope the Ipiutak flint technique survives through the western Thule, Tigara, and Modern phases, mainly in the form of scrapers which are often indistinguishable from the corresponding Ipiutak types. Otherwise these culture phases are composed of typical Whale Hunting culture elements. In arctic Alaska Ipiutak culture elements, which apparently had become extinct, appear again in the Modern phase. These elements are: bird arrowheads with socket; flaking hammer; composite flint flaker; notched bird bone for snare; and labrets. The absence of the flaking tools and the snare parts in the western Thule phase may be accidental, but the bird arrowhead and the labret must have survived either in the interior or to the south and were probably reintroduced. In the eastern Thule phase (the classical Thule culture) we notice the occurrence of lance heads with several flint side blades. These should probably be ascribed to another culture, as we shall see presently. From the later phases in Greenland we shall only mention such types as ornamental bodkins with a grooved top from the Inugsuk phase, and from East Greenland the tattoo pattern and the skeleton design.

The Ipiutak culture and the various phases of the Arctic Whale Hunting culture having been compared, it is expedient to turn to those forms of Eskimo culture which are not part of the Arctic Whale Hunting culture. A comparison with some of these is not adequate because of the scarcity or complete lack of archaeological information. East of Point Hope is the territory of the Nunatarmiut, whom we consider the descendants of the Ipiutak people. Our main arguments in favor of this theory are their type of house, which is in all essentials identical with the Ipiutak house, and their inland-conditioned culture. As their culture is highly influenced by the Tareormiut it is almost impossible to distinguish between original and intrusive elements. Of original elements we mention only the importance of caribou hunting, fishing through the ice with a salmon spear, and the use of birchbark vessels. No prehistoric sites antedating the western Thule phase have been found. In that period we find very slight difference in types of implements between the coast and the interior.

At the Mackenzie River a similar mixture of coast and inland cultures is reflected in the Mackenzie house, which is a modified Ipiutak house. When the comparison between the Ipiutak and the modern Central Eskimo culture fails to reach more points of resemblance, we believe it is because of the lack of adequate archaeological material from sub-arctic Canada. Only archaeological investigation can definitely settle the much-discussed problem of the origin of the Central Eskimo. When, on the basis of the Point Hope investigations, we venture to suggest a solution, it is, first, because the Central Eskimo, like the Ipiutak people, are primarily caribou hunters; second, because in the central and eastern regions we find a number of features that suggest a relation to the ancient cultures in Alaska. The Caribou
Eskimo, whom Birket-Smith considers not only the most primitive group of the Central Eskimo but the sole survivors of the Proto-Eskimo, are the only known Eskimo, except the Ipiutak people, who do not have the blubber lamp. Though negative evidence, it is still important. However, it is not in the Ipiutak culture as such that we find the parallels but in the culture of the Nunatarmiut.

As already mentioned, Birket-Smith has been aware of the similarity between the cultures of these two groups and if, as we have tried to prove, the Nunatarmiut had inland traits in their culture originally, this similarity gains in significance. Both peoples include groups that are entirely inland dwellers, depending on caribou hunting and fishing, and knowing nothing of sea mammal hunting. Other groups go down to the coast in the spring and hunt seal and walrus from the edge of the ice, and seals basking on the ice. Like the Nunatarmiut, the Caribou Eskimo presumably fished through holes in the ice sheltered by a snow hut or a tent. In addition, the two groups have the following traits in common: a conical tent with caribou skin cover; a kayak covered with caribou skin; the same type of snow shovel, which may be a more recent development of the Ipiutak whalebone shovel; caribou hunting methods, such as the use of a single or converging rows of inugnut and spearing the animal from a kayak; and exposure of the snow. Finally, we are inclined to believe that the snow-covered hut of the Nunatarmiut is the prototype of the classic snowhouse of the Central Eskimo. We must also call attention to several additional Ipiutak parallels, namely, the tattoo pattern of all the Central Eskimo, the swivel with the enclosed rotating part, the bone dagger, and the caribou lance.

Another point of resemblance with the west is the striking similarity between the flint implements from Southampton Island and those from Ipiutak. The flaking technique and the forms of the ulu blades and discoidal blades are so much alike that it would be difficult to distinguish between them. The pentagonal arrow-points are almost identical with those from the Near Ipiutak burials (Pl. 80, Figs. 1–14), and although the lance heads or knives with inset flint side blades differ somewhat from the Ipiutak lance heads and daggers, the relation seems obvious. An independent development in two different places of so specialized an implement is inconceivable; hence, they must have a common origin. Ipiutak, with its highly developed flint industry and its many forms of implements with flint side blades, seems to be the logical choice as the place of origin. The problem is how this particular type and the flint industry as a whole reached Southampton Island. There are two possibilities: either directly, carried by a migration of Ipiutak people, or indirectly, with the Dorset culture as a medium. In this undoubtedly ancient but still little known Eskimo culture we have an eastern parallel to the Ipiutak culture. Flint and related minerals were used extensively for scrapers and blades and hard siliceous slate for adze blades and chisels.

While the types of adze blades and chisels are identical with the Ipiutak forms, we find only a few close parallels, such as the endscrapers and sidescrapers, to the Ipiutak flints. The Dorset flint implements are generally smaller than those from Ipiutak, but the most conspicuous difference is in the shape of the blades. The harpoon blades or arrowpoints are either triangular, with a concave base, tanged, or furnished with two side notches near the base. Similar notches are usually found on the knife blades. Knife or lance blades with a more or less pronounced tang occur in the Ipiutak series, but no notched or triangular blades. This applies not only to Ipiutak but to other ancient Eskimo cultures in Alaska proper. Only in the Aleutian Islands do we find notched blades. If, as we believe, the Dorset culture originated in the west, at least some Dorset types of blades were adopted from another source, probably from neighboring Indian tribes.

In addition to those mentioned above, the Dorset culture has several other features in common with the Ipiutak and related Alaskan cultures which we consider to be part of the same complex. In the first place, the Dorset culture is based on the same economic factors as the Ipiutak culture: caribou, seal, and walrus hunting. Other Ipiutak parallels are knives or daggers with side blades, adze heads, flaker points, knife side blades, discoidal blades, ornamental plates with “horns” or a cylinder at the top, a seal figure with skeleton design, and an animal head with raised ears. The following are negative parallels: absence of whale hunting, bowdrill, and traces of a dog sled. We have the

1 Birket-Smith, 1929, pt. 1, 134–137.
following parallels to Near Ipiutak and Cook Inlet: harpoon heads with an open socket, a wide groove for lashing, and a medial or lateral oblong line hole, and the small oval or triangular-oval stone lamps of which we have one specimen from Near Ipiutak but which is the predominant type in south Alaska and the Aleutians. Finally, there are two parallels with the Aleutians; one is an identical form of sidescraper with a concave scraping edge and wide notched base, and the other is the characteristic Dorset ornamentation, as pointed out by Quimby. With all these traits in common, there can be no doubt about a close relationship between the Dorset culture and the Ipiutak complex. As stated above we are of the opinion that the Ipiutak is the earlier of the two cultures and that, consequently, the bearers of the Dorset culture must have moved eastward from Alaska and settled around Hudson Bay. This migration undoubtedly antedated the migration of the Arctic Whale Hunters, but that contact was established at some later time is evident from the many mixed finds of Dorset and Thule types in the eastern Arctic and from the Dorset elements that occur in the eastern Thule phase. We do not know the eastern limit of the first migration, but close parallels to Ipiutak flint implements, such as arrowpoints, Type 1, knife end blades, sidescrapers and endscrapers with slanting edge, in West Greenland indicate that it reached Greenland.

Returning to the Alaska area we can discuss those cultures south of Bering Strait that are not a part of the Arctic Whale Hunting culture complex. As we have previously stated, we believe they belong to the Ipiutak complex. The Bering Sea Eskimo, in which category we include the Eskimo population of the Alaskan mainland between Norton Sound and the Alaska Peninsula, are the least known of all the Eskimo, ethnologically and archaeologically. Despite our deficient knowledge of these people, we find that so many of their culture traits remind us of the Ipiutak traits that a relationship seems rather obvious. Future archaeological investigations may show the actual extent of this relationship; at present, we must be content with ethnological parallels, mostly taken from E. W. Nelson's classical work. A mere glance at his illustrative plates is sufficient to suggest the relation between Bering Sea Eskimo art and the characteristic Ipiutak art. In the numerous ivory carvings, executed with great skill and often furnished with animal heads with inset eyes, and the frequent use of ornamental chain links, we have reminders of the Ipiutak carvings. The similarity to the Ipiutak carvings is more than superficial; closer examination discloses such parallels as openwork carvings and bird heads with long beaks used on hunting helmets, animal carvings with the skeleton design, caribou hoofs, antler tubes, and harpoon socket pieces of animal shape with the mouth forming the socket. Among additional parallels we may mention the house, which is essentially identical with the Ipiutak house; harpoon foreshafts with four equally spaced longitudinal lines, a wedge-shaped tang and attached to the harpoon line, and the corresponding socket piece with a wooden plug in the socket; multi-pronged fish or bird dart; hollow bird bone for ground squirrel snare; ornamental bodkin; and composite labret. When we add to these traits seal hunting, caribou hunting in regions where they occur, and fishing, which together are the basis for their economy, we believe that we have valid reasons for assuming a relationship with the Ipiutak culture and for the tentative incorporation of the culture of the Bering Sea Eskimo in the Ipiutak complex.

In the southernmost part of the Eskimo territory, including the Aleutian Islands, we are on firmer ground as far as our comparisons are concerned. Here we are dealing with archaeological material, which, in part at least, has been systematically excavated. This material, though originating in such widely different places as Prince William Sound in the east and Attu Island in the west, definitely gives the impression of close relation as far as the basic culture is concerned. As important collections from Prince William Sound, Kodiak Island, and the Aleutians still await final analysis and publication, we shall here confine ourselves to a comparison with three selected localities which may serve as a sample for the whole region. One example is the collection from Kachemak Bay, Cook Inlet, representing what De Laguna has termed the Kachemak Bay culture. Taken in its
entirety, it seems futile to correlate the Kachemak Bay culture with Ipiutak, dominated as is the former by notched stones, carved lamps, large “splitting” adzes, polished slate blades, stone saws, and barbed dart heads. Since these elements are mainly from the two later periods, there still remain in the first period a number of elements that remind us greatly of Ipiutak. In the first place, most of the stone tools are chipped, and among them we find forms similar to those from Ipiutak: arrowpoints, knife blades with or without tang, discoidal blades, and endscrapers. The predominating form of harpoon head is similar to Ipiutak Type 1a and identical with some Near Ipiutak heads. Other parallels in the first period are: adze blades, Types 2; whetstone; pumice; harpoon foreshaft, Type 1; barbed points; sewing needle; bird bone tubes; flint flaker point; wedge; and, especially noteworthy, labrets, and the absence of pottery. In addition to these we find in the later periods of the Kachemak Bay culture and on Kodiak the following parallels: inhumation; dismembered bodies; artificial eyes; death mask; schematic faces; skeleton design; tattoo marks; grinding stone; adze head, Type 1; engraving tool; and the house. The absence of some or all of these elements in the first period of the Kachemak Bay culture may be accidental as this was less well represented than the later periods.

The comparison with the Aleutian Islands is based partly upon the material published by Jochelson and partly upon unpublished material excavated or examined by Larsen on Amaknak Island in 1945. The following parallels between the Ipiutak culture and the prehistoric Aleut culture are considered significant: harpoon head, Type 2; arrowhead, Type 3; arrowpoints, Types 1 and 2; barbed prongs; engraving tool; composite flint flaker; discoidal blade; knife blade, Type 3; needle with eye; grinding stone; pumice; ornamental bodkin, with grooves or chain link; labret; inhumation; death mask; and the house. With the Near Ipiutak phase there are close parallels, such as the stone lamp, the adze head with a side notch, and the flaker
point with a conical bit. Polished slate tools do not occur in the lower part of the Aleutian middens, and antler is used despite the fact that, as far as we know, caribou never lived on the Aleutians. It seems obvious that the Aleutian Islanders originally possessed an Eskimo culture related to the Kachemak Bay culture and that both belong to the Ipiutak complex.

Between Cook Inlet and the Aleutian Islands we have Weyer's find from Port Möller on the Alaska Peninsula. As may be expected it is related to both Cook Inlet and the Aleutians, and, like these, we must consider it as belonging to the Ipiutak complex. It contains a considerable number of chipped stone implements, but as they are made of inferior materials such as basalt, the artifacts are cruder than the corresponding Ipiutak forms. Some arrow-points are very thin, but generally wider than the average Ipiutak specimens and in that respect are like the Near Ipiutak form. Knife blades with a tang and sidescrapers are other stone tools that remind us of Ipiutak shapes. As in the Ipiutak culture a composite flint flaker was used. The antler handle is narrow, like Ipiutak Type 2; the point has a conical bit like that in the Near Ipiutak phase. Marlin spikes made of walrus ribs and salmon spear barbs are identical with the Ipiutak types.

The Ipiutak complex, which includes the Ipiutak, Near Ipiutak, Dorset, and Kachemak Bay I cultures, may very well be the earliest Eskimo culture in America, but its chronological position in the form found at Point Hope depends on two uncertain factors. The first is the time span between the earliest and the latest Ipiutak house. As the Arctic Whale Hunting culture is at least partly contemporaneous with the Ipiutak village, the Ipiutak complex must have existed a long time to allow for the development of the Arctic Whale Hunting culture. The second uncertain factor is the position of the Near Ipiutak phase in relation to Ipiutak. At Point Hope it appears to be later than Ipiutak, but it may have existed elsewhere earlier. Undeniably, as in the first period of the Kachemak Bay culture, its harpoon heads and ornamentation seem to be more primitive. If these primitive features are not the result of degeneration, which is possible, we are inclined to suggest the existence of an Ipiutak-like culture which antedated the Ipiutak village as exemplified by the material described in this paper. Further archaeological investigation, especially in the region south of Bering Strait, should answer this question.
ORIGIN OF THE IPIUTAK CULTURE

As intimated in the analysis of the Ipiutak culture there can be no doubt about its Asiatic origin. Judging from the many close points of similarity with Asiatic cultures, it has not flourished very long on American soil. The flint industry alone emphasizes its close relationship to the Old World, particularly its boreal regions. When we add to its obvious connection with the Scytho-Siberian animal style, the similarity in burial customs and other traits of intellectual culture, as well as the knowledge of iron, we consider it almost superfluous to discuss the possibility of its American origin. Some culture traits are undoubtedly the result of local development and contact with neighboring people, particularly those of the Arctic Whale Hunting culture, but these are too few and insignificant to blur the picture of an Asiatic culture transferred to American soil. Therefore, our object here is not to prove that the Ipiutak culture stems from the Old World, but to discover the most likely place of its origin in Asia.

Since the Ipiutak culture is primarily based upon caribou, seal, and walrus hunting and since the Ipiutak people possessed fully developed equipment for hunting these animals, we can be reasonably certain that either the Ipiutak people or their ancestors hunted these animals before they migrated to America. The area in which we may discover the Asiatic home of the Ipiutak people is thus limited to the boreal regions adjacent to the sea. If we may assume that the walrus was one of their original game animals, which their excellent and numerous ivory carvings seem to indicate, we may limit the area still further. The Pacific walrus, Odobenus divergens (Illiger), is now distributed from the Bering Sea northward to the Arctic Ocean where it is found as far to the westward as the mouth of the Kolyma River. To the south, it is rarely encountered south of the Pribilof Islands. The Atlantic walrus, Odobenus rosmarus (L.), lives in the northern Atlantic and Arctic oceans as far east as Katangski Bay and possibly on the New Siberian Islands. If, on the other hand, walrus hunting was not part of the original culture we must include the east coast of Siberia north of the Amur River, the Kuriles, Sakhalin, and northern Japan in the area in which the Ipiutak culture may have originated.

To learn which part of this area offers the most numerous points of resemblance with Ipiutak and thus must be considered the most likely place of origin of the Ipiutak culture, we compare the Ipiutak material with each of the following four regions: Northeast Asia, Central Siberia, Western Siberia including eastern Russia, and Scandinavia including western Russia. In our comparison we omit the houses, which have been considered in another section (p. 53), and culture elements that are distributed over the entire area, such as bear ceremonialism, celts of the Ipiutak type, and whetstones with a median groove. Beginning at the east, we have from Kamchatka and the Kurile Islands a number of flint implements like those from Ipiutak in shape and technique, though generally cruder, probably because of the inferior material. The following Ipiutak-like forms occur in finds from Kamchatka: arrowpoints, harpoon blades, knife blades, and endscrapers; from the Kuriles: arrowpoints, harpoon blades, knife blades, discoidal blades, and endscrapers. Except for a marble labret from the Kurile Islands the similarities to Eskimo culture are general and insignificant. From the lower Amur, Fowke reports a boulder with incised human faces which are reminiscent of the schematic faces. One had two parallel lines across the face, the other had V-shaped incisions extending from each nostril over the cheeks and from the middle of each eyebrow outward. The modern Palae-Asiatics in northeastern Siberia have a number of culture elements in common with the Ipiutak culture, but since these may be the re-

1 Adlersberg, Vinogradov, Smirnov, and Flerov, 1935.
sult of fairly recent contact with Alaskan Eskimo it would be misleading to use them for comparison. Of apparent greater significance are a number of parallels from China. Even if China proper is south of the area delineated, we must consider possible influence from this cultural power center. There is an undeniable resemblance between the mask-like set of carvings (Pl. 55) and ancient Chinese art, even though we are unable to offer a definite parallel from China. We cannot fail to call attention to the knives with a side groove for flint blades and to the bone needles with eyes from the neolithic site Lo Han T’ang, Kansu, recently published by Margit Bylin-Althin. It is worth noticing, however, that this site contained a wealth of fine pottery and no chipped flint. Finally, we must mention that the closing of the openings of a dead body prior to burial, a practice which we have described from Siberia in connection with animals (p. 121), was used on humans in China in the Han period.

Among the jade objects used for this purpose, Laufer illustrates some oval discs, described as eye-protective amulets, which are like the artificial eyes (Pl. 49, Fig. 9) from Ipiutak.

From Central Siberia, that is, between the Kolyma and Yenissei on the coast, we know of no comparative archaeological material. But in the interior, at a number of neolithic sites, especially in the Lake Baikal region, a flint industry has been reported, closely resembling that of Ipiutak in technique but less so in shape. In the classical find from Ulan Khada at Lake Baikal we have close parallels in the arrow-points, discoidal blades, and semilunar blades, but the majority of the forms illustrated differ in shape from the corresponding Ipiutak forms. Knives with flint side blades and implements which resemble lance heads or daggers, with two rows of flint side blades, were also used in the Lake Baikal region. There is undoubtedly a connection between these flint implements and the Ipiutak flint industry. The differences in shape must be ascribed to the wide time gap between these early neolithic types and the Ipiutak culture, which has a neolithic stamp but belongs in the early iron age.

It is in the third region that we find the greatest number and the closest parallels to the Ipiutak culture. Roughly speaking, this region comprises the area between latitudes 50° and 90° E., that is, the tundra regions around the Yamal Peninsula and the estuaries of the Ob and Yenissei and the forested hinterland, most of which consists of the gently sloping Ural Mountains. We include eastern Russia in this western Siberian region because the Ural Mountains do not form a culture barrier in this homogeneous culture area. It is in this area, rather than in the coastal region, that we find most of our parallels. We have one significant parallel from the coast, that is, Chernetsov’s discovery of an ancient coast culture based on sea mammal hunting, especially walrus hunting, on the Yamal Peninsula. The bearers of this culture lived in semi-subterranean houses with an entrance passage and a central fireplace, and they used harpoons and kayaks similar to those of the Eskimo. The Samoyed consider these remains as belonging to a vanished people called Sirchi. Chernetsov dates the culture to the end of the first or the beginning of the second millennium of our era. The discovery of an Eskimo-like culture so distant from the habitat of the present Eskimo is, of course, extremely significant. But Chernetsov’s find contains one item which is of equal importance, a metal brooch or clasp of the Pyanobor type decorated with a bear’s head held between the front legs (p. 129). Its occurrence on the Yamal Peninsula indicates that the arctic sea mammal hunters have had some contact with the metal-using cultures farther to the south, the route of communication undoubtedly being the Ob River. The center of the bronze-iron age cultures was the Volga-Kama region, from which expeditions were sent to the northern forests and the arctic coast in order to obtain furs and to fish. This is of particular interest to us, first, because the rake-like object (Fig. 50) is decorated with a similar bear figure, and, second, because in exactly the same region where the Pyanobor type occurs most frequently we find a considerable number of parallels to the Ipiutak culture. However, before we make our comparisons with the inland culture we cite another find from the coastal region made in 1934 near Obdorsk. From Tallgren we

1 Bylin-Althin, 1946, Pl. 54, Figs. 12, 13; Pl. 53, Fig. 13.
2 Laufer, 1912, 299.
3 Ibid., Pl. 38, Figs. 1-3.
4 Petri, 1916, Pl. 10, Fig. 32; Pl. 11, Figs. 7, 26.
5 Collins, 1943, Figs. 3a–b, 2d; Debets, 1930, Pl. 4, Fig. 9.
6 Chernetsov, 1935, 133.
7 Tallgren, 1936, Fig. 5.
8 Tallgren, 1936, 181-183.
quote the following description of the site:

At a place overgrown with bushes, masses of prehistoric finds were made under a layer of peat at a depth of 25–75 cms. below the surface on undisturbed sand. No dwelling hollows were noticed, but, in spite of that, this was probably a dwelling place (or a sacrificial site?). Here there are enormous quantities of bones of marine and forest animals and about 40 dogs' skulls, about 1000 spear- and arrow-heads of bone, hooks of bone for suspending pots, ornamented pieces of clay vessels, a couple of stone weapons, hand-mills, etc., knives of iron and so-called Chedic objects of bronze. Some of the latter, as well as a number of bone objects, spoons (Fig. 4, 1–2), combs (Fig. 4, 6–8), etc., are sculptured with fantastic or naturalistic figures of animal, heads of elk, birds, etc. that are excellently carried out (Fig. 4, 1, 2, 8). The population supported itself by sea fishing and hunting, possibly too by breeding reindeer. The finds probably refer to the period about the birth of Christ—500 A.D. The place is probably a seasonal dwelling place of "Permian" trappers from further south, scarcely of Samoyeds.\(^1\)

We note that both sea and land animals were hunted, the presence of dogs' skulls, numerous bone (anterior?) spear- and arrowheads, and the animal figures on the bone objects. As in other Siberian finds the presence of pottery does not conform with the Ipiutak culture.

As already pointed out (p. 83), we must assume that the Ipiutak people have been in contact with peoples who were using iron implements; otherwise, we cannot account for the iron bit in the engraving tool, the knife handles for iron blades, and the chains. We have also expressed the belief (p. 135) that the openwork ivory carvings were imitations of iron objects, specifically shamans' regalia. Having found a region formerly occupied by a people with an Eskimo-like culture and who had contact with the metal-using peoples in the interior, we find it logical to conclude that if this culture compares favorably with the Ipiutak culture, we have good reasons to believe that the Ipiutak people or their ancestors once lived in this region. As we shall see presently, such a comparison is valid. Many of our parallels come from the western slopes of the Urals, especially from the Perm Province. We are here referring to a bronze animal figure from Werch-Oschibsk with a diamond-shaped head, skeleton design, and pear-shaped ornaments on the shoulders (p. 126), and the wolf head from Ananino (p. 145). To these we may add the frequent use of a wheel-shaped ornament\(^2\) similar to those on the mask-like set of carvings (Pl. 55) and the ornamental metal chains.\(^4\) In his "Permian studies" Tallgren illustrates three bronze figures with a human body and a bear head.\(^6\) In the first place, they suggest a similar conception of the relation between man and animal to that found at Ipiutak (p. 121); second, one of the figures (7) holds the bear's head between its paws. On the front are incised schematic faces, reminding us of those from Ipiutak, although they have vertical instead of horizontal lines. A human figure of the same general type has a spine and three slanting rib-like lines on the back; the skeleton design is also found on a fish-like figure.\(^8\)

Comparable to the animal from Werch-Oschibsk are a considerable number of crudely cast bronze objects from different localities in West Siberia and one from Ufa Province in East Russia, described by Tallgren.\(^7\) The figures are flat on one side, slightly convex on the other, and often made in the shape of fantastic animals, or furnished with animal heads, among which is a diamond-shaped head. These figures more than anything else are reminiscent of the Ipiutak openwork carvings. One in particular\(^8\) is like the flat, openwork carvings (Pl. 64, Fig. 8). They were found close to the surface, and some appear to have been unused. The group was first described by Spitzyn who considered them as shamanistic. Tallgren also mentions this possibility, stating that, if they are, we have here the parallel to the well-known small figures which are still sewed on shamans' costumes and which represent Kor, the helping spirits of the shaman. From the Minussinsk area we have parallels like the stone monuments with human faces from the Minussinsk plain, several of which have two or three horizontal tattoo marks on the cheeks.\(^9\) If our interpretation of the two heads (Pl. 25, Fig. 11; Pl. 52, Fig. 15) as griffin heads is correct, then they can be compared to numerous examples of similar heads on daggers and other so-called Ordos bronzes from the

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\(^1\) The site was uncovered during the construction of an airport, and probably not by archaeologists.

\(^2\) Tallgren, 1936, 183–184.
upper Yenissei.¹ But, even if we omit these, we believe we have enough evidence to prove that this West Siberian-East Russian culture center was the original source of the Ipiutak familiarity with iron, the animal style, and the models for the openwork carvings. Since the Ob and Yenissei, with their tributaries, undoubtedly were the most important communication routes, we believe that the region around the lower Ob and Yenissei is a logical place to search for the remains of the ancestors of the Ipiutak people. It may seem very distant from the home of the modern Eskimo, but we may some time in the future find cultural remains farther east more closely related to the Ipiutak culture. Meanwhile that would not weaken our belief in an ancient cultural connection between Ipiutak and the Urals. It is very significant that students of another branch of science arrived at precisely the same conclusion from an entirely different angle. We refer to the linguists who, since the days of Rasmus Rask, have noted a grammatical similarity between Eskimo and Uralic languages. Uhlenbeck, the scholar who has most emphatically advocated this theory, is convinced that “the correspondences between the two linguistic families are too marked to be attributed to convergence.”²

We are also now on firmer ground regarding the dating of ancient Eskimo cultures. Collins has pointed out the similarity between the Ipiutak flint industry and neolithic cultures in Siberia,³ and there is undoubtedly a connection. However, despite the fact that Ipiutak has all the earmarks of a neolithic culture we cannot disregard the evidence that it has been exposed to metal-using cultures. This fixes the earliest possible date of the Ipiutak culture at the middle of the first millennium B.C., when iron objects were widely used on the open steppes of Eurasia.⁴ The arctic shores of Asia were probably the last to be reached by iron, and the parallel with the Ipiutak culture mentioned above indicates a later date. Tallgren dates the Permian and west-Siberian bronzes to the time of Christ.⁵ Most authors date the Ordos bronzes from 200 B.C. to 200 A.D.⁶ Minns, for instance, gives the date A.D. 1.⁷ The same date is assigned to the bronze plates and clasp with bear decoration by Borovka.⁸ Tallgren considers the Pyanobor brooches with this kind of decoration as late forms and dates the Yamal specimen to 400–700 A.D.,⁹ but he assumes that the first appearance of the bear motive occurs in Gljadenovo time.¹⁰ The find from Gljadenovo overlaps in part the Ananino period, which marks the transition from the bronze to the iron age, and which, according to Tallgren’s latest dating, flourished between 700 and 300 B.C.¹¹ Since the Ipiutak culture has traits in common with the Ananino civilization, and since other Ipiutak parallels in the East Russian-West Siberian area all seem to belong to the approximate time of the birth of Christ, it seems logical to conclude that the Ipiutak people at that time lived in the arctic periphery of these culture centers. Another question more difficult to answer is when the Ipiutak culture appeared in Alaska. For this we can only suggest that since so many Asiatic traits have been preserved relatively unchanged we consider a rather short time interval between the existence in Siberia and Alaska the most likely. This would indicate that the Ipiutak culture at Point Hope dates back to the first or second century A.D.

We do not believe that the Ipiutak culture originated in Scandinavia, but it is of interest to note that close parallels to Ipiutak types occur in Norway. It has long been known that implements similar to those used by the Eskimo occurred there, and Gutorm Gjessing has used these and other culture traits to point out the existence of a circumpolar stone age.¹² We shall therefore confine ourselves only to those points of similarity between Ipiutak and Norway which confirm our own belief in an ancient circumpolar hunting culture. We have already mentioned the striking similarity between the Ipiutak (Near Ipiutak?) harpoon head (Pl. 3, Fig. 21) and the harpoon head from Jordtveit in southern Norway (Fig. 12a).¹³ The conformity in the shape of the two heads is so complete.

¹ Martin, 1893, Pls. 14–17; Von Merhart, 1926, Pl. 10–11, Fig. 5.
² Uhlenbeck, 1937, 391.
³ Collins, 1934.
⁴ Gaul, 1943, 177; Minns, 1923, 53.
⁵ Tallgren, 1928a; 1931, 44.
that there can be no doubt about their close relationship. Solberg illustrates two tubular artifacts of reindeer bone from the early iron age find at Kjelmøy, Finmark, which he describes as containers. A closer examination of the artifacts reveals that the edges of the split bones are sharpened and worn. This undoubtedly means that we have here a western parallel to the two-handed scraper, which has not previously been reported from the Old World. From the same find is the bird arrowhead (Fig. 12b) which is almost identical with Ipiutak and later Alaskan bird arrowheads. The Kjelmøy find represents a typical hunting culture. According to Gjessing, as seasonal migrants these people spent the summers on the coast hunting seal and walrus and the winters in the valleys in the interior. They were also reindeer hunters and fished for salmon. Gjessing believes the arctic stone age lasted very long and was replaced by the iron age, without an intermediate bronze age. As additional parallels from the stone age in Norway, we may mention other harpoon heads with open shaft sockets reminiscent of Near Ipiutak heads, leaf-shaped arrowpoints and rock carvings of reindeer with the skeleton motive.

Of considerable interest is the find of 13 burials from Big Reindeer Island and the Varzinga River on the Kola Gulf described by A. V. Schmidt. The burials were found on a sand and gravel terrace not far from the sea in a terrain similar to the Kjelmøy site, and the material culture shows a great resemblance to this, although Schmidt considers it as older than the Kjelmøy site. The graves were 40 to 80 centimeters deep and contained one or two supine skeletons with the hands on the pubic region. Wood was found on one skeleton, possibly the remains of a coffin. The burial furniture contained, among other things, open socketed harpoon heads, bone arrowheads, bone daggers, incised bone tubes, and some long flint points with serrated edges. Except for one grave, metal and pottery did not occur, and slate tools, which are so characteristic of the arctic neolithic, were virtually absent at Big Reindeer Island. The Y-shaped figure and spurred lines were used in decorations. It was a fishing and hunting culture, with remains of elk, reindeer, bear, seals, and probably walrus. Schmidt considers that the find should be dated between 1400 B.C. and 200–300 A.D. Of the many points of similarity with Ipiutak we noticed especially the scarcity or total lack of slate implements and pottery, two traits which usually occur in the western Arctic finds.

There can be no doubt that the finds described above are the remains of an ancient arctic hunting culture, which at one time was probably circumpolar and of which the Eskimo culture is the eastern branch. We have attempted to prove that the Ipiutak culture originated in western Siberia, but whether all Eskimo-speaking peoples came from there has yet to be decided. The Proto-Eskimo were probably reindeer hunters and fishermen who lived in the northern part of the forest zone of Eurasia and moved out to the arctic coast in neolithic times. This movement probably occurred in Siberia, whence it spread westward to northern Scandinavia and eastward to America where we now find the Eskimo as the last survivors of an ancient circumpolar arctic hunting culture.

1 Solberg, 1909, Figs. 138, 139.
2 Gjessing, 1945, Fig. 28, 1–2, Figs. 73, 90–92.
3 Gjessing, 1945, Fig. 28, 1–2, Figs. 73, 90–92.
ANALYSIS OF OTHER CULTURAL TYPES
AT POINT HOPE

CULTURE PHASES RELATED TO IPIUTAK CULTURE

Not only the excavations but the study of the material found in the Ipiutak houses and burials produces an impression of great uniformity in this culture. The variation in house construction is negligible, and most of the burials fall within the pattern of two standard types. But the outstanding contributory factor to this impression is the uniform character of the finds which ties not only all the houses but the houses and burials into a single unit. This homogeneous background made it possible to recognize foreign elements such as some forms of harpoon heads or objects decorated in the Okvik style. The occurrence of these alien elements in the houses and burials, which otherwise contained pure Ipiutak material, demonstrated that the Ipiutak people were not the sole occupants of this general area. They were in contact with other people, but we do not know who they were or where they lived. Some of them might even have lived on the Point Hope spit itself, either temporarily in tents or permanently in houses now washed away by the sea. In describing the burials we have designated some as of uncertain type: for example, Burials 82, 90, 101, 102, and 131 to 136. Some artifacts, for instance arrowheads (Types 1a, 2a), from these burials differ slightly from the common Ipiutak forms, but not sufficiently to justify the establishment of another culture phase. The fact that Burial 89 contained one skeleton with a bundle of typical Ipiutak arrowheads in its hand and another with arrowheads (Type 2a) within the chest cavity, undoubtedly shot in, indicates two different but contemporay groups of Ipiutak people. Though these burials have been included in the Ipiutak culture, other remains in the same area, that is, along the shore of the lagoon between the Ipiutak settlement and Jabbertown, definitely belong to another culture phase. These remains are the burials classified as Near Ipiutak (Burials 103–104, House 24, and the middens). The material from these deposits is in many respects similar to that from Ipiutak. However, variations are too numerous and too significant to permit their inclusion in the pure Ipiutak culture. A description of the types accompanies the plates.

In this discussion we shall limit ourselves to a brief consideration of their relationship to the Ipiutak and other arctic cultures. The chronological position of these remains will be discussed at the end of this section.

Near Ipiutak Burials

Near Ipiutak burials were found in two groups: one comprising Burials 1 to 6, and 14, and the other, Burials 83 to 87 (Fig. 2). In contrast to the Ipiutak burials, these were indicated on the surface by a slight mound. Remains of from one to four skeletons in each grave (mostly scattered bones) were found from 30 to 80 centimeters below the surface. Slightly over 300 specimens were found in 10 of the graves; two contained no artifacts.

As in the Ipiutak culture, bows and arrows seem to have been the favorite weapon. Arrowheads and arrowpoints occur in quantity and in a variety of forms. Only two types of arrowheads are identical to forms found at Ipiutak (Pl. 78, Fig. 19, Ipiutak Type 1a; Pl. 78, Figs. 20–21, Ipiutak Type 2a). In this connection, it is interesting to note that these two types are characteristic of the atypical burials (Nos. 90, 101, 102, 131, 134) and that only one example of each was found in the houses. Thus, these arrowheads cannot be considered typical of the Ipiutak culture. Of the more common Near Ipiutak arrowheads, those in Pl. 78, Figs. 8–11, resemble Ipiutak Type 2 in that they have a blade slit in the end. However, they have a differently shaped butt and only two longitudinal incised lines. The ivory ring found on some of them was probably part of the shaft. The arrowhead shown in Pl. 78, Fig. 18, has the same shape and decoration, but has a slit for a side blade, as in Ipiutak Type 1. Several additional examples (Pl. 78, Figs. 12–16) also resemble Ipiutak Type 2, but have a clip butt or a round socket in the base instead of a conical tang. Except for the clip butt, the arrowhead in Pl. 78, Fig. 17, is like Ipiutak Type 3. Arrowheads with clip butts have also been found in Kamchatka.

1 Nakayama, 1934, Fig. 13, No. 1, and Plate.
The bird arrowheads (Pl. 78, Figs. 24–25) are almost identical with those used by the historic Eskimo of that region, except for a fine line decoration. Similar heads also occur in the Ipiutak find. The leister or bird dart prongs (Pl. 78, Figs. 22–23) are reminiscent of the Ipiutak form, but have very characteristic features such as the triangular cross-section, the longitudinal grooves, and the notched barbs. Two different types of salmon spears were found, one (Pl. 78, Figs. 26–27) identical with the Ipiutak type and another (Pl. 78, Fig. 28) with the barb set into a slot in the side prong instead of being lashed to its side. The metal barbs are arranged in this way on the salmon spear used by the Central Eskimo, and far to the east at Angmagssalik¹ we find this form with a bone barb.

Eight harpoon heads were found in the Near Ipiutak graves, none of them identical with the common Ipiutak types. The harpoon head illustrated on Pl. 78, Figs. 1–2, closely approaches the Ipiutak Type 4 which is represented by only five specimens. A comparison between Pl. 78, Fig. 1, the best-preserved of the Near Ipiutak specimens, with Pl. 5, Figs. 13–14, reveals not only the same general features, an open shaft socket, lashing slots, and a blade slit, but the same type of spur, point, and crude line decoration. An unfinished and badly weathered harpoon head (Pl. 78, Fig. 3) is reminiscent of Ipiutak Type 3 (cf. Pl. 5, Fig. 5). The specimens in Pl. 78, Figs. 4–7, differ not only from one another but from the Ipiutak types. One (Fig. 7) has a slit for one side blade, but in contrast to Ipiutak Type 1 it is in the side at right angles to the direction of the line hole. Another (Fig. 5) is barbed, in contrast to all Ipiutak harpoon heads. Three (Figs. 4, 5, and 7) have one interesting feature in common: an irregular, gouged-out line hole which is curved, does not pass straight through the head, and terminates at one side of the long axis of the head. One (Fig. 6) has a slot instead of a hole. The spur on all the Near Ipiutak harpoon heads is broad, flat, irregular, and sometimes bifurcated (Pl. 78, Figs. 4–5). The head shown in Pl. 78, Fig. 6, has no lashing slots, but has a ridge around the base to support the lashing. We find the same arrangement, as well as a spur extending from this ridge, on some harpoon heads of the Kachemak Bay culture.²

While we are inclined to believe that whaling was not practiced by the Ipiutak people, the occurrence of well-developed whaling harpoon heads in two Near Ipiutak burials proves beyond a doubt that the persons buried here were whale hunters. Apart from an extraordinarily long spur and slits for side blades, surprisingly enough, these two heads are almost identical with the whaling harpoon heads used by the historic Eskimo of arctic Alaska (Pl. 79, Figs. 1–2).³ A small image of a whale is engraved on one of the heads. This is probably the earliest example of pictorial animal design in this region.

In material and technique the flint industry is similar to that of the Ipiutak culture. Some of the types of flint artifacts, like side blades (Pl. 80, Figs. 26–31), sidescrapers (Pl. 81, Figs. 5–9), and grabers (Pl. 81, Figs. 10–11), are identical with the Ipiutak types. This is also true of some of the arrowpoints or harpoon blades (Pl. 80, Figs. 20–25) and knife blades (Pl. 81, Fig. 4). Other arrowpoints or harpoon blades (Pl. 80, Figs. 15–18) resemble Ipiutak arrowpoints Type 2, but are wider. The most common Near Ipiutak type of arrowpoint, the pentagonal or diamond-shaped form (Pl. 80, Figs. 1–14), does not occur in the Ipiutak finds, except for a single atypical specimen (Pl. 2, Fig. 15). The technique is by no means inferior to that of the Ipiutak people. Despite their size, the wide arrowpoints and harpoon blades are just as thin as the corresponding Ipiutak forms. Broad, thin, chipped arrowpoints with a concave base occur in the find from Port Möller, Alaska (60.1-6503). For the pentagonal or diamond-shaped arrowpoints, we must go as far as Southampton Island to find parallels, where we find arrowpoints corresponding to ours in material, shape, and technique.⁴ These have been used up to recent times.

Tools, such as mattocks (Pl. 79, Figs. 4–6), the composite knife handle (Pl. 81, Fig. 15), and the needle (Pl. 81, Fig. 18), are like those in the Ipiutak culture. Other tools are different. The adze head (Pl. 81, Fig. 13), for instance, has a wide notch in the side for a handle, an arrangement which does not occur at Ipiutak. The cylindrical hammer head, probably for flint flaking (Pl. 81, Fig. 14), also differs from

¹ Mathiassen, 1933, Pl. 5, Fig. 44.
² De Laguna, 1934, Pl. 38, Fig. 8.
³ Murdoch, 1892, Figs. 234–236.
⁴ Boas, 1901, Fig. 54.
the corresponding Ipiutak tool. Ipiutak sandstone whetstones, Type 2, with a longitudinal groove, probably used on arrowshafts, appear to be more common in Near Ipiutak than in Ipiutak. (Pl. 81, Fig. 12).

The artistic achievements in the Near Ipiutak phase, to judge from the material in the burials, does not approach that of Ipiutak. The only piece of ivory carving found is the female (?) figure (Pl. 81, Fig. 17). It is flat and the facial features are barely indicated. The engraved lines from the corner of the eyes along the ridge of the nose and on the chin undoubtedly represent tattooing. While the eye and nose lines are represented at Ipiutak, this is the first time we encounter the vertical chin lines found on Eskimo women from Alaska to Greenland (see p. 119). The shape of the torso and to some extent the features resemble the human figures of the Okvik phase.¹ The decorative motives are composed mostly of simple straight lines, which, as we have seen, occur on several implements. Triangles with cross hatching are found on one of the bird arrowheads and the engraved ivory plate (Pl. 81, Fig. 25), and cross hatching also fills out the whale image on the whaling harpoon.

Burials 103 and 104

Two burials (Nos. 103 and 104), both located on the lagoon shore, are listed as uncertain, signifying that we are not certain of the nature of the burial and the chronological position of the contents. Burial 103 contained two articulated skeletons, one lying on and the other below a log floor that resembled a house floor.

The 17 artifacts found with the human bones do not belong to the Ipiutak culture, but are undoubtedly related to it. Some of the specimens, such as the mattock (Pl. 82, Fig. 16) and the sidescraper (Pl. 82, Fig. 11), are identical with the Ipiutak forms. The arrowhead (Pl. 82, Fig. 9), on the other hand, is of ivory and has the same clipped base as the Near Ipiutak arrowheads Type 2. The arrowpoint (Pl. 82, Fig. 10) is much thicker but has the same diagonal flaking as some Ipiutak specimens. A large chalcedony blade, chipped on both faces (Pl. 82, Fig. 15), has no parallels in the Ipiutak find and may have been used either as a knife blade or a scraper. The flaker point (Pl. 82, Fig. 13) is more rounded than are those from the Ipiutak culture and, contrary to them, it has a conical bit like flaker points (60.1-6214 and others) from Port Möller, Alaska, and from the Aleutians (60.1-9060–9061). In addition, in this burial we found three elements foreign to the Ipiutak culture, viz., the stone lamp (Pl. 82, Fig. 17), a potsherd (Pl. 82, Fig. 12), and a piece of rubbed slate.

The lamp, previously mentioned (p. 111), is made of limestone, triangular or pointed-oval in shape, and with a flat, pecked well largely following its outline. It is probably made of a beach pebble, but traces of pecking on two sides indicate that the shape is intentional. Despite its irregular form, it is undoubtedly one of the pointed-oval type discussed by De Laguna.² It is the first example of this type of lamp found north of Norton Sound, while its main distribution is among the southernmost of the Alaskan Eskimo and the Aleut.³

The potsherd (Pl. 82, Fig. 12) is 6 millimeters thick, fired, and made of finer materials than the pottery found in the later Tigara graves. The outer surface is covered with narrow, parallel grooves and ridges, the impressions of a paddle with a corresponding incised pattern, or one wrapped with thin thongs. Four potsherds with similar paddle impressions were found in Burials 96, 98, and 102 (Pl. 77, Figs. 16, 17).

Of these burials, the first two were typical Ipiutak burials, but so shallow that surface refuse from other periods could easily have mingled with the grave furniture. Burial 102 was also shallow and belongs, furthermore, to the group of atypical Ipiutak burials mentioned on p. 162. As has been stated before, we do not consider these potsherds, which may all be intrusive, sufficient evidence that pottery is an element of the Ipiutak culture. It is difficult to determine whether or not the potsherd in Burial 103 was intrusive. As it was found 125 centimeters below the surface, the probabilities are that it is not intrusive.

The third element foreign to the Ipiutak culture is ground argillaceous slate. The three examples found in Ipiutak houses (Pl. 77, Figs. 6–8) are typical of later culture periods at Point Hope and are unquestionably intrusive. One fragmentary piece of ground slate was found in

¹ De Laguna, 1940, 56.
² Ibid., 59.
³ Rainey, 1941a, Fig. 28, Nos. 1–3.
Burial 103 and may or may not be intrusive.

Burial 104 consisted of a disordered heap of human and animal bones mixed with fragments of wood, which may be the remains of a house or a burial structure. Thirteen artifacts and 10 flint chips were found with these remains. Most of these artifacts (Pl. 82, Figs. 1–8), such as a mattock, two side scrapers, a flaker handle, and a marlin spike, are similar to those from Ipiutak, but others show that this deposit is alien to this culture. The arrowhead (Pl. 82, Fig. 3), for instance, has a socket butt as in Near Ipiutak arrowheads Type 3, and the whaling harpoon head (Pl. 82, Fig. 8) with a very long spur also reminds us of that culture phase. The bear figure carved in relief, together with the fact that the shaft socket and the blade slit are only indicated, suggests that this head was not intended for use, but is probably a grave object analogous to some Ipiutak artifacts. A slate knife, chipped along the back, but with a sharp, ground cutting edge, is shown in Pl. 82, Fig. 5.

The whaling harpoon head and the presence of characteristic Near Ipiutak arrowheads in Burial 103, as well as in Burial 104, indicate that these two burials are contemporaneous with the Near Ipiutak burials.

**House 24**

House 24 was omitted in the description of the Ipiutak houses for two reasons: first, because it was not located in the village site, but among the burials and middens to the east (Fig. 2); second, because the material found in it does not belong to the Ipiutak culture proper. The house itself did not deviate in any respect from the Ipiutak pattern. It was square, 4 meters in diameter; it had a hard-packed gravel floor, 50 centimeters below the surface, and a fireplace in the center. Logs lay across the center of the depression, 15 centimeters above the floor, and many animals bones were found in the black gravel in and above the floor. No entrance was located.

Of the 81 specimens found in House 24, the most significant of which are illustrated in Pl. 83, some cannot be distinguished from those found in the Ipiutak houses; others do not occur there, but are characteristic of the material from the Near Ipiutak graves. To the first category belong the lance blade (Pl. 83, Fig. 9), the bird bone tube, the needle (Pl. 83, Figs. 14, 15), and the mattocks (Pl. 83, Figs. 19–21), although they are smaller than the average Ipiutak mattocks, the marlin spike (Pl. 83, Fig. 22), and the chipped flint implements (Pl. 83, Figs. 23–28). The harpoon heads, on the other hand, are quite different from the common Ipiutak types and resemble those from the Near Ipiutak graves. The harpoon head illustrated in Pl. 83, Fig. 1, is similar to the Near Ipiutak examples shown in Pl. 78, Figs. 4–5. It is bladeless, has a wide bifurcated spur, an asymmetrical, gouged-out line hole, simple line decoration, and a slight suggestion of a barb on one side. The only differences are that it is shorter and has a groove instead of slots for lashing. The head (Pl. 83, Fig. 2) is almost identical with the Near Ipiutak heads (Pl. 78, Figs. 1–2), except for the line hole which in Pl. 83, Fig. 2, is gouged out and asymmetrical. The three simplest harpoon heads found at Point Hope are shown in Pl. 83, Figs. 3–5. They are made of walrus ribs, lack blades and lashing slots, and have a blunt point. The most primitive (Pl. 83, Fig. 3) is merely a flat piece of bone, with a shallow depression for the foreshaft, and a small, gouged-out line hole. The other two heads (Pl. 83, Figs. 4, 5) have no line hole, which normally would have classified them as unfinished. In one of Hrdlička's last publications, however, we find an illustration of four pre-Koniag "bone points" from Kodiak Island, which are almost identical with these, and none of them has a line hole.1 This means that the harpoon line must have been attached to the head in some other way, possibly by the wrapping around the shaft socket. The close relationship between the pre-Koniag harpoon heads and those from House 24 is further emphasized by the wide groove around the shaft socket and the shape of the spur. The smaller of the two heads (Pl. 83, Fig. 5) does not actually have a groove, but the basal end is raised, forming a definite ridge similar to that described in one of the Near Ipiutak harpoon heads (Pl. 78, Fig. 6).

Other implements from House 24 indicating a relationship to the Near Ipiutak burials are the wide, fragmentary arrowpoint (Pl. 83, Fig. 8), the decoration on the engraving tool (Pl. 83, Fig. 10), the adze head with the side notch for the handle (Pl. 83, Fig. 17), and the cylindrical hammer head grooved around the middle (Pl. 83, Fig. 18). The ivory objects (Pl. 83, Figs. 11–13) also recall the small, diamond-shaped, ivory

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1 Hrdlička, 1944, Fig. 126.
"ornaments" illustrated in Pl. 81, Figs. 23 and 24. The occurrence of all these traits, characteristic of the Near Ipiutak burials which distinguish these from the Ipiutak culture, justifies our assumption that House 24 belongs to the Near Ipiutak culture phase. It demonstrates that the same type of house prevailed in the two culture phases, and it increases the number of elements that relate the Near Ipiutak phase to the prehistoric culture of the Pacific Eskimo. It is of interest in this connection to mention that an antler adze head (60.1-9263), very similar to the one from House 24, has recently been excavated in the Aleutian Islands.

The Middens

In searching for graves on the ridges east of the Ipiutak village site we found a number of shallow deposits of scattered animal bones which frequently contained artifacts (Fig. 2). As no human bones and no traces of house construction were found in these deposits, we can be fairly certain that they were neither burials nor house ruins. We have called them middens, assuming that they were composed of refuse left by people who had camped along the shore of the lagoon. Many contain ashes, probably from open fires. The deposits, which lay directly below the turf, were too shallow to have any stratigraphical significance. They varied in size from one half to several meters in diameter, but even when black gravel was found associated with them, it was difficult to determine their exact extent.

While most of the 32 middens discovered in this area contained a great number of flint chips and small fragments of flint tools, only 17 yielded recognizable artifacts. A sample of the 438 classified specimens found in these middens is illustrated in Pls. 84 to 86. Most of the types represented in these plates are identical with those found in the Ipiutak houses and burials, and some of these middens may very well be deposits left by Ipiutak people. The middens Nos. 1, 6, 7, 8, 23, and 26, for instance, contain only typical Ipiutak specimens and probably belong to the Ipiutak culture. Each one of the other middens, however, contained one or more elements which are not typical of the Ipiutak culture proper, although in most cases closely related to it. Most conspicuous among these elements are the harpoon heads and the potsherds.

The harpoon head (Pl. 84, Fig. 9) from Midden 24 is long and slender like the Ipiutak heads, but it has only one side blade placed in the edge at right angles to the oblique line hole and a wide irregular spur, both features characteristic of the harpoon head (Pl. 78, Fig. 7) from a Near Ipiutak burial. A miniature harpoon head (Pl. 84, Fig. 17) from the same midden is barbed, a trait also found in the Near Ipiutak burials (Pl. 78, Fig. 5). A third Near Ipiutak element from Midden 24 is the slate ulu with a ground cutting edge (Pl. 85, Fig. 23). Ground slate was found in Burials 103 and 104, which we believe also belong to the Near Ipiutak culture phase. The short, thick arrowhead (Pl. 84, Fig. 7), also from the same midden, is quite different from the standard Ipiutak examples, but very similar to one from the Near Ipiutak burials (Pl. 78, Fig. 21). With these four Near Ipiutak parallels, we feel justified in assuming that Midden 24 belongs to the Near Ipiutak phase. Pl. 84, Fig. 10, from Midden 21 shows a harpoon head of the same type as that in Pl. 84, Fig. 9. The only difference between them is that the line hole on the example from Midden 21 passes straight through the long axis of the head. A two-handed scraper from Midden 21, similar to the one illustrated in Pl. 86, Fig. 15, is another type foreign to the Ipiutak culture. It is made of a caribou metatarsal bone which, in contrast to the Ipiutak form, was split antero-posteriorly.

Another two-handed scraper of the same type was found in Midden 27, together with a harpoon head (Pl. 84, Fig. 11), which we have no hesitancy in classifying as Near Ipiutak. This harpoon head is bladeless, has an oblong, oblique line hole, a wide lashing groove, and a broad, plain spur (cf. Pl. 83, Figs. 3, 4). From these two cases, we draw the conclusion that the two-handed scraper split antero-posteriorly is a Near Ipiutak type, and that these two middens, and Midden 25 which also yielded a scraper of this type, belong to the Near Ipiutak culture phase.

The harpoon heads (Pl. 84, Figs. 12, 13) from Middens 9 and 3 are similar to Ipiutak harpoon heads Type 1, but have different ornamentation and the point of the head (Pl. 84, Fig. 13) is square. Another example from Midden 9 has only one side blade, a feature known from Near Ipiutak, but not from Ipiutak. In addition to these two harpoon heads, Midden 9 yielded 25 small fragments of a large, thick, coarse pot-
sherd not unlike those from the Tigara burials. The stratigraphical position of Middens 9 and 3 is not well defined, but they can hardly be ascribed to the Ipiutak culture proper. Midden 10 yielded the harpoon head shown in Pl. 84, Fig. 14. It has the general characteristics of Ipiutak Type 4 (Pl. 5, Figs. 13, 14), but is square in cross-section, has a heavy, multi-pronged spur, and unusual decoration. Its closest parallel is found in the Okvik harpoon head Type C; the decoration is also reminiscent of the Okvik style. In the same midden (No. 10) were three potsherds similar to those from Midden 9 and the arrowpoint (Pl. 84, Fig. 26) which is thicker and wider than the average Ipiutak arrowpoint.

The material from Midden 11 resembles that from Midden 10 in so far as it contains an arrowhead (Pl. 84, Fig. 8) closely resembling Okvik arrowheads and potsherds similar to those from Middens 9 and 10. Midden 11 also yielded a grooved whetstone or arrowshaft smoother (Pl. 86, Fig. 10), and three large, leaf-shaped knife (?) blades (Pl. 85, Fig. 1). These blades, which as far as shape and chipping are concerned resemble Ipiutak knife end blades, Type 1, are made of silicified slate and are considerably larger than any of the Ipiutak blades. It is apparent from Pls. 84 and 85 that the types of flint implements from the middens by and large are the same as those from the Ipiutak culture. The majority of the specimens are identical, but a few of the types from the middens contain examples that are of superior craftsmanship to the average Ipiutak specimens. The knife blades just mentioned are one example; round discoidal blades (Pl. 85, Figs. 16, 17) are another. These discoidal blades, of which one (Pl. 85, Fig. 17) was found in Midden 24, which we consider a Near Ipiutak deposit, are very carefully made and have an extremely sharp edge. The other illustrated example is from Midden 4 which, in addition, contained large, leaf-shaped blades, potsherds, a hammer head with a narrow deep lashing groove and ornamental triangles, the characteristic Near Ipiutak decorative motive. We have been unable to determine the use of the peculiar, small antler objects with four short "legs" (Pl. 86, Figs. 13, 14) which also came from Midden 4.

Of the middens not yet described, Middens 5 and 20 yielded potsherds similar to those from Burial 103 (Pl. 86, Figs. 18, 19). They are thinner and of finer material than the pottery from the Tigara graves (Pl. 91) and on the outside show marks of a paddle wrapped with thin thongs. In addition to the 17 potsherds of this type, Midden 20 contained a number of other artifacts which seem to be a mixture of typical and atypical Ipiutak forms. The arrowpoints (Pl. 84, Figs. 20, 21, 23–25) do not deviate in any respect from the typical Ipiutak arrowpoints. Those in the heads, however, are longer and wider than the average Ipiutak arrowpoints. The arrowheads themselves (Pl. 84, Figs. 2–6) are not typically Ipiutak, but are similar to those from the atypical burials (Nos. 90, 101, and 102) without lines or with broken ornamental lines. Two other arrowpoints from Midden 20 deviate from the Ipiutak forms: the small stemmed blade illustrated in Pl. 84, Fig. 27, and a partly ground arrowpoint of siliceous slate, the shape of which recalls the diamond-shaped points from the Near Ipiutak burials (Pl. 80, Figs. 1–14).

From the preceding we have seen how most of the middens contained not only Ipiutak types but traits assignable to other culture phases. These traits occur too frequently in the middens to permit their presence to be explained as accidental, leaving us two possible alternatives: either that these foreign traits were adopted by the Ipiutak people, and, if that is the case, the material from the middens should be considered as part of the Ipiutak culture; or that these deposits should be ascribed to another but closely related people. We consider the latter conclusion the more plausible, for, if we assume that the Ipiutak people were responsible for all the midden deposits, we should expect to find the same foreign traits occurring with equal frequency in the Ipiutak houses and burials as in the middens. But this is not the case. We believe that the middens indicate that people closely related to the Ipiutak people camped along the shore of the lagoon, but we have no data that would permit us to hazard a suggestion as to whether it was during or prior to or after the occupancy of the Ipiutak village. The material seems to indicate that different groups camped there occasionally. One of these groups, probably the one responsible for most of the middens, is the Near Ipiutak people. This is indicated by the presence of the

1 Rainey, 1941a, Fig. 7.
2 Ibid., Fig. 14, Nos. 1–5.
characteristic harpoon heads, pottery, and a few ground slate implements.

This concludes our description of material excavated at Point Hope found in association with remains of the Ipiutak culture and undoubtedly related to it, but which in many respects deviates from its general pattern. The difference is most conspicuous in the material from the Near Ipiutak burials, and we have attempted to prove that Burials 103 and 104, House 24, and the majority of the middens actually belong to the culture phase which we have named after the Near Ipiutak burials.

To recapitulate briefly, we find that the Near Ipiutak culture phase in many respects conforms to the Ipiutak culture. The flint industry, for instance, one of the main characteristics of the Ipiutak culture, seems to have been of equal importance. The type of dwelling is the same. Side blades were used in arrowheads as well as in harpoon heads, and a number of types of implements are identical. Despite this obvious relationship, we find too many significant deviations from the Ipiutak pattern to incorporate the finds here described in the Ipiutak culture. Not only does the Near Ipiutak culture phase contain variations, or even different types, of harpoon heads, arrowheads, arrowpoints, leister prongs, salmon spear prongs, adze heads, flaking hammer heads, and two-handed scrapers, but also a few but very significant new elements, such as whaling, stone lamps and possibly pottery, and implements of ground argillaceous slate. It is uncertain whether the two latter actually are Near Ipiutak elements. Only a few pieces of ground slate were found in the deposits in question, and most of the potsherds were in the middens, which probably represent various culture stages. Finally, we should mention that the decorative art differs from the Ipiutak art. Decoration is more scarce and the motives are few and simple.

At the present stage of our knowledge, we are unable to determine the origin and the chronological position of the Near Ipiutak and other related but unspecified culture stages, the presence of which was revealed by the Ipiutak excavations. More material, preferably from stratified deposits, is needed before a chronology can be established. At present the picture is confused by the fact that harpoon heads, apparently more primitive than the Ipiutak heads, seem to belong to the same culture stage as whaling harpoon heads, stone lamps, pottery, and ground slate, which we consider post-Ipiutak. The solution of this problem is not necessarily to be found in northwest Alaska. The occurrence in the Pacific area of harpoon heads, adze heads, and stone lamps, which are almost identical with those described here, proves beyond doubt that we are dealing with a culture with wide ramifications.

THE ARCTIC WHALE HUNTING CULTURE AT POINT HOPE

As indicated previously (p. 39), the present occupants of Point Hope, the Tikertarmiut, represent the latest phase of the Arctic Whale Hunting culture, but so far we have not discussed their prehistory and their possible relationship to the Ipiutak people. The occurrence in both the Ipiutak houses and burials of a few artifacts with typical Okvik decoration demonstrates that the Arctic Whale Hunting culture flourished somewhere in the vicinity, probably in the Bering Strait region, and that these two peoples were in contact with each other. On the other hand, we found no evidence that either the Okvik people or those responsible for the Old Bering Sea phase, the succeeding stage of the Arctic Whale Hunting culture, ever settled at Point Hope. No artifacts indisputably ascribable to the Old Bering Sea phase were found either in the Ipiutak or the Near Ipiutak culture. Examples of the characteristic Old Bering Sea ornamentation have been found at Point Hope, but since these are few in number and are the result of random digging, they do not provide sufficient evidence that the Old Bering Sea culture was ever firmly established at Point Hope. Implements decorated in the Punuk style occur more frequently at Point Hope, but here again we lack information as to the conditions under which they were found. We cannot completely dismiss the possibility that people representing these early stages of the Arctic Whale Hunting culture lived at

Mathiassen, 1929, Figs. 14b, 15a.
Point Hope at one time. A large portion of the Old Tigara site has been washed away by the sea, and as it undoubtedly was the oldest part of the site, it is possible that remains of these culture stages became the booty of the sea.

Leaving the question of the possible occupation of Point Hope by Okvik, Old Bering Sea, and Punuk people unanswered, we may now turn to the remains of those stages of the Arctic Whale Hunting culture offering sufficient evidence that they are the result of occupation and not intermittent contact. These remains are concentrated in two places: at the Old Tigara site adjoining the modern Tigara village, and 5 miles to the east near the abandoned whaling station at Jabbertown. In addition to the ruins of house structures, which in both places have the appearance of irregular, grass-covered mounds, the Tigara site consists of a huge number of graves. These graves, which will be referred to as the Tigara burials (designated as TB), represent at least four different stages of the Arctic Whale Hunting culture and prove beyond doubt that bearers of that culture have occupied Point Hope for several centuries. We excavated a large number of these Tigara burials, primarily to obtain sufficient skeletal material for comparison with the Ipiutak skeletons. Most of the graves also contained grave goods, which, with the collections from the Tigara and Jabbertown mounds, provide sufficient material to reconstruct the cultural development at Point Hope, after the abandonment of the Ipiutak site. The following analysis is based on the grave material, supplemented by the collection from the mounds. A sample of the various types of implements found in the graves is illustrated in Pls. 87 to 94, accompanied by a brief description. Pl. 95 shows some of the most significant types from Jabbertown House 2.

The Birnirk Phase

Birnirk is the earliest phase of the Arctic Whale Hunting culture represented in our finds. Each of three graves (TB160, 171, and 172), all located near the beach north of and close to the Tigara village, contained typical examples of the characteristic Birnirk harpoon heads. The skeleton in each grave was disarticulated, although it was obvious that the body in TB171 had been supine with straight arms and legs. In TB172 the bones of an adolescent lay in a pile.

In TB160 the bones of an adult were found in a log coffin, the floor of which was 60 centimeters below the surface. TB171, which was 40 centimeters deep, was lined with walrus ribs, but some fragments of wood were also found.

Two types of harpoon heads were found in these graves: one with end blades and one with two side blades (Pl. 87, Figs. 1–4). Both types occur in the museum collection from the Birnirk site and have also been found to the south of Point Hope. Almost identical heads were found on St. Lawrence Island (Collins’ open socket types IIy and IIIx) in the Old Bering Sea as well as in the Punuk phases. The Point Hope heads resemble the Old Bering Sea examples in shape, but are decorated in a style resembling Early Punuk.

The arrowheads from these burials form another interesting group of implements. They occur in various forms with or without blade slits and barbs. All are powerful and have one common feature, the long, cylindrical, pointed tang, set off from the body by a more or less pronounced shoulder (Pl. 87, Figs. 6–9). Obviously the presence or absence of barbs and separate blades is of little or no stratigraphic significance, but the shape of the tang is (Fig. 51). We have noted how the Ipiutak arrowheads varied in the arrangement of blades and barbs, but that they all had the same plain, conical tang. We shall see later that this is also true of other culture phases. The Birnirk arrowheads seem to have the same distribution as the harpoon heads. They occur in the Birnirk find (60-9424–26, etc.) and on St. Lawrence Island. If we use the shape of the tang as a criterion, we would assign Figs. 1, 6, and 9 on Collins’ Pl. 34 to the Birnirk type. It is very likely that the occurrence of the Birnirk types of harpoon heads and arrowheads on St. Lawrence Island is due to influence from the north.

A large harpoon blade of rubbed slate (Pl. 87, Fig. 5) has undoubtedly been used in whaling harpoon heads.

The occurrence of bolas weights in two of the graves and also in Museum collections from the Birnirk site proves beyond doubt that bolas, at least in northwestern Alaska, were in use in

1 Wissler, 1916, Fig. 3a–c, e.
2 Collins, 1937, 103, 104.
3 Collins, 1937.
the Birnirk phase. They are all fairly large and carefully made; some are round in cross-section, others flat (Pl. 87, Figs. 10–13). According to Collins, this element appears suddenly on St. Lawrence Island in the Punuk phase, but it is not unlikely that it actually occurred earlier and was introduced together with the harpoon and arrowheads.

In addition to the above, these three graves contained two bone daggers like the one illustrated in Pl. 87, Fig. 16, two shovel blades of walrus scapulae, and two flint knife blades (Pl. 87, Figs. 13–14). Like the harpoon end and side blades, the knife blades are cruder than the cor-

Extensive collections containing Birnirk types have been excavated around Barrow, but so far they have contributed little to our knowledge of the Birnirk phase. Some were not excavated with sufficient accuracy; others have never been thoroughly studied and published. Small though our contribution may be, we can assert that now we know at least the kind of arrowheads, bolas weights, daggers, etc., that were associated with the harpoon heads.

**The Western Thule Phase**

The next phase of the Arctic Whale Hunting culture represented at Point Hope is one we have named the Western Thule phase. This phase is represented in our collection by finds from two graves: TB186 and 253 and Jabbertown Houses 1 and 2. TB186 was located 3 to 4 meters from TB171, one of the Birnirk graves. It contained scattered parts of a skeleton and some artifacts and was apparently disturbed by later burials. TB253, located among other graves north of the preceding, contained only artifacts and no skeletal remains. In 1939, Jabbertown House 2 appeared as an irregular depression in the western end of a 60-meter long and 17-meter wide, grass-covered mound. Excavation revealed a house consisting of several rooms, as may be seen from the groundplan (Fig. 52). In the bottom of the excavation, which was about 1 meter deep, we found a great number of heavy logs scattered in all directions. After clearing away the logs, which were obviously not in place, we had a clear picture of the house construction. The walls had been built of heavy logs laid horizontally,

![Fig. 51. Variations in the shape of the tang on arrowheads from Point Hope.](image)


Despite the fact that so far we have only 53 specimens that represent the Birnirk phase at Point Hope, this find is of greater significance than the actual number indicates. That only three graves were found does not necessarily mean that the Birnirk people were few in number. Many graves have not been investigated, and an unknown number of graves and houses have been swallowed by the sea. In fact the location of these three Birnirk graves near the beach and the village seems to indicate that only the eastern end of a cemetery, which may have contained many Birnirk graves, is preserved. Of greater significance is the fact that we have an indisputably pure find of the Birnirk phase, one of the least-known phases of the Arctic Whale Hunting culture.

1 Collins, 1940, 554.
FIG. 52. Groundplan of Jabbertown House 2. The figures in parentheses indicate the height (in centimeters) above sea level.
one on top of another. In most cases only the bottom log was preserved; in a few cases we found two layers, and in one case, three. The logs were supported by gravel on the outside and by heavy posts on the inside. The posts were placed at all junctions and in some cases in front of the middle of a long wall log. In some of the rooms the floor was paved with smaller logs which lay close together. As can be seen in Fig. 52, the house consists of seven small rooms. Of these we think Room 1 served as the entrance. Since a wall of clear gravel was encountered at the western end, it was probably entered through the roof. A large whale vertebra found near the outer end was probably used as a stepping block. The bottom of the entrance, which was frozen and not completely excavated, was lower than the living quarters.

Room 2 was probably used to store meat and blubber, since part of it was occupied by a heap of compact blubber. Room 3 is the inner section of the entrance. It is the lowest part of the house, the floor being 24 to 36 centimeters below the surrounding rooms. A row of upright poles separated it from Room 5. A doorway led into Room 6. The pavement consisted of flat stones as well as logs. In Room 4, probably a living room, the floor was completely covered with logs. Its shape and size could not be determined as, unlike the other rooms, it was not enclosed by log walls. The gravel under the floor logs was cemented together by blubber, but sterile gravel was encountered beyond the edge of the floor. Several test trenches were cut into the surrounding gravel walls, but only sterile gravel was found. From this room there seemed to have been a narrow opening into Room 5, which undoubtedly had served as a kitchen. Only part of this room had a wooden floor. In the southwest corner was a fireplace, a heap of stones cracked by fire, charcoal, ashes, and burnt bones. The floor consisted of several layers of logs which lay in a thick layer of blubber mixed with animal bones, baleen, wood, hair, and feathers. A narrow passageway, with very neat flooring, led from Room 3 to Room 6. The flooring in the northwestern end of the passageway lay on thick layers of debris with two large whalebones and two heavy logs in the bottom. The other part of the flooring rested directly on sand. The floors of Rooms 6 and 7 were very carefully made and rested on sand with very little debris. Part of Room 6 was separated from the rest by a row of upright logs. Room 7 was also a kitchen with a fireplace and fire-cracked stones and ashes, but contained very little blubber. Room 8 was separated from the other rooms by pure sand. Since it contained a quantity of blubber, animal bones, and baleen, we can be fairly certain that it served as a cache. The house itself seems to have had two living rooms, each with an adjoining kitchen, an entrance, and a storeroom.

A large number of artifacts, especially many arrowheads and potsherds, were found in this house. A selection of the most significant types is illustrated in Pl. 95. These, in addition to the finds from the two graves (Pl. 88), which are undoubtedly contemporary with the house, furnish us with sufficient material to place these finds stratigraphically. As usual in Eskimo archaeology, our classification is based primarily on types of harpoon heads. In contrast to other stages of the Arctic Whale Hunting culture, these harpoon heads are very uniform. They are all barbed, open-socketed, with slots for lashing, and with a lateral spur. They have either one or two barbs and a round or triangular line hole (Pl. 88, Figs. 1–5; Pl. 95, Figs. 1–2). This is the familiar Thule Type 2, a widespread form which is one of the characteristic elements of the classic Thule culture. These harpoon heads are in many respects very significant. The fact that identical heads occur in the two graves and in Jabbertown House 2 proves definitely that these finds are contemporaneous. Furthermore, they show relationship not only to the Thule culture but also to the Birnirk phase. This is obvious when we compare them with the various forms of harpoon heads found at the Birnirk site. One of the most common Birnirk types has one barb, a side blade on the opposite side, and the usual bifurcated or trifurcated spur. In other Birnirk heads the side blade is absent, and a rudimentary blade slot is found in its place, while the other features remain the same (60-9273). A similar rudimentary blade slot is found on the heads illustrated in Pl. 88, Fig. 4, and Pl. 95, Fig. 2, which differ from the one just described only in having one plain spur. Thus it

1 Mathiassen, 1927, pt. 2, 15.
2 Wisler, 1916, Figs. 3d, 4a, b.
3 The head illustrated by Wisler (1916, Fig. 4c, d) is a variant which has four ornamental "notches" instead of one rudimentary blade slot.
seems that Birnirk heads have developed into Thule heads in the following way: 1, the form with two side blades and multi-pronged spur (Pl. 87, Fig. 1); 2, with one barb, one side blade, and multi-pronged spur; 3, with one barb, rudimentary blade slot, and plain spur, which we have seen occur with the Thule forms without rudimentary blade slot and with two bars. Of this developmental series, only the first and the last steps are represented in our finds at Point Hope, but since the two intermediate steps occur at Barrow, it is probably accidental that they have not been found at Point Hope. Here the two extremes of this development, the Birnirk and Thule phases, are easily distinguished; at Barrow, where all four steps are represented, it is more difficult. Actually the form with the barb, rudimentary blade slot, and bifurcated or trifurcated spur bears a closer resemblance to the Thule form than to the barbless Birnirk form, but since the first three steps occur in quantity in the collection from the Birnirk site, while the fourth is absent, it seems reasonable to consider the forms with multi-pronged spur as Birnirk and those with a plain spur as Thule. The difference between the two culture phases is further emphasized by different types of arrowheads. As in the Birnirk phase, we find a considerable variation in the body. Some are barbless; others have one or more bars; some have a separate blade. The tang, on the other hand, shows very little variation. Characteristic of the arrowheads of this Thule phase is a raised ridge in the middle of the tang. In some cases the ridge forms a distinct shoulder, but more commonly the ridge rises gradually from both sides (Fig. 51c). Birnirk and Thule arrowheads also differ in material. The former are usually made of ivory and bone; the latter are almost exclusively of antler. Bolas weights were common in the Jabbertown house, but none of the oblong, flat type that occurred in the Birnirk graves (Pl. 95, Fig. 11) were found. Of stone tools we found a great number of rubbed slate blades (Pl. 88, Figs. 15-16; Pl. 95, Figs. 16-18) as well as chipped flint implements (Pl. 88, Figs. 13-14; Pl. 95, Figs. 12-14). The latter are interesting because of their great resemblance to the corresponding Ipiutak forms. In Pl. 95, for instance, we find a graver, a knife blade, and a sidescraper with two parallel scraping edges.

The Jabbertown house yielded numerous sherds from what seem to have been large, rounded, thick-walled pots. A considerable number were covered on the outer surface with impressions of concentric circles made with a bone paddle (Pl. 95, Fig. 20). De Laguna calls this the Birnirk style of decoration and illustrates examples of potsherds as well as paddles marked “Birnirk culture” or “Birnirk type,” and since Collins has found potsherds of this type in a later Birnirk site near Cape Prince of Wales and as they also occur in the Museum collection from the original Birnirk site, there is no reason to doubt that they date back at least to late Birnirk. Meanwhile, the fact that this type of pottery occurs not only in the Jabbertown house and also in the contemporaneous Ahteu and Old Kotzebue sites excavated by Giddings, but also in the following period (p. 177) shows that we cannot label it “Birnirk” unless it is found in association with definite Birnirk types.

Of the other types of implements from this phase, only a few need further comment. Pl. 88, Fig. 8, shows an unusual form of barb for salmon spears. It is a rounded piece of ivory, pointed at one end, with a knob at the other. Without Giddings' excavations on the Kobuk River, we would probably not have been able to interpret it. Giddings found not only a considerable number of these bars at Ekseavik and Ahteu, but at the first site he also found a wooden side prong with an oblique groove at the point, in which some of these bars fit. The flat, pointed antler object with an oblong eye in the middle, illustrated in Pl. 88, Fig. 10, is probably a snowshoe needle. This element also occurs at Ekseavik and is probably adopted from the neighboring Athapascan peoples.

The material described above is obviously related to the Birnirk phase as well as the Eastern Thule phase, and in our opinion it represents an intermediate phase between the two. That it is later than Birnirk we think is proved by the development of the harpoon heads. The absence of a number of the most common Thule elements: snowknives, semilunar lamps, trace-buckles, sled runners, etc., elements which undoubtedly were developed or adopted later,

1 De Laguna, 1940, 66.
2 Loc. cit.
3 Giddings, 1944, Pl. 12, Figs. c, d.
4 Giddings, 1944, Pl. 12, Fig. a, and personal communication.
5 Giddings, personal communication.
places it earlier than the Eastern Thule phase. Since the characteristic Thule Type 2 harpoon head is so common in both phases, we suggest that the culture stage here described be named the Western Thule phase to distinguish it from the Eastern Thule phase or the Thule culture.

One of the differences between the harpoon heads of the Western and of the Eastern Thule phases is the arrangement of the lashing around the shaft socket. In the Eastern Thule phase, the lashing passes either through oblong slots or more commonly through drilled holes. In the Western Thule phase, only the first arrangement was used, which means that lashing holes are a later invention. Jenness, who realized that the slotted type preceded the perforated type, actually discovered the first traces of the Western Thule phase at Wales.\(^1\) Collins, who excavated at Wales later, found at Kurigitavok that the Birnirk phase was succeeded by Thule material which was "by no means identical with that from the Canadian Thule sites." He illustrates a series of harpoon heads of which those from the upper half of the midden, except for one form with a separate blade, are identical with those found at Point Hope. Among the harpoon heads from the lower levels of the midden are Birnirk types with bifurcated spur and one with one barb and plain spur identical with those illustrated in Pl. 88, Figs. 4 and 5, and Pl. 95, Fig. 2.\(^2\) The fact that the latter at Kurigitavok occur in association with Birnirk types and at Point Hope with Thule types shows how gradually the Birnirk phase merged into the Western Thule phase.

We have from time to time compared the Point Hope material with Giddings' finds on the Kobuk and at Kotzebue. Of the three sites in question, Ahteut, Ekseavik, and Old Kotzebue, the first seems to be the most closely related to Point Hope. It has the same type of harpoon heads, arrowheads, dart heads, ice picks, salmon spear bars, pottery, slate implements, and chipped lance blades.\(^3\) Many of these types also occur in the Ekseavik find, but the pottery and arrowheads are of later types. The Old Kotzebue site is closer to Point Hope than is Ekseavik. The house type which seems to be the same as the Jabbertown house is associated with paddled pottery with concentric circle im-

pressions, but the arrowheads are more like Ekseavik.\(^4\) Judging from the material on hand, it appears that the time sequence of the four sites under discussion is Ahteut, Point Hope, Old Kotzebue, and Ekseavik, of which the first three definitely belong to the Western Thule phase. Ekseavik belongs at least partly to the following phase.

The Western Thule phase can be traced as far south as St. Lawrence Island, where Geist and Rainey found Thule type harpoon heads in the Kukulik midden in layers between the Punuk and recent prehistoric phases, but it has probably played a much inferior role there than farther north.\(^5\) The position of the Birnirk and Western Thule phases on St. Lawrence was probably similar to that of the Old Bering Sea and Punuk phases in arctic Alaska. The center of the two former was in arctic Alaska and that of the two latter in the Bering Strait region.

In his "Outline of Eskimo pre-history" Collins advertises for "sites dating from time of the original movement" of the Thule people from Alaska towards the east. Such sites will, according to Collins, bridge the temporal gap between those of Birnirk age around Barrow and the oldest Thule site thus far known in the Central region—Naujan and Maleru-\(^6\) alik.\(^6\)

We think that the sites at Point Hope, on the Kobuk River, and at Kotzebue fill this gap. As Collins expects, they closely resemble Birnirk and do not "exhibit other Thule features that later developed or were acquired in the Central area."

Our assumption is further supported by the fact that of the various Central Thule sites described by Mathiassen, we find that Naujan has more close parallels with our Western Thule sites than any of the others. Comparing the limited number of artifacts illustrated, we find the following: harpoon head with ornamental remnant of side blade (Fig. 13); harpoon head with spur triangular in cross-section, with a Y-shaped ornament (Pl. 1, Fig. 3) or a wedge-shaped depression (Pl. 1, Fig. 4) above the line

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\(^1\) Jenness, 1928, Pl. 12b, c.
\(^2\) Collins, 1940, 562; Pl. 16B.
\(^3\) Giddings, 1944, Pl. 12, Figs. b, c.
\(^4\) Giddings, 1944, 130; Pl. 12, Fig. a.
\(^5\) Geist and Rainey, 1936, 227; Pl. 67.
\(^6\) Collins, 1940, 563.
hole; barbed harpoon heads with a pair of powerful barbs and a conical butt (Pl. 2, Fig. 7); bird dart end prongs with unilateral barbs set off from the body by a vertical line (Pl. 2, Fig. 13); movable harpoon foreshafts with conical butt and a narrow lateral line hole (Pl. 3, Figs. 3–4); perforated slate harpoon blades (Pl. 7); arrowheads with similar shaped tang (Pl. 8, Figs. 2–4, 6), and similar shaped bolas weights (Pl. 11, Fig. 1). Of the other Central Thule sites, Malerualik is also closely related to the Western Thule phase. It yielded, for instance, a harpoon head with ornamental remnants of side blades.

The material on which we have based our characterization of this new phase of the Arctic Whale Hunting culture, the Western Thule phase, is rather limited and more evidence is necessary to complete the picture; the excavation of additional houses is not the least important. The relationship between Alaskan and Central Thule houses is not yet clear, but the occurrence of composite houses in the west as well as in the Central area seems to open up the possibility of a successful solution of this problem.

The Tigara Phase

The next phase of the Arctic Whale Hunting culture represented in the material excavated at Point Hope has been named after the modern Tigara Eskimo village, first because the material derives from the old abandoned section of the village and the adjoining cemetery, and, second, because the culture represented is by and large identical with that of the historic Tikeraarmiut. The Tigara phase merges so gradually into the succeeding Modern phase that it is impossible to decide from the material on hand when the first terminates and the second begins. Somewhat arbitrarily, we have considered the lowest layers of the Old Tigara mounds and the so-called articulated Tigara burials (which do not belong to either one of the two earlier phases) as representative of the Tigara phase.

Table 3 presents the types of implements and their distribution in two cuts, B and D, excavated in the same row of houses. The cuts were excavated in 10 layers, each 20 centimeters thick. Since the complete range of implements was found only in Cut B, the material from the two cuts (B and D) has been combined in the table.

The 405 Tigara burials excavated north and east of the Tigara village constitute only a fraction of the total number in this area. This huge cemetery undoubtedly represents a long period of occupation. The uniformity of the burials is, therefore, surprising. Excluding the Birnirk and Thule burials, six remains of rack burials, 25 burials which are unclassifiable because they contained too few or no bones, and 20 with scattered bones, we had 349 Tigara burials. All of these were of the so-called articulated type, that is, the bones were found lying in their correct anatomical relation. Before excavation, these burials had the appearance of shallow depressions. They had several traits in common. Each contained only a single supine skeleton, with its head at the west and the arms and legs more or less flexed. In most of the burials, the hands lay on or just below the chest. The position of the legs varied considerably from being slightly bent to tightly flexed, with the knees on the chest. Most commonly, the legs lay at one side of the body with the femurs more or less at right angles to it. The skeletons of children usually were supine, with the legs slightly bent and the knees pointing away from the body.

The grave structures varied somewhat. Most of the bodies lay in what was apparently a log coffin, similar to those described for the Ipiutak culture. The wood, however, was so decomposed that no clues as to its actual shape remained. In other burials, the body was apparently surrounded by a log frame. Whalebone ribs, jaws, and scapulas were frequently part of the grave structure, forming either a complete frame or, most commonly, one piece of whalebone lay at the head and another at the feet, both at right angles to the long axis of the burial. In TB170, two whale jaws, parallel with the long axis, covered a log coffin.

The grave furniture was usually sparse; many burials had none. Pottery, especially small cups and lamps, usually found at the feet was characteristic. But, as shown in Pls. 89–92, a considerable variety of artifacts is represented in the material from the articulated Tigara burials. Since a description of the types of implements accompanies the plates, our comments here will be limited to the types that are of special significance. Beginning with the arrowheads, we note that the tang differs from that in the preceding culture phases. Between
the body of the arrowhead and the conical tang is a sharply cut shoulder; in the earlier forms the transition is smoother. The tang has a narrow, ridge-formed belt (Fig. 51d) or, as in Pl. 89, Fig. 3, four knobs form a ring around the middle. Whether the predominant form in the succeeding phase, with two knobs on the tang, also occurs in the Tigara phase cannot now be decided. Identical forms of arrowheads occur in the Ekseavik site on the Kobuk River. Giddings considers this site to be later than Alteut which is contemporaneous with the Western Thule phase.¹

Another characteristic feature of the Tigara phase is the initial occurrence of the long, slender, tanged flint arrowpoints and arrowheads numerically frequent in all recent collections from arctic Alaska, but virtually unknown beyond the limits of this area (Pl. 90, Figs. 1–7). We consider this type a more recent development of the Ipiutak arrowpoints and assume that the rather slender form which was inserted in an antler head (Pl. 89, Fig. 5; Pl. 90, Figs. 5, 6) is older than the heavy form, oval or rhomboïd in cross-section, which was inserted directly in the arrowshaft.

The Tigara phase may be further characterized by the gradual disappearance of open-socket harpoon heads. One badly weathered harpoon head with an open socket and lashing holes was found at the very bottom of the Tigara mounds; the two examples with lashing slots in Layers 6 and 7 were waterworn and are probably from an earlier period. The commonest type of harpoon head in this and the following phase has a closed shaft socket, two or more bilateral barbs, and no separate blade (Pl. 89, Fig. 7). The typical harpoon socket piece of the Tigara phase is long, cylindrical, and made from a walrus penis bone (Pl. 89, Fig. 9). A flat lance head of antler with a depression at the top for the blade (Pl. 89, Fig. 5) is a type not previously reported. The chipped flint blade with a tang is probably developed from the Ipiutak end blade, Type 3; the only difference is that the Tigara form is longer and more slender (Pl. 90, Figs. 8–10). Bladder darts are represented in this phase by a head with three unilateral barbs (Pl. 89, Fig. 8) and a mouthpiece for the bladder (Pl. 89, Fig. 17).

The flat sled shoes, which are so common in the eastern Thule phase and in the Modern phase at Point Hope (see Table 3, p. 180), occur here for the first time, although represented only by a single specimen (Pl. 89, Fig. 31). Like sled shoes from the Ambler Island site on the upper Kobuk this specimen is of antler, in contrast to those from the eastern Arctic and the Modern phase at Point Hope, most of which are of whalebone. Its presence in the Tigara phase is the first indication at Point Hope of the return migration of the Arctic Whale Hunters first suggested by Collins.² The fact that there is only one example in the Tigara burials and that sled shoes are rare in the lower layers of the Tigara mounds indicates that the vanguard of the returning Arctic Whale Hunters reached Point Hope at the very end of the Tigara phase.

The snow shovel with a bone mounting on the edge is another implement that makes its first appearance in the Tigara phase. It may have been adopted from the Central Eskimo, with the Nunatarmiut as a medium, or it may possibly constitute another culture element brought to Alaska by the returning Arctic Whale Hunters. The fact that snow shovel edges, like sled shoes, are scarce in the Tigara phase, becoming very common in the subsequent period, favors the latter suggestion.

The handle of a root pick (Pl. 89, Fig. 28) is decorated with incised whale figures and a row of whale tails. Here again we have an example of the first occurrence at Point Hope of an element that later becomes very common—in this case, the realistic etching so characteristic of the modern art of the Alaskan Eskimo. The earliest known examples of that art form are from the eastern Arctic. They occur, though sparsely, in the finds from Naujaa and Qilikukan, which Holtved assigns to the fourteenth century A.D.³ and in Inglefield Land, in northeastern Greenland, to the fifteenth century.⁴ We must, therefore, assume that this element, too, was brought to Alaska by Arctic Whale Hunters moving westward. Another example of realistic etching is a bird figure on an unidentified implement (Pl. 92, Fig. 21).

Another culture element brought to Alaska by these people is the use of soapstone for lamps and cooking pots. This element also oc-

¹ Giddings, 1944, Pl. 11d; and 131.
² Collins, 1930, 156.
³ Holtved, 1944, pt. 2, 129; Mathiassen, 1927, pt. 2, 121.
⁴ Holtved, 1944, pt. 2, 59.
curs in the Tigara phase, though it is represented by only one small fragment of a cooking pot (Pl. 91, Fig. 12). Soapstone vessels become more common in the subsequent period, but they never entirely replace pottery.

The two-handed scraper of caribou metacarpal (Pl. 89, Fig. 25) and the flaking hammer head (Pl. 89, Fig. 27) are two Ipiutak types that survived at Point Hope. No flaker handles were found, although flaker points indicate that the composite flint flakers were used. The flaker handles may have been of wood. Flint sidescrapers, similar to those from Ipiutak, were also found (Pl. 90, Figs. 12–13).

Among the commonest objects in the Tigara burials are clay lamps, pots, and cups. With few exceptions they are very crude, thick-walled, and made of a crumbly paste, tempered with gravel, sand, and feathers. The feather impression is visible on the sherd shown in Pl. 91, Fig. 7. The gravel consists of small waterworn pebbles which show no evidence of having been crushed. The lamps are plain, round or square with rounded corners and with a rounded bottom, and resemble the saucer-shaped lamps from the Yukon-Kuskokwim area.1 All the large cooking pots were broken, but a few small cups were rather well preserved. Only a minor portion of the potsherds were decorated on the exterior, most of them with the characteristic concentric circles which also occurred in the Western Thule phase (p. 173). Since sherds with concentric circles were found together with typical Tigara implements, like the arrowpoints, there can be no doubt that this type of pottery belongs to both periods. A small piece of a whalebone paddle with engraved concentric circles (Pl. 91, Fig. 8) found in one of the Tigara burials points in the same direction. The potsherd (Pl. 91, Fig. 9) with the vertical grooves is somewhat like the decorated pottery of the Old Bering Sea phase and the few potsherds found in Near Ipiutak burials and middens (Pl. 86, Figs. 18–19), but it has much thicker walls. In Pl. 91, Fig. 11, we have an example of the check-stamped pottery, an example of which Collins found on the surface of the Miyowaghi midden.2 The Tigara specimen is quite different from the rest of the potsherds; it is thinner than the average potsherds from this period, yellow-gray on both sides, and has a thin black core and a straight rim with sharp edges. It is tempered with tiny rounded pebbles visible on the rather smooth surface. As Collins has pointed out, this type of pottery is widespread in eastern Asia and we have previously mentioned that the Museum collection contains an example from the Amur River (p. 151). Judging from the large number of plain potsherds in the Tigara burials and the lower layers of the Tigara mounds, it appears that decorated pottery gradually went out of use in the Tigara phase. When it appears again in the Modern phase, the decoration is different; the walls bear indentations or horizontal, parallel, short lines and the rim is scalloped. Since this type of decoration occurs in the Bering Sea region south of Norton Sound,3 it is probably one of several traits that have been introduced into arctic Alaska from the south in recent times.

The decorative art of the Tigara phase is well executed, in a simple curvilinear style. In addition to the realistic etchings mentioned above, several specimens are decorated with geometric designs. Characteristic of this style are single or double plain or spurred lines. The snow goggles shown in Pl. 92, Fig. 1, are a fine example of the grace of a simple double-line decoration. On the brow band (Pl. 92, Fig. 2) we find the typical eastern Thule design, spurred lines, and the Y-shaped figure. The broken lines on the bodkin (Pl. 92, Fig. 16) and the needle case (Pl. 92, Fig. 20) recall the Ipiutak style. Absolutely unique in the western Arctic are the ivory figure and human faces which adorn the handle of the spoon (Pl. 92, Fig. 24). The carvings were set into the wood so that only their upper surface was visible; we believe that the Ipiutak masklike sets of carvings were set into a wood foundation in this manner. We do not know how the small carvings were secured to the handle. Apparently these had no pegs on the reverse like those on the Angmagssalik carvings fastened to wooden objects; we must, therefore, assume that they were wedged into the wood. Outside Alaska, this peculiar form of decoration occurs only in east Greenland. Since it appears in that area at a late date, we must consider an independent development until disproved by contrary evidence.

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1 Gordon, 1906, Pl. 22.
2 Collins, 1937, Pl. 52, Fig. 8.
3 Ibid., 349 and Fig. 17.
The occurrence of five needle cases in the Tigara burials leads us into the discussion of the much-debated question as to the origin of the "winged" needle case. Collins has already published a detailed and very plausible discussion of the problem. Our finds, however, may elucidate one point, that is, the origin of the needle case in the shape of a human figure, which prompted the discussion. Of the five needle cases found in the Tigara burials, three are like Pl. 92, Fig. 20, that is, of a form well known in arctic Alaska; two are of a slightly different form (Pl. 92, Fig. 19). The only differences between the latter and the usual form is that the "wings" are open, leaving a handle-like loop, reminiscent of arms. It is only a short step from this form to the needle case in human form. Since the latter undoubtedly belongs in the Modern phase in arctic Alaska (see Table 3, p. 180), it appears that in the example shown in Pl. 92, Fig. 19, we have a transitional form between the "winged" needle case and the human form. The two are related, but the development has been in a direction opposite from that suggested by Mathiassen.

Of the two types of thimble holders found in Tigara burials, the toggle-shaped form (Pl. 92, Fig. 11) is known in Alaska at least since Punuk times, while the "anchor" shape, which occurs here in an elaborate form (Pl. 92, Fig. 10), was probably introduced from the central regions during the return migration. The bodkin or wound needles with triangular heads (Pl. 92, Figs. 13, 14) are survivals from the Western Thule phase (cf. Pl. 95, Fig. 8).

The chronological position of the articulated Tigara burials is firmly established by the presence of significant elements characteristic of the Western Thule phase as well as of the subsequent Modern phase. We are justified in considering them as belonging to a separate phase, because of the variant traits. The main differences between the Western Thule phase and the Tigara phase are to be found in the change from open socketed to closed socketed harpoon heads, the modification of the shape of the tang of the arrowheads, and, above all, in the new types introduced from the east by the return migration of the Arctic Whale Hunters. In the Modern phase these eastern forms increase considerably in quantity; in addition, new types appear for the first time, the most significant being those resulting from contact with the white man. Judging from the Museum collection from Point Barrow, the Tigara phase existed there in a form similar to that at Point Hope, and we are probably correct in assigning it to arctic Alaska as a whole. On St. Lawrence Island it corresponds to the Recent Prehistoric phase as it appears in the Kukulik mound. The similarities are general; the differences are the result of local developments. Like the Tigara phase, the Recent Prehistoric phase of St. Lawrence Island must have flourished a long time, probably for several centuries.

The Modern Phase

As noted in the preceding section, the Tigara phase gradually merged into the Modern phase, and yet significant new culture elements appear in the latter, justifying the separation into the two phases. Some of these new elements may be local developments, but most of them originated outside arctic Alaska. The most radical change in the culture may be ascribed to the contacts with white civilization, through which iron tools and firearms became common. The primary contacts were indirect, notably with the Chukchee as a medium; but from the middle of the eighteenth century, when the Alaskan Eskimo first came into direct contact with the white man, the influence of his culture was greatly intensified. The desire for white man's goods resulted in a more active trade between the various groups of Alaskan Eskimo and, in consequence, a more frequent interchange of cultural traits. This may explain the sudden appearance of a number of southern culture elements like rack burials, zoomorphic motives in ivory carvings, masks, and labrets in arctic Alaska. More frequent communication may also have contributed to the spread of the returning Arctic Whale Hunting culture, the full effect of which is obvious in the Modern phase at Point Hope.

A considerable quantity of material from this phase was excavated at Point Hope. Most of it came from the cuts in the Old Tigara mounds (p. 175), a minor portion from six rack burials and the burial of a legendary whaling captain, "Umialik," found at Pingua, the entrance to the Point Hope lagoon. The remains from the rack burials consisted of a heap of human bones and

3 Collins, 1937, Pl. 82, Fig. 23.
artifacts which had been found on the surface. Since most of the artifact types from this phase are identical with those of the Tigara phase, and since virtually all known types have been illustrated and described by Mathiassen\(^1\) and Murdoch,\(^2\) we believe it is sufficient to illustrate and describe a selection of types from the burials and, for the rest, merely to refer to the list of types found in the Old Tigara mound.

The Modern type arrowheads (Pl. 93, Figs. 1–3; Pl. 94, Figs. 1–3) are very similar to those from the Tigara phase. The only significant difference is that the tang always has two small knobs instead of a ring or four knobs (Fig. 51e). Since this feature is characteristic of the arrowheads of the Eastern Thule phase, its occurrence at Point Hope may be ascribed to the return migration. The flint arrowheads (Pl. 94, Figs. 4, 5) and lance blades (Pl. 94, Fig. 6) are the same as in the preceding phase, as are most of the other types of implements illustrated in Pls. 93 and 94. Two Ipiutak types reappear in this phase, viz., bird arrowheads (Pl. 93, Fig. 4) and labrets. Unless these elements were accidentally missed in the earlier phases of the Arctic Whale Hunting culture at Point Hope, they must have survived somewhere else and were introduced at Point Hope. They could have survived in two regions, in the interior of arctic Alaska and in Alaska south of Bering Strait. Both elements occur in the Ekseavik find, which we correlate with early Tigara or late Western Thule, but were not found by Giddings in his earliest locality on the Kobuk River, the Ahteut site, which is definitely contemporaneous with the Western Thule phase. Since they occur in an earlier phase in the interior of arctic Alaska, and, as far as the bird arrowhead is concerned, in a form similar to those from Ipiutak, it is possible that they have survived there. However, we will not exclude the other possibility, particularly since, as has already been mentioned, we have evidence of an introduction of “new” elements from the regions south of Bering Strait.

Some of the elements introduced to Point Hope in the Modern phase probably had an Asiatic origin. Since the pipes are of the same type as those used by the Paleo-Asiatics, there can be no doubt as to their origin; we believe that netting needles and the net mesh sticks also came from the same source. Armor plates were not found in the earlier deposits at Point Hope, but they appear in the Bering Strait region in the Punuk phase.\(^3\) Two elements, the sealing stool and the seal indicator,\(^4\) which do not occur in our finds, are reported from Point Barrow. These must be ascribed to the return migration, while a number of others, such as the jade or flint knife sharpeners, the boxes for slate blades, the crotch for a harpoon, the fishhook sinker of pyrites, and the various forms of scraper handles with grooves for the fingers, are probably of local origin.

With the Modern phase we enter the field of ethnology. We will therefore close our description of the archaeological remains brought to light during our three seasons’ excavation at Point Hope. Although this unusually rich archaeological locality undoubtedly still holds an infinitude of artifacts, some of which may throw further light on its prehistory, we believe that additional excavation there will produce only minor changes in the picture of the cultural development that we have attempted to draw here. We do not assert that all the problems concerning arctic Alaska are solved, but we do believe that investigation in other localities, such as Point Barrow and Kotzebue, will contribute more to our knowledge of the region than a continuation of the investigation at Point Hope.

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1 Mathiassen, 1930b.
2 Murdoch, 1892.
3 Collins, 1937, Pl. 76, Figs. 20–24.
4 Murdoch, 1892, Fig. 255.
### Table 3

#### Types of Implements Found in Cuts B and D, Tigara Mound

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#### Tools

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<td>Knife blade, slate</td>
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<td>7</td>
<td>7</td>
<td>10</td>
<td>5</td>
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<td>2</td>
<td>59</td>
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<td>Ulu handle</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
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<td>7</td>
</tr>
<tr>
<td>Ulu blade, slate</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>6</td>
<td>5</td>
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* Plus signs mean "many."
### Table 3—Continued

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<td>Adze head, holes for lashing</td>
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<tr>
<td>Adze head, grooves for lashing</td>
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<tr>
<td>Adze handle</td>
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<tr>
<td>Mattock, whalebone</td>
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<tr>
<td>Root pick</td>
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<td>Snow shovel edge</td>
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</tr>
<tr>
<td>Wedge</td>
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</tr>
<tr>
<td>Drill mouthpiece</td>
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<tr>
<td>Drill bits, flint (jade)</td>
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<tr>
<td>Whetstone</td>
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<td>Skin scraper handles (for metal tube)</td>
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<td>Skin scraper blades, flint (right slanting edge)</td>
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<tr>
<td>Sidescraper, flint, straight edge</td>
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<tr>
<td>Sidescraper, flint, concave edge</td>
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<td>Sidescraper, flint, 2 straight edges</td>
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<td>Baleen shaver, flint</td>
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<td>Cutting board</td>
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<td>Knife sharpener, flint</td>
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#### Household Utensils

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<td>Potsherds, decorated</td>
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<tr>
<td>Bowl bottom, oval</td>
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<td>Spoon and ladle</td>
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<tr>
<td>Fragments of wooden vessels</td>
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<td>Antler hooks</td>
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<tr>
<td>Blubber pounder, whalebone</td>
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<td>Soapstone sherd</td>
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<td>Pyrites</td>
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<td>Bag handle with pictograph</td>
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#### Clothing and Ornaments

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<td>Boot fragments</td>
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<tr>
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<tr>
<td>Armor plate</td>
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<td>Water squeeze</td>
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#### Miscellaneous

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<td>Animal figure, wood</td>
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<td>Doll, ivory</td>
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<td>Toy bow</td>
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<tr>
<td>Glass bead</td>
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<td>Bottle glass</td>
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<tr>
<td>Iron</td>
<td></td>
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<tr>
<td>Tea spoon</td>
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</tr>
<tr>
<td>Rifle shell</td>
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* Indicates layer in which bracketed types were found.
CONCLUSIONS

The analysis of the materials excavated at Point Hope led inevitably to a reexamination of the data bearing on the origin and development of Eskimo culture. With the discovery of the Ipiutak village site in 1939 and the related cemetery in 1940 and the excavation of both sites, it becomes obvious that the remains of two different complexes of the Eskimo culture are represented at Point Hope. One of these, the well-known arctic coast culture complex, was first recognized and described by the Danish archaeologist, Therkel Mathiassen, as the Thule culture. Later, American archaeologists, notably Jenness, Collins, Rainey, and Geist, working in Alaska, recognized and added the names of earlier phases, such as Old Bering Sea, Punuk, Birnirk, and Okvik. For simplification and because we believe that all these names designate merely different phases of the same culture, we suggest the term Arctic Whale Hunting culture for the complex as a whole and the names already established to designate the various phases. The second complex is represented by two phases of the newly discovered Ipiutak culture, the description and analysis of which have been the main objective of this paper. Of the two complexes, Ipiutak corresponds largely to the Palae-Eskimo of Steensby and Birket-Smith, the Arctic Whale Hunting culture to their Neo-Eskimo. In the following discussion we will use these terms synonymously. Our interpretation of the origin and development of each of these two complexes, their mutual relations, and their distribution within Eskimo territory are briefly outlined below.

The source culture of the Ipiutak complex, the Proto-Eskimo, was probably an ancient circumpolar hunting culture with its roots in the epipaleolithic cultures of the Old World. The home of this Proto-Eskimo culture is the northemmost part of Siberia or Europe, but the lack of archaeological data from these regions deters us from suggesting any specific region as the place of origin of the Eskimo culture. However, it seems reasonable to assume that this culture was closely connected with one or more of the large river systems which empty into the Arctic Ocean.

We must assume that these people, although fundamentally the bearers of an inland culture based mainly on reindeer hunting, were also acquainted with sea mammal hunting. We must also assume that these hunters, pursuing the reindeer on their annual migrations towards the coast, remained on the coast during the spring and summer months, hunting seals and walrus on and at the edge of the ice. In the fall when the reindeer returned to the interior they followed and hunted them. They spent the winter inland, hunting, trapping, and fishing in the rivers and lakes, and when these froze they caught fish through holes in the ice with spears or harpoons. They lived in semi-subterranean houses built of wood and sod, each probably with a side entrance and a fireplace in the center. Antler and flint, or other hard minerals, were the favorite materials for tools and weapons. In the middle of the first millennium B.C., iron came into common use over large areas of Siberia, at which time it also reached these arctic hunters, but in such small quantities that it had no influence on the neolithic stamp of their culture. Shamanism was probably the dominating factor in their spiritual life.

Probably in pre-Christian time, pressure from more advanced cultures in Siberia forced these arctic hunters from their hunting grounds and, searching for others, they crossed Bering Strait. This migration from one continent to another, like all other Eskimo intercontinental movements, in all probability occurred in family groups rather than as a mass migration. Consequently, we must assume that the migration must have continued for a considerable period of time. Thus we are inclined to believe that the first Eskimo immigrants arrived on the North American continent in the first millennium B.C. and were the bearers of a purely neolithic culture; while the Ipiutak culture, as we found it at Point Hope, which had been in contact with metal-using cultures, appeared in America some time in the first half of the first millennium A.D. We do not believe that all immigrants stemmed from the north coast of Asia. Some undoubtedly came from northeastern Asia bringing culture elements which appear to be Chinese in origin. These latter immigrants are probably also responsible for the East Asiatic strain in the present Eskimo population. The
Ipiutak culture of Point Hope has strong affinities to western Siberia, and the region around the lower Ob and Yenissei may be the original home of the Ipiutak people.

On American soil the Palae-Eskimo spread over the coastal regions of Alaska and arctic Canada. In the early period of their occupation, they continued their original semi-nomadic life, depending mainly on caribou hunting, gradually modifying it to conform to their environmental conditions which differed from those of their homeland. Thus in regions where there were no caribou, their main economic dependence shifted to fish and seal. Others remained inland and abandoned sealing. The original culture is preserved, more or less unchanged, among two groups of modern Eskimo, viz., the Caribou Eskimo of the Barren Grounds west of Hudson Bay, and the Nunatarmiut of arctic Alaska; for the rest, we find only archaeological remains. These have been found in three different regions, in each of which a special development has taken place, with the result that three cultures, differing from one another and from the original culture, have arisen. The earliest known cultures in these regions have the following traits in common: caribou hunting, sealing, and fishing as the main occupations; chipped stone tools prevailing over rubbed slate; absence of pottery, whale hunting with floats, traces of dog traction, and the use of the bowdrill. The three culture centers are South Alaska including the Aleutians, North Alaska, and Hudson Bay. Beginning in the south, we find the Ipiutak complex represented in the first period of the Kachemak Bay culture of Cook Inlet and in the lower layers of the Aleutian middens. While its development in the Cook Inlet area is well known from De Laguna's work on the Kachemak Bay culture, the development that resulted in the characteristic Aleut culture is still obscure. At the present stage of our knowledge we can only say that the Aleutian Islands were first populated from the east by people closely related to the earliest settlers of Cook Inlet and probably the rest of the south coast of Alaska. Although we know virtually nothing about the prehistory of the Bering Sea Eskimo, we have sufficient ethnological evidence to suggest that the Ipiutak complex at one time existed in this region.

In northern Alaska the Ipiutak complex is represented by the Ipiutak culture and the Near Ipiutak phase at Point Hope. The Ipiutak culture has so many affinities with Siberian culture that we must assume that it has not flourished long on American soil. The position of the Near Ipiutak phase is uncertain. It is related to the Ipiutak culture, but also has traits in common with the ancient culture of south Alaska, as, for instance, the triangular-oval stone lamp. At Point Hope the Near Ipiutak phase is presumably the later of the two phases because it includes such traits as whaling harpoon heads and traces of pottery and slate implements, elements which indicate contact with the Arctic Whale Hunting culture. As to the ultimate fate of the Ipiutak complex in northern Alaska, we believe that some of the Ipiutak people continued their original mode of life and became the ancestors of the modern Nunatarmiut, while others remained permanently on the coast and adopted the new elements of the Arctic Whale Hunting culture, which in the meantime had developed in the Bering Strait region.

Environmental conditions forced a change in culture on the Palae-Eskimo when they chose to make their home on the islands in Bering Strait and northern Bering Sea. The absence of caribou made their inland culture traits useless and they soon became obsolete, but they found full compensation in the rich sea mammal life around the islands. Seals were plentiful all the year round; walrus, bearded seal, and baleen whales in great numbers passed their islands twice every year on their migrations to and from the Arctic Ocean. Sea mammal hunting became their main occupation, and they gradually developed a technique primarily based upon the use of a float attached to the harpoon line, without which it was impossible to secure prey as large as a whale. In addition to the float, the Arctic Whale Hunters, or the Neo-Eskimo as we can also call them, adopted and invented a considerable number of new elements which characterize this new culture. Inside the house, which was built with a deep entrance serving as a "cold trap," the open fireplace was replaced by an oil lamp. Chipped stone tools were gradually replaced by tools of rubbed slate, and pottery and the bowdrill were introduced, possibly from eastern Asia. Small hand sleds with runners of walrus tusks were used to drag seals home on the ice, and meat hooks, wound plugs, fishline sinkers, ice creepers, and, above all, various implements made of baleen, were all
new elements added to the Eskimo culture. It is considered likely that the Arctic Whale Hunting culture not only received new elements by adoption from adjacent cultures, but that these were also brought by new immigrants, probably from eastern Asia.

On the home islands, especially St. Lawrence Island, the following phases of the Arctic Whale Hunting culture are distinguishable: Okvik, Old Bering Sea, Punuk, Recent Prehistoric, and Modern, with traces of other phases which had their main distribution farther north, namely, Birnirk and Western Thule. The main difference between these phases lies in the art, especially the surface decoration which rose to a climax in the Old Bering Sea phase and then degenerated in the subsequent phases. Further differences may be observed in the shape of the harpoon heads and in the normal abandonment of some elements and adoption of others, which, however, made no radical changes in any of the cultures. The same culture phases probably existed on the mainland on both sides of Bering Strait. Traces of them have been found as far north as Barrow, although the development has taken a slightly different course in arctic Alaska. The excavations at Point Hope revealed the following phases of the Arctic Whale Hunting culture: Okvik, represented by a few specimens in Ipiutak ruins; Birnirk, which is probably contemporaneous with early Punuk; Western Thule; Tigara, corresponding to recent Prehistoric; and Modern. The same phases occur at Barrow. The origin of the Birnirk phase is not quite clear, but it may have developed out of the Ipiutak culture through influence from the Bering Strait region. From Barrow, the Arctic Whale Hunting culture was diffused eastward along the coast of the Arctic Ocean; the first eastward movement probably occurred in late Birnirk or the beginning of the Western Thule phase.

Meanwhile before the Arctic Whale Hunters reached the central regions, these were already peopled by Palae-Eskimo who had not lingered in arctic Alaska but proceeded eastward. This eastward movement is a natural consequence of their roaming life in pursuit of the caribou which led them from one river system to another. Caribou were everywhere; in the tundra regions there was no occupying population to prevent them from taking possession. We have no archaeological evidence to prove the presence of the Ipiutak complex in the central part of northern Canada, but in the Mackenzie house and the culture of the modern Central Eskimo we find traits which undoubtedly are inherited from the Ipiutak complex. It is also necessary to assume a former occupation of these regions by Palae-Eskimo in order to explain the presence of Ipiutak types on Southampton Island and in the Dorset culture.

In the third culture center, the Hudson Bay area, the Ipiutak complex is represented by two cultures, viz., the Caribou Eskimo and the prehistoric Dorset culture. The Caribou Eskimo are the Canadian counterpart of the Nunatarmiut and, except for the Ipiutak, the only known Eskimo group that did not use a blubber lamp. The Dorset culture has some traits in common with the Ipiutak culture, others with Near Ipiutak and the Ipiutak complex of south Alaska and the Aleutian Islands, notably, the triangular-oval stone lamp. It seems then that two groups of Palae-Eskimo, corresponding to Near Ipiutak and Ipiutak, settled in the Hudson Bay region. One of these used a blubber lamp and one did not. We are unable to say which group is the earlier. Owing to our scanty knowledge of the Dorset culture and complete lack of archaeological evidence of the prehistory of the Caribou Eskimo, our interpretation of the cultural development in this region must be hypothetical and partly founded on earlier theories. Though belonging to the Ipiutak complex, the Dorset culture has undergone a separate development and, probably through contact with neighboring Indians, adopted some foreign elements which have contributed towards giving it a special stamp and towards obscuring its similarity to the Alaskan basic culture. We do not know where this special development occurred, in other words, where its center of development is located. Remains of Dorset culture have been found in several places northeast of a line running from King William Island through the northern part of Hudson Bay, including Southampton Island and Coats and Mauel Islands, to Labrador and Newfoundland. Thus far most finds have come from the Hudson Strait region, but our knowledge of this culture is too limited to designate this as the center of development. Presumably the culture has developed in the direction of a further
adaptation to the sea, with seal and walrus hunting as the main support. It was diffused as far as Greenland, the first occupants of which probably were Dorset people or another group belonging to the Ipiutak complex.

Meanwhile, the arrival of the Arctic Whale Hunters from the west sealed the doom of the Dorset culture. For a time the two cultures existed side by side with a mutual interchange of culture elements, but the superior Arctic Whale Hunting culture became dominant and probably absorbed the Dorset culture. Only a few permanent traces of the Dorset culture, such as the flat harpoon head with two dorsal spurs and possibly the stone lamp and cooking pot, were left in the Arctic Whale Hunting culture. The Arctic Whale Hunters must have adopted the stone lamp and cooking pot somewhere in the central or eastern regions, because when they left Alaska they used pottery for these utensils. Only a few traces of pottery have been found in the eastern Arctic; it seems probable that the Arctic Whale Hunters abandoned pottery making as soon as they learned to use the more easily workable and much more durable soapstone. The differences between the oval or triangular-oval Dorset lamp and the triangular to semilunar lamp of the eastern Thule phase are not greater than a normal possible transition from one form to the other. The further development of the lamp, first with a row of knobs and then with a solid partition or a wick ledge parallel with the front edge, must be ascribed to the Arctic Whale Hunters.

Soapstone lamps and cooking pots are not the only culture elements which the Arctic Whale Hunters acquired after they left Alaska. Snow-knives have never been found in early Alaskan periods, signifying that houses built of blocks of snow were not used in that area until recent times. We agree with Bircket-Smith in his assumption that the snowhouse originated in the central regions and that it developed from a dome-shaped, snow-covered hut like that used by the Nunatarmiut in historic time. In the central regions the wooden framework was abandoned either because of the scarcity of wood or simply because it was discovered that a framework was not necessary. It is not quite clear yet who made this discovery, but we believe it was a group of Palae-Eskimo who had come from Alaska bringing with them their knowledge of snow-covered huts. If the snow-knife proves to be an element of the Dorset culture, as indicated by a few finds, the Dorset people probably are the inventors. On the other hand, few Dorset finds are unmixed; most of them are mixed with Eastern Thule elements. The Dorset culture at Inglefield Land, for instance, described by Holtved, is such a mixture. As the Dorset people apparently had permanent winter houses and, consequently, were more or less sedentary, we are inclined to believe that not these people but another group of the Palae-Eskimo invented the snowhouse. These people are the unknown ancestors of the modern Central Eskimo. Originally of the same stock as the Dorset people, they lingered behind in the regions west of Hudson Bay, while the Dorset people proceeded eastward and developed their special culture to the east and north of this area. In the central regions the development pursued a different course than did the Dorset culture. While the most important occupation of the Dorset people was presumably seal and walrus hunting, the ancestors of the Central Eskimo remained faithful to caribou hunting as their main occupation. In this respect they remind us of the modern Caribou Eskimo, and we consider it very likely that these people are the last survivors of the original Palae-Eskimo culture, from which the culture of the Central Eskimo developed. This development probably occurred as suggested by Bircket-Smith. Their seasonal wanderings in pursuit of the caribou herds took them to the Northwest Passage around Coronation Gulf, where they stayed during the winter and developed breathing-hole seal hunting. It is probably these roaming caribou hunters, who spent the winter in a treeless and extremely cold country, rather than the Dorset people who invented the snowhouse. The Arctic Whale Hunters who occupied the coast regions must have been in close contact with the Central Eskimo. Not only did they adopt the snowhouse, which they used only when traveling, or at least for limited periods, but the two peoples had several other culture elements in common, some of which the Arctic Whale Hunters adopted from the Central Eskimo. Of 42 elements com-

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1 Jenness, 1925, 433, Fig. 5; Holtved, 1944, pt. 2, 48 et seq.
mon to the Netsilik and Copper Eskimo and the Eastern Thule phase listed by Birket-Smith,1 we shall mention a few that clearly demonstrate the contact between the two cultures. From the Central Eskimo the Thule people probably adopted the beak-handled stone scraper, the trace buckle, and probably breathing-hole hunting and, in addition, three elements not listed, the caribou scapula scraper, ajagaq, and probably the heavy sled. The Central Eskimo in their turn received the bowdrill, bolas, bow backing twister, wolf killer, and barbed toggle harpoon head. There may be reason to mention dog traction. So far, we have no evidence of dog traction in the early Alaskan cultures including Ipiutak, which, of course, does not exclude the possibility of its existence there. Meanwhile, it seems fairly certain that the heavy runner sled, as used by the Central Eskimo and the eastern Thule people, and the trace buckle were not known in Alaska in ancient times. The relatively large number of dog bones in the Ipiutak find suggests dog traction, but we are still unable to decide what type of sled was used. The heavy runner sled and the trace buckle are probably of Central origin, but it cannot yet be decided whether the eastern Thule people or the Central Eskimo or their ancestors are the inventors. Jenness mentioned the absence of sled accessories as one of the characteristics of the Dorset culture. The presence of one trace buckle and two sled shoes in the Dorset culture of Inglefield Land may, therefore, be another example of mixture with Thule elements.

We have now seen that in the central region, as well as farther east, peoples with two culture complexes met and exchanged cultural elements. Although the relations between them probably were friendly, it became in reality a struggle for supremacy. In this struggle the Dorset culture succumbed to the Arctic Whale Hunters, but these in their turn lost to the Central Eskimo. They disappeared completely from the central regions and the region to the north of Hudson Bay where the Central Eskimo culture became predominant, though in southern Baffin Island and Labrador we find a mixture of the two. Birket-Smith explained this expansion of the culture of the Central Eskimo and the decline of the Arctic Whale Hunting culture in the following words:

We will not go far wrong, if we seek one of the main causes of the reviving of the Central tribes in the uplift of the land, which has taken place towards the end of the Neo-Eskimo period and which is presumably continuing to this day. This uplift has restricted the haunts of the large aquatic mammals, especially the whale, and must therefore have weakened a culture which was mainly based upon the hunting of these mammals.2

Presumably the Arctic Whale Hunters gradually abandoned the central area and moved to the east and the west. Some remained on Southampton Island where the last survivors became extinct in 1902–1903. As pointed out by Collins there is clear evidence of a late “return migration” of Arctic Whale Hunters in northern Alaska. At Point Hope the first traces of this return migration occur in the latter part of the Tigara phase, but it is not until the Modern phase that it makes a notable impression on the culture, primarily by its content of sled shoes, trace buckles, segment-shaped soapstone lamp, and drilled lashing holes in harpoon heads and adze heads. The influences of the return migration are traceable as far south as Norton Sound and the islands in the northern Bering Sea, that is, to the southern limits of the Arctic Whale Hunting culture. It is highly significant that Norton Sound is the boundary between the two main Eskimo dialects. According to the theory advanced here, the cultures to the south of Norton Sound developed on the foundation of the ancient Ipiutak complex without influence from the Arctic Whale Hunting culture, while to the north and east of the Sound are the Arctic Whale Hunting culture and those cultures which have been in close contact with it.

The archaeological work is far from completion; much remains before it will be possible to give a complete picture of the Eskimo culture, but we hope in this paper to have thrown light on some of its problems and to have set up a working hypothesis which will prove useful to other students of the Eskimo.

1 Birket-Smith, 1945, 283.

APPENDIX 1. NOTES ON EXCAVATION OF HOUSES

In contrast to other known archaeological sites in the Eskimo area, the Ipiutak village site is distinctive because of the large number of house ruins and the uniformity of the house construction. Whether we chose a house for excavation in Row A or Row E, in the western or the eastern end of the village, we always encountered the same type. Of course no two houses exactly duplicated each other, but the variations in size, shape, and interior arrangement were so insignificant that we feel justified in considering them as belonging to a single type. Though the following descriptions of the individual houses excavated are in many cases very brief and to some may seem insufficient, it must be borne in mind that the houses have so many common features that a detailed description of each would result in a series of repetitions. Furthermore the majority of the houses were in such a poor state of preservation that the only recognizable details of the house structure, after the overburden had been cleared away, were a fireplace, a layer of black, greasy gravel which represented the floor, and a few scattered pieces of badly decayed logs. To avoid unnecessary repetition, we shall therefore list the common features and describe our excavation techniques.

Before excavation, each house appeared as a very shallow squarish or rounded depression, sometimes surrounded by a barely recognizable low mound wall. A smaller oblong depression was noticeable to the west of some of the house sites. These depressions were covered with the same type of vegetation as the immediately surrounding areas, low arctic willows, grasses, and other herbaceous plants. The only difference between the vegetation inside the house depressions and surrounding them was that the grass was often a little higher inside the depression than outside. The house sites nearest the beach were covered by drift sand. Under these conditions, it is easy to understand why this village site was unnoticed for so long a period by the Eskimo as well as by visiting explorers and, for that matter, by our own group, at least for a short time. As we were unaware of the type of structure we were excavating in the first eight houses, we dug a 1-meter-wide trench down to sterile gravel across the end of the depression and then removed all culture deposits, 1-meter-wide section at a time, and recorded the nature and thickness of the various layers we cut through. Thus we had a series of cross-sections that enabled us to some extent to reconstruct the groundplan of the house (Fig. 53). However, the shortcomings of this method

Fig. 53. Groundplan and sections of House 4.
were soon obvious and consequently it was abandoned in favor of the procedure which will be described presently.

Two factors rendered the excavation difficult: the poor preservation or the absence of wooden structures and the fact that the houses were buried in loose gravel. We were thus faced with the problem of determining the outline of houses without walls and filled with the same loose gravel that surrounded them. Our procedure to attain these results was as follows: Below the turf was a layer of gravel or, near the beach, sand, of varying thickness. This was examined for specimens and removed. This gravel, which probably slid in from the sides or had covered the roof after the house had collapsed, was discolored by organic matter like all surface gravel at the site, presumably resulting from human activity during the occupation of the Ipiutak village. In some instances this gravel layer rested directly on the floor. If the floor, as it did in most houses, also consisted of gravel, it was very difficult to separate the two layers. It was not until the final excavation season that the technique was perfected.

The location of the fireplace, which was present in all the houses, was the primary objective. Since we knew that the fireplace rested on the floor, we scraped away from it, until we struck a layer of gravel of a consistency different from the fill, viz., the floor layer. The gravel of the floor layer was black and more greasy than the fill; it had a hard-packed surface—the actual floor—and contained a large number of flint chips and, where conditions of preservation were favorable, bone, antler, and ivory refuse, and, usually on the surface, wood shavings; in short, numerous traces of the various activities of the former inhabitants. The floor having definitely been identified, the next task was to expose it by carefully removing the overburden at all sides of the fireplace, until the outer limits of the floor were reached, that is, to the place where the original walls had been. Here the black, greasy gravel either stopped abruptly and was replaced by sterile gravel or it sloped upward forming a low, steep, sometimes vertical bank with sterile gravel outside. The thickness of the floor layer varied considerably, according to the length of the occupation. Some houses in which the floor layer was only a thin coating over the underlying sterile gravel were probably occupied only a single season, while others, with a floor layer 30 or more centimeters thick, undoubtedly had been occupied over a long period or during several successive seasons.

In the first example, it was difficult to trace the floor to its full extent. This meant that we were unable to determine the original shape and size of the house. However, those cases were relatively few, not because most of the houses had thick floor layers, but because, in the majority of houses, we were able to trace the floor by a layer of sod which often rested directly on it, separating the surface gravel from the floor gravel. This sod layer varied in thickness from 5 to 10 centimeters and was usually hard and compact but appeared occasionally as a swampy moss turf. This sod layer, which we interpret as the original roof which caved in after the house was abandoned, usually covered the entire floor. By carefully lifting it up and removing it, we were able to expose the floor without mingling the two gravel layers. Sometimes it was broken off at the edge; occasionally it continued upward along the sides of the excavation and thus served to locate the position of the walls. In some houses loose gravel had slipped underneath the sod layer, but more often it was in such close contact with the floor that artifacts and remains of the wood structure had left their impressions in the under side.

After the excavation technique had been perfected, we noticed that the floor was not always in one level. In most of the houses a square or rectangular space around the fireplace was slightly lower than the rest of the floor. It then became clear that these higher parts surrounding the central floor space were sleeping platforms. There were platforms along the north, east, and south walls but none along the west wall, where we assume the entrance was situated. In a few houses we found the inner edges of the platforms were supported by heavy logs, undoubtedly placed there to prevent the gravel from sliding into the central floor.

A wooden flooring, consisting of rows of parallel logs and usually confined to either the central floor space or the platforms, was found in some of the houses. The wood was in a poor state of preservation, sometimes only traceable in a paper thin brown layer, but from the direction of the fiber it was obvious that the logs had usually been laid down parallel with the nearest wall. Other log fragments found scattered over the floor were probably remnants
of the roof structure or wall supports.

Outside the west end of some of the houses, in the east-west axis of the house, was the previously mentioned oblong shallow depression, which we have designated as the entrance passage. The presence of these depressions was not observed until the second season when, like the house depressions, they were more clearly discernible because of the difference in the color of the vegetation (see p. 16). Excavation revealed that under the surface turf and the usual layer of gravel or sand was a layer of black, greasy gravel, exactly like the floor gravel in the house, and filled with similar refuse. In some of these depressions we also found a sod layer directly above the gravel. As in the houses, it formed a steep bank along the sides and ends of the depression.

The interpretation of these oblong depressions is not absolutely clear. Because of their shape, location, and the fact that similar depressions occur in front of most old Eskimo house ruins, we have called them entrance passages, which they may very well have been. On the other hand, there are two reasons why we hesitate to make an unequivocal statement to that effect. First, they do not occur in front of all the houses. After their presence was noticed in 1940, they were usually excavated at the same time as the house. Where no depression was visible on the surface, test trenches were dug to find the layer of black gravel that signified the floor, but in many cases without result. The second reason for doubting our interpretation is the fact that in none of these depressions were we able to find indisputable evidence of a connection between the floor layer of the house and that of the entrance passage. Sometimes we found that black gravel extended the entire distance from the entrance passage to the house, but wherever we had a thick, well-defined floor layer of black, greasy gravel with refuse in the house as well as in the entrance passage, these were invariably separated by an area of yellow sterile gravel, varying in width from 0.8 to 2 meters (Pl. 99, Fig. 1). By carefully removing the surface turf and the underlying top gravel, we uncovered in most cases a low rounded wall of sterile gravel between the entrance passage and the house. In only a few cases did this "gravel wall" have a thin coating of a black greasy substance.

Where nothing else is mentioned in the description of the individual houses, the following features are common to all houses. They were all oriented in approximately the same direction, that is, with the front "wall" facing west. The fireplace, a round or oval heap of hard-burned ash, was situated in the west-east axis of the house, a little west of the center. The consistency of the ash seemed to indicate that blubber and possibly bone were burned together with wood. Usually the ash was black, but in many fireplaces this black ash formed a ring around a bowl-shaped depression in the center which contained a soft, brown, clayish substance (indicated in the groundplans by two concentric circles or ovals). The fireplaces averaged approximately 75 centimeters in diameter. All references to walls simply mean to the edge of the excavation where the walls supposedly were. A leveling instrument was used in connection with the excavation of Houses 34 to 71. Measurements were taken to the center of the floor near the fireplace, to the floor in each of the four corners of the house, to the surface near the edge of the excavation immediately above each corner, and to the floor layer of the entrance passage where it occurred. The figures in the text indicate the height in centimeters above sea level at normal high water.

**House 1, Center of Row D**

Two test trenches were dug at right angles. The excavation of the house was not completed.

**Finds**

1 harpoon head, Type 2
2 retouched flakes

**House 2, Center of Row C**

Under 50 to 70 centimeters of sod and gravel a 10- to 25-centimeter thick floor layer was found, containing pieces of wood which may have been parts of either the flooring or the roof. The floor layer also contained a quantity of bone refuse and many flint flakes. Many artifacts were found in the southeast corner of the excavation.

**Finds**

3 arrowheads, Types 2, 3
5 arrowpoints, Types 1, 2, fragment
5 inset blades, Types 1, 4, unidentified
2 harpoon heads, Types 1, 2
2 miniature harpoon heads, Type 1
3 harpoon foreshafts, Type 2, unidentified
1 miniature harpoon foreshaft, Type 1
1 socket piece, Type 1
dagger
1 perforated butt
1 barbed point
3 leister prongs
1 salmon spear center prong
1 salmon spear side prong
1 salmon spear barb
2 knife handles, Types 2, 3
3 adze blades, Types 1, 3
3 flint flaker points
3 knife side blades, Type 5, unidentified
1 semilunar blade, Type 2
6 blade fragments
5 discoidal blades, Types 1, 3, unidentified
10 concave sidescrapers
2 convex sidescrapers
4 scraper fragments
13 retouched flakes
1 used flake
1 shovel blade of walrus scapula
1 mattock blade
1 root pick
3 wedges
3 lumps of pyrites
7 awls
2 hooks
1 piece of mask-like set of carvings
2 animal carvings
3 openwork carvings, unidentified
1 chain link
14 implements, uncertain use, Types 3, 9
2 unidentified fragments
1 decorated fragment
1 unidentified wooden implement
8 worked antler
46 worked ivory
3 pieces of pyrites
6 unidentified implements
7 fragmentary unidentified implements
66 worked fragments of ivory, antler bone, and wood

6 inset blades, Types 1, 3, 4
1 miniature harpoon foreshaft, Type 2
1 adze blade, Type 3
3 whetstones, Type 1
1 flaker point
4 knife side blades, Types 1, 2, 4
1 semilunar blade, Type 1
12 blade fragments
4 discoidal blades, Types 1, 3
6 concave sidescrapers
1 concave-convex sidescraper
1 double-straight sidescraper
1 endscraper, Type 2
1 drill, Type 3
3 scraper fragments
24 retouched flakes
5 used flakes
1 mattock blade
1 root pick
1 bodkin
5 awls
1 needle
2 needle bones
1 hook
2 stones with petroglyphs
3 implements of uncertain use, Types 3, 4, 6
1 unidentified implement
1 ornamented unidentified implement
3 worked ivory
3 worked antler
5 worked wood

House 4, Center of Row C

The floor, 5.5 meters square, with rounded corners, consisted of gravel mixed with wood chips, parts of logs, and bone and stone refuse (Fig. 53). The floor layer, 70 centimeters below the surface, was 10 to 20 centimeters thick at the center, 30 to 40 centimeters at the edges. The floor was completely covered by a layer of compact sod, which at the edges extended upward to the surface turf. Outside this sod layer was a steep bank of sterile gravel indicating the outer limits of the house. On each side of the fireplace, parallel with the north and south walls, were indications of a low, oblong, platform. In the northwest end of the house, in front of the platform, were two short logs; near the other platform, the remains of a post.

Finds
5 arrowheads, Type 1
4 inset blades, Type 1
1 harpoon head, Type 1
1 lance head or dagger
6 barbed points

House 3, Center of Row C, Near House 2

The floor, which contained a lot of wood chips and some poorly preserved logs, was covered by the following layers from bottom to top: black gravel, a hard sod layer, and sandy turf. The floor layer, which covered an area of approximately 3.5 by 3 meters, was thickest in the middle. The central part of the floor was lower than the rest.

Finds
1 arrowhead, unidentified
1 arrowpoint, Type 1
1 salmon spear center prong
1 salmon spear barb
1 gull hook
1 fishhook shank (?)
2 knives with side blades
2 adze heads, Type 1
1 scraper handle (?)
1 flaking hammer head
6 flaker points
4 knife side blades, Types 1, 3, 4, 5
16 blade fragments
3 discoidal blades, Type 1, 3
4 concave sidescrapers
2 convex sidescrapers
1 straight sidescraper
1 double concave sidescraper
2 double straight sidescrapers
10 scraper fragments
17 retouched flakes
7 used flakes
1 drill (?)
2 whetstones, Type 1
1 mattock
1 whalebone shovel
4 awls
1 needle
1 needle bone
2 hooks
1 stone with petroglyphs
3 implements of uncertain use, Types 3, 11
1 wooden snow beater (?)
1 unidentified wooden object
10 worked ivory
5 worked antler

**House 5, Center of Row D**

The floor, approximately 6 meters long and 5 meters wide, was covered by successive layers of thick compact sod, sand, and turf, in all, 80 centimeters. On the floor, just below the compact sod, was a thin layer of wood chips, and near the center and along the east wall lay pieces of logs. The center of the floor was frozen. The house contained much bone refuse, but few implements. A wooden knife handle, with a slot for a side blade, was too badly disintegrated to save.

**Finds**

2 inset blade fragments
1 adze head, Type 1
2 adze blades, Type 2
3 knife side blades, Types 2, 5
1 semilunar blade, Type 1
4 blade fragments
2 discoidal blades, Type 1, 3
3 concave sidescrapers
1 convex sidescraper
1 concave-straight sidescraper
1 oval scraper
9 retouched flakes
8 used flakes
1 blank
4 mattocks
1 marlin spike
2 awls
4 unidentified wooden implements

**House 6, Center of Row C, Near House 2**

The house was 5 meters square. A thick, black gravel culture layer was covered by compact sod, especially in the southeast corner and, to some extent, all along the south wall. In the fireplace, which was 1 meter in diameter, were black stones (for cooking ?), ash, and oil coke; the gravel below the fireplace was oil soaked. A wooden floor surrounded the fireplace. A steep bank of sterile gravel indicated the outer limits of the house along the north and south walls.

**Finds**

14 arrowheads, Types 1, 2, 8, unidentified
5 arrowpoints, Type 1
6 inset blades, Types 1, 3, 4, 5
8 inset blades, fragments
1 harpoon head blank, Type 2
3 harpoon foreshafts, Types 1, 2
2 perforated butts
1 leister prong
1 salmon spear barb
1 fishhook barb (?)
1 gull hook
1 knife handle, Type 3
1 flaking hammer head
2 flaker points
1 marlin spike
3 mattocks
1 whetstone, Type 1
1 knife side blade, Type 1
8 discoidal blades, Types 1, 3, 4, unidentified
1 rare flint blade
13 blade fragments
8 concave sidescrapers
1 convex sidescraper
1 straight sidescraper
2 double-concave sidescrapers
2 concave-straight sidescrapers
9 fragmentary scrapers
17 retouched flakes
8 used flakes
10 awls
3 needles
5 needle bones
1 labret, composite
2 brow bands
2 ornamental bands, Type 1
4 implements of uncertain use, Types 1, 3
13 unidentified fragments
2 ornamental fragments
34 worked ivory
22 worked antler
2 worked bone

House 7, Center of Row C,
Just West of House 6

This house was 5 meters wide; the length was undetermined because the culture layer thinned out in the western end. In the east end the culture layer, which consisted of black gravel with refuse, was 1 meter thick. On the south side there were two layers of black gravel, separated by a layer of sterile gravel. The presence of the sterile gravel may possibly be explained by the existence of two water-cut gullies extending west to east along the north and south walls. The V-shaped gullies were filled with black refuse. Wood fragments were scattered around the fireplace. The part of the floor along the north wall was higher than the rest, suggesting a platform. The remains of a post were found near the southeast corner.

Finds
15 arrowheads, Types 1, 2, 3, unidentified
3 arrowpoints, Type 1
1 inset blade, Type 3, unidentified
8 harpoon heads, Type 1
1 harpoon head blank, Type 2
1 miniature harpoon head, Type 3
2 harpoon foreshafts, Type 1, unidentified
2 lance heads, fragments
1 perforated butt
2 bird dart side prongs
6 leister prongs
1 salmon spear side prong
2 salmon spear barbs
2 gull hooks
2 knife handles, Types 1, 2, 3
7 adze heads, Types 1, 2
7 adze blades, Types 1, 2, 3
5 whetstones, Type 1
4 grinding stones
7 flaker points
1 marlin spike
2 mattocks
4 root picks
4 wedges
1 whalebone shovel
1 two-handed scraper
12 knife side blades, Types 1, 2, 3, 5, 6
1 knife end blade, Type 2
1 semilunar blade, Type 1
23 blade fragments
2 discoidal blades, Type 1, unidentified
6 concave sidescrapers
2 convex sidescrapers
1 straight sidescraper
3 concave-straight sidescrapers
2 double-straight sidescrapers
1 endscraper, Type 1
8 scraper fragments
1 graver, Type 2
2 small oblong blades
22 retouched flakes
6 used flakes
6 cores and blanks
1 needle
12 needle bones
30 awls
2 pendants
11 implements of uncertain use, Types 1, 2, 4, 5, 9
3 ornamented implements of uncertain use
1 animal carving
1 animal attachment
2 hooks
2 brow bands
7 unidentified fragments
Red paint
Jet
1 armor plate, intrusive

House 8, West End of Row D
The floor lay underneath 50 to 70 centimeters of sand and a 10- to 20-centimeter thick layer of hard, compact sod which rested directly on the floor and contained impressions of the artifacts lying on it. A steep bank of sterile gravel along the north and south walls indicated the limits of the house. A platform was visible along the south wall.

Finds
3 arrowheads, Types 1, 2, unidentified
1 arrowpoint, fragment
5 inset blades, fragments
2 harpoon blade fragments
1 harpoon foreshaft, Type 2
1 lance head
3 knife handles, Types 1, 3
2 flaker points
2 marlin spikes
2 mattocks
2 needles
3 needle bones
6 awls
1 grinding stone
4 knife side blades, Types 2, 3, 4, 5
12 blade fragments
4 discoidal blades, Types 1, 2
4 concave sidescrapers
1 straight sidescraper
1 double-concave sidescraper
3 scraper fragments
18 retouched flakes
18 used flakes
4 cores and blanks
3 implements of uncertain use, Types 5, 7
5 unidentified implements
1 decorated fragment
3 worked wood
23 worked ivory
7 worked antler

House 9, East End of Row C

The house had a square groundplan, approximately 4 by 4 meters. The floor, which consisted of hard black gravel, was covered by 70 to 90 centimeters of loose gravel overlaid by turf. A considerable number of relatively well-preserved logs lay on the floor. Most of these were undoubtedly remains of the roof or the walls, but the four heaviest logs seem to have formed a frame around the floor. Two of them, one 4 meters, the other 3 meters long, met at a right angle in the southwest corner of the house. A log 3.5 meters long lay along the east wall, parallel to the log along the west wall. The fourth log, also 3.5 meters long, lay close to the center of the house and was probably pushed in from its original position when the house collapsed.

To the west of the house black gravel was found in the same depth below the surface as the house floor, suggesting the presence of an entrance passage.

Finds
12 arrowheads, Types 1, 2, 3, unidentified
12 arrowpoints, Type 1
1 arrowpoint or harpoon blade
15 inset blades, Types 1, 3, 4
7 harpoon heads, Types 1, 2, 4
1 harpoon foreshaft, fragment
2 lance heads, fragments
1 leister prong
1 gull hook
1 salmon spear side prong
3 knife handles, Types 1, 3
1 flaking hammer head
1 flaker handle, Type 1
3 flaker points
4 mattocks
1 wedge
1 cutting board
1 marlin spike
4 adze blades, Type 3
4 whetstones, Type 1
3 needles
9 needle bones
16 awls
4 knife side blades, Types 1, 6
2 knife end blades, Types 2, 3
8 discoidal blades, Types 1, unidentified
33 blade fragments
5 concave sidescrapers
3 straight sidescrapers
3 convex sidescrapers
4 concave-convex sidescrapers
2 double-concave sidescrapers
1 concave-straight sidescraper
7 endscrapers, Types 1, 2, right slant
5 gravers, Types 1, 2
15 scraper fragments
2 drill points, Types 2, 3
13 cores and blanks
35 retouched flakes
15 used flakes
1 chain
1 antler tube fragment
14 implements of uncertain use, Types 1, 2, 4, 5, 8
1 ivory peg
13 unidentified objects
1 decorated ivory
50 worked ivory
31 worked antler
4 worked bone

House 10, East End of Row C

A floor, 5 by 5 meters, was found 90 centimeters below the surface, directly beneath a layer of compact sod. Some badly preserved logs were found at floor level. The outline of the house was defined by a steep bank of sterile gravel. Most artifacts were found along the sides.

Finds
5 arrowheads, Type 1, unidentified
5 arrowpoints, Type 1, unidentified
4 inset blades, Type 1, unidentified
3 harpoon heads, Types 1, 1a
2 harpoon blades
1 ice pick
1 lance head fragment
1 bird dart side prong
1 gull hook
1 knife handle, Type 3
1 flaking hammer head
1 flaker handle, Type 1
2 flaker points
2 adze heads, Type 1
4 adze blades, Types 1, 3
3 whetstones, Type 1
1 grinding stone
1 mattock
2 needles
3 needle bones
4 knife side blades, Types 2, 4, 5, 6
1 knife end blade, Type 1
1 semilunar blade, Type 1
13 flint blade fragments
4 discoidal blades, Types 1, 4
7 sidescrapers
4 ends scrapers, Type 1, right slant, left slant
1 oval scraper
1 spatulate scraper
2 gravers, Types 1, 2
5 scraper fragments
1 rare scraper
2 rare flints, Types 1, 2
25 retouched flakes
9 used flakes
4 cores and blanks
1 scapula shovel
1 marlin spike
10 awls
2 pyrites
1 brow band
1 button
2 hooks
1 ring
1 implement, use uncertain, Type 10
1 rare unidentified implement
6 unidentified fragments
2 ornamented fragments
1 paddle-shaped wood object
2 teeth
3 worked antler

Discards

750 flint chips
10 worked bone and antler
112 caribou bones
101 walrus bones
48 seal bones
36 bearded seal bones
21 bird bones
2 wolf bones
2 white whale bones

Entrance Passage: 50 centimeters wide, 90 centimeters deep.

Discards

156 caribou bones
140 seal bones
32 bearded seal bones
25 walrus bones

2 pieces of ivory
20 flint chips

House 11, Center of Row B

The house, which measured 3 by 4 meters, was not recognizable from the surface. Bones and flint occurred in the gravel, from a few centimeters below the surface to a depth of 75 centimeters. No sod layer was found above the floor. Logs extended along the edge of the floor at right angles to the southwest corner. Artifacts were most numerous along the sides of the house.

Findings

7 arrowheads, Types 1, 1a, 2, unidentified
7 inset blades, Type 1, fragments
3 harpoon heads, Type 1
5 miniature harpoon heads, Types 1, 2
1 rare harpoon head
1 miniature foreshaft, Type 1
2 lance heads
1 bird dart side prong
1 bird arrowhead
1 salmon spear barb
1 engraving tool
5 flaker points
1 adze head, Type 1
1 adze blade, Type 1
1 grinding stone
1 red ocher
4 knife side blades, Types 2, 5
5 knife end blades, Types 1, 3
3 semilunar blades
11 flint blade fragments
6 discoidal blades, Types 1, 4, fragments
13 sidescrapers
2 ends scrapers, Type 1, right slant
1 S-shaped scraper
2 gravers, Types 2, 4
3 fragmentary scrapers
1 rare flint, Type 1
8 retouched flakes
6 used flakes
4 cores and blanks
2 whalebone shovels
4 mattocks
2 root picks
3 wedges
1 marlin spike
7 awls
3 needle bones
1 scoop
1 snow goggles
1 animal carving
1 swivel, Type 3
3 implements, use uncertain, Types 3, 4, 5
1 rare implement, use uncertain
9 rare fragments, use uncertain
2 wooden objects, use uncertain
2 worked antlers
3 worked ivory
3 teeth

**Discards**

- 1225 seal bones
- 405 walrus bones
- 116 bearded seal bones
- 76 caribou bones
- 30 bird bones
- 14 squirrel bones
- 8 fox bones
- 4 wolf bones
- 2 polar bear bones
- 1 whalebone
- 750 flint chips
- 98 pieces of worked ivory
- 9 pieces of worked antler

**House 12, East End of Row D**

A thin floor layer, 4 by 4 meters, was found at a depth of 50 centimeters below the surface. The floor was not covered by a sod layer. Along the east side of the house, 50 centimeters from the wall, were three stakes at intervals of 25 centimeters. Entrance passage.

**Finds**

- 9 arrowheads, Types 1, 2, unidentified
- 1 arrowpoint, fragment
- 3 inset blades, Types 1, 5, fragments
- 2 harpoon heads, Type 1
- 1 miniature harpoon head, Type 1
- 2 miniature foreshafts, Types 1, 2
- 1 ring for harpoon mount
- 1 bird dart side prong
- 2 knife handles, Type 1
- 3 flaker points
- 1 adze head, Type 1
- 1 adze blade, Type 2
- 1 knife side blade, Type 1
- 13 flint blade fragments
- 4 sidescrapers
- 4 endscrapers
- 4 gravers, Types 1, 2
- 3 fragmentary scrapers
- 1 rare flint blade
- 4 retouched flakes
- 2 cores and blanks
- 2 mattocks
- 1 root pick
- 2 awls
- 1 needle bone

1 pumice
1 ivory peg
2 rare fragments, use uncertain
3 worked ivory

**Discards**

- 460 flint chips
- 25 worked ivory
- 9 worked bone and antler
- 58 seal bones
- 49 caribou bones
- 48 bearded seal bones
- 16 bird bones

**House 13, Center of Row B**

The house was 4.75 meters square. Wood fragments were concentrated about the fireplace. The house contained a large number of bone fragments.

**Finds**

- 1 unidentified arrowhead
- 3 arrowpoints, Type 1, unidentified
- 5 inset blades, Types 1, 3, fragments
- 1 harpoon head, Type 2
- 1 miniature harpoon head, Type 3
- 4 perforated butts (lance heads?)
- 1 lance head fragment
- 1 bird dart side prong
- 1 leister prong
- 1 salmon spear center prong
- 1 salmon spear side prong
- 1 salmon spear barb
- 2 knife handles, Types 2, 3
- 1 flint flaker handle
- 3 flint flaker points
- 2 whetstones, Type 1
- 5 knife side blades, Types 3, 5, 6
- 1 knife end blade, Type 3
- 3 semilunar blades, Type 2
- 11 fragmentary flint blades
- 8 discoidal blades, Types 1, 3, 4, fragments
- 3 sidescrapers
- 2 endscrapers
- 4 fragmentary scrapers
- 1 stemmed scraper
- 6 retouched flakes
- 3 used flakes
- 1 blank
- 1 root pick
- 1 wedge
- 5 awls
- 1 needle
- 1 spoon
- 2 brow bands
- 1 human head (carving)
- 2 pendants
1 hook
1 ring
5 implements, use uncertain, Types, 1, 2, 4, 10, 13
6 unidentified fragments
1 worked ivory

**Discards**
534 flint chips
36 worked ivory
9 worked bone and antler
559 seal bones
333 caribou bones
165 walrus bones
161 bearded seal bones
50 dog bones
20 polar bear bones
10 whalebones
3 bird bones

**House 14, West End of Row B, Near the Beach**
A thin floor layer approximately 4 by 4 meters was found 50 centimeters below the surface. The central part was frozen. The house contained many animal bones and flint chips, but very little wood and relatively few artifacts.

**Finds**
6 arrowheads, Types, 1, 4, unidentified
2 arrowpoints, Type 2, fragment
3 inset blade fragments
4 flint flaker points
1 adze blade, Type 3
4 knife side blades, Types 1, 4, 5, 6
4 fragmentary flint blades
5 sidescrapers
1 endscraper, Type 1
3 gravers, Types 1, 3
5 fragmentary scrapers
2 drills, Type 2
11 retouched flakes
1 used flake
7 flint cores and blanks
1 whalebone shovel
3 mattocks
1 root pick
2 marlin spikes
1 awl
1 needle
2 needle bones
1 brow band
1 implement, use uncertain, Type 6
2 unidentified fragments
3 worked antler

**Discards**
813 flint chips
40 worked ivory

3 worked bone
257 seal bones
107 bearded seal bones
100 walrus bones
16 caribou bones
10 bird bones

**House 15, West End of Row D**
Measured 5 by 5 meters. On the south side there seemed to be an alcove (?) 3 meters deep. A large amount of wood was found around the central section. Entrance passage was 1 meter wide and extended 1 meter from west wall.

**Finds**
3 arrowheads, Type 7, unidentified
4 arrowpoints, Type 1, fragments
8 inset blades, Types 1, 5, fragments
1 harpoon head, Type 2
1 harpoon blade or arrowpoint
2 perforated butts (lance heads?)
1 lance head, Type 1
1 barbed point
1 salmon spear center prong
6 knife handles, Types 1, 3
1 engraving tool
1 flint flaker handle
8 flint flaker points
2 adze blades, Types 1, 2
1 chisel
1 whetstone, Type 2
10 knife side blades, Types 1, 2, 4, 5, 6
2 knife end blades, Type 3
2 semilunar blades, Type 1
26 flint blade fragments
3 discoidal blades, Types 2, 4, fragmentary
8 sidescrapers
1 endscraper, right slant
6 gravers, Types 1, 3, 4
4 scraper fragments
9 retouched flakes
1 used flake
2 cores or blanks
1 shovel head, Type 1
2 mattocks
2 wedges
2 marlin spikes
1 cutting board
10 awls
1 needle
2 needle bones
1 scoop
3 parts of birchbark vessels
1 pyrites
1 animal attachment
1 hook
20 implements, use uncertain, Types 1, 2, 4, 7, 9
2 unidentified fragments
1 ornamented fragment
1 flat wooden piece (sled shoe?)
1 throwing board (?)
5 unidentified wooden objects
2 worked antlers
4 worked ivory

**Discards**

917 flint chips
76 worked ivory
14 worked bone and antler
4 worked wood
318 seal bones
157 walrus bones
94 bearded seal bones
24 caribou bones
5 whalebones
2 polar bear bones
2 bird bones
1 dog bone

**House 16, Center of Row B**

An excavation considerably larger than the house was made to allow positive determination of its limits. The platforms were covered with logs.

Entrance Passage: Wooden flooring was found 1.50 meters west of the house at the same level as the house floor. The existence of a narrow passage connecting the two floors is doubtful.

**Finds**

6 unidentified arrowheads
2 arrowpoints, Type 1, fragment
2 inset blades, Type 1, fragment
1 toy bow
1 foreshaft, Type 2
3 flaker points
1 adze blade, Type 3
1 whetstone, Type 2
2 petroglyphs
7 knife side blades, Types 2, 6
1 knife end blade, Type 1
1 semilunar blade, Type 2
6 flint blade fragments
4 discoidal blades, Type 1, fragments
5 side scrapers
4 end scrapers, Type 1, right slant
1 S-shaped scraper
2 gravers, Type 1, 4
4 scraper fragments
1 drill, Type 2
7 retouched flakes
1 used flake

1 core or blank
1 mattock
1 wedge
4 awls
6 unidentified fragments
2 flat wooden pieces
9 wood objects, use uncertain
3 worked antler
1 worked ivory

**Discards**

395 flint chips
21 worked ivory
19 worked wood
3 worked bone
121 seal bones
79 walrus bones
25 bearded seal bones
5 caribou bones
4 dog bones
4 bird bones
3 whalebones

**House 17, Center of Row B**

Four by 4 meters. Maximum depth of excavation 1 meter, of which the uppermost 25 centimeters were sterile gravel, the rest culture-bearing deposit. Since no wood had been preserved, the floor was difficult to determine. The outer limits of the house were well defined by an almost perpendicular drop of the culture-bearing deposit. The house was rich in artifacts, bone, flint, and ivory.

The entrance passage, 4 meters long and 1.25 meters wide, was not visible on the surface, but was marked by a large deposit of bone outside the house proper.

**Finds**

13 arrowheads, Types 1, 3, unidentified
2 arrowpoints, Type 1, fragments
4 inset blades, Types 3, 5, fragments
4 harpoon heads, Types 1a, 2, 3
3 miniature harpoon heads, Type 1
1 harpoon blade
2 harpoon foreshafts, Type 2
2 miniature foreshafts, Type 2
4 fragmentary lance heads
2 leister prongs
1 knife handle, Type 3
3 flint flaker points
3 adze heads, Type 1
1 whetstone, Type 1
1 petroglyph
9 knife side blades, Types 1, 6
3 knife end blades, Types 1, 3
2 semilunar blades, Types 1, 2
21 fragmentary flint blades
4 discoidal blades, Types 1, 3, fragments
4 sidescrapers
1 endscraper, right slant
3 gravers, Type 1
3 fragmentary scrapers
1 rare flint head
7 retouched flakes
4 used flakes
2 flint cores and blanks
1 whalebone shovel
1 mattock
1 root pick
1 two-handed scraper
16 awls
3 needles
6 needle bones
9 scoops
3 brow bands
2 pendants
1 inset bird bone
4 implements, use uncertain, Types 1, 2, 3, 5
1 rare implement, use uncertain
9 unidentified fragments
5 worked antler
7 worked ivory

Discards, House and Entrance Passage

740 flint chips
145 worked ivory
7 bone and antler
13 bird bones

House

421 walrus bones
366 caribou bones
321 seal bones
205 bearded seal bones
60 dog bones

Entrance Passage

158 walrus bones
18 caribou bones
1700 seal bones
144 bearded seal bones
49 dog bones
20 polar bear bones

House 18, Center of Row B

An area 4 by 5 meters was excavated to a depth of 60 centimeters. The deposit was irregular throughout, and the outline of the house was indeterminable. The fireplace in the center of the excavation showed indications of three fire levels.

Finds

2 arrowheads, Types 2, 2a
1 arrowpoint, Type 1
3 inset blade fragments
1 flaking hammer head
3 flint blade fragments
3 miniature harpoon heads
1 unidentified lance head
1 perforated butt
3 flint flaker points
4 scraper fragments
11 retouched flakes
3 used flakes
3 blanks
1 whalebone shovel
1 scapula shovel blade
3 awls
1 needle
3 implements, use uncertain, Types 3, 4
4 unidentified fragments

Discards

288 flint chips
2 worked ivory
1 worked bone
691 seal bones
148 walrus bones
83 bearded seal bones
39 squirrel bones
32 caribou bones
15 fox bones
2 whalebones

House 19, West End of Row D

The house was 4.50 by 4.25 meters. The floor, under a heavy overburden of sand and sod, was well defined by a mat of willows and much wood. On either side of the fireplace, parallel with the north and south exposures and 2 meters apart, were heavy logs, approximately 2.50 meters long, dividing the house into three parts, a central floor and two side platforms. The floor was at water level, and the wood was well preserved, while bone and ivory were rotted.

An entrance passage, about 2 meters long, 1 meter wide, and 75 centimeters deep, was found approximately 1 meter west of the house. A thick sod layer covered the depression. Its outer end was indistinct.

Finds

1 arrowhead, Type 2
1 arrowpoint, Type 1
2 inset blade fragments
1 arrow-straightener
2 harpoon heads, Types 1, 2
1 harpoon blade
1 perforated butt
2 unidentified lance heads
3 salmon spear side prongs
2 knife handles, Types 1, 2
1 adze blade, Type 1
1 whetstone, Type 1
3 knife side blades, Types 3, 4, 5
1 semilunar blade, Type 1
8 flint blade fragments
1 discoidal blade, Type 3
9 sidescrapers
3 scraper fragments
18 retouched flakes
14 used flakes
6 blanks
1 shovel head, Type 2
3 mattocks
2 awls
3 needles
2 needle bones
1 animal carving
4 implements, use uncertain, Types 3, 4, 7
6 unidentified fragments
1 ornamented fragment
7 worked ivory

Discards
440 flint chips
48 worked ivory
2 worked bones
17 worked wood
105 walrus bones
98 seal bones
22 caribou bones
4 whalebones
1 polar bear bone

House 20, Center of Row C,
Near House 3

An area 5 by 6 meters was excavated to a depth of 60 centimeters. The deposit was shallow and irregular, making it impossible to determine the size and shape of the house. The deposit was rich in flint implements, but contained few bone and ivory artifacts and no wood. No entrance passage was found.

Finds
4 arrowheads, Types 1, 3, unidentified
1 arrowpoint, Type 1
2 harpoon heads, Types 1, 2
2 perforated butts
3 inset blades, Types 1, 3, 5
2 toy bows
1 ice pick
2 knife handles, Type 3
1 flint flaker handle
11 knife side blades, Types 1, 2, 5, 6, 7
1 semilunar blade, Type 2
9 flint blade fragments
3 discoidal blades
11 sidescrapers
2 endscrapers, Type 1, left slant
15 scraper fragments
1 unidentified implement, Type 5
2 unidentified openwork carvings
7 unidentified wooden objects
1 drill, Type 3
37 retouched flakes
16 used flakes
14 blanks
1 mattock
1 marlin spike
4 needle bones
1 pyrites
1 rare implement, use uncertain
5 unidentified fragments
3 worked antler
2 worked ivory

Discards
1016 flint chips
55 worked ivory
8 worked bone
243 walrus bones
159 seal bones
49 bearded seal bones
30 caribou bones
20 fox bones
19 bird bones
1 whalebone

House 21, Center of Row C,
Near House 20

An area 6 by 5 meters was excavated, but, as in House 20, the deposit was shallow and irregular. The few artifacts were well preserved. No entrance passage was found.

Finds
4 arrowheads, Types 1, 3, unidentified
1 inset blade fragment
4 harpoon heads, Types 1, 2, 3
1 miniature foreshaft, Type 2
1 unidentifiable lance head
1 engraving tool
3 flint flaker points
1 adze head, Type 1
1 adze blade, Type 1
2 knife side blades, Types 2, 5

House 3

An area 4 by 4 meters was excavated, but, as in House 20, the deposit was shallow and irregular. The few artifacts were well preserved. No entrance passage was found.

Finds
4 arrowheads, Types 1, 3, unidentified
1 arrowpoint, Type 1
2 harpoon heads, Types 1, 2
2 perforated butts
3 inset blades, Types 1, 3, 5
2 toy bows
1 ice pick
2 knife handles, Type 3
1 flint flaker handle
11 knife side blades, Types 1, 2, 5, 6, 7
1 semilunar blade, Type 2
9 flint blade fragments
3 discoidal blades
11 sidescrapers
2 endscrapers, Type 1, left slant
15 scraper fragments
1 unidentified implement, Type 5
2 unidentified openwork carvings
7 unidentified wooden objects
1 drill, Type 3
37 retouched flakes
16 used flakes
14 blanks
1 mattock
1 marlin spike
4 needle bones
1 pyrites
1 rare implement, use uncertain
5 unidentified fragments
3 worked antler
2 worked ivory

Discards
1016 flint chips
55 worked ivory
8 worked bone
243 walrus bones
159 seal bones
49 bearded seal bones
30 caribou bones
20 fox bones
19 bird bones
1 whalebone
<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>knife end blade, Type 3</td>
<td>1</td>
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<tr>
<td>flint blade fragment</td>
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<tr>
<td>discoidal blade, Type 4</td>
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<tr>
<td>endscrapers, Type 1, right slant</td>
<td>2</td>
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<tr>
<td>scraper fragments</td>
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<tr>
<td>retouched flakes</td>
<td>2</td>
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<tr>
<td>used flakes</td>
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<tr>
<td>blanks</td>
<td>3</td>
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<tr>
<td>mattock</td>
<td>1</td>
</tr>
<tr>
<td>marlin spike</td>
<td>8</td>
</tr>
<tr>
<td>awls</td>
<td>3</td>
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<td>needle</td>
<td>1</td>
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<tr>
<td>ring</td>
<td>1</td>
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<tr>
<td>implements, use uncertain, Types 2, 3</td>
<td>3</td>
</tr>
<tr>
<td>rare implement, use uncertain</td>
<td>1</td>
</tr>
<tr>
<td>unidentified fragments</td>
<td>3</td>
</tr>
<tr>
<td>ornamented fragment</td>
<td>1</td>
</tr>
<tr>
<td>unidentified wood</td>
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<tr>
<td>worked antler</td>
<td>3</td>
</tr>
<tr>
<td>worked ivory</td>
<td>2</td>
</tr>
</tbody>
</table>

**Discards**

<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>flint chips</td>
<td>169</td>
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<tr>
<td>worked ivory</td>
<td>28</td>
</tr>
<tr>
<td>worked bone and antler</td>
<td>6</td>
</tr>
<tr>
<td>walrus bones</td>
<td>290</td>
</tr>
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<td>seal bones</td>
<td>96</td>
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<td>bearded seal bones</td>
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<tr>
<td>fox bones</td>
<td>29</td>
</tr>
<tr>
<td>bird bones</td>
<td>3</td>
</tr>
<tr>
<td>bear bones</td>
<td>5</td>
</tr>
</tbody>
</table>

**House 22, Center of Row C, South of Houses 20 and 21**

An area of 6 by 5 meters was excavated to a depth of 75 centimeters. The deposit was very irregular throughout the house, which contained a large number of flint tools, but few ivory and bone artifacts. The presence of an entrance passage is uncertain.

**Finds**

<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>arrowpoints, Type 1</td>
<td>2</td>
</tr>
<tr>
<td>inset blade fragments</td>
<td>4</td>
</tr>
<tr>
<td>miniature harpoon head</td>
<td>1</td>
</tr>
<tr>
<td>harpoon blade</td>
<td>1</td>
</tr>
<tr>
<td>miniature foreshaft</td>
<td>1</td>
</tr>
<tr>
<td>flaking hammer head</td>
<td>1</td>
</tr>
<tr>
<td>flint flaker points</td>
<td>3</td>
</tr>
<tr>
<td>adze heads, Type 1</td>
<td>4</td>
</tr>
<tr>
<td>knife side blades, Types 4, 7</td>
<td>1</td>
</tr>
<tr>
<td>knife end blade, Type 1</td>
<td>18</td>
</tr>
<tr>
<td>flint blade fragments</td>
<td>2</td>
</tr>
<tr>
<td>discoidal blades, Types 3, 4</td>
<td>3</td>
</tr>
<tr>
<td>worked antler</td>
<td>4</td>
</tr>
<tr>
<td>worked ivory</td>
<td>5</td>
</tr>
</tbody>
</table>

**House 23, Center of Row E**

A gravel floor, 4.25 meters square, was found 1.70 meters below the surface. The floor was covered by a 10- to 20-centimeter thick layer of compact moss turf which was overlain by 1.50 meters of sterile sand. There seemed to be a solid wall of compact sod surrounding the floor, outside which was a steep bank of sterile gravel.

An entrance passage, probably 3 to 4 meters long and 1 meter wide, had a hard-packed floor at the same level as the house floor. The floor, which was full of bones and flint chips, was covered by sod. No connection was found between the house proper and the entrance passage.

**Finds**

<table>
<thead>
<tr>
<th>Artifact Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>arrowheads, Type 3, fragments</td>
<td>2</td>
</tr>
<tr>
<td>arrowpoint, fragment</td>
<td>1</td>
</tr>
<tr>
<td>miniature foreshaft, Type 2</td>
<td>1</td>
</tr>
<tr>
<td>flint flaker handle, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>flint flaker point</td>
<td>1</td>
</tr>
<tr>
<td>whetstone, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>grinding stone</td>
<td>1</td>
</tr>
<tr>
<td>knife side blades, Types 2, 5</td>
<td>2</td>
</tr>
<tr>
<td>flint blade fragments</td>
<td>4</td>
</tr>
<tr>
<td>discoidal blades, Type 2, fragments</td>
<td>6</td>
</tr>
<tr>
<td>sidescrapers</td>
<td>1</td>
</tr>
<tr>
<td>endscraper, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>notched sidescraper</td>
<td>1</td>
</tr>
<tr>
<td>gravers, Types 1, 2</td>
<td>2</td>
</tr>
</tbody>
</table>
3 scraper fragments
6 retouched flakes
1 used flake
2 flint blanks
1 root pick
2 worked antler

Discards
193 flint chips
4 ivory
30 walrus bones
20 seal bones
10 beaded seal bones
2 caribou bones

House 24
This house was 1.3 kilometers to the east of the Ipiutak village site and is the Near Ipiutak house described on p. 165.

House 25, East End of Row C
Measured 4 by 4 meters.
A 2-meter long entrance passage, with floor at the same level as the house floor, contained many bones and a fire pit.

Finds
2 arrowheads (unidentified)
2 inset blade fragments
2 harpoon heads, Types 1, 2
2 knife handles, Type 3
1 adze head, Type 1
1 adze blade, Type 3
1 knife side blade, Type 3
9 sidescrapers
1 oval scraper
6 scraper fragments
1 graver, Type 1
3 retouched flakes
1 used flake
1 blank
2 mattocks
1 awl
1 implement, use uncertain, Type 1
3 unidentified fragments
3 worked ivory

House 26, East End of Row D
A floor deposit, 4 meters square and 30 centimeters thick, was found below a layer of compact sod.
The entrance passage was 2 meters long and 60 centimeters wide.

Finds
2 arrowheads, Type 1, unidentified
3 arrowpoints, Types 1, 2
3 inset blades, Type 1
1 ice pick
1 chisel
1 stone with petroglyphs
7 flint blade fragments
2 discoidal blades, Type 1
5 sidescrapers
2 endscrapers, right slant
1 graver
2 implements, use uncertain, Type 6
2 gravers, Types 1, 4
4 retouched flakes
3 used flakes
1 flint blank
1 pyrites
1 worked ivory

House 27, East End of Row D, Near House 26
This house was 4.30 meters square. A deposit of black debris extends down 30 centimeters below the sod.
The entrance passage, 3 meters long, is L-shaped.

Finds
6 arrowheads, Types 1, 3, unidentified
2 arrowpoints, Type 1, fragments
1 harpoon head, Type 1
1 harpoon foreshaft, Type 1
1 perforated butt
1 salmon spear barb
1 knife handle, Type 3
3 flint flaker points
1 adze head, Type 1
4 whetstones, Type 1
3 knife side blades, Types 2, 3, 5
2 end blades, Types 1, 3
11 flint blade fragments
2 discoidal blades, Types 1, 4
11 sidescrapers
4 endscrapers
1 graver, Type 1
4 scraper fragments
7 retouched flakes
3 used flakes
1 shovel head
3 mattocks
1 wedge
2 awls
1 animal attachment
2 implements, use uncertain, Types 1, 5
3 unidentified fragments
4 worked ivory

House 28, East End of Row B
This house was 4.60 meters square. A black
deposit extends to about 50 centimeters below the sod.
The entrance passage was 3 meters long.

Finds
4 arrowheads, Type 1, unidentified
4 arrowpoints, Type 1
1 inset blade fragment
1 leister prong
3 knife handles, Types 1, 3
2 adze blades, Types 1, 3
3 whetstones, Type 1
3 knife side blades, Types 2, 5
1 semilunar blade, Type 1
5 flint blade fragments
1 discoidal blade, Type 4
12 sidescrapers
5 endsrapers, Type 1, right slant
1 oval scraper
1 S-shaped scraper
4 retouched flakes
3 used flakes
5 flint blanks
1 awl
1 animal carving
1 implement, use uncertain, Type 5
1 unidentified fragment
1 worked ivory

House 29, East End of Row B
Measured 5 by 5.30 meters. A 20- to 25-centimeter thick deposit, not very rich. A log lay across the east end of the house, 1 meter from the edge.
The entrance passage was 2 by 2 meters.

Finds
3 arrowheads, Type 3, unidentified
1 arrowpoint fragment
3 inset blades, Types 1, 3, fragments
2 knife handles, Types 1, 3
1 whetstone
1 flint flaker point
1 adze head
2 adze blades, Types 1, 2
7 knife side blades, Types 2, 4, 5, 6
1 semilunar blade, Type 2
5 flint blade fragments
2 discoidal blades, Types 1, 2
15 sidescrapers
1 graver, Type 2
5 retouched flakes
3 worked antler
2 used flakes
3 flint blanks
3 wedges
3 awls

3 implements, use uncertain, Types 1, 5
5 unidentified fragments
5 worked ivory

House 30, East End of Row B
The house was barely visible on the surface, but excavation revealed a deposit of black debris with small wood fragments, 3.60 meters square, 30 centimeters below the sod.
No definite entrance passage was found.

Finds
1 inset blade, Type 5
1 harpoon blade, Type 5
1 knife side blade, Type 5
1 knife end blade, Type 3
1 knife blade fragment
3 sidescrapers
1 graver, Type 1
1 retouched flake
1 flint blank
1 pyrites
1 hook
1 unidentified fragment
4 worked ivory

House 31, Center of Row B
A large house, 6 by 7 meters, but with a thin deposit, only 20 to 25 centimeters, except in spots where it was 40 centimeters deep.
An entrance passage, 6 meters long, 1 meter wide, and 1 meter deep, contained black gravel, bones, flint, etc. It was not connected with the house.

Finds
1 arrowhead, Type 2
1 inset blade fragment
1 harpoon head, Type 2
1 harpoon blade
1 foreshaft, Type 1
1 miniature foreshaft, Type 1
1 ice pick
1 lance head fragment
1 leister prong
1 salmon spear center prong
1 knife side blade, Type 7
2 knife end blades, Type 3
1 flint blade fragment
5 sidescrapers
2 scraper fragments
1 rare chipped point
1 retouched flake
4 used flakes
2 flint blanks
2 mattocks
1 marlin spike
3 awls
1 animal carving
2 implements, use uncertain, Types 5, 12
3 rare implements, use uncertain
1 unidentified openwork carving
4 unidentified fragments
2 worked ivory

House 32, Center of Row D
Only partly excavated. The deposit was 60 centimeters deep in places.

Finds
12 arrowheads, Types 1, 2, unidentified
5 arrowpoints, Types 1, 1a, fragments
5 inset blades, Types 1, 3, fragments
5 harpoon heads, Types 1, 2
2 miniature harpoon heads, Types 1, 2
2 foreshafts, Type 1
4 miniature foreshafts, Types 1, 2
2 lance head fragments
1 gull hook
1 leister prong
2 salmon spear center prongs
1 salmon spear side prong
1 salmon spear barb
1 flaking hammer head
2 flint flaker handles, Types 1, 3
6 flint flaker points
3 adze heads, Types 1, 2
4 adze blades, Types 1, 3
7 whetstones, Type 1
1 grinding stone
10 knife side blades, Types 2, 4, 5, 6
1 semilunar blade, Type 1
22 flint blade fragments
4 discoidal blades, Type 1, fragments
13 sidescrapers
8 endscrapers, Type 1, right and left slant
6 gravers, Types 1, 2
8 scraper fragments
1 end sidescraper
1 rare flint, Type 1
11 retouched flakes
4 used flakes
6 flint blanks
1 mattock
1 wedge
2 cutting boards
23 awls
1 needle bone
2 broom bands
1 button
1 human head
1 pendant
1 inset bird bone
7 implements, use uncertain, Types 1–6, 15
1 rare implement, use uncertain
22 unidentified fragments
5 ornamented fragments
2 unidentified wooden objects
12 worked antler
12 worked ivory

House 33, Center of Row D
Very deep, black, sandy deposit, over a large part 1 meter thick.

Entrance passage not excavated.

Finds
4 arrowheads, Type 2, unidentified
5 arrowpoints, Types 1, 2, 2a
5 inset blades, Types 1, 5, fragments
2 miniature foreshafts, Type 2
2 lance head fragments
1 knife handle, Type 3
1 flint flaker point
1 adze head, Type 1
1 adze blade, Type 3
1 chisel
1 whetstone, Type 1
6 knife side blades, Types, 2, 6, 7
3 semilunar blades
13 flint blade fragments
6 sidescrapers
3 endscrapers, Types 1, 2, right slant
1 spatulate scraper
2 rare flint implements, Type 2
3 retouched flakes
2 used flakes
1 flint blank
2 awls
2 needles
1 needle bone
2 implements, use uncertain, Types 4, 5
1 rare implement, use uncertain
2 unidentified fragments
1 ornamented fragment
2 worked ivory

House 34, West End of Row D

Floor approximately 5 meters square, but position of south wall uncertain. Fireplace framed by logs on north, east, and south sides.

A depression west of house, probably the entrance passage, was not excavated.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
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<tr>
<td>Surface</td>
<td>210</td>
<td>230</td>
<td>225</td>
<td>—</td>
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<tr>
<td>Floor</td>
<td>140</td>
<td>160</td>
<td>158</td>
<td>150</td>
</tr>
</tbody>
</table>

1 In this and most of the following houses excavated by Larsen, the height above sea level at the north beach is
Finds
3 arrowheads, Type 7, unidentified
6 inset blades, Types 1, 3, 5, fragments
3 harpoon heads, Types 2, 3, 4
1 miniature harpoon head, Type 3
1 harpoon blade
5 lance head fragments
1 bird dart side prong
3 leister prongs
1 salmon spear barb
3 knife handles, Type 3
1 engraving tool
2 flint flaker points
1 whetstone, Type 1
5 awls
6 needle bones
1 animal carving
2 rings
1 winged object (?)
3 knife side blades, Types 2, 5, 6, 7
1 knife end blade, Type 3
12 flint blade fragments
2 discoidal blades, Type 3, fragments
14 sidescrapers
6 scraper fragments
1 drill, Type 1
8 retouched flakes
4 used flakes
8 flint blanks
1 mattock
2 marlin spikes
1 cutting board
1 implement, use uncertain, Type 14
1 rare implement, use uncertain
8 unidentified fragments
1 unidentified wooden object
2 worked antler
15 worked ivory

House 35, West End of Row D
At its edges the floor was covered by 35 to 40 centimeters of gravel, probably caved in from the sides; over this was a thick layer of compact brown sod which was overlain by 35 centimeters of sand. In the center the floor was covered only by sod and sand. The floor layer was extremely thin; hence, the groundplan of the house was difficult to determine. It was apparently square with rounded corners; the dimensions were 3.5 by 3.3 meters. Wood chips were found around the fireplace; scattered over the floor were several log fragments, probably roof or wall timbers. The house faced west-northwest.

Entrance Passage: 1.40 meters from the west wall, on the same level as the fireplace, was a layer of black gravel like the floor, 1.60 meters long and 0.80 meters wide. This layer was covered by compact sod which continued up along the sides and ends of the ditch. Two flint flakes and a whalebone shovel were found here.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
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</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>188</td>
<td>184</td>
<td>193</td>
<td>184</td>
<td>119 122 102 104</td>
</tr>
<tr>
<td>Floor</td>
<td>117</td>
<td>110</td>
<td>124</td>
<td>124</td>
<td>-</td>
</tr>
</tbody>
</table>

Finds
3 arrowheads, Type 1, unidentified
1 inset blade, fragment
1 harpoon head, Type 1
1 miniature harpoon head, Type 1
14 flakes
1 adze head, Type 1
7 knife side blades, Types 2-6
2 knife end blades, Types 1, 3
1 semilunar blade, Type 2
1 flint blade fragment
2 discoidal blades, Type 1, fragment
3 sidescrapers
1 graver, Type 3
2 scraper fragments
1 retouched flake
1 whalebone shovel (entrance passage)
1 mattock
1 awl
1 swivel, Type 2
1 rare wood object, use uncertain
1 worked antler
2 worked ivory
1 flint blank

House 36, West End of Row D
(Fig. 54A)

Floor, 4.70 meters square, with rounded corners, covered by a 7- to 9-centimeter thick layer of sod overlain by 60 centimeters of sand. An oval fireplace, with brownish earth (clay?) inside a black ring, was surrounded by a black gravel floor containing numerous wood chips. Outside this area, on the north and east sides,
was a wooden flooring of logs parallel to the respective walls. There were indications of a similar flooring along the south side, but it was disturbed by fallen-in roof or wall timbers.

A test trench was dug outside the west wall, but there were no indications of an entrance passage.

<table>
<thead>
<tr>
<th></th>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Fireplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>198</td>
<td>193</td>
<td>186</td>
<td>184</td>
<td>117</td>
</tr>
<tr>
<td>Surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(top)</td>
</tr>
<tr>
<td>Floor</td>
<td>128</td>
<td>115</td>
<td>123</td>
<td>118</td>
<td>96</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 arrowheads, Type 1, unidentified</td>
</tr>
<tr>
<td>5 arrowpoints, Types 1, 1a, fragments</td>
</tr>
<tr>
<td>5 inset blades, Types 1, 5, fragments</td>
</tr>
<tr>
<td>1 toy bow</td>
</tr>
<tr>
<td>1 harpoon head, Type 3</td>
</tr>
<tr>
<td>2 harpoon blades</td>
</tr>
<tr>
<td>1 perforated butt</td>
</tr>
<tr>
<td>1 bird dart side prong</td>
</tr>
<tr>
<td>1 engraving tool</td>
</tr>
<tr>
<td>1 flint flaker point</td>
</tr>
<tr>
<td>1 adze handle</td>
</tr>
<tr>
<td>1 adze head, Type 1</td>
</tr>
<tr>
<td>1 adze blade, Type 3</td>
</tr>
<tr>
<td>1 whetstone, Type 1</td>
</tr>
<tr>
<td>1 red ocher</td>
</tr>
<tr>
<td>6 knife side blades, Types 1, 3, 4, 5</td>
</tr>
<tr>
<td>1 semilunar blade, Type 1</td>
</tr>
<tr>
<td>23 flint blade fragments</td>
</tr>
<tr>
<td>8 discoidal blades, Types 1, 3, fragments</td>
</tr>
<tr>
<td>13 sidescrapers</td>
</tr>
<tr>
<td>2 gravers, Types 1, 2</td>
</tr>
<tr>
<td>2 fragmentary scrapers</td>
</tr>
<tr>
<td>2 drills, Types 1, 2</td>
</tr>
<tr>
<td>4 retouched flakes</td>
</tr>
<tr>
<td>1 used flake</td>
</tr>
<tr>
<td>9 flint cores</td>
</tr>
<tr>
<td>1 wedge</td>
</tr>
<tr>
<td>2 awls</td>
</tr>
<tr>
<td>1 pyrites</td>
</tr>
<tr>
<td>3 implements, use uncertain, Types, 1, 8, 9</td>
</tr>
<tr>
<td>1 rare implement, use uncertain</td>
</tr>
<tr>
<td>3 unidentified fragments</td>
</tr>
<tr>
<td>1 ornamented fragment</td>
</tr>
<tr>
<td>1 pointed wooden stick</td>
</tr>
<tr>
<td>4 wooden objects, use uncertain</td>
</tr>
<tr>
<td>1 worked antler</td>
</tr>
<tr>
<td>5 worked ivory</td>
</tr>
</tbody>
</table>

**House 37, West End of Row D**

The floor, approximately 4.50 by 4 meters, was covered by 25 centimeters of gravel, 10 centimeters of sod, and approximately 50 centimeters of sand. The floor deposit, consisting of black gravel, a few wood chips, and some logs in the east end, was thin, especially near the edges; hence, the groundplan was difficult to determine (Pl. 99, Fig. 2). In the southwest corner were the remains of a post.

**Entrance Passage:** An 80-centimeter thick layer of black gravel, containing many bones, was found outside the west wall, extending to almost 2.5 meters.

<table>
<thead>
<tr>
<th>Finds</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 arrowheads, Types 1, 2, unidentified</td>
</tr>
<tr>
<td>3 arrowpoints, Type 1</td>
</tr>
<tr>
<td>18 inset blades, Types 1, 3-5, fragments</td>
</tr>
<tr>
<td>1 harpoon head, Type 2</td>
</tr>
<tr>
<td>1 harpoon blade</td>
</tr>
<tr>
<td>1 foreshaft, Type 2</td>
</tr>
<tr>
<td>1 socket piece, Type 1</td>
</tr>
<tr>
<td>1 lance head, unidentified</td>
</tr>
<tr>
<td>1 knife handle, Type 3</td>
</tr>
<tr>
<td>1 flaking hammer head</td>
</tr>
<tr>
<td>2 flint flaker points</td>
</tr>
<tr>
<td>1 adze head, Type 1</td>
</tr>
<tr>
<td>1 adze blade, Type 3</td>
</tr>
<tr>
<td>3 whetstones, Type 1</td>
</tr>
<tr>
<td>9 knife side blades, Types 1, 2, 4, 5</td>
</tr>
<tr>
<td>1 semilunar blade, Type 1</td>
</tr>
<tr>
<td>22 flint blade fragments</td>
</tr>
<tr>
<td>1 discoidal blade, Type 1</td>
</tr>
<tr>
<td>6 sidescrapers</td>
</tr>
<tr>
<td>2 endscrapers, Type 1, right slant</td>
</tr>
<tr>
<td>3 gravers, Types 2-4</td>
</tr>
<tr>
<td>5 fragmentary scrapers</td>
</tr>
<tr>
<td>3 retouched flakes</td>
</tr>
<tr>
<td>2 used flakes</td>
</tr>
<tr>
<td>3 flint blanks</td>
</tr>
<tr>
<td>4 mattocks</td>
</tr>
<tr>
<td>3 awls</td>
</tr>
<tr>
<td>1 needle</td>
</tr>
<tr>
<td>3 needle bones</td>
</tr>
<tr>
<td>1 wooden tray</td>
</tr>
<tr>
<td>2 brow bands</td>
</tr>
<tr>
<td>4 implements, use uncertain, Types 1-2, 8-9</td>
</tr>
<tr>
<td>4 unidentified fragments</td>
</tr>
<tr>
<td>2 flat wooden pieces</td>
</tr>
<tr>
<td>1 paddle-shaped wooden object</td>
</tr>
<tr>
<td>1 wooden object, use uncertain</td>
</tr>
<tr>
<td>2 worked antler</td>
</tr>
<tr>
<td>5 worked ivory</td>
</tr>
</tbody>
</table>
House 38, West End of Row D

The floor, which is 4.5 meters square, was covered by a thick layer of brown, swampy moss turf and this, in turn, by sand and gravel layers up to 70 centimeters thick. On the floor was much wood, some undoubtedly fallen-in roof and wall timber, but part of it formed a wooden flooring around the oval fireplace. This wooden floor consisted of nine logs, up to 2 meters long, which lay close together, parallel to the north wall. Nine smaller logs formed the floor behind the fireplace and lay at right angles to the former; a similar incomplete log floor lay on the south side. Smaller pieces of wood and wood chips were scattered over the remainder of the floor which consisted of black gravel.

Entrance Passage: 1.40 meters from the west side of the field of excavation black gravel was found about 70 centimeters below the surface.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Fire</th>
<th>Entrance</th>
<th>Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>214</td>
<td>224</td>
<td>194</td>
<td>204</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>119</td>
<td>124</td>
<td>124</td>
<td>115</td>
<td>125</td>
<td>153</td>
</tr>
</tbody>
</table>

Finds
5 arrowpoints, Types 1, 1a, fragments
3 inset blades, Type 1, fragments
1 knife handle, Type 3
1 flaking hammer head
2 whetstones, Type 1
1 knife side blade, Type 5
11 flint blade fragments
6 sidescrapers
3 fragmentary scrapers
1 retouched flake
2 used flakes
1 flint blank
1 whalebone shovel
1 wedge
1 marlin spike
3 awls
3 needle bones
1 brow band
1 animal attachment
2 rare implements, use uncertain
6 worked ivory

House 39, West End of Row D

A square 5.5 by 5.5 meters was excavated, but as the culture layer was extremely thin and contained very little wood, it was impossible to determine the outline of the floor. The culture layer was buried under about 80 centimeters of sand. On the floor, 75 centimeters south of the fireplace, was an oblong wooden tray, too rotted to preserve.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>224</td>
<td>204</td>
<td>209</td>
<td>216</td>
</tr>
<tr>
<td>Floor</td>
<td>142</td>
<td>132</td>
<td>129</td>
<td>134</td>
</tr>
</tbody>
</table>

Finds
8 arrowheads, Type 2, unidentified
2 arrowpoints, Types 1, 2
3 inset blades, Type 3, fragment
2 harpoon heads, Types 1, 2
1 leister prong
3 salmon spear bars
1 flint flaker handle, Type 1
2 flint flake points
1 adze head, Type 1
1 whetstone, Type 1
1 knife side blade, Type 4
5 knife end blades, Types 1, 2
1 flint blade fragments
1 discoidal blade, Type 4
4 sidescrapers
1 oval scraper
2 retouched and 5 used flakes
10 flint blanks
2 root picks
1 awl
1 needle
4 needle bones
1 ornament
2 implements, use uncertain, Type 1
1 rare implement, use uncertain
5 unidentified fragments (1 ornamented)
3 worked antler
5 ivory

House 40, West End of Row D

This house was 4 meters square. Much wood in floor level and some wall and roof timbers were found. Most of it was logs which formed a wooden floor around the fireplace (Fig. 54b). The original floor was constructed of long straight logs lying close together and parallel with the north, east, and south walls. On the north side the floor was later reinforced with short sections of timber laid in the opposite direction.

In front of the house, 1.40 meters from the west wall, an oval area of black gravel, 1.6 by 0.9 meters, at approximately the same depth as the floor, was surrounded by sterile gravel. Above and in this layer were a number of bones,
wood chips, and a few implements. The outline of the pit was very well defined.

<table>
<thead>
<tr>
<th></th>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>189</td>
<td>174</td>
<td>199</td>
<td>184</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>104</td>
<td>99</td>
<td>114</td>
<td>104</td>
<td>109</td>
<td>112</td>
</tr>
</tbody>
</table>

**FINDS**

- 2 arrowheads, Type 3, unidentified
- 1 arrowpoint, Type 1
- 10 inset blades, Types 4, 5, fragments
- 3 harpoon blades
- 1 miniature foreshaft, Type 2
- 1 ice pick
- 1 salmon spear center prong
- 1 engraving tool
- 1 flint flaker point
- 2 adze blades, Type 3
- 1 whetstone, Type 1
- 1 paint grinding stone
- 1 red ocher
- 6 knife side blades, Types 1, 2, 3, 5
- 1 knife end blade, Type 3
- 5 blade fragments
- 11 sidescrapers
- 1 endscaper, left slant
- 3 gravers, Types 1, 2, 4
- 3 scraper fragments
- 1 rare flint blade
- 5 retouched flint
- 4 used flakes
- 1 blank
- 1 whalebone shovel
- 3 mattocks
- 1 root pick
- 2 wedges
- 2 awls
- 2 pyrites
- 1 pumice
- 2 implements, use uncertain
- 6 unidentified fragments
- 2 flat wooden pieces
- 3 wooden objects, use uncertain
- 4 worked antler
- 11 worked ivory

**House 41, West End of Row D**

Square, 4 by 4.25 meters. A square area
around the fireplace surrounded by platforms along the north, east, and south walls. The surface of the platforms was 10 centimeters above the floor, which continued as a passageway to the west wall (see Pl. 99, Fig. 3). Part of the edge of the platforms was supported by logs. The rear platform was partly covered by logs. The remaining logs were probably from the walls.

No entrance passage was found (Fig. 4).

**Finds**

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 arrowpoints, Types 1, 2, fragments</td>
<td>1</td>
</tr>
<tr>
<td>4 arrowheads, Type 2</td>
<td>1</td>
</tr>
<tr>
<td>7 inset blades, Type 1, fragments</td>
<td>1</td>
</tr>
<tr>
<td>1 toy bow</td>
<td>1</td>
</tr>
<tr>
<td>1 harpoon head, Type 2</td>
<td>1</td>
</tr>
<tr>
<td>4 perforated butts</td>
<td>1</td>
</tr>
<tr>
<td>2 lance fragments</td>
<td>1</td>
</tr>
<tr>
<td>1 leister prong</td>
<td>1</td>
</tr>
<tr>
<td>1 salmon spear barb</td>
<td>1</td>
</tr>
<tr>
<td>2 knife handles, Type 3</td>
<td>1</td>
</tr>
<tr>
<td>1 flaking hammer head</td>
<td>1</td>
</tr>
<tr>
<td>2 flaker points</td>
<td>1</td>
</tr>
<tr>
<td>1 adze handle</td>
<td>1</td>
</tr>
<tr>
<td>1 whetstone, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>2 paint grinding stones</td>
<td>1</td>
</tr>
<tr>
<td>5 knife side blades, Types 2, 4, 5</td>
<td>1</td>
</tr>
<tr>
<td>1 semilunar blade</td>
<td>1</td>
</tr>
<tr>
<td>10 flint blade fragments</td>
<td>1</td>
</tr>
<tr>
<td>3 discoidal blades, Types 1, 3</td>
<td>1</td>
</tr>
<tr>
<td>4 sidescrapers</td>
<td>1</td>
</tr>
<tr>
<td>2 sidescrapers, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>1 rare flint, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>1 rare flint blade</td>
<td>1</td>
</tr>
<tr>
<td>1 retouched flake</td>
<td>1</td>
</tr>
<tr>
<td>3 used flakes</td>
<td>1</td>
</tr>
<tr>
<td>1 mattock</td>
<td>1</td>
</tr>
<tr>
<td>2 wedges</td>
<td>1</td>
</tr>
<tr>
<td>1 two-handed scraper</td>
<td>1</td>
</tr>
<tr>
<td>1 awl</td>
<td>1</td>
</tr>
<tr>
<td>2 pyrites</td>
<td>1</td>
</tr>
<tr>
<td>1 animal carving</td>
<td>1</td>
</tr>
<tr>
<td>1 ring</td>
<td>1</td>
</tr>
<tr>
<td>1 implement, use uncertain, Type 5</td>
<td>1</td>
</tr>
<tr>
<td>1 rare implement, use uncertain</td>
<td>1</td>
</tr>
<tr>
<td>2 unidentified fragments</td>
<td>1</td>
</tr>
<tr>
<td>3 worked antler</td>
<td>15</td>
</tr>
<tr>
<td>15 worked ivory</td>
<td></td>
</tr>
</tbody>
</table>

**House 42, East End of Row D**

Trapezoidal groundplan, 4.7 meters wide in front, 4 meters at the rear, and 4 meters long. Around the fireplace a square floor space was surrounded on three sides by slightly raised platforms. Remains of wood were scarce. The ground level was covered by successive layers of brown sod, gravel, and sand.

The black floor layer continued through the west wall to form what was probably the bottom of an entrance passage, 2 meters long and 1.5 meters wide, sloping towards the house.

**Surface**

<table>
<thead>
<tr>
<th>Direction</th>
<th>cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>215</td>
</tr>
<tr>
<td>NW</td>
<td>206</td>
</tr>
<tr>
<td>NE</td>
<td>224</td>
</tr>
<tr>
<td>SE</td>
<td>209</td>
</tr>
<tr>
<td>Center</td>
<td>—</td>
</tr>
</tbody>
</table>

**Bottom**

<table>
<thead>
<tr>
<th>Direction</th>
<th>cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>144</td>
</tr>
<tr>
<td>NW</td>
<td>149</td>
</tr>
<tr>
<td>NE</td>
<td>154</td>
</tr>
<tr>
<td>SE</td>
<td>209</td>
</tr>
<tr>
<td>Center</td>
<td>146</td>
</tr>
</tbody>
</table>

**Finds**

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 arrowhead, Type 2</td>
<td>1</td>
</tr>
<tr>
<td>1 arrowpoint, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>2 inset blades, Type 3</td>
<td>1</td>
</tr>
<tr>
<td>1 harpoon head, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>1 bird dart side prong</td>
<td>1</td>
</tr>
<tr>
<td>2 salmon spear barbs</td>
<td>1</td>
</tr>
<tr>
<td>1 engraving tool</td>
<td>1</td>
</tr>
<tr>
<td>1 adze head, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>1 adze blade, Type 3</td>
<td>1</td>
</tr>
<tr>
<td>1 whetstone, Type 1</td>
<td>1</td>
</tr>
<tr>
<td>2 knife side blades, Types 2, 5</td>
<td>1</td>
</tr>
<tr>
<td>8 blade fragments</td>
<td>1</td>
</tr>
<tr>
<td>1 discoidal blade fragment</td>
<td>1</td>
</tr>
<tr>
<td>5 sidescrapers</td>
<td>1</td>
</tr>
<tr>
<td>1 endscraper, left slant</td>
<td>1</td>
</tr>
<tr>
<td>4 scraper fragments</td>
<td>1</td>
</tr>
<tr>
<td>7 retouched flakes</td>
<td>1</td>
</tr>
<tr>
<td>7 blanks</td>
<td>1</td>
</tr>
<tr>
<td>1 mattock</td>
<td>1</td>
</tr>
<tr>
<td>1 root pick</td>
<td>1</td>
</tr>
<tr>
<td>5 awls</td>
<td>1</td>
</tr>
<tr>
<td>1 needle</td>
<td>1</td>
</tr>
<tr>
<td>1 needle bone</td>
<td>1</td>
</tr>
<tr>
<td>1 ornamental band, Type 2</td>
<td>1</td>
</tr>
<tr>
<td>1 human head</td>
<td>1</td>
</tr>
<tr>
<td>1 animal attachment</td>
<td>1</td>
</tr>
<tr>
<td>1 mask pendant</td>
<td>1</td>
</tr>
<tr>
<td>1 decorated antler tube</td>
<td>1</td>
</tr>
<tr>
<td>1 implement, use uncertain, Type 2</td>
<td>1</td>
</tr>
<tr>
<td>1 rare implement, use uncertain</td>
<td>1</td>
</tr>
<tr>
<td>22 unidentified fragments</td>
<td>1</td>
</tr>
<tr>
<td>1 paddle-shaped wooden object</td>
<td>1</td>
</tr>
<tr>
<td>2 wooden objects, use uncertain</td>
<td>1</td>
</tr>
<tr>
<td>12 worked antler</td>
<td>1</td>
</tr>
<tr>
<td>12 worked ivory</td>
<td>1</td>
</tr>
</tbody>
</table>

**House 43, East End of Row D**

Almost square groundplan, 4.8 by 4.4 meters; the floor space, 2 by 2.5 meters, with pieces of wood around the fireplace, was lower than the surrounding gravel platforms. A whalebone shovel lay near the fireplace.
No entrance passage.

<table>
<thead>
<tr>
<th></th>
<th>SW cm.</th>
<th>NW cm.</th>
<th>NE cm.</th>
<th>SE cm.</th>
<th>Center cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>209</td>
<td>196</td>
<td>202</td>
<td>207</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>154</td>
<td>154</td>
<td>154</td>
<td>144</td>
<td>137</td>
</tr>
</tbody>
</table>

FINDS

16 arrowheads, Types 1, 4, fragments
3 arrowpoints, Type 1a, fragments
3 inset blades, Type 1, fragment
1 harpoon head, Type 1a
1 harpoon blade
1 foreshaft, Type 1
2 lance heads, Type 1
2 knife handles, Type 1
1 engraving tool
1 flaking hammer head
4 flaker points
2 adze heads, Type 1
12 knife side blades, Types 1–4
17 blade fragments
6 discoidal blades, Types 1, 2, fragments
8 sidescrapers
7 sidescrapers, right slant 6, left slant
1 notched sidescraper
3 gravers, Types 1, 2
3 scraper fragments
1 pointed scraper
8 retouched flakes
3 used flakes
4 blanks
1 whalebone shovel
1 mattock
1 cutting board
13 awls
1 bodkin
8 needles
2 needle bones
1 pyrites
3 brow bands
1 swivel, Type 2
1 decorated antler tube
2 implements, use uncertain, Type 1
5 unidentified fragments
4 worked antler
13 worked ivory

House 44, East End of Row D

Square groundplan, 4.5 by 4.3 meters. The very thin floor deposit was covered by a layer of compact sod and surface turf. Four sections of logs marked the edges of the platforms. One corner of the central floor space was covered with pieces of wood.

No entrance passage.

<table>
<thead>
<tr>
<th></th>
<th>SW cm.</th>
<th>NW cm.</th>
<th>NE cm.</th>
<th>SE cm.</th>
<th>Center cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>153</td>
<td>170</td>
<td>185</td>
<td>160</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>86</td>
<td>93</td>
<td>96</td>
<td>94</td>
<td>70 86</td>
</tr>
</tbody>
</table>

FINDS

2 arrowheads, Type 1
2 arrowpoints, Types 1, 2
9 inset blades, Types 1, 3–5, fragments

House 45, Center of Row E

Square groundplan, 5.4 meters. Scattered wood. Floor covered by successive layers of sod, gravel, and sand.

Black gravel with wood and bones at floor level 2 meters west of house were presumably the remains of the entrance passage. Only sterile gravel was found between the house and the entrance passage, which was 2.3 meters long, 1 meter wide. A sod layer, similar to that of the house, covered the bottom, sides, and ends of the entrance passage.

<table>
<thead>
<tr>
<th></th>
<th>SW cm.</th>
<th>NW cm.</th>
<th>NE cm.</th>
<th>SE cm.</th>
<th>Center cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>153</td>
<td>170</td>
<td>185</td>
<td>160</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>86</td>
<td>93</td>
<td>96</td>
<td>94</td>
<td>70 86</td>
</tr>
</tbody>
</table>

FINDS

2 arrowheads, Type 1
2 arrowpoints, Types 1, 2
9 inset blades, Types 1, 3–5, fragments
1 harpoon head, Type 2
2 harpoon blades
1 foreshaft, Type 2
1 salmon spear barb
1 knife handle, Type 1
1 flaking hammer head
1 flaker handle, Type 1
2 flaker points
4 whetstones, Types 1, 2
2 paint grinding stones
1 red ocher
12 knife side blades, Types 1-6
1 knife end blade
12 blade fragments
5 discoidal blades, Types 1, 2
12 sidescrapers
3 ends scrapers, Type 1, right slant
4 gravers, Types 1, 2
2 scraper fragments
1 drill, Type 1
17 retouched flakes
2 blanks
1 whalebone shovel
1 mattock
3 awls
1 meat fork
1 pyrites
2 pieces of jet
2 ornaments
1 mask pendant
1 implement, use uncertain, Type 4
2 unidentified fragments
4 worked antler
6 worked ivory

1 leister prong
1 salmon spear center prong
1 salmon spear barb
1 knife handle, Type 1
3 flaker points
1 adze head, Type 1
1 adze blade, Type 3
4 whetstones, Type 1
1 paint grinding stone
10 knife side blades, Types 1, 2, 4, 5
9 fragmentary blades
5 discoidal blades, Types 1, 2
10 sidescrapers
2 ends scrapers, Type 2, right slant
1 oval scraper
1 spatulate scraper
7 gravers, Types 1-3
6 scraper fragments
1 rare flint, Type 1
10 retouched flakes
1 used flake
7 blanks
1 root pick
3 wedges
3 cutting boards
2 awls
12 needles
4 needle bones
1 scoop
1 pyrites
5 pumice
1 jet
1 brow band
1 ornamental band, Type 2
7 unidentified objects, Types 1, 2, 5, 7, 11
4 unidentified fragments
11 worked antler
6 worked ivory
1 worked bone

**House 46, Center of Row E**

This house was 4 meters square. The floor was covered by a layer of sod overlain with gravel and sand. Two long logs parallel with the walls separated the side platforms from the lower lying floor space around the fireplace. Remains of a wooden floor were behind the fireplace.

No entrance passage.

<table>
<thead>
<tr>
<th>SW cm.</th>
<th>NW cm.</th>
<th>NE cm.</th>
<th>SE cm.</th>
<th>Center cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>185</td>
<td>180</td>
<td>195</td>
<td>168</td>
</tr>
<tr>
<td>Floor</td>
<td>93</td>
<td>87</td>
<td>92</td>
<td>94</td>
</tr>
</tbody>
</table>

**Finds**

3 arrowheads, Type 1
2 arrowpoints, Types 1, 2a
3 inset blades, Types 1, 5, fragments
1 toy bow
1 harpoon head, Type 3
2 harpoon blades
1 arrowpoint or harpoon blade

**House 47, East End of Row E**

Almost square groundplan, 4.8 by 4.4 meters. The floor was covered with the usual sod, above which were gravel and sand. Remains of wooden flooring; logs lay around the fireplace parallel with the walls (Fig. 55a). The surrounding gravel platforms were higher than the floor.

Entrance Passage: 2 meters from west wall was an oblong area, 1.8 by 1 meters, which contained wood chips and bones. Between this area and the house only pure gravel was found.

<table>
<thead>
<tr>
<th>SW cm.</th>
<th>NW cm.</th>
<th>NE cm.</th>
<th>SE cm.</th>
<th>Center cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>130</td>
<td>123</td>
<td>148</td>
<td>143</td>
</tr>
<tr>
<td>Floor</td>
<td>69</td>
<td>68</td>
<td>86</td>
<td>78</td>
</tr>
</tbody>
</table>

FINDS

2 arrowheads, Type 2, and fragment
1 arrowpoint, Type 1a
7 inset blades, Types 1, 5, and fragments
1 harpoon head, Type 2
1 leister prong
1 adze head, Type 1
1 adze blade, Type 3
1 whetstone, Type 1
5 knife side blades, Types 3–6
1 end blade, Type 3
2 discoidal blades, Type 1
7 sidescrapers
1 oval scraper
2 gravers, Types 1, 2
1 rare flint blade
2 retouched flakes
2 blanks
1 mattock
1 unidentified object, Type 4
3 unidentified fragments
5 worked ivory

HOUSE 48, EAST END OF ROW E

Square, 4.6 by 4.4 meters. Floor covered by sod, gravel, and turf. Very little wood around the fireplace, which was not in the east-west axis, but closer to the south wall. The space around the fireplace was lower than the surrounding gravel platforms. This fireplace showed very clearly a feature also observed in other houses, that is, a deep, circular depression in the center, surrounded by a brown ring, which, in turn, was encircled by a black ring. The surface of the fireplace was 8 centimeters above the floor.

Entrance Passage: An oval area of black gravel, 2 meters long and 1 meter wide, about 1 meter from the west wall. Sterile gravel lay between this and the house.
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FINDS

2 arrowpoints, Type 1
15 inset blades, Type 1, 13 fragments
1 perforated butt
1 flaker point
3 whetstones, Type 1
1 red ocher
7 knife side blades, Types 1, 3, 4
1 end blade, Type 1
5 blade fragments
2 discoidal blades, Types 1, 2
3 sidescrapers
2 gravers, Types 1, 4
1 scraper fragment
1 drill, Type 2
1 rare flint, Type 2
7 retouched flakes
4 blanks
1 mattock
1 root pick
1 implement, use uncertain, Type 1
1 unidentified fragment
2 worked ivory

HOUSE 49, CENTER OF ROW B

Five meters square with rounded corners. Judging from the thickness of the floor deposit (30 centimeters at the fireplace), this house must have been occupied longer than most of the others excavated. A considerable quantity of wood was found on the floor, most of it probably wall and roof timber. On the platforms near the north wall, partly covered by wooden logs, lay the flexed skeleton of a child. Despite its flexed position, which is atypical for Ipiutak burials, the conditions under which this skeleton was found indicate that it was contemporary with the house. The platforms along the north, east, and south sides were slightly higher than the floor and only 1 meter wide. The fireplace was a pile of ashes 26 centimeters high.

An entrance passage with black gravel at floor level was found 1.6 meters west of the house. A gravel wall, 47 centimeters high, separated the entrance passage from the house.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>138</td>
<td>151</td>
<td>150</td>
<td>139</td>
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<tr>
<td>Floor</td>
<td>80</td>
<td>103</td>
<td>101</td>
<td>108</td>
<td>78</td>
</tr>
</tbody>
</table>

FINDS

11 inset blades, Types 1, 5, 9 fragments
1 toy bow
1 harpoon head, Type 1
1 miniature harpoon head, Type 1
1 salmon spear center prong
2 knife handles, Types 1, 1a
4 flaker points
4 adze blades, Types 1, 3
3 whetstones, Type 1
1 grinding stone
11 knife side blades, Types 1–5
1 end blade
2 semilunar blades, Type 2
35 blade fragments
3 discoidal blades, Types 1, 4
11 sidescrapers
1 oval scraper
3 gravers, Types 1, 4
5 scraper fragments
1 rare flint, Type 1
12 retouched flakes
2 used flakes
9 blanks
5 mattocks
1 root pick
1 cutting board
1 two-handed scraper
4 awls
2 needle bones
2 birchbark
1 human head, socket piece
1 animal carving
1 swivel, Type 2
1 hook
1 implement, use uncertain, Type 1
8 unidentified fragments
3 wooden objects
4 worked antler
10 worked ivory
1 worked bone

HOUSE 50, CENTER OF ROW E

Irregular, square groundplan, 4 by 4 meters. The central floor space, about 2 by 2 meters, was completely covered with wood, but only a few scattered pieces were found on the surrounding platforms. Much of the wood was scattered, but part of a log frame around the floor and a flooring of parallel logs south of the fireplace were recognizable. The debris contained many walrus and seal bones and much flint. A paint grinding stone rested on the floor. Six square meters were excavated west of the house, and a 20-centimeter thick layer of gravel containing bones, wood, and flint was found at floor level,
but its edges could not be traced. As in the
house, the black gravel was covered by a 10-
centimeter thick layer of moss turf and 60
centimeters of sand and surface turf. Houses
50, 46, and 45 lay in a row so close together that
there was no room for entrance passages on the
west side of either House 45 or House 46. The
three houses were probably not occupied
simultaneously.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>162</td>
<td>161</td>
<td>159</td>
<td>162</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surface</th>
<th>Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>92</td>
</tr>
</tbody>
</table>

**FINDS**

3 arrowheads, Types 2, 7, fragments
4 arrowpoints, Types 1, 1a, fragments
7 inset blades, Types 1, 4, fragments
1 harpoon head, Type 3
1 harpoon blade
1 foreshaft, Type 2
1 miniature foreshaft, Type 2
1 barbed point
1 adze head, Type 2
3 adze blades, Type 2
1 whetstone, Type 1
2 grinding stones
6 knife side blades, Types 3–5
2 end blades, Type 3
3 semilunar blades, Type 1
6 blade fragments
2 discoidal blades, Type 1
12 sidescrapers
2 sidescrapers, Type 1, right slant
2 spatulate scrapers
9 scraper fragments
1 rare flint, Type 2
1 rare flint blade
12 retouched flakes
1 used flake
6 flint cores
1 whalebone shovel
3 root picks
1 wedge
1 marlin spike
2 awls
4 needles
3 needle bones
1 human head
3 implements, use uncertain, Types 1, 5, 14
1 unidentified openwork carving
6 unidentified fragments
2 worked antler
15 worked ivory
1 worked bone

**House 51, Center of Row C**

(Fig. 8)

This was the largest of the excavated houses
and the only one that deviated from the general
pattern of Ipiutak houses. It was rectangular,
6.5 meters long, 4.5 wide. The oval fireplace
was surrounded by gravel. On three sides of
this central area was a regular wooden floor
constructed of long, straight logs or planks (?),
which lay so close to one another that no gravel
was visible. The wood was badly decayed, but
after the moss turf that covered it was carefully
removed, the floor appeared not very different
from the day it was left by the occupants of
the house. In some places, especially near the
center, it was worn hollow. Along its outer
dges, to the north and east, was a layer of wood
shavings and small sticks, scattered in all di-
rections; outside that, on all three sides, was a
gravel bench or platform slightly higher than
the floor. The front of the house was all gravel
with a depression in front of the fireplace and
one in the northwest corner. To the west of the
house, separated from it by 1 meter of sterile
gravel, was a rectangular area of black gravel
containing many bones and a few specimens,
2.70 meters long and 1 meter wide. This was
possibly a community house.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>253</td>
<td>233</td>
<td>223</td>
<td>226</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>190</td>
<td>179</td>
<td>182</td>
<td>156</td>
<td>169</td>
</tr>
</tbody>
</table>

**FINDS**

1 arrowhead, Type 3
3 arrowpoints, Type 1, rare
11 inset blades, Types 1, 5, fragments
2 arrow-straighteners (?)
2 harpoon heads, Types 2, 3
1 foreshaft, Type 2
3 ice picks
1 perforated butt
1 salmon spear side prong
1 engraving tool
1 adze head, Type 1
9 knife side blades, Types 2, 5, 7
2 end blades, Type 1
3 semilunar blades, Type 1
6 blade fragments
5 discoidal blades, Types 1, 3, 4, fragments
10 sidescrapers
2 sidescrapers, Type 1, right slant
1 notched sidescraper
1 drill, Type 1
11 retouched flakes
2 used flakes
1 blank
2 whalebone shovels
4 mattocks
1 root pick
2 marlin spikes
1 cutting board
1 awl
1 bodkin
1 needle
1 needle bone
1 ornamental band
1 ornament
2 seals
2 mask pendants
1 decorated antler tube
15 implements, use uncertain, Types 3, 7, 15
5 unidentified fragments
3 ornamented fragments
2 worked antler
19 worked ivory
3 worked bone

House 52, Center of Row C

Approximately square in groundplan, 5.2 by 4.4 meters. Around the fireplace were faint traces of floor logs, parallel with the north, east, and south walls. The surrounding gravel platforms were 20 centimeters higher than the floor.

Excavations west of the house revealed black gravel 20 centimeters below the surface, but its limits could not be traced, so that it could not be identified as an entrance passage.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>226</td>
<td>223</td>
<td>223</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>191</td>
<td>185</td>
<td>194</td>
<td>237</td>
<td>205</td>
</tr>
</tbody>
</table>

Finds

2 arrowheads, Type 3a, fragment
3 arrowpoints, Type 1, fragments
10 inset blades, Types 1, 3, fragments
2 harpoon heads, Type 2
1 miniature foreshaft, Type 2
1 perforated butt
1 knife side blade, Type 4
1 semilunar blade, Type 1
10 blade fragments
2 discoidal blades, Type 1, fragment
12 sidescrapers
5 scraper fragments
1 drill
1 rare flint, Type 1
14 retouched flakes
1 flint blank

1 whalebone shovel
1 shovel head, Type 2
2 mattocks
3 awls
1 pyrites
1 ornamental band, Type 1
1 mask pendant
1 implement, use uncertain, Type 1
1 rare implement, use uncertain
2 unidentified fragments
2 pointed wooden sticks
3 worked antler
13 worked ivory

House 53, Center of Row C

The shape of the house was undeterminable, but it was probably four-sided with rounded corners, 4 by 3.2 meters. Short logs parallel with the walls were found around the fireplace. The northwest corner formed a depression below the general level.

A 2.40-meter long entrance passage was found west of the house, separated from it by 1 meter of sterile gravel. In the bottom of the entrance passage were four long parallel logs, many bones, and a number of artifacts.

In a search for its outer limits, the excavations were extended outside the house; in all about 100 square meters were excavated. It was then discovered that about 20 centimeters below the surface under the sod a layer of black gravel extended to all sides. A similar layer was found in test pits farther out. Its surface was uneven and probably represents the ground surface at the time Ipiutak was occupied, the gravel being discolored by human activities.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>213</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Top of black gravel</td>
<td>193</td>
<td>196</td>
<td>190</td>
<td>186</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>163</td>
<td>146</td>
<td>157</td>
<td>165</td>
<td>163</td>
</tr>
</tbody>
</table>

Finds

3 arrowheads, Types 1, 2, 4
3 arrowpoints, Types 1, 2, fragments
18 inset blades, Types 1, 2, fragments
1 toy bow
3 harpoon heads, Type 1
1 harpoon blade
1 leister prong
1 knife handle, Type 1
1 engraving tool
1 flaking hammer head
1 flaker handle, Type 1
3 flaker points
4 adze heads, Type 1
6 whetstones, Type 1
4 grinding stones
14 knife side blades, Types 1–4, 7
10 knife end blades, Types 1–3
1 semilunar blade, Type 1
22 blade fragments
6 discoidal blades, Types 1, 2, 4
15 sidescrapers
2 gravers, Types 1, 4
1 drill, Type 2
1 rare flint blade
8 retouched flakes
4 used flakes
3 flint blanks
1 whalebone shovel
1 wedge
1 marlin spike
1 jet
1 implement, use uncertain, Type 3
1 unidentified fragment
2 worked antler
2 worked ivory

House 54, Center of Row C

Square with rounded corners, 3.3 by 2.9 meters. Under the turf and a layer of gravel lay a number of logs radiating from the fireplace. Under these logs, undoubtedly fallen-in roof and/or wall timber, was an ordinary gravel floor with remains of wooden flooring. (Fig. 5.)

No entrance passage was found.

<table>
<thead>
<tr>
<th></th>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>219</td>
<td>216</td>
<td>214</td>
<td>216</td>
<td></td>
</tr>
<tr>
<td>Floor</td>
<td>163</td>
<td>156</td>
<td>166</td>
<td>162</td>
<td>146</td>
</tr>
</tbody>
</table>

Finds

1 arrowpoint fragment
1 harpoon head, Type 1
1 ice pick
1 bird dart side prong
1 adze blade, Type 3
2 semilunar blades, Type 1
2 blade fragments
1 discoidal blade, Type 1
3 sidescrapers
2 retouched flakes
2 mattocks
1 root pick
1 wedge
1 marlin spike
1 jet
1 implement, use uncertain, Type 3
1 unidentified fragment
2 worked antler
2 worked ivory

House 55, Center of Row C

This was the smallest, but one of the richest, of the houses. Square, with rounded corners, 3 by 3 meters. Its outer limits were very distinct. On three sides the hard-packed black floor gravel formed a 12- to 20-centimeter high vertical wall along the edges. Some logs were preserved around the fireplace. Many bones of seal, caribou, and especially walrus were found in the floor layer, also a few pieces of whalebone.

The entrance passage, 2 by 1.10 meters, contained many bones. It was 90 centimeters from the west wall and separated from it by sterile gravel.

<table>
<thead>
<tr>
<th></th>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrance Passage</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>248</td>
<td>240</td>
<td>233</td>
<td>230</td>
<td>154</td>
</tr>
<tr>
<td>Floor</td>
<td>162</td>
<td>161</td>
<td>160</td>
<td>176</td>
<td>186</td>
</tr>
</tbody>
</table>

Finds

12 arrowheads, Types 1–3, 3a, fragments
1 arrowpoint, Type 1
4 inset blades, Types 4, 5, fragments
1 toy bow
3 harpoon heads, Types 1, 2
2 miniature harpoon heads, Type 1
1 foreshaft, Type 2
3 miniature foreshafts, Types 1, 2
1 ice pick
3 gull hooks
1 leister prong
1 salmon spear barb
2 knife handles, Types 2, 3
1 engraving tool
2 flaker handles, Type 1
2 flaker points
3 adze heads, Type 1
3 adze blades, Types 2, 3
2 chisels
5 whetstones, Type 1
1 grinding stone
15 knife side blades, Types 1–5
2 end blades, Type 1
1 semilunar blade, Type 2
6 discoidal blades, Types 1, 2, fragments
15 sidescrapers
3 endscrapers, Type 1, right slant
4 gravers, Types 1, 4
4 scraper fragments
4 retouched flakes
3 used flakes
7 flint blanks
6 mattocks
1 wedge
6 marlin spikes
1 cutting board
9 awls
17 needles
18 needle bones
1 scoop
1 brow band
1 animal attachment
2 hooks
1 ring
6 implements, use uncertain, Types 5, 10, 11, 13
11 unidentified fragments
1 ornamented fragment
2 flat wooden pieces
9 worked antler
13 worked ivory

House 56, Center of Row C

Square with rounded corners, 4 by 3.4 meters. The center of the house formed a depression 1.60 meters square, with rounded corners, partly covered by a wooden flooring. The surrounding platforms were of gravel with a few pieces of fallen-in wall timber. Along the north wall and adjoining parts of the west and east walls was a shallow ditch, deepest in the northwest corner. As in House 55, the outline was very clear; a 10-centimeter high vertical gravel wall was visible on the east side. The house contained a large number of walrus, seal, and caribou bones and a few whalebones.

A 4-meter long and 1.40-meter wide entrance passage extended from the west wall. In the bottom, which was higher than the floor level, were a large number of bones.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Platforms</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>227</td>
<td>221</td>
<td>228</td>
<td>250</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>178</td>
<td>156</td>
<td>179</td>
<td>182</td>
<td>179</td>
</tr>
</tbody>
</table>

Findings

8 arrowheads, Types 1, 2, fragments
1 arrowhead, Type 1
2 inset blades, Type 1
1 harpoon head, Type 2
3 miniature harpoon heads, Types 1, 2
1 harpoon blade
2 foreshafts, Types 1, 2
2 ice picks
1 perforated butt
1 lance head
1 leister prong
3 knife handles, Type 3
2 flaking hammer heads
1 adze blade, Type 3
2 whetstones, Type 1
2 grinding stones
4 knife side blades, Types 1–3, 5
1 end blade, Type 3
9 flint blade fragments
4 discoidal blades, Type 1
8 sidescrapers
2 endscrapers, Type 1, right slant
1 S-shaped scraper
1 notched scraper
8 gravers, Types 1, 2, 4, fragments
1 drill, Type 3
7 retouched flakes
7 used flakes
4 flint blanks
1 whalebone shovel
1 shovel head, Type 2
2 mattocks
4 root picks
1 marlin spike
1 cutting board
7 awls
1 bodkin
1 needle
1 brow band
1 ornament
5 implements, use uncertain, Types 1, 2
6 unidentified fragments
9 worked antler
11 worked ivory
2 worked bone

House 57, Center of Row C

Square, 4.5 by 4.1 meters. Contained very little wood, except for the rear platform, on which there was a layer of scattered wooden sticks. A square area around the fireplace was lower than the surrounding platforms (Fig. 55b).

An entrance passage, 80 centimeters west of the house, was 1.50 meters long, 0.8 meters wide, and 0.45 meters deep.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Entrance</th>
<th>Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>220</td>
<td>221</td>
<td>223</td>
<td>223</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>157</td>
<td>170</td>
<td>169</td>
<td>173</td>
<td>150</td>
</tr>
</tbody>
</table>

Findings

7 arrowheads, Type 1, fragments
1 arrowpoint, Type 1
6 inset blades, Type 3, fragments
1 harpoon foreshaft, Type 2
2 miniature harpoon foreshafts, Type 2
1 ice pick
2 lance heads, fragments
1 bird dart side prong
1 barbed point
2 knife handles, Type 1
1 flint flaker point
1 adze head, Type 1
1 flint flaker
4 whetstones, Type 1
4 grinding stones
10 knife side blades, Types 2–5
2 end blades, Types 2–3
8 blade fragments
2 discoidal blades, Type 1, fragment
3 sidescrapers
1 endscraper, right slant
2 scraper fragments
3 retouched flakes
1 used flake
5 flint blanks
1 wedge
1 two-handed scraper
5 needles
5 needle bones
1 ornamental band, Type 1
6 implements, use uncertain, Types 1, 11
3 unidentified fragments
2 worked antler
10 worked ivory

House 58, West End of Row C

Five meters square, with rounded corners. There were a few logs east of the fireplace, otherwise only black gravel. The central part was lower than the platforms.

No entrance passage was found.

<table>
<thead>
<tr>
<th>House 59</th>
<th>SW</th>
<th>NE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>236</td>
<td>240</td>
<td>248</td>
</tr>
<tr>
<td>Floor</td>
<td>198</td>
<td>204</td>
<td>201</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SE</th>
<th>Center</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>236</td>
<td>181</td>
<td>201</td>
</tr>
</tbody>
</table>

Finds

3 arrowheads, Types 3, 3a, fragment
1 inset blade fragment
1 harpoon foreshaft, Type 2
2 miniature harpoon foreshafts, Type 2
1 perforated butt
4 leister prongs
1 knife handle, Type 3
2 flint flaker points
1 adze head, Type 1
1 adze blade, Type 3
1 knife side blade, Type 5
1 end blade, Type 3
1 semilunar blade, Type 1
5 blade fragments
1 straight sidescraper
1 endscraper, Type 1
1 graver, Type 4
1 retouched flake
1 used flake
2 mattocks
1 meat fork
1 pyrites
1 animal carving
1 mask set piece
2 implements, use uncertain, Type 3
2 unidentified fragments
2 worked antler

House 59, West End of Row C

The outline of the house was indistinct, especially in the corners, but it was probably four-sided, with rounded corners, 4.5 by 5 meters. Hardly any wood was preserved. The floor space around the fireplace was 20 centimeters lower than the platforms. At the southwest was a shallow ditch.

An entrance passage was 1.40 meters from the west wall; 1.30 meters long and 1 meter wide with black gravel and many bones at the same level as the house floor. Sterile gravel between entrance passage and house.
1 adze blade, Type 3
1 grinding stone
3 knife side blades, Types 2, 4
1 end blade, Type 3
7 blade fragments
8 sidescrapers
2 drills, Type 1
1 retouched flake
3 used flakes
1 flint blank
1 marlin spike
4 awls
1 needle
7 needle bones
1 brow band
1 unidentified implement, Type 4
1 unidentified openwork carving
7 unidentified fragments
2 ornamented fragments
2 worked antler
7 worked ivory

House 60, Center of Row B

Rectangular in groundplan, 4.70 by 4 meters. A square central floor area was strewn with pieces of wood and willows. Two fireplaces, one on top of the other; the second was a little farther west and partly covered the first. There were two low areas on the rear platform and a high place in the northwest corner.

Entrance Passage: Black gravel with many bones, 1.3 meters long and 1 meter wide, was separated from the house by 50 centimeters of sterile gravel.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>233</td>
<td>225</td>
<td>219</td>
<td>229</td>
</tr>
<tr>
<td>Floor</td>
<td>166</td>
<td>178</td>
<td>177</td>
<td>166</td>
</tr>
</tbody>
</table>

Finds
8 inset blades, Types 1, 5, fragments
1 harpoon head, Type 3
4 miniature foreshafts, Type 1
1 ice pick
2 perforated butts
1 leister prong
2 salmon spear barbs
1 flaking hammer head
1 flaker handle, Type 2
3 flaker points
1 adze blade, Type 1
1 grinding stone
1 knife end blade, Type 1
2 semilunar blades, Type 1
6 blade fragments
2 discoidal blades, Types 3, 4
2 sidescrapers
1 endscraper, right slant
2 scraper fragments
1 rare flint, Type 1
6 retouched flakes
1 whalebone shovel
1 shovel head, Type 1
1 scapula shovel head
1 mattock
1 root pick
1 bodkin
2 needles
1 needle bone
3 ornamental bands, Type 1
3 implements, use uncertain, Types 3, 14
7 unidentified fragments
2 worked antler
10 worked ivory

House 61, Center of Row C

About 4 meters square, with a central floor space.

Entrance passage to the west.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>213</td>
<td>229</td>
<td>222</td>
<td>227</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>179</td>
<td>210</td>
<td>183</td>
<td>190</td>
<td>172</td>
</tr>
</tbody>
</table>

Finds
1 arrowhead, Type 1
2 arrowpoints, Types 1a, 2a
4 inset blades, Type 1, fragment
1 harpoon head, Type 2
1 miniature foreshaft, Type 1
2 flint flaker points
1 adze head, Type 1
4 knife side blades, Types 1, 2, 4
7 blade fragments
2 discoidal blades, Type 3, fragment
9 sidescrapers
1 endscraper, right slant
1 graver, Type 2
2 scraper fragments
5 retouched flakes
3 blanks
2 mattocks
1 marlin spike
4 awls
5 needle bones
1 implement, use uncertain, Type 3
2 rare implements, use uncertain
1 unidentified fragment
3 worked antler
3 worked ivory
**House 62, West End of Row C**  
*(Fig. 56A)*

Four-sided, with rounded corners, 4.4 by 3.5 meters. Three fireplaces were found in this house; two were just under the sod, one in the northwest corner, the other in the center. The original fireplace was beneath the latter, covered with 33 centimeters of gravel and sand. As no floor deposit was found in connection with the first two fireplaces, they were probably temporary and built on top of the collapsed house. The floor level had a peculiar pattern, also found in other houses, although less pronounced than in this one. The area around the fireplace was low, with some logs. It was surrounded by higher gravel platforms or benches; outside these, along the walls, was a low narrow ditch for which we can offer no explanation.

1.15 meters from the west wall were traces of an entrance passage 2.15 meters long and 1.30 meters wide.

(See Table A on page 220)

**Finds**

3 arrowheads, Types 1, 2, fragment  
1 arrowpoint, Type 1a  
3 inset blade fragments  
1 toy bow  
5 harpoon heads, Type 1  
1 harpoon foreshaft, Type 2  
1 miniature harpoon foreshaft, Type 2  
1 ice pick  
1 leister prong  
3 knife handles, Type 1  
1 engraving tool  
2 flint flaker points  
1 adze head, Type 1  
1 adze blade, Type 1  
8 whetstones, Types 1, 2  
1 grinding stone  
13 knife side blades, Types 1–5  
4 knife end blades, Types 1–3  
1 semilunar blade, Type 1  
6 flint blade fragments  
8 discoidal blades, Types 1, 3, 4, fragments  
9 sidescrapers  
1 spatulate scraper  
3 scraper fragments
**Table A**

<table>
<thead>
<tr>
<th></th>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>House 62</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>224</td>
<td>222</td>
<td>207</td>
<td>227</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>160</td>
<td>157</td>
<td>155</td>
<td>167</td>
<td>193</td>
<td>182</td>
<td>149</td>
<td>164</td>
</tr>
</tbody>
</table>

1 drill, Type 2  
4 retouched flakes  
3 used flakes  
1 flint blank  
3 mattocks  
4 marlin spikes  
2 cutting boards  
7 awls  
11 needle bones  
1 ornament  
3 implements, use uncertain, Types 2, 3, 5  
1 rare implement, use uncertain  
1 unidentified openwork carving  
1 unidentified fragment  
2 wooden objects, use uncertain  
2 worked antler  
7 worked ivory  
1 worked bone  
2 perforated butts  
1 leister prong  
1 knife handle, Type 3  
2 engraving tools  
1 flaking hammer head  
4 flint flaker points  
1 grinding stone  
4 knife side blades, Types 1, 3, 4  
3 semilunar blades, Type 2  
5 discoidal blades, Types 1, 3, 4, fragment  
6 sidescrapers  
2 endscrapers, right slant  
2 oval scrapers  
1 graver, Type 4  
1 rare flint, Type 1  
7 retouched flakes  
1 flint blank  
1 scapula shovel blade  
2 mattocks  
1 wedge  
1 marlin spike  
8 awls  
6 needles  
1 needle bone  
2 pyrites  
1 brow band  
1 ornamental band, Type 1  
1 animal attachment  
1 mask pendant  
1 ivory peg  
7 implements, use uncertain, Types 2, 4, 5, 6, 15  
4 rare implements, use uncertain  
1 unidentified openwork carving  
6 unidentified fragments  
9 worked antler  
5 worked ivory

**House 63, Center of Row C**

Square with rounded corners, 4.30 by 3.90 meters. Low central floor space. Very little wood, but many bones, especially walrus. Black gravel was found below floor level to a depth of 34 centimeters below the fireplace (Fig. 56b). Except for five parallel short logs to the north of the fireplace and 16 centimeters below it, there were no other traces of another floor. Ice was found in sterile gravel 41 centimeters below the fireplace or more than 1 meter below the surface.

An oblong entrance passage, 2.25 meters long and 1.25 meters wide, was found 2 meters from the west wall.

*(See Table B below)*

**Finds**

4 arrowheads, Type 1, fragments  
3 arrowpoints, Types 1, 1a, fragment  
1 inset blade, Type 3  
2 harpoon heads, Types 2, 3  
1 harpoon blade  
1 foreshaft, Type 1  
1 ice pick

**House 64, Center of Row B**

Square, with rounded corners, 3.6 by 3.2 meters. The outline was very clear, especially along the west and north walls where the floor layer rose to a steep bank. This house contained very little wood, but many bones of walrus, seal, whale, polar bear, and caribou. Behind

**Table B**

<table>
<thead>
<tr>
<th></th>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Fireplace</th>
<th>Logs</th>
<th>Bottom</th>
<th>Ice</th>
</tr>
</thead>
<tbody>
<tr>
<td>House 63</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>235</td>
<td>235</td>
<td>228</td>
<td>237</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>176</td>
<td>178</td>
<td>173</td>
<td>177</td>
<td>156</td>
<td>140</td>
<td>122</td>
<td>115</td>
</tr>
</tbody>
</table>
the fireplace in the floor level was one large slab of whalebone.

Separated from the house by 0.9 meter of sterile gravel was a 2.35-meter long and a 0.9-meter wide entrance passage with bones.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>270</td>
<td>278</td>
<td>258</td>
<td>255</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>221</td>
<td>221</td>
<td>214</td>
<td>214</td>
<td>198</td>
</tr>
</tbody>
</table>

**FINDS**

3 arrowheads, Types 1, 2, fragment
2 inset blades, Type 1, fragment
4 harpoon heads, Type 1
1 foreshaft, Type 1
1 ice pick
1 perforated butt
1 whetstone, Type 1
2 knife side blades, Types 1, 2
2 semilunar blades, Type 1
4 blade fragments
1 discoidal blade, Type 3
3 sidescrapers
2 retouched flakes
1 whalebone shovel
1 shovel head, Type 1
1 scapula shovel blade
2 mattocks
1 root pick
2 awls
4 needles
4 needle bones
1 bone tube
2 implements, use uncertain, Type 2
5 unidentified fragments
1 worked antler
4 worked ivory
1 worked bone

**House 65, Center of Row C**

(Text Fig. 6; Pls. 97, Fig. 3, and 99, Fig. 4)

This was the best preserved of all the excavated houses; four-sided, with rounded corners, about 4 meters square. Several logs, lying together as if to form a floor, were found immediately below the surface. Among these was a knife of Tigara type with a wooden handle and a slate blade. The logs rested on a layer of compact moss turf; directly under this was the original house floor. The condition of the floor, protected as it was by the moss turf, probably differed little from its state when the house was abandoned by the Ipiutak people. The center part of the floor consisted of a thick layer of wood chips, bones, feathers, fragments of ivory, antler, bark, etc. (Fig. 6; Pl. 99, Fig. 4), all extremely well preserved. This central floor area was framed by heavy logs which lay in sterile gravel and supported the edge of the platforms, 10 to 20 centimeters higher. Some of the logs lying on the platforms may have been part of a platform covering, but others were undoubtedly the remains of wall and roof timber. Remains of posts were found in three of the inner corners of the log frame. The outer edges of the house were easily identified by the moss turf which formed a steep bank 4 to 40 centimeters high along all four sides. Outside the moss turf was a thin layer of black, greasy gravel, and beyond this was sterile gravel.

No entrance passage was located. Test holes sunk in various places around the house revealed black gravel, 30 centimeters below the surface. This probably formed the surface at the time of the Ipiutak occupation (p. 214).

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>208</td>
<td>201</td>
<td>207</td>
<td>216</td>
</tr>
<tr>
<td>Top of “wall”</td>
<td>178</td>
<td>162</td>
<td>157</td>
<td>159</td>
</tr>
<tr>
<td>Floor</td>
<td>145</td>
<td>152</td>
<td>153</td>
<td>153</td>
</tr>
</tbody>
</table>

**FINDS**

5 arrowheads, Types 1–3, fragments
2 arrowpoints, Type 1
4 inset blades, Type 1, fragments
1 toy bow
1 harpoon head, Type 2
1 ice pick
1 knife handle, Type 1
1 wooden knife handle (Fig. 21)
1 engraving tool
1 flaking hammer head
1 flaker point
1 adze head, Type 1
2 adze blades, Types 1, 3
3 whetstones, Type 1
2 stones with petroglyphs
1 grinding stone
7 knife side blades, Types 1–5
2 knife end blades, Type 1
21 blade fragments
2 discoidal blades, Type 1
4 sidescrapers
3 endscrapers, Type 1, right slant
3 gravers, Types 2, 3
8 scraper fragments
6 retouched flakes
1 flint blank
7 mattocks
2 wedges
4 awls
4 needle bones
Several pieces of sewed birchbark
1 jet
1 implement, use uncertain, Type 1
2 rare implements, use uncertain
8 wooden objects
4 worked antler
7 worked ivory

House 66, East End of Row B
Small, very shallow house, 3 meters square, with rounded corners. A very thin floor layer with very little wood was found just under the surface sod. A steep, low “wall” (as in House 65) was found in the northwest corner extending to the middle of the west and north walls.

Entrance Passage: 1 meter from the west wall, black gravel extended 1.5 meters in length and 0.75 meters in width.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>226</td>
<td>207</td>
<td>210</td>
<td>207</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>176</td>
<td>178</td>
<td>177</td>
<td>174</td>
<td>160</td>
</tr>
</tbody>
</table>

Finds
4 arrowheads, Types 1, 2, fragment
1 arrowpoint, Type 1
1 inset blade fragment
1 harpoon head, Type 1
2 lance head fragments
1 flaking hammer head
2 flint flaker points
1 adze blade, Type 3
3 whetstones, Type 1
4 knife side blades, Types 2, 3, 5, 6
2 knife end blades, Types 1, 3
7 blade fragments
3 sidescrapers
2 endscrapers, Type 1, right slant
1 S-shaped scraper
2 gravers, Types 1, 3
2 scraper fragments
4 retouched flakes
10 awls
3 needle bones
1 brow band
2 implements, use uncertain, Type 4
1 rare implement, use uncertain
4 unidentified fragments
4 worked antler
2 worked ivory

House 67, East End of Row B
Small, shallow, 2.6 by 2.25 meters. The outline is uncertain because of a very thin floor layer which contained few bones, almost exclusively of walrus, and very little flint refuse.

Entrance Passage: 2 meters long and 1 meter wide, 2 meters west of the house.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>199</td>
<td>187</td>
<td>188</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>152</td>
<td>154</td>
<td>157</td>
<td>142</td>
</tr>
</tbody>
</table>

Finds
1 arrowhead, Type 1
1 arrowpoint, fragment
1 inset blade, Type 5
1 harpoon head, Type 1
1 ice pick
1 knife handle, Type 1
3 whetstones, Type 1
1 knife side blade, Type 6
3 blade fragments
1 oval scraper
1 S-shaped scraper
2 retouched flakes
2 mattocks
1 awl
1 ornamental band, Type 2
1 rare unidentified implement
3 unidentified fragments
1 worked antler
6 worked ivory

House 68, East End of Row D
Square, with rounded corners, 4.5 by 4.1 meters. The boundaries of the house were clearly marked by an abrupt rise of the black floor deposit to 25 centimeters above the floor level. A narrow ditch extended along the south wall. A low, square, central floor area contained many wood chips. On the floor, as well as on the platforms, were scattered remains of logs.

Entrance Passage: A depression, 2.3 meters long and 1 meter wide, with a thin layer of black gravel lay 1 meter west of the house.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>Surface</td>
<td>186</td>
<td>182</td>
<td>177</td>
<td>179</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>132</td>
<td>127</td>
<td>126</td>
<td>122</td>
<td>108</td>
</tr>
</tbody>
</table>

Finds
4 arrowheads, Type 1, fragments
1 arrowpoint, Type 2a
1 inset blade, Type 4
1 harpoon head, Type 4
1 harpoon blade
1 miniature harpoon foreshaft, Type 2
1 lance head fragment
1 salmon spear barb
1 flaking hammer
1 flaking hammer head
1 flaker point
1 whetstone, Type 1
5 knife side blades, Types 1–5
4 knife end blades, Types 1, 3
5 blade fragments
1 discoidal blade, Type 4
3 sidescrapers
4 endscrapers, Type 1, right slant
1 S-shaped scraper
2 gravers, Types 1, 2
2 scraper fragments
1 drill, Type 3
1 rare flint, Type 1
6 retouched flakes
3 used flakes
1 flint blank
1 whalebone shovel
1 mattock
1 two-handed scraper
4 awls
2 needle bones
1 scoop
1 pyrites
1 mask pendant
1 implement, use uncertain, Type 4
1 rare implement, use uncertain
8 unidentified fragments
3 flat wooden objects
3 worked antler

**House 69, East End of Row C**
(Fig. 57)

Square, with rounded corners, 4 by 3.75 meters. Clear outlines. A rectangular low central floor space was partly framed and contained many wood chips. Only walrus bones were found in this house.

**Entrance Passage:** 2 meters long and 0.75 meters wide, 1 meter from house.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
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<tr>
<td>Surface</td>
<td>195</td>
<td>206</td>
<td>196</td>
<td>194</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>129</td>
<td>128</td>
<td>132</td>
<td>142</td>
<td>121</td>
</tr>
</tbody>
</table>

**Finds**

4 arrowheads, Types 1, 3, fragment
1 arrowpoint, fragment

![Fig. 57. Groundplan of House 69.](image)
4 unidentified fragments
3 unidentified wood
1 worked antler
1 worked ivory

House 70, East End of Row B

Four-sided, with rounded corners, 4.5 by 3.75 meters. Clear edges. Behind the fireplace a rectangular area containing wood chips.

Entrance Passage: 2 meters from house, 1.7 meters long and 75 centimeters wide.

<table>
<thead>
<tr>
<th>SW</th>
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<th>NE</th>
<th>SE</th>
<th>Center</th>
<th>Entrance Passage</th>
</tr>
</thead>
<tbody>
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<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>219</td>
<td>227</td>
<td>213</td>
<td>215</td>
<td>—</td>
</tr>
<tr>
<td>Floor</td>
<td>171</td>
<td>176</td>
<td>168</td>
<td>164</td>
<td>145</td>
</tr>
</tbody>
</table>

FINDS

4 arrowheads, Types 1, 2
1 arrowpoint, rare
2 inset blades, Type 1, fragment
1 toy bow
1 harpoon head, Type 3
2 harpoon blades
1 lance head fragment
2 flaker points
1 adze blade, Type 3
1 chisel
1 whetstone, Type 1
3 knife side blades, Types 2, 3
1 knife end blade, Type 1
1 semilunar blade, Type 1
2 blade fragments
1 discoidal blade, Type 1
2 sidescrapers
3 endscrapers, Type 1, right and left slant
1 graver, Type 4
2 flint blanks
1 mattock
2 root picks
1 wedge
6 awls
1 pyrite
3 implements, use uncertain, Types 3–5
3 unidentified fragments
3 worked ivory

House 71, East End of Row D

Square, with rounded corners, 4.4 by 4 meters. Rectangular, low, central floor space with remains of a wooden flooring. Gravel platforms with a little wood.

No entrance passage located.

<table>
<thead>
<tr>
<th>SW</th>
<th>NW</th>
<th>NE</th>
<th>SE</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
<tr>
<td>Surface</td>
<td>177</td>
<td>188</td>
<td>196</td>
<td>184</td>
</tr>
<tr>
<td>Floor</td>
<td>121</td>
<td>126</td>
<td>143</td>
<td>129</td>
</tr>
</tbody>
</table>

FINDS

9 arrowheads, Types 1, 2, fragments
1 inset blade fragment
1 harpoon head, Type 1
1 foreshaft, Type 1
2 lance heads, Type 1
1 gull hook
1 knife handle, Type 1
1 engraving tool
2 adze blades, Type 3
8 knife side blades, Types 1–5
3 blade fragments
1 discoidal blade, Type 1
5 sidescrapers
3 endscrapers, Types 1, 2, right slant
1 S-shaped scraper
3 retouched flakes
1 used flake
3 mattocks
1 root pick
7 awls
1 ring
1 inset bird bone
7 implements, use uncertain, Types 1, 4, 10
1 rare implement, use uncertain
2 unidentified fragments
4 worked antler
1 worked ivory

House 72, Center of Row C

Excavation not completed.

FINDS

2 arrowheads, Type 1
1 inset blade, Type 5
1 ice pick
2 sidescrapers
1 graver, Type 4
1 scraper fragment
1 mattock
1 brow band
2 implements, use uncertain, Types 2, 5
1 unidentified fragment
1 worked ivory
APPENDIX 2. NOTES ON EXCAVATION OF BURIALS

The burials described below have been classified as Ipiutak, Near Ipiutak, Tigara, and uncertain as to type. They were all found on the north side of the Point Hope spit between the Ipiutak village site and Jabbertown (Fig. 2).

Burial 1

Near Ipiutak type. Four skeletons. A faintly perceptible mound about 2 meters in diameter was visible on the surface. This resembled the small middens found along the lagoon. There are also natural mounds in the vicinity which are neither graves nor middens. Maximum depth of the burials was 70 centimeters. Two disarranged skeletons lay just below the surface; one skull, only 10 centimeters deep. Directly beneath this mass of bones were two articulated skeletons, a small child and an adult. They lay side by side, supine, with heads towards the east, the child to the right of the adult. Several bones of the adult skeleton were missing, probably having disintegrated; the child skeleton was nearly complete, but badly decayed.

A bundle of 18 arrows lay between and beside the knees of the child; only a soft, brown, fibrous paste remained to indicate the existence of the wooden arrowshafts which extended up over the body. A diamond-shaped ivory ornament lay on the child's sternum.

A number of artifacts scattered throughout the deposit, from the mass of bones near the surface to the maximum depth of 70 centimeters, could not be associated specifically with either of the two skeletons, but one group was apparently deposited with the articulated adult skeleton lying near that of the child.

The sand and gravel around the skeleton were black with organic decay. Five bearded seal bones and two bird bones found with the disarranged skeletons near the surface may be evidence that food was placed with the dead, but these may also be only part of the midden refuse which occurs over most of the area.

Finds

In direct association with the articulated child skeleton:
1 diamond-shaped breast ornament
1 arrowpoint

Probably associated with the articulated adult skeleton:
1 harpoon head
10 arrowheads
1 knife handle
5 unidentifiable fragments

Not associated with any particular skeleton:
2 whetstones
9 flint flakes
3 flint sidescrapers
25 arrowpoints
3 harpoon blades
6 blade fragments
1 pentagonal blade
3 inset blades
1 graver
2 mattock blades

Burial 2

Near Ipiutak type. Fragments of one skeleton. Five meters southeast of Burial 1 in a slight mound. Skull fragments and artifacts were found in a blackened deposit of sand and gravel about 2 meters in diameter and 55 centimeters deep. One bearded seal bone and two dog bones were also found in the deposit.

Finds

1 bird arrowhead
1 flint scraper
1 harpoon blade
1 grinding stone
3 blade fragments
1 rectangular flint blade

Burial 3

Near Ipiutak type. Parts of one skeleton. In a slight mound 24 meters east of Burial 2. Only the skull, one rib, the lower leg bones, and the foot bones remained. The body probably lay prone or on its side, fully extended, with the skull 30 centimeters and the leg bones 50 centimeters deep. Two arrowheads lay over the knees; one barbed point beside the leg bones. A harpoon head lay 75 centimeters south of the leg bones. Additional artifacts scattered through the deposit from the surface to a depth of 50 centimeters are as follows:

5 unidentifiable bone, antler, and ivory fragments
29 arrowpoints
3 harpoon blades
2 inset blades
1 knife blade
16 blade fragments
3 whetstones
6 flint flakes
A few bones of bearded seal, seal, caribou, and bird were also found in the deposit.

**Burial 4**

Near Ipiutak type. Parts of two skeletons. Found, as were the preceding burials, in a slight mound, 12 meters west of Burial 1. Disarranged bones of two skeletons were much confused, but parts of one appeared to be buried slightly above parts of another. The mandible was with the upper group of bones; the skull with the lower. One pelvic bone from each skeleton lay close to the upper group of bones. A salmon spear side prong lay near the foot bones of the lower skeleton. Four arrowheads were thrust point down in the central mass of bones. Vertebrae were strewn about the long bones in disorder. The decay-blackened deposit of sand and gravel around the skeleton was 80 centimeters in maximum depth. A seal scapula, fragments of whalebone, and one caribou bone were found with the human bones. Additional artifacts are as follows:

- 1 harpoon head
- 1 needle
- 4 unidentifiable fragments
- 1 whetstone
- 17 retouched flint flakes
- 1 graver
- 14 arrowpoints
- 5 blade fragments
- 3 inset blades

**Burial 5**

Near Ipiutak type. Parts of child skeleton. Found in a slight mound 2 meters east of Burial 1. Near the surface were fragments of wood. The skull, crushed, lay on its left side. Other bones were disarranged and partly decayed. The deposit of decay-blackened sand and gravel like that of Burial 1, and of the same depth. Only a flint blade fragment was found.

**Burial 6**

Near Ipiutak type. Parts of one adult skeleton. Found in a low mound, 20 meters west of Burial 1. The skull was complete, but no leg bones were found. Other bones were disarranged, with the mandible lying near the pelvic bones. Wood fragments were found around the body. The bones lay at a depth of 30 to 50 centimeters in sterile gravel. The gravel and sand above the bones were slightly blackened by organic decay. No artifacts were found.

**Burial 7**

Ipiutak type. No human bones. This is one of a group of burials (7-11) excavated about 175 meters southeast of the Near Ipiutak group described above. A number of artifacts, apparently grave furniture, were found in a decay-blackened deposit, 2 meters in diameter, extending from the surface to a depth of only 30 centimeters. There was no recognizable orientation of the artifacts. The deposit resembled a very shallow midden and contained a small number of seal, bearded seal, walrus, and caribou bones, as well as 10 flint chips. Similar bone refuse and flint chips were found in small middens along the shore of the lagoon in this vicinity; hence, this grave may be a midden in part. However, the artifacts resemble those found in Ipiutak graves, but not those found in the middens. The artifacts are as follows:

- 1 arrowhead, Type 1
- 13 arrowpoints, Types 1, 1a, 2, fragments
- 8 inset blades, Types 1, 2, fragments
- 1 flaker handle, Type 2
- 1 adze blade, Type 2
- 2 flaker points
- 1 knife side blade, Type 4
- 1 discoidal blade fragment
- 3 retouched flakes
- 1 flint core
- 1 openwork carving fragment

**Burial 8**

Ipiutak type. Parts of one or more skeletons. A few fragmentary human bones and a large number of artifacts were found in a midden-like deposit 4 meters in maximum diameter and 60 centimeters in maximum depth. At least one implement was found protruding above the surface. Although a group of three or four implements was sometimes found together, no recognizable orientation of bones or artifacts was observable. Fragments of decayed wood in the deposit apparently had no relation to one another or to the artifacts. On the surface this deposit appeared like a very slight mound, but similar low, midden-like hummocks occur over the entire Point Hope spit and are undoubtedly
of natural origin; hence, the deposit is not necessarily responsible for the slight rise observed on the surface. It contained six seal, six bearded seal or walrus, one whale, and four bird bones. These may be grave furniture or simply part of the refuse which extends over the entire area along the lagoon shore.

Artifacts found in the deposit are as follows:

45 arrowheads, Types 1–3, unidentified
14 arrowpoints, Types 1, 1a, 2, fragments
46 inset blades, Types 1, 2, 4, fragments
2 harpoon foreshafts, Type 2
1 lance head, Type 2
2 leister prongs
2 flaker handles, Types 1, 2
2 knife end blades, Type 1
1 mattock
1 root pick
2 ornamental bands, Types 1, 2
1 labret
1 mouth cover
4 swivels, Types 3, 4
1 ornamental link object, Type 2
2 rare implements, use uncertain
7 unidentified fragments

Burial 9

Ipiutak type. Parts of at least two skeletons, adult and child. One of the group including Burials 7–11. Like Burials 7 and 8, this is a midden-like deposit, 4 meters in maximum diameter, composed of coarse, decay-blackened gravel, filled with scattered artifacts. Implements occurred from the surface to a depth of 50 centimeters. Two leg bones of an adult were found together; about these was a concentration of arrowheads. No other parts of skeletons were found in any normal anatomical relationship. A child’s mandible and teeth were widely separated. There were no fragments of skulls. A few unrelated fragments of decayed wood and a small number of bones of walrus, seal, and bearded seal were found. There were no signs of fire and no unworked flint chips which are numerous in the midden deposits near this grave group. No mound-like rise was visible on the surface.

Artifacts found in the burial are as follows:

72 arrowheads, Types 1–4, unidentified
19 arrowpoints, Types 1, 1a, 2, 2a, fragments
48 inset blades, Type 1, fragments
1 bird dart side prong
1 knife side blade, Type 1
1 flint blade fragment
1 shovel head, Type 1
1 awl
1 spatulate object
2 ornamental bands, Type 2
1 animal carving
4 swivels, Types 2, 4
1 openwork carving, Type 14
2 implements, use uncertain, Type 1
2 rare implements, use uncertain
8 unidentified fragments

Burial 10

Ipiutak type. Part of a child’s skeleton. Seventy-five meters south of Burial 9. The disarranged bones of a child, including the arm and leg bones and mandible, were found in a midden-like deposit 2 meters in maximum diameter and 30 centimeters deep. They lay in very coarse, decay-blackened gravel. There was no recognizable relation between the bones and artifacts. Implements were found from the surface to the maximum depth of 30 centimeters. One walrus bone was found in the refuse-blackened areas.

Finds

4 arrowheads, Type 1, unidentified
3 arrowheads, Type 1, fragments
1 inset blade, Type 1
2 miniature harpoon foreshafts, Type 2
1 adze blade, Type 2
2 chisels
3 unidentified fragments

Burial 11

Ipiutak type. Fragments of skeleton. Thirty meters east of Burial 9. Artifacts, in no special arrangement, were found in an area approximately 2 meters wide and 4 meters long, from the surface to a depth of 40 centimeters. A decayed log, extending north and south, was found near the center of the deposit. At the northern end of the log, fragments of two stakes were set against it. Artifacts were concentrated along this log fragment. Extending outward from it in an east-west direction was a fragment of a wooden pole, near which, at a depth of 10 centimeters, was a group of arrowheads. Only small disarranged fragments of a skeleton were found. There were three walrus bones and one seal bone in the deposit, but no flint chips.

Finds

29 arrowheads, Types 1–3, 5, unidentified
12 arrowpoints, Types 1, 1a, 2, 2a, fragment
3 lance heads, Types 1, 2
3 swivels, Types 3, 4
1 unidentified fragment

Burial 12

Tigara type. One adult skeleton. This is an isolated grave found approximately 200 meters southeast of the Ipiutak group (Burials 7-11). It was marked on the surface by a shallow depression, as are the graves near the Tigara village. The bones which lay in sterile gravel at a depth of 40 to 50 centimeters appeared to be undecayed. The pelvic bones, one femur, and a tibia remained articulated and indicate that the body was buried with the legs flexed as in the Tigara burials. The skull and all the upper bones of the skeleton were disarranged; the mandible was missing. The skull and arm bones lay to the west of the pelvic bones, indicating that the body was buried with the head towards the west. A bone root pick and a harpoon socket piece, both common Tigara types, lay between the skull and the pelvis. Embedded in the wing of the right pelvic bone was a flint arrowpoint of the Tigara type. The point had been driven half its length through the bone and remained solidly fixed in it. This was apparently a primary, articulated burial which was disturbed after interment.

Burial 13

Ipiutak type. Bone fragments, probably human. One of a group (Burials 65-68); approximately 150 meters south of Burial 9. A very shallow, midden-like deposit containing a few arrowpoints and weathered arrowheads extended to a depth of only 15 to 20 centimeters. A number of seal and bearded seal bones were found in the deposit of decay-blackened gravel like that in the burials described above (p. 226). The artifacts from this grave were probably lost in transport.

Burial 14

Near Ipiutak type. One adult skeleton, partially articulated, 10 meters east of Burial 1. As in other Near Ipiutak graves, a faintly perceptible mound was discernible on the surface. Just below the surface were fragments of decayed wood and two ivory objects resembling crude root picks. Gravel, blackened by organic decay, extended down to the skeleton which rested on sterile gravel at a depth of 75 centimeters. A decayed log lay beside the skeleton, extending along its entire length. The lumbar vertebrae, the pelvic bones, and all the leg, ankle, and foot bones were articulated, extended, and supine. The skull lay face down, with two vertebrae and two ribs against it. The left ulna lay under the pelvic bones, but the phalanges of the left hand, holding a bone needle, lay above the left pelvis; the bones of the upper body were missing, but evidently it was buried with the head towards the west.

Burial 15

Ipiutak type. Fragments of one skeleton. One of a group of at least six graves arranged in a line extending east and west, about 900 meters east of Burial 9. Badly decayed fragments of a skeleton, partly articulated, but with the skull missing, were found just below the surface at a depth of only 15 centimeters. Fragments of decayed logs lay on either side of the bone fragments, indicating that the skeleton had been extended; although the bones were disarranged, the position of the remaining long bones indicated that the skeleton lay with the head towards the west. Very coarse gravel covered by patches of sod surrounded the burial. Artifacts were scattered at random around the logs enclosing the bone fragments in an area approximately 2 by 2 meters, some barely beneath the surface.

Finds
1 arrowhead, Type 1
20 inset blades, Type 1
1 engraving tool
1 adze blade, Type 2
1 whetstone, Type 1
1 knife side blade, Type 2
2 discoidal blades, Types 1, 4
1 scoop
1 ornamental chain link
1 unidentified fragment

Burial 16

Ipiutak type. Fragments of one adult skeleton. One of the group (Burials 15-20) lying to the east of and adjoining Burial 15. A skull, mandible, scattered long bones, and a pelvic bone were found just below the surface and extending to a depth of not more than 25 centimeters. The mandible lay 2 meters from the skull and the pelvic bone 1.5 meters from it.
Fragments of decayed wood in the deposit had no recognizable relation to the bones. Artifacts were scattered among the bones and wood fragments, but not in an orderly relationship. Their extent is uncertain since no clear separation between the six graves lying in an east-west line was observable.

**FINDS**

7 arrowheads, Types 1-4, unidentified
1 arrowpoint, fragment
5 inset blades, Types 1, 4, fragments
1 perforated brown bear jaw
1 ornamental chain link
4 carved ivory rods, Type 2, fragments
1 rake-like object
2 rare implements, use uncertain
6 openwork carvings, Types 13-15, unidentified

**BURIAL 17**

Ipiutak type. Parts of one skeleton. This joined and extended westward from Burial 15. Disarranged fragments of long bones were found among fragments of wood and between two fragments of parallel logs extending east and west. Among the wood and long bone fragments around the two parallel logs, implements were found in no discernible relationship. Some were found barely beneath the surface; others extended to a depth of 15 to 20 centimeters. The gravel surrounding the remains was black with organic decay.

Artifacts associated with this unit in the series are as follows:

1 ornamental band, Type 2
7 openwork carvings, Types 13, 14, 16, unidentified
2 rare implements, use uncertain

**BURIALS 18, 19, 20**

Ipiutak type. No human bones. At least three separate units designated as graves were found west of Burial 17 and in the same row. Each was marked by a concentration of artifacts and decayed wood fragments. No artifacts were found at a depth of over 25 centimeters. The line of six distinguishable graves extended over an area 25 meters long, from east to west, and approximately 2 meters wide, from north to south.

**FINDS, BURIAL 18**

1 swivel, Type 3
10 openwork carvings, Types 3, 7, 10, 13, 14, 15
1 ornamental link object, Type 2

1 carved ivory rod, Type 2
1 implement, use uncertain, Type 3
1 rare implement, use uncertain
2 unidentified fragments

**FINDS, BURIAL 19**

1 perforated brown bear jaw
5 openwork carvings, Types 8, 12, 14, 15, unidentified
1 carved ivory rod, Type 4

**FINDS, BURIAL 20**

1 openwork carving, Type 10
1 unidentified fragment

Artifacts found in test pits in the vicinity of this group of graves, which may or may not have been part of the general collection of grave furniture, are as follows (culture refuse is found scattered over this section of the spit along the lagoon shore):

**FINDS, BURIALS 15-20**

3 arrowheads, Type 1, unidentified
2 arrowpoints, Type 1
1 inset blade, fragment
1 flaker handle, Type 3
1 ornamental band, Type 1
1 animal carving
4 openwork carvings, Types 8, 10, 11, 14
1 carved ivory rod, fragment
1 rare implement, use uncertain

**BURIAL 21**

Ipiutak type. An adult and a child skeleton 40 meters southeast of Burial 15. A log cover or roof of a tent-like structure was found 40 centimeters below the surface in sterile yellow gravel. This structure, when excavated, proved to be rectangular, with four walls, a roof, and a floor. It was a little over 2 meters long and between 1 and 2 meters wide. All the logs were so decayed that they were compressed into a mass of soft brown fibrous material in which it was difficult to distinguish one log from another. The whole mass was so soft it could be removed with the fingers. The original height of the structure was indeterminable because the logs were compressed into a tight oblong mass. Upright stakes, however, were visible in the gravel supporting the end walls. The floor, uncovered later, 75 centimeters below the surface, was composed of small parallel logs extending east and west.

To open this burial, the decayed wood of the
uppermost logs was removed in long pliable
strands. In some places this wood pulp was
approximately 25 centimeters thick. Beneath it
lay an adult skeleton packed in wood pulp,
which had been forced into every aperture.
Neither soil nor gravel was found near the bones.

The skeleton lay with its skull towards the
west. The pelvic bone, sacrum, and all the lower
vertebrae were articulated, that is, in normal
anatomical relation; the bones of one arm, as
well as most of the ribs, were in place, although
not definitely articulated. The femurs were also
in position and still articulated with the pelvic
bones. Neitheribia, however, was articulated
with the femur; one tibia lay over the breast.
The skull and mandible were joined and in their
proper relation, although the skull was slightly
twisted to the left.

Four incised tubes made from caribou antler
lay against the breast of the skeleton (Pl. 98,
Fig. 3). A fifth lay between the femurs. The re-
moval of these tubes uncovered the point of an
ivory rod that projected between the pelvic
bones at the pubic symphysis. When the ribs
were taken up, we found that the rod extended
along the inner surface of the sacrum and the
articulated lumbar and thoracic vertebrae;
some of the cervical vertebrae were impaled
on the rod. The upper end of the rod, which is
carved to represent a human hand, lay just
below the mandible.

Below the sacrum of this skeleton, which lay
directly on the log floor of the tomb-like
structure, were several teeth.

The skeleton of a very small child, with the
skull against its pelvic bones, lay supine be-
tween the femurs of the adult skeleton. The
skull was crushed in several places, but the long
bones were articulated. This child skeleton was
directly under one of the five antler tubes. Be-
nearth the child, on the log floor, lay a set of
ornamental chain links.

Below the knee, or at the distal end of the
right femur of the adult skeleton, was a loon
skull; each of its eye sockets held a jet-inlaid
ivory eye. A small ivory ring also lay with the
loon’s skull.

Judging from the position of the bones of the
adult skeleton, the body must have been par-
tially dismembered or decayed prior to inter-
ment.

Finds

1 awl
1 loon skull with ivory eyes
1 ornamental link object, Type 2
1 carved ivory rod, Type 1
5 antler tubes

Burial 22

Ipiutak type. Fragments of human bones. 
Approximately 100 meters east of Burial 21, in
an interrupted series of burials extending east
and west from Burials 21 to 30. Fragments of
human bones were found scattered over an area
approximately 2 meters in diameter in a midden-
like deposit of black gravel not over 25 centi-
meters deep. Unrelated fragments of wood and
a number of artifacts were found throughout
the decay-blackened gravel, resembling Burials
7-11, but the artifacts were more limited. There
were no flint chips or animal bones, as in the
middens. The artifacts found are:

Finds

3 arrowheads, Type 1, unidentified
1 arrowpoint, fragment
3 inset blades, Type 1
1 lance head, Type 1
1 labret
8 openwork carvings, Types 9, 12-15
1 carved ivory rod, Type 2
1 implement, use uncertain, Type 3
1 rare implement, use uncertain
1 unidentified fragment

Burial 22a

Ipiutak type. No human bones. Three meters
west of Burial 22. This was a shallow deposit,
like the preceding, with scattered artifacts and
wood fragments, but with a more limited
number of artifacts.

Finds

2 arrowheads, Type 5, unidentified
4 openwork carvings, Types 6, 12-13
1 ornamental link object, Type 1
1 unidentified fragment

Burial 23

Ipiutak type. No human bones. Approximately
25 meters east of Burial 21 in the same
east-west line. This was the same type of de-
posit as the preceding. Artifacts and wood
fragments were scattered in an area 2 meters
in diameter and from barely under the surface
to a depth of 20 centimeters.
same soft, pieces. structure like 1948 231 lay eyes as meters) Twenty probable seems were gouged skeletons were small, hummocks, which certainly very the in the 21 graves. Only in the easternmost 11 arrowheads, Types 1, 2, 1 unidentified fragment

**BURIAL 24**

Ipiutak type. An articulated adult skeleton (Pl. 98, Fig. 1). Three meters east of Burial 21 and in a direct east-west line with it. This skeleton lay in a solid log-walled, tomb-like structure like Burial 21. The logs were in the same soft, fibrous state of decay and were compressed against the perfectly clean and very well-preserved skeleton. The log floor of the structure was at the same depth (75 centimeters) as that of Burial 21. The skeleton was perfectly articulated, and there is no doubt that the body was buried intact with the flesh. It lay supine, with the head towards the west, and the hands crossed over the pubic region.

The eye sockets held two spool-shaped ivory eyes with jet inlays. These eye pieces lay deep in the sockets with the convex fore-end flush with the rim of the orbits. Since we can be reasonably certain that the body was intact, or certainly very little decayed when interred, it seems probable that the eyeballs of the corpse were gouged out to be replaced by the ivory pieces.

**FINDS**

1 arrowhead, Type 2
2 ivory eyes
1 unidentified fragment

**BURIAL 25**

Ipiutak type. Fragments of a skeleton. Twenty meters west of Burial 30, which lay at the easternmost end of the group lying between Burials 21 and 30. Fragments of a discolored skeleton were found in one of the numerous small, grass-covered mounds which occur on this section of the Point Hope spit. Many such hummocks, which are covered by deep green and unusually tall grass, were dug in search of graves. Only two contained graves, and we believe that their presence in the mounds is merely a coincidence. After excavating several such mounds, we concluded that they were the accumulation of decaying animal carcasses placed with fox traps along the spit by the Tikerarmiut. We found very fresh animal bones and a labyrinth of ground squirrel holes in all of them.

Artifacts found in this deposit, which had no recognizable relation to the bone fragments, are as follows:

2 arrowheads, Type 1
2 inset blades, Types 1, 2, fragment
1 endscaper, Type 2
1 retouched flake
1 ornamental band, Type 2
3 openwork carvings, Types 5, 11, 13
2 unidentified fragments

**BURIAL 26**

Ipiutak type. Fragments of at least two skeletons, adult and child. Approximately 40 meters east of Burial 21 in the same east-west line. This was an unusually large burial of the scattered type previously described as midden-like. Parts of the two skeletons and a large number of artifacts were found in a deposit of very dark, decay-blackened gravel 4 meters in diameter and in some places 50 centimeters deep. The bulk of the artifacts lay between 20 and 50 centimeters in depth in no recognizable relation to one another or to the skeletal fragments. There were also a number of polar bear, walrus, seal, bearded seal, and bird bones, but no large series of unworked flint flakes, as in the middens, and no certain evidence of fire. Decayed wood fragments were present, but very rare. A number of ground squirrel holes honey-combed this deposit; much of the disorder is possibly due to the burrowing of these animals. However, there are similar large, disordered deposits of grave goods and skeletal fragments which may represent a peculiar form of massed burials.

**FINDS**

51 arrowheads, Types 1–3, 3a, 5–6, unidentified
3 arrowpoints, Type 2a, fragments
13 inset blades, Types 1, 4, fragments
2 harpoon foreshafts, Type 2
2 harpoon socket pieces, Type 3
1 ice pick
3 lance heads, Types 1, 2
3 lances or daggers, Types 1, 2
2 unidentified fragments
2 daggers or knives
6 flaker handles, Types 1-3
1 flaker point
1 adze blade, Type 3
3 knife side blades, Types 1, 5
1 snow goggles
3 ornamental bands, Types 1, 2
3 buttons
1 animal carving
1 swivel, Type 4
34 openwork carvings, Types 1-7, 9-16
2 ornamental link objects, Type 1
2 carved ivory rods, Type 1, fragment
1 ring
1 rare implement, use uncertain
6 unidentified fragments
8 ornamental fragments

Burial 27
(This number was omitted in the field notes.)

Burial 28
Ipiutak type. No human bones. Approximately 65 meters east of Burial 22 in the line of burials between Nos. 21 and 30. A mass of wood fibers, probably representing a pile of decayed logs, was found 25 centimeters below the surface. A small number of artifacts was found in the decayed wood, but there were no skeletal remains. The general appearance indicated that the skeleton and probably a number of artifacts had disintegrated.

Finds
2 openwork carvings, Types 7, 12
2 unidentified fragments

Burial 29
Ipiutak type. An articulated adult skeleton. Approximately 10 meters east of Burial 26 in the line of Burials 21 to 30. The skeleton was found encased in a mass of wood fibers composed of soft, decayed logs. As in Burials 21 and 24, the remains of a rectangular tomb-like structure were recognized in this mass of wood fiber. The bones were absolutely clean, with the soft fibers pressed into every aperture. The precise depth of the log floor of the structure was not recorded, but it was similar to that in Burials 21 and 24, hence approximately 50 to 75 centimeters deep. (See Pl. 100, Fig. 1.)

All the bones of the skeleton were articulated and remarkably well preserved. It lay supine, with the head towards the west, and the hands were over the pubic region. Two ivory pendants lay at the knees, one below and one above the leg bones.

Finds
2 mask pendants

Burial 30
Ipiutak type. A fragmentary adult skeleton. The easternmost burial in the Nos. 21 to 30 row. The skull was found only 10 centimeters below the surface. Decayed fragments of the skeleton were in an ordered position, but not articulated. The skull lay towards the west; apparently the skeleton had been placed supine. Fragments of wood, probably the remains of a log enclosure, were found at each side of the skeleton. The maximum depth of decay-blackened gravel around the burial was 25 centimeters.

Finds
2 red ochre lumps
2 openwork carvings, Types 4, 12

Burial 31
Tigara type. An articulated child skeleton. This was an isolated burial, approximately 200 meters southeast of Burial 30 in the next beach line to the south. The skeleton lay at a depth of 50 centimeters, in a deposit of decay-blackened gravel. All the bones were articulated, indicating that the body had been placed on its back, with the head towards the west, and the legs drawn up in the flexed position so that the knees were on the left side. The hands lay under the spine. Fragments of logs lay at either side and at the head and knees of the skeleton, but were not clearly the remains of a rectangular structure since there was no wood flooring or covering. No artifacts were found in the grave.

Burial 32
Ipiutak type. Parts of three skeletons. Approximately 40 meters south of Burial 22 in the same beach line as Burial 31, but about 200 meters west of the latter. A mandible and several disarranged long bones were found barely beneath the surface. Directly beneath this group of bones and not clearly separated from it were parts of two more skeletons, an adult and a child. The bones of the two lower
skeletons were also somewhat disarranged and in part confused with those from the skeleton above them, but the adult apparently was placed supine, with the head towards the west. The two skulls of the lower skeletons were 25 centimeters apart; both lay to the west of the disarticulated leg bones. Fragments of decayed logs were found near the bones, but not beneath them. The form of the log burial structure was indeterminable from the fragments.

The maximum depth of the lower skeletons was 25 centimeters. All of the bones lay in gravel containing no noticeable traces of organic decay, such as that in Burials 21 to 30. The low ridge or beach line in which Burial 32 was found consisted almost entirely of sterile gravel with only small patches of moss covering it in places. This section of the site included no midden refuse.

Artifacts were found among the bones, but owing to the confusion, none could be associated specifically with any one of the three skeletons or with any part of a single skeleton. The artifacts from this burial and from Burial 33 appear to be closely related to, and very much like, those found in the Ipiutak houses, but they are much less elaborate, as a whole, than those found in Burials 21 to 30.

**Finds**

1. arrow-straightener
2. flaker handle, Type 2
3. adze head, Type 1
4. knife side blade, Type 6
5. retouched flake
6. two-handed scrapers
7. bird bone tubes
8. ornamental band, Type 1
9. animal carvings
10. swivel, Type 1
11. unidentified fragments

**Burial 33**

Ipiutak type. Parts of four skeletons, three adults and one child. One adult skeleton lay on its left side at a depth of 50 centimeters, 10 meters west of Burial 32, articulated and extended, with the skull towards the east. Beside it and at the same depth was a compact mass of bones representing at least two adults and one very small child. Fragments of logs outlined the entire burial, and one log fragment lay between the articulated skeleton and the mass of bones, but there was no floor of log fragments and no recognizable log covering. The bulk of the artifacts was found in a group beneath one of the skulls in the mass of bones.

**Burial 34**

Ipiutak type. Fragments of one skeleton, approximately 85 meters west of Burial 33 and in the same ridge. Fragments of decayed logs and fragments of disarticulated human bones were found with a small collection of artifacts at a depth of 40 centimeters. The artifacts are as follows:

1. knife side blade, Type 6
2. discoidal blade, Type 3
3. two-handed scraper
4. bird bone tube

**Burial 35**

Ipiutak type. Two articulated adult skeletons. Approximately 85 meters west of Burial 34. The two skeletons were found encased in a compact mass of decayed logs like that in Burials 21 and 24. This was a recognizable rectangular tomb-like log structure with a floor and ceiling. The floor was 1 meter below the surface and the top 75 centimeters. The structure was buried in coarse, sterile gravel.

One skeleton lay above the other. Both were extended, with skulls towards the west. The upper lay on its right side, with the hands over the pubic region; against the bones of the hands lay two ivory harpoon ice picks, a salmon spear side prong, and two discoidal blades (Types 3,
4). The lower skeleton lay supine, with the hands over the pubic region. Under its shoulder, adhering to the scapulas, were decayed fragments of skin which we believe are the remains of skin clothing. Just below the femurs were three unworked flint flakes and an antler flaking hammer (?).

Fragments of a child’s skeleton (discarded as too fragmentary for study) and some small potsherds were found on the surface above this burial. This was undoubtedly a late Tigara rack burial and its relation to Burial 35 was only accidental.

**Burial 36**

Ipiutak type (?). An articulated adult skeleton. Thirty meters west of Burial 35. This skeleton, as were those in Burial 35, was encased in a solid mass of wood fiber, undoubtedly the remains of a rectangular log tomb. The burial lay 40 centimeters below the surface in sterile gravel. The beach line or low ridge in which this series of burials was found contained no midden refuse, and there were only small patches of moss on the surface. There were no surface indications of these burials.

The skeleton lay prone, on its face, with the skull towards the west. The arms were drawn up over the back. All the bones were articulated and unusually well preserved. Wood fiber was found tightly pressed against the bones. The burial contained no artifacts. Its classification as Ipiutak is based merely on the position of the skeleton.

**Burial 37**

Tigara type (?). An articulated adult skeleton. Four meters south of Burial 35. It was also found in a log structure similar to that in Burials 35 and 36, at a depth of 85 centimeters, in sterile gravel. The floor of this structure was unusually thin and may have been made of planks rather than logs.

The skeleton lay on its left side, with the skull towards the west, but unlike all other burials containing the Ipiutak type of grave furniture, the legs were partially flexed, as were also the arms. The skeleton also had a peculiarly fresh look, compared with those in the usual Ipiutak graves. Underneath the body and legs were decayed fragments of skin clothing which the Eskimo workmen identified as made of polar bear skin. There were no artifacts.

Since both Tigara and Ipiutak bodies were buried in log structures, usually with the head towards the west, only the position of the body and the grave furniture distinguish them. The flexed position suggests that this was a Tigara burial.

**Burial 38**

Ipiutak type (?). Two articulated adult skeletons. Ten meters east of Burial 37. The two skeletons lay side by side in one large rectangular log tomb, 40 centimeters below the surface. Like the other log structures, it was badly decayed, but its form was still determinable.

Both skeletons lay extended, with the skulls towards the west, and the hands crossed over the pubic region, but the skeleton on the north lay on its right side, facing the second, which was supine. The skull of the second skeleton was turned so that it also faced the first. There were no artifacts; hence, because of the extended position, the burial is classified as belonging to the Ipiutak type.

**Burial 39**

Ipiutak type (?). An articulated adult skeleton. Nine meters east of Burial 38. This skeleton also lay in a mass of wood fiber which was identified as a rectangular log tomb, 50 centimeters below the surface in sterile gravel. It lay supine with the face turned towards the right and the hands over the pubic region. There were no artifacts.

**Burial 40**

Ipiutak type (?). Fragments of an adult skull and skeleton in a frame of decayed logs. Found between Burials 32 and 33 and at a depth of 25 centimeters. The bones were badly disintegrated (discarded), but apparently the body had been extended, with the head towards the west. There were no artifacts.

**Burial 41**

Ipiutak type. Two adult skeletons. Two meters south of Burial 24. One skull, lying face down, was found barely beneath the surface. Underneath this were the confused bones of one skeleton (41), the femurs and pelvic bones lying only 25 centimeters from the skull. Between the two femurs of Skeleton 41, and slightly lower, was the skull of a second skeleton (41a). The bones of Skeleton 41a were also confused, and
only a few were articulated. A rectangular log frame, measuring only 120 by 50 centimeters, surrounded the two skeletons; hence it is obvious that the bodies were not originally placed in an extended position. The upper skull was just beneath the surface, and the lower disarticulated bones of the second skeleton were 60 centimeters deep. Apparently the bodies were buried either after the flesh had decayed, or they were dismembered and forced into a small rectangular log structure. The articulation of the femurs and the pelvic bones makes the latter suggestion more tenable.

The lower skull (Burial 41a), which lay between and slightly below the femurs of the upper skeleton, was equipped with one flat, jet-inlaid ivory eye, two carved ivory noseplugs representing birds’ heads, and an ivory mouth cover. The eye and the noseplugs remained in place, but the mouth cover was slightly above the teeth, wedged in between the femurs of the upper skeleton.

Burials 21, 24, and 41 were possibly simultaneous interments, since two were equipped with ivory eyes, and the third with a rod along the spine and a loon’s skull with ivory eyes. In any case, they lie close together, and each indicates elaborate preparations for burial.

Burial 42

Ipiutak type. An articulated adult skeleton. One of a large group (Burials 42–64) lying 200 meters south of Burials 7 to 11. These burials were in the same beach line or low gravel ridge as Burials 32 to 33 and 35 to 40, only 800 meters west of the latter. As in all other Ipiutak burials, there was no observable surface indication of this group. All were discovered by digging innumerable test pits outward from the first one excavated. Burials 42 to 64 were found in 1940. We thought during that field season that we had exhausted the possibilities of this group, but in 1941 when we returned to this section of the spit we found Burials 117 to 123. All were of the same type—in log-walled tombs or coffins, articulated, extended, and usually with the heads towards the west. In 1941 we found many of the burials in well-defined straight rows extending east and west, but there was no other observable relation between them. They all lay in sterile gravel and contained no signs of organic decay except immediately surrounding the skeletons.

Burial 42 lay in a compact mass of wood fiber at a depth of 75 centimeters, with the head to the west, supine, and with the hands crossed over the pubic region. A carved ivory animal lay just below the left side of the skull.

Finds

1 whalebone shovel
1 animal carving

Burial 43

Ipiutak type. Articulated child skeleton. One of a group including Burials 42–64. This skeleton also lay in a mass of wood fiber, 50 centimeters deep, supine, with head towards the west, face up, and hands over the pubic region. A side blade for knives, Type 4, lay between the ankles and an antler brow band on the pelvic bones.

Burial 44

Ipiutak type. An articulated adult skeleton. One of the 42–64 group. This skeleton also lay in a mass of wood fiber, 75 centimeters deep, supine, with head towards the west, face up, and hands over the pubic region. There were no artifacts.

Burial 45

Ipiutak type. An articulated child skeleton in a log coffin; supine, head towards the west, face up, and hands over the pubic region, 75 centimeters deep. No artifacts. One of the 42–64 group.

Burial 46

Ipiutak type. A double burial, articulated adult and child skeletons. Both lay on the right side with skulls towards the west, the child to the right of the adult. This burial was shallower than most of the 42–64 group, and only fragments of the log tomb-like structure remained. One femur of the adult skeleton was missing. There were no artifacts.

Burial 47

Ipiutak type. Fragments of an adult skeleton. Like Burial 46, this burial was unusually shallow and most of the skeleton as well as the log structure had disintegrated. However, the remains indicated that it was of the same type as the others in the group.

Finds

1 ice pick
1 discoidal blade, Type 1
2 animal carvings
1 rare implement, use uncertain
1 unidentified fragment
1 worked antler

Burial 48
Ipiutak type. An articulated adult skeleton found in a log coffin 50 centimeters deep, supine, with head towards the west, face up, and hands over the pubic region. No artifacts. The same group.

Burial 49
Ipiutak type. An articulated adult skeleton found in a log coffin, 75 centimeters deep, supine, with hands over the pubic region, and face up. This skeleton, however, lay with its head towards the east. There were no artifacts. One of the Burials 42–64 group.

Burial 50
Ipiutak type (?). An articulated child skeleton. This burial was the easternmost of the 42–64 group and somewhat removed from the area of concentration. The skeleton lay on its right side, with the head towards the west and the legs slightly flexed. A whale vertebra was embedded in the gravel 50 centimeters from the skull and slightly higher. It is not certain that this was part of the grave furniture. Only small fragments of decayed wood were found around the skeleton. It lay at a depth of 50 centimeters. Two ornamental bands (Type 1) were found beside a femur just below the pelvis.

Burial 51
Ipiutak type. An articulated adult skeleton. Unlike other burials in the 42–64 group, there were no traces of decayed wood near Burial 51. It lay in coarse, sterile gravel at a depth of 75 centimeters, with only slight traces of organic decay around the bones. The surfaces of the bones were pocked with decay, but as they dried when exposed they became quite hard. The skeleton lay supine, with the hands over the pubic region and the face up, but unlike the great majority of Ipiutak burials, its head lay towards the east.

Deep seated in the eye sockets were conical, jet-inlaid, ivory eyes, and as the skull was uncovered they appeared remarkably life-like (Pl. 98, Fig. 2). Since all the bones were precisely articulated, it seems probable that the eyes of the corpse had been replaced by the artificial eyes before the flesh had decomposed.

Burial 52
Ipiutak type. An articulated child skeleton. Found in a mass of wood fiber, identified as a log coffin, supine, with head towards the west, face up, hands over the pubic region, at a depth of 50 centimeters. Two unworked flint flakes were found with the skeleton, but their exact position in relation to the bones was not recorded.

Burial 53
Ipiutak type. A double burial with two articulated adult skeletons. Although soft and spongy, the logs forming the rectangular structure around these two skeletons were unusually well preserved. A solid log roof had covered the tomb, but the individual logs had been pressed together so that it was difficult to distinguish one log from another. This mass of wood fiber was forced down against the bones. When the upper layer of wood fiber was removed, decayed logs were found along both sides and across the ends above the skulls and below the feet. A solid log floor beneath them was also compressed in decay. This floor was 1 meter below the surface.

The skeletons lay side by side, extended, with the heads towards the north. The skeleton on the left (Burial 53) lay face down, while that on the right (Burial 53a) lay supine, with the face turned slightly towards the left, away from Burial 53. The hands of the latter were crossed over the pubic region. (Pl. 100, Fig. 2.)

Between the femurs of Burial 53 were three salmon spear prongs; near the right shoulder and between it and Burial 53a was a barbed point; between the thighs of the two skeletons lay a long, ivory, sword-like object. On the breast of Burial 53a was an unworked flint flake.

The skull of Burial 42 was less than 1 meter from the left pelvic bone of Burial 53a and about 15 centimeters higher. The logs of the tombs definitely separated the two burials, but it is difficult to understand how one could have been interred after the other without disturbing the first, particularly in such coarse loose gravel. It seems probable, therefore, that the burials were contemporaneous.
Finds
1 salmon spear center prong
2 salmon spear side prongs
1 ivory rod
1 rare implement, use uncertain

Burial 54
Ipiutak type. An articulated adult skeleton, supine, with head towards the west and hands over the pubic region. Small fragments of decayed wood found on each side of the skeleton were probably the remains of the usual log coffin. Depth, 40 centimeters.

Lying on the left shoulder were two unidentifiable fragments of implements, one ivory and one antler, and an unworked flint flake. Directly underneath the sacrum, in a tight group, were the following artifacts:
1 harpoon socket piece, Type 1
1 engraving tool
19 needles
1 pyrites lump
1 implement, use uncertain, Type 5

Burial 55
Ipiutak type. An articulated adult skeleton, supine, with head towards the west and hands over the pubic region. Fragments of decayed logs lying along each side of the skeleton were probably the remains of the usual rectangular log coffin. Depth, 60 centimeters. There were no artifacts.

Burial 56
Ipiutak type. Fragments of a child skeleton, position uncertain. The bones were found at the feet of Burial 42, but at a depth of only 25 centimeters. There were a few small fragments of decayed wood with the bones and the following artifacts:
1 adze blade, Type 2
2 animal carvings
1 worked bone

Burials 57–58
(These numbers were omitted.)

Burial 59
Ipiutak type. An articulated adult skeleton, supine, with head towards the east and hands over the pubic region. Depth, 60 centimeters. Decayed fragments of a rectangular log structure remained. There were no artifacts.

Burial 60
Ipiutak type. An articulated child skeleton, prone, with the face down, head towards the south and hands under the pubic region. The logs of the rectangular, tomb-like structure were fairly well preserved. Depth, 75 centimeters.

A walrus tusk on the west side of the skeleton extended from the knee to the skull. Two ornamental bands, Type 1, lay at the knees and an unidentified object at the ankles. The position of an animal head carved from jet and an unidentified object is not recorded, but these were probably found beneath the skeleton when it was taken up.

Burial 61
Ipiutak type. Three articulated adult skeletons lay together in a rectangular, log-walled tomb. The floor of this structure was more than 1 meter below the surface and was sufficiently preserved so that individual logs were recognizable. The ends of the tomb were marked by cross-beams which lay about 10 centimeters from the heads and feet. All the logs were soft, fibrous, and compressed, as in all Ipiutak graves.

Two skeletons were extended side by side: Burial 61 with the skull towards the west and Burial 61a with the skull towards the east. Their pelvic bones touched, and the feet of each were close to the skull of the other. Burial 61 lay partly on its right side, half facing Burial 61a, while Burial 61a lay partly on its left side facing away from Burial 61.

An ivory mouth cover lay against the chin and throat of Burial 61a, as if it had slipped down from the mouth. An ivory animal carving lay on the left shoulder. There were no artifacts with Burial 61.

A third adult skeleton lay directly below these two upper skeletons, extended, with the skull towards the west. The pelvic bones of the upper skeletons rested directly upon the pelvic bones of the lower skeleton which rested on the log floor.

Beside the right knee of this lower skeleton (Burial 61b), were two incised ivory bands. These lay longitudinally in relation to the leg bones, pressed close together. They were only slightly curved when excavated, but, in drying, this slight curve was accentuated. A Type 2 antler arrowhead was found 25 centimeters to
the right of the feet. The position of an unworked flint flake found with this group is not recorded. The hands of Skeletons 61 and 61b were crossed over the pubic region, but the arm bones of Burial 61a extended towards the left. Between the femurs of this lower skeleton were fragments of unidentifiable fur or skin, probably the remains of skin clothing. Clearly, all three bodies had been buried intact with the flesh still in place and, of course, at the same time, but the left femur of Burial 61a was broken.

Burial 62

Uncertain type. An articulated child skeleton, lying on the left side, knees flexed, head towards the east, with hands over the pubic region. Fragments of a log enclosure remained. Depth, 75 centimeters. Fragments of a walrus hide wrapping were found over the legs and chest. There were no artifacts. This burial was only 1 meter north of Burial 61, at approximately the same depth, and was enclosed in the same type of log structure. The flexed position is atypical for Ipiutak burials, but with another flexed skeleton of a child (Burial 50) were two ornamental bands of Ipiutak type. Since the only distinguishing features of Ipiutak and Ti-gara burials, other than the artifacts, are the flexed and extended positions, this burial has been classified as an uncertain type.

Burial 63

Ipiutak type. Fragments of an adult skeleton. Only the pelvic bones, femurs, a fibula, and rib fragments were found at a depth of 40 centimeters, together with fragments of decayed logs. It was undoubtedly an extended burial, with the head towards the west. A flint scraper was found with the bones, as well as an ivory shaft and three unworked flint flakes.

Additional Finds
2 discoidal blades, Types 2, 4
1 flint core
1 implement, use uncertain, Type 12

Burial 64

Ipiutak type. No human bones. In the search for graves a group of artifacts was found beneath a walrus scapula only 25 centimeters below the surface, near the western end of Burials 42–64. These artifacts lay in a fairly compact group in an area 50 centimeters in diameter, but they had apparently been disturbed by burrowing ground squirrels. The gravel was blackened by organic decay in the area of the implement cache, but this discoloration may have resulted from the extensive burrowing of squirrels. The skull of Burial 54 was 1.5 meters southeast of the cache; 2 meters to the east were fragments of a child’s leg bones and fragments of wood. These artifacts may possibly have been deposited with either one of these two burials, but no definite connection was discernible. On the other hand, another cache of elaborate ivory objects (Burial 130) was found in a tight bundle, but with no skeleton, 900 meters east of Burial 64, which should in all probability be classified as a cache rather than a burial.

Finds
9 arrowheads, Types 2, 3
1 harpoon foreshaft, Type 1
1 harpoon socket piece, Type 1
1 mask set
1 antler tube

Burial 65

Ipiutak type. Fragments of human bones. One of a group (Burials 13–66) lying 150 meters south of Burials 7–11 which it resembles. Like these burials, it was a very shallow, middlen-like deposit of scattered human bone fragments and artifacts with no recognizable relation between them. Organic decay-blackened gravel extended to a depth of only 35 centimeters. Deposit, 2 meters in diameter. This was the last burial excavated in 1940.

Finds
16 arrowheads, Types 1, 2, unidentified
2 arrowpoints, Type 1
3 arrowpoints, Types 2, 2a
1 leister prong
1 fragmentary flint blade
1 bird bone tube
1 ornamental band, Type 2
2 animal carvings
1 openwork carving, Type 1
2 rare implements, use uncertain
6 unidentified fragments

Burial 66

Ipiutak type. The first of the burials excavated in 1941. Fragments of human bones. Just east of Burial 65. This is the same form of burial
but the deposit was somewhat deeper, 50 centimeters. Area, 2 meters in diameter.

**Finds**

2 arrowheads, Type 2  
4 arrowpoints, Type 1, fragments  
2 inset blades, Type 1  
1 ornamental band, Type 2  
1 swivel, Type 4  
1 unidentified fragment

**Burial 67**

Ipiutak type. An articulated adult skeleton. Nine meters northeast of Burial 65. This burial is typical for the 42–64 group. Fragments of a log-walled tomb were discernible; on top of the log fragments of the roof or cover was a whalebone shovel. Depth, 50 centimeters. The skeleton was supine, with head towards the west and hands over pubic region. Beside one knee was an arrowhead, Type 3.

**Burial 68**

Ipiutak type. An articulated adult skeleton, 22 meters north of Burial 65. Depth, only 30 centimeters. Precisely the same form as Burial 67, a supine skeleton, with head towards the west and hands over the pubic region, lying in the fragments of a log coffin. There were no artifacts.

**Burial 69**

Ipiutak type. A disarticulated child skeleton. Nineteen meters north of Burial 68. Quite certainly this was the same form as Burials 67 and 68, with a log coffin, but obviously the bones had been disturbed. The skull was missing; the vertebrae were still in place. Depth, only 25 centimeters. Lying on the log fragments which covered the bones was a whalebone shovel.

**Burial 70**

No human bones. One hundred meters east of Burial 68. A stone celt was found in a mass of log fragments resembling the remains of the log tombs, but there were no skeleton and no other artifacts.

**Burial 71**

Ipiutak type. No human bones. Twenty-seven meters north of Burial 69. One of a number of burials of the scattered midden-like type found in a specific area (Burials 71 to 74, 79 to 81). They were situated on the lagoon side of the burial area on beach lines or low ridges on which numerous shallow middens as well as graves are located. Hence, we were not always certain whether the artifacts were from grave deposits or from the general midden refuse which extended over this area. True middens, however, were distinguishable from grave deposits, principally because they were filled with animal bone refuse and innumerable flint flakes. Furthermore, the artifacts from the middens represent a different culture form from the Ipiutak types.

In Burial 71 scattered Ipiutak artifacts and a few bearded seal bones were found just below the surface and to a depth of only 30 centimeters in an area approximately 2 meters in diameter. That the gravel was blackened by organic decay is not significant because habitation refuse is found in the turf over most of the area.

**Finds**

2 arrowheads, unidentified  
1 inset blade fragment  
1 fragmentary lance head  
1 flint core  
1 swivel, Type 3  
2 openwork carvings, Types 7, 10

**Burial 72**

Ipiutak type. No human bones. Twenty-five meters east of Burial 71. This was the same type of deposit as Burial 71, except that it was larger, rectangular, and measured 3 by 3 meters. There were also several log fragments and numerous artifacts. Its maximum depth was only 25 centimeters. Some implements were barely beneath the surface.

**Finds**

12 arrowheads, unidentified  
12 arrowpoints, Types 1, 2a, rare form, fragments  
12 inset blades, Type 1, fragments  
1 harpoon head, rare form  
1 harpoon foreshaft, Type 2  
1 ice pick  
3 lance heads, Types 1, 2, unidentified  
1 flaking hammer head  
1 flaker point  
1 red ocher lump  
2 sidescrapers, concave  
1 sidescraper, concave-convex  
1 shovel head, Type 1
1 mattock
1 wedge
1 ornamental band, Type 2
2 openwork carvings, Types 1, 9
3 unidentified fragments

Burial 73

Ipiutak type. Fragments of a skeleton, 36 meters east of Burial 69. The same type of deposit as Burials 71 and 72, but including scattered human bones. It contained numerous unrelated wood fragments and a large number of artifacts, particularly arrowheads, in an area between 2 and 3 meters in diameter. Some implements were barely beneath the surface, others 25 centimeters deep.

Finds
100 arrowheads, Types 1–6, unidentified
60 arrowpoints, Types 1, 1a, 2, 2a, rare forms, fragments
41 inset blades, Types 1, 3, fragments
2 harpoon heads, Type 3, rare
1 harpoon blade
2 flaker handles, Type 1
1 flint core, Type 1
1 labret
1 animal carving
1 swivel, Type 4
5 implements, use uncertain, Type 1, fragments

Burial 74

Ipiutak type (grave and midden). Fragment of a human scapula. Just north of Burial 72. The same type of deposit as those described above, but numerous unworked flint flakes, some animal bones, and some of the artifacts suggest that it included midden refuse as well as grave furniture. Maximum depth, 25 centimeters. Some wood fragments.

Finds
7 arrowheads, Types 1, 2, 7, unidentified
4 arrowpoints, Types 1, 2, fragments
30 inset blades, Type 1, fragments
7 harpoon heads, Types 1, 2, 3
3 bird dart side prongs
1 barbed point
2 flaker handles, Type 2
3 flaker points
1 chisel
2 whetstones, Type 1
1 knife side blade, Type 4
1 knife end blade, Type 2
1 flint flake fragment

Burial 75

Ipiutak type. An articulated adult skeleton. Thirteen meters east of Burial 73. This burial was found within the area of the group (Burials 71–81), but was the same type as that of Burials 42–64, with a well-preserved, articulated skeleton lying in a solid mass of wood fiber, identified as a log tomb. The skeleton lay supine, with head west and hands over the pubic region. There were no artifacts. Depth, 50 centimeters.

Burial 76

Ipiutak type. An articulated adult skeleton. One of two isolated burials found several hundred meters east of Burial 65 in the same beach line. The skeleton lay supine, with head to the west and hands over the pubic region, in the remains of a log tomb. Maximum depth, 40 centimeters. An adze blade (Type 2) was found under the small of the back. Fragments of red ocher found while excavating the grave were probably part of the grave furniture.

Burial 77

Ipiutak type. Two articulated adult skeletons and one child. Fifty meters west of Burial 76 (the second of the two isolated burials). All three skeletons lay together in a rectangular log tomb at a depth of 50 centimeters. The adults lay side by side, facing each other, supine, with heads towards the west and hands over the pubic region. The skeleton at the north is probably a male, that on the south, a female. The very small child skeleton lay with head towards the west, between the leg bones of the male adult. The log floor of the tomb was fairly
well preserved, as were the logs outlining the structure, but the roof was very fragmentary.

A set of ivory carvings lay on the knees of the male adult and on the breast and pelvis of the child. All the parts were in place. Obviously they had been fastened to a piece of wood, of which only a brown paste remained (Pl. 98, Fig. 4). This set of ivory carvings made up a mask-like object similar to, but somewhat less elaborate than, that found in Burial 64. One of the two tear-drop-shaped jet eyes from the set was lost in the gravel around the tomb when the skeleton was being removed. Among the pendants which probably were attached to the mask was one in the shape of a human head. Under the sacrum of the female adult was an unworked flint flake. The exact position of two arrowpoints (Type 1) found in the tomb was not recorded.

**Burial 78**

Ipiutak type. An articulated adult skeleton. Thirty meters north of Burial 72. This burial was also in the area of Burials 71 to 81 and was articulated. The skeleton lay on its right side, extended, with hands over the pubic region and head to the north. Maximum depth, 40 centimeters. Only small fragments of wood were scattered around the skeleton. An arrowpoint of the Ipiutak type lay near the right femur, and another point of the same type was found in the grave when the skeleton was removed.

**Burial 79**

Ipiutak type. Disordered human bones and scattered artifacts were found 4 meters east of Burial 78 at a depth of not over 25 centimeters. The artifacts are:

- 1 flaker handle, Type 2
- 1 adze head, Type 2
- 2 flint cores
- 1 wedge
- 1 snow goggles

**Burial 80**

Ipiutak type. Disordered human bone fragments and a number of flint blades were found in another of the midden-like deposits 6 meters east of Burial 79. Maximum depth was only 25 centimeters.

**Finds**

3 arrowpoints, Type 1, rare, fragments

2 inset blades, Type 1
1 flint blade fragment
1 endscraper, Type 1
1 flint core

**Burial 81**

Ipiutak type. No human bones. The same type of midden-like deposit; found 3 meters south of Burial 80. Scattered artifacts were found over an area 3 by 3 meters, but at depths no greater than 25 centimeters.

**Finds**

1 arrowhead, Type 2
2 arrowpoints, Type 1, fragment
1 inset blade, Type 1
1 flaker handle, Type 1
1 flint core
1 animal carving
3 swivels, Type 3
2 unidentified fragments

**Burial 82**

Uncertain type. An articulated adult skeleton. One of a group (Burials 82, 131–136) found on the lagoon shore, 1.24 kilometers east of Burials 71–81. Depth, 30 centimeters. Supine, head to north. No artifacts.

**Burial 83**

Near Ipiutak. One adult skeleton, complete, but disarticulated. On the lagoon shore about 500 meters east of Burial 82. Depth, 30 centimeters. One femur lay over the skull, the mandible near the lower femur, 75 centimeters from the skull. The skull was found at the west of the long bones, which were flanked by small fragments of wood. A whaling harpoon head lay near the right femur, which was in place. Other artifacts found with the bones are:

- 1 adze head
- 1 whetstone
- 2 flint chips

**Burial 84**

Near Ipiutak type. One adult skeleton, fragmentary. One hundred meters east of Burial 83. Depth 50 centimeters. Only the skull, one femur, one tibia, and one fibula remained. The head lay towards the west. Fragments of wood lay near the skeleton. An adze head and an unidentified object lay near the tibias.
Burial 85

Near Ipiutak type. Fragments of four skeletons. Twenty meters east of Burial 84. Two skulls and some long bones were found at the base of the lagoon bank, where they had recently been washed out. Excavating into the face of the embankment, we found Near Ipiutak type artifacts at depths of 25 and 35 centimeters. A disarticulated skull was found at the same level. A number of artifacts were scattered among the disordered heap of human bones which extended to a depth of 40 centimeters. One meter farther to the south, at a depth of 65 centimeters, was a fragmentary, disarticulated, child's skeleton. Fragments of wood framed this child's skeleton. Among the bones were several Near Ipiutak artifacts. The artifacts found are:

8 arrowheads, Type 2
2 bird arrowheads
2 arrowpoints
1 knife blade
2 flint chips
1 whaling harpoon head
2 salmon spear barbs
1 leister prong, fragment
1 flaking hammer
2 awls
2 unidentified fragments
1 walrus tooth
1 antler fragment

Burial 86

Near Ipiutak type. Parts of an adult and two child skeletons, disarticulated. Twelve meters east of Burial 85, on the lagoon shore. Depth, 40 centimeters. All the leg bones of the adult were articulated. Some of the children's bones lay over the trunk of the adult skeleton; others slightly below the level of the adult bones. Small fragments of decayed wood were present, but no indication of a frame or coffin. An unusual deposit of fine black gravel covered the bones. A large piece of cut whale shoulder blade lay just above the adult skeleton. Artifacts found with the bones are as follows:

9 arrowheads
1 bird arrowhead
3 harpoon heads
2 leister prongs
1 salmon spear center prong
1 knife blade
2 flint chips

5 plugs
1 dog tooth
6 unidentified fragments

Burial 87

Near Ipiutak type. No human bones. Three meters east of Burial 86. Artifacts and fragments of whalebone were scattered in a deposit of fine, black gravel, at a depth of 40 centimeters. There were also seal and bearded seal bones.

Finds

5 arrowheads, Type 2
1 leister prong
1 salmon spear side prong
1 barb
1 harpoon head blank
1 human figure
1 breast ornament
1 flat decorated piece
1 awl
1 mattock
1 blade fragment
6 unidentified fragments

Burial 88

Uncertain type. A disarticulated adult skeleton. Just east of Burial 33. Depth, 40 centimeters. The femurs and pelvic bones rested on the ribs. All bones were enclosed in a decayed log frame. There were no artifacts.

Burial 89

Ipiutak type. Two articulated adult skeletons. Found on the edge of the cut bank along the lagoon shore 240 meters east of Burial 85. The foot bones of one skeleton were found just in from the face of the bank. When uncovered, the skeleton was found lying supine northeast-southwest, with the head towards the southwest, barely under the surface, and a few centimeters higher than the rest of the skeleton. Apparently the head had been removed before burial since all the bones except the skull were articulated. The small fragments of decayed wood around this skeleton were insufficient to define a log coffin.

Between the knees of the upper skeleton (Burial 89a) were an adze blade (Type 2), two whetstones (Types 1, 2), a flint core, flint flakes, an end blade (Type 3), a flint blade fragment, a caribou ankle bone, a piece of pyrites, and a
broken point from an arrowhead. Along the left hip and cupped in the phalanges of the left hand was a bundle containing 43 arrowheads: Type 1 (22), Type 2 (16), Type 4 (1), Type 2a (4); and a lance head (Type 1). All of these were found in a mass of wood fiber, which may have been the remains of a quiver, but may have been only a part of the logs which enclosed the body. There were nine complete and four broken inset blades (Type 1) loose with the arrowheads. Another arrowhead lay with its point within the joint of the left elbow as if it had been shot in. A spatulate object lay along the left forearm which suggests it might have been a wrist guard. Three more spatulate objects lay together under the left hip, and two others were found associated with Skeleton 89a, but their precise position was not recorded. A short swivel (Type 3) lay on the right hip, a twisted swivel (Type 4) and a jet object lay on the left shoulder, and another swivel (Type 3) with a harpoon head (Type 1) lay over the pubic region.

The second skeleton (Burial 89b) was directly below the first with its skull under the pelvic bones of the upper, supine, with head towards the north. Except for the skull all the bones were articulated. The skull was in proper position, but faced outward from the skeleton and must have been removed before the body was buried. This skeleton was literally shot full of arrows. Three arrowheads (Type 2a) lay within the chest cavity, pointing forward. Two broken arrowpoints were embedded in and had penetrated the sternum: one was in the manubrium, another in the body of the sternum. Three arrowpoints (Types 1, 1a, rare form) were also found in the chest cavity. A fourth arrowhead (Type 2a) and a side blade for knives (Type 4) lay under the sacrum. A clear quartz arrowpoint (Type 1a) lay under the skull.

It should be observed that the four arrowheads that were shot into the lower skeleton are not typical of Ipiutak graves and houses but are like those found in Burials 90, 101, and 102.

One arrowpoint (Type 1a) and two fragments, long and slender, found in the grave are not specifically associated with either skeleton. Nine inset blades for arrowheads (Type 1) and four fragments are from the bundle of arrowheads with Skeleton 89a. In addition the following artifacts were found:

1. harpoon head, Type 1
2. bird arrowheads
3. red ocher lump
4. knife blade, Type 4
5. rare unidentified implement
6. unidentified fragment

**Burial 90**

Uncertain type. An adult skeleton, only partially articulated. Fifteen meters east of Burial 89 and 20 meters south of the lagoon shore. Depth, 20 to 30 centimeters. The skull lay west of the long bones. Log fragments were found above and on both sides of the bones, suggesting a log coffin. Thirteen arrowheads (Types 1a, 2a, unidentified) lay near the left femur. Between two of the ribs, as if they had been shot into the body, were two more arrowheads (Type 1a).

Just below the mandible lay two labrets. Two skulls of young dogs lay beside the pelvic bones. Additional artifacts follow:

1. 3 inset blades, Type 1
2. 1 unidentified fragment

**Burial 90A**

Ipiutak type. No human bones. Exact position not recorded, but in vicinity of Burial 90. A group of artifacts was scattered over a small area and to a depth of not over 25 centimeters.

**Finds**

1. arrowhead, Type 1
2. arrowpoints, Type 1, fragment
3. 4 inset blades, Type 1, fragments
4. endscraper, Type 1
5. openwork carving, Type 1

**Burials 91 and 92**

Ipiutak type. No human bones. Two hundred meters east of Burial 90, on the lagoon shore. In a search for graves, workmen found two artifact-bearing deposits simultaneously only a few meters apart. When these two deposits were completely excavated, it was observed that these deposits were actually an indistinguishable unit. An area approximately 3 by 7 meters and extending to a depth of 40 centimeters contained a large number of wood fragments, a few seal bones, and a number of disintegrated artifacts. The artifacts were found from the surface to a depth of 40 centimeters. No orientation of wood fragments and artifacts was observable.
The entire deposit contained gravel blackened by organic decay. Near the center of the deposit, upright in the gravel, was the butt of a large post.

This kind of deposit is similar to that in Burials 26, 94, 96, and 97. Burial 26 has been described as “midden-like.” But in all three cases, the implements found resemble grave furniture. Numerous animal bones, worked fragments of bone, and ivory and flint chips such as occur regularly in the true midden were absent here.

**Finds, Burial 91**
- 3 arrowheads, Types 3, 6, unidentified
- 2 arrowpoints, Type 1, fragment
- 1 chisel
- 1 knife side blade, Type 5
- 3 openwork carvings, Types 4, 10
- 1 ivory rod, Type 2
- 17 unidentified openwork carvings

**Finds, Burial 92**
- 6 arrowheads, Type 3, unidentified
- 2 arrowpoints, Type 1, fragment
- 1 inset blade, Type 4
- 1 lance head, Type 1
- 1 flaker handle, Type 3
- 1 knife side blade, Type 5
- 2 openwork carvings, Types 2, 10
- 3 ivory rods, Type 4, fragment
- 4 unidentified openwork carvings

**Burial 93**

Ten meters east of Burial 92. In a search for graves, one of the workmen found a large ivory chain on the edge of the lagoon bank at a depth of approximately 1 meter. It lay in a decay-blackened deposit, such as that found around the burials, but there were no other artifacts and no bone fragments.

**Burials 94, 96, 97**

One hundred meters east of Burial 93 and 20 meters south of the shore line. As in the case of Burials 91 and 92, workmen in search of graves found artifacts in the same general area simultaneously, and each discovery was given a separate burial number. When excavations were completed, these three separate deposits were found to run together.

In an area approximately 3 by 7 meters, with the long axis extending east and west, the usual decay-blackened deposit extended from the surface to no more than 30 centimeters deep. At least four separate log fragments extended through the long axis of this deposit. These were surrounded by a large quantity of brown fibrous paste, the remains of other decayed wood. At first this was interpreted as the remains of a house floor, but after further excavation we concluded that it was the remains of driftwood logs piled over a series of bodies which had probably been placed on the surface at the time of burial. It is also possible that this large quantity of wood is the residue of a burial structure similar to the tomb-like structures found below the surface in Burials 42–64. In any case the pile of logs or burial structure must have been placed on the surface of the ground.

Encased in the wood fibers and extending below them through decay-blackened gravel and into clean, unblackened gravel were a large number of implements. They were often found in groups of three or four, but there were no bundles of artifacts and no recognizable orientation. However, there was a distinct concentration of artifacts at the center of the deposit (Burial 96). Some of these artifacts were barely below the surface.

Fragments of a skull and a pelvic bone were found in the eastern end of the deposit (Burial 94); a decayed fragment of a tibia was found in the central section (Burial 96). There were no other human bones. Unlike other deposits containing grave furniture, a large number of animal bones was found in this deposit. In the order of their frequency, there were seal, walrus, bearded seal, bird, caribou, polar bear, and whalebone. Since, for probably many centuries, this whole lagoon shore has been occupied by summer campers, these animal bones may be only part of the general refuse found all along the lagoon shore.

Two potsherds in this deposit are probably from more recent camp refuse, since no pottery occurs in the Ipiutak village and we have found it in only one other Ipiutak burial. One sherd was found at a depth of 10 centimeters in a nest of stone and animal bone; the other was in loose dirt thrown out of the excavation.

**Finds, Burials 94, 96, 97**
- 105 arrowheads, Types 1–6, unidentified
- 27 arrowpoints, Types 1, 2, 2a, rare, fragments
- 32 inset blades, Types 1, 4, fragments
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1 miniature harpoon head, Type 1
1 miniature harpoon foreshaft, Type 2
7 lance heads, Type 1
1 lance or dagger, Type 1
3 daggers or knives
1 leister prong
1 flaker handle, Type 1
1 adze head, Type 1
1 knife side blade, Type 7
1 flint flaker fragment
1 graver, Type 4
1 retouched flake
1 awl
4 spatulate objects
4 ornamental bands, Type 2
2 animal carvings
2 awivels, Type 2
2 awivels, Type 4
20 openwork carvings, Types 1–5, 10, 11, 14–16
1 chain
5 ivory rods, Types 1, 3, unclassified fragment
1 implement, use uncertain, Type 12
5 rare implements, unidentified
3 unidentified openwork carvings
10 unidentified fragments

BURIAL 99

Ipiutak type. Fragments of an adult skeleton. Thirty meters west of Burial 94. A mandible, humerus, and a radius were found in a small group with some artifacts and wood fragments. There were also a few walrus and seal bones which may be part of the general midden debris in this area. Maximum depth was 15 centimeters.

FINDS

4 arrowheads, Type 1, unidentified
4 arrowpoints, Types 1, 1a, fragment
1 inset blade, Type 1
1 knife side blade, Type 1
1 animal carving
1 openwork carving, Type 13
1 ornamental link object, Type 1

BURIAL 100

Ipiutak type. No human bones. Fifty meters east of Burial 92, 20 meters south of the lagoon shore. Ipiutak grave objects were found in one end of an exploratory cut, midden refuse in the other (M22). The cut excavated was approximately 3 by 5 meters and 30 centimeters deep. Wood fragments were found with the grave furniture.

FINDS

1 arrowhead, Type 2a
3 arrowpoints, Types 1, fragments
3 inset blades, Type 1
1 lance head, Type 1
1 bird arrowhead
2 whetstones, Type 1
1 knife side blade, Type 1
3 fragmentary flint blades
1 convex-concave sidescraper
1 spatulate shaped scraper
1 animal carving
2 openwork carvings, Type 13
5 ornamental chain links
1 ornamental link object, Type 1
1 rare unidentified implement
1 unidentified fragment

BURIAL 101

Uncertain type. Fragments of an adult skeleton. Just south of Burial 90. Excavating outward from Burial 90, at the same depth, we found a mass of wood fragments; among them
were the fragments of a skull and mandible and a group of artifacts.

FINDS
37 arrowheads, Types 1, 1a, 2a, 3, unidentified
11 arrowpoints, Types 1, 1a, rare, fragments
1 inset blade, Type 1
1 flaker handle, Type 1
1 adze blade, Type 2
1 chisel
1 flint core
1 rare unidentified implement
1 unidentified fragment

BURIAL 102

Uncertain type. Part of an adult skeleton. Three hundred and eighty-five meters east of Burial 94 on the lagoon shore. An articulated skeleton with the skull missing was found at a depth of 20 centimeters in a deposit of black sand. An arrowhead lay near the left knee; two more, 50 centimeters northwest of the mandible; a fourth arrowhead and a flint blade lay near the right hip, and a wedge and some flint chips near the right shoulder. The skeleton lay with the head towards the north. Excavating outward from the skeleton, we found a number of artifacts, but whether or not they were actually a part of the grave furniture is uncertain.

FINDS
17 arrowheads, Types 1, 1a, 2, 2a, 3, unidentified
1 arrowpoint, fragment
1 ice pick
2 flaker handles, Types 1, 2
1 chisel
2 whetstones, Type 2
1 flint blade, fragment
1 shovel head, Type 2
1 wedge

BURIAL 103

Near Ipiutak. Two articulated skeletons. Two hundred and seventy-five meters east of Burial 102 on the lagoon shore. The skeleton of a youth was exposed at the edge of a cut on the lagoon shore. When excavated, it was found to lie below 1.25 meters of culture refuse on a log floor. Only the trunk, arm bones, and skull remained; the leg bones were washed out by the surf. Near the left shoulder lay a large, square beach pebble, with one surface painted red. An arrowhead lay on the floor, 25 centimeters from the youth's skull.

An adult skeleton was found below the floor, at the edge of the cut, with its head to the west. The lower limbs had also been washed out. On the breast of the adult skeleton was a stone lamp, a potsherd, and an ivory point. Additional artifacts were found in the refuse on the floor. The refuse has a relatively fresh appearance in contrast with that found in Ipiutak sites.

FINDS
1 mattock
1 flaker point
2 unidentified implements
2 worked fragments
1 arrowpoint
1 knife blade
2 blade fragments
1 flint scraper
1 rubbed slate fragment
11 flint chips

BURIAL 104

Near Ipiutak. A large collection of disarranged human bones. Fifty meters east of Burial 102, on the lagoon shore. An area measuring 3 by 4 meters and 50 centimeters deep contained organic decay-blackened sand, fragments of wood, the butts of disintegrated posts, and a heap of human and animal bones. This may be a house floor, a midden, or the remains of a burial rack. All the refuse appeared relatively fresh like that in Burial 103.

FINDS
1 arrowhead
1 flaker handle
1 whaling harpoon head
1 mattock
1 marlin spike
1 polar bear carving
2 unidentified fragments
1 walrus tusk
2 flint scrapers
1 knife blade
1 rubbed slate blade
10 flint chips

BURIAL 105

Ipiutak type. Fragments of an adult skeleton. Seventy-five meters east of Burial 104, 18 meters from the lagoon shore. Arm bones, ribs, and vertebrae, with Ipiutak artifacts, were found in a shallow deposit of black sand from the surface to a depth of 30 centimeters. There were also sea mammal and caribou bones and a few small wood fragments.
FINDS
9 arrowheads, Types 1, 2, unidentified
11 arrowpoints, Types 1, 1a, 2, 2a, fragment
4 inset blades, Type 1, fragments
1 barbed point
1 animal carving
1 swivel, Type 4
1 rare implement, use uncertain

BURIAL 106
Ipiutak type. Fragments of an adult skeleton. Fifty meters east of Burial 105, 20 meters from the lagoon shore. Ipiutak artifacts and some wood fragments were found in a deposit of black sand extending from the surface to a depth of 25 centimeters. Only the leg bones of the skeleton remained; with these was a bundle of arrowheads.

FINDS
44 arrowheads, Types 1–4, unidentified
1 arrowpoint, Type 1a
6 inset blades, Type 1, fragments
1 ice pick
1 discoidal blade, Type 4
1 concave sidescraper
1 shovel blade, Type 2
1 amber lump
1 swivel, Type 3
2 openwork carvings, Type 1
1 unidentified openwork carving
1 worked ivory
1 worked antler

BURIAL 107
Ipiutak type. Six articulated, but fragmentary skeletons. Sixty meters east of Burial 106. Twenty meters from the lagoon shore. Six adult skeletons lay in a straight row extending east and west, apparently a simultaneous burial. All were supine; in all but one the head was towards the west. Fragments of logs lay along both sides of each skeleton. The entire burial was not over 10 or 15 centimeters deep.

FINDS
1 discoidal blade, Type 1
1 unidentified ivory object
1 unworked flint flake

BURIAL 107A
Ipiutak type. Articulated adult skeleton. Fifteen meters east of Burial 107. The skeleton lay on its side, extended, with the head towards the west. An engraved antler mask covered the face. Two arrowheads, Type 1, were beside the skull. The leg bones had disappeared. Depth 30 centimeters. Additional artifacts are as follows:
2 arrowheads, Type 1, unidentified
3 inset blades, Type 1, fragment
1 discoidal blade, Type 1
2 cleats for mask

BURIAL 108
Ipiutak type. An articulated adult skeleton. Three hundred and forty meters west of Burial 65 in the same beach line. Decayed fragments of the log coffin enclosing the skeleton were found only 10 centimeters below the surface. The skeleton lay supine, with the head towards the west and hands at each side. At the left of the skull were two harpoon foreshafts (Type 2), two ice picks, and a long, slender, ivory rod with an animal head at one end, which may be an indicator used in hunting seals at a breathing hole. A harpoon head (Type 1) was found in place at the end of one of the foreshafts. In a bundle lying on the pubic region were eight harpoon heads, Type 1 (1), Type 2 (4), Type 3 (3), two harpoon foreshafts (Type 1), and a rare type, an ivory ring for a foreshaft mount, a carving representing a human head, a small unidentified ivory cleat, a strip of unworked walrus tusk with a small perforation at one end, a flint scraper, and 16 arrowheads, Types 2 (13), Type 3 (1), Type 4 (2). A rake-like object lay beside the left pelvic bone. Below the left hip was a walrus mandible.

Between the ankles of the skeleton were a harpoon socket piece (Type 2) with foreshaft in place, two foreshafts, Types 1 and 2, six harpoon heads, Type 1 (4), Type 4 (2), two leister prongs, and two small ivory carvings representing human skulls.

About 1 meter west of Burial 108, in one of the numerous tests pits, we found fragments of wood and another harpoon socket piece almost precisely like that lying on the ankles of the skeleton, with the foreshaft and the foreshaft ring mounting still in place.

Burial 108 was the same type of grave as were Burials 42–64, but much shallower. It was one of the westernmost graves lying closest to the Ipiutak village site.
Additional artifacts are:
1 miniature harpoon foreshaft, Type 1
1 ice pick
2 rare unidentified implements

Burial 109
Ipiutak type (?). A dog skeleton. Twenty-two meters west of Burial 108. The fragments of a log tomb like those found in the group including Burials 42–64 were found at a depth of 50 centimeters. It contained a complete articulated dog skeleton, which was extended with the head towards the west. There were no artifacts.

Burial 110
Ipiutak type. An articulated adult skeleton. Twenty-four meters west of Burial 108, just north of the dog burial. The skeleton lay supine, with head to the west, in a log coffin only 10 centimeters deep. The skeleton was decayed and was discarded. No artifacts.

Burial 111
Ipiutak type(?). An articulated adult skeleton. Thirty-two meters west of Burial 108. The skeleton lay supine, with hands at sides and head towards the east. It lay in a mass of wood fibers 20 centimeters deep. The skull was missing, and there were no artifacts.

Burial 112
Ipiutak type. An articulated child’s skeleton. Three meters west of Burial 107 and 1 meter north. The extended skeleton lay in a log tomb, 75 centimeters deep, on its side, with the head towards the west. An ivory object of uncertain use was the only artifact.

Burial 113
Ipiutak type. Articulated adult skeleton. Three meters west of Burial 112. The skeleton lay supine, with head towards the west, in a log coffin, at a depth of 50 centimeters. The hands lay over the pubic region. There were no artifacts.

Burial 114
Ipiutak type. An articulated adult skeleton. Two meters north of Burial 111. The skeleton lay supine, with head towards the west and the left arm bent backwards so that the hand lay on the left shoulder. A whalebone shovel lay on the log cover of the coffin. Depth, 75 centimeters.

Burial 115
Ipiutak type. Fragments of a child’s skeleton. Twenty meters west and 10 meters north of Burial 113. A child’s skull and ribs, badly disintegrated, lay among wood fragments at a depth of 50 centimeters. A large stone celt and a walrus jaw were found with the bones.

Burial 116
Ipiutak type. An articulated adult skeleton. Seventy meters south of Burial 109. The skeleton lay in a log coffin at a depth of 40 centimeters, supine, with head towards the west and hands at the sides. No artifacts.

Burial 117
Ipiutak type. Articulated adult and child’s skeleton, 16 meters east of Burial 53. This and the following graves, including Burial 123, are all in the 42–64 group. An adult and a child lay in a well-preserved log tomb where the top, floor, and both ends were preserved. Both were extended, with the heads towards the west. The adult lay on the right side, facing the child. A whalebone shovel lay on top of the logs. A leister prong lay beneath the child’s skeleton. Along the lower leg bones of the adult lay an ornamental band (Type 1), two discoidal blades (Type 1), a flaking hammer head, and two whetstones (Type 1). In front of the femurs lay an arrowpoint (Type 1), a semilunar blade (Type 1), some flint chips, and a bird bone. Near the forearm was a small spatulate object and some flint chips. Below the adult were 12 needles.

Additional artifacts are:
1 arrowpoint, fragment
1 unidentified fragment

Burial 118
Ipiutak type. An articulated adult skeleton. Thirteen meters east of Burial 117. The skeleton lay supine, with the head towards the west and hands partly under the pelvic region. It lay in a well-preserved log coffin, with top, bottom, and ends. Depth, 60 centimeters. A discoidal blade (Type 1) lay near the right humerus, a flint flaker point near the left tibia, two flint chips near the left elbow, and 11 needles to the right of the ribs.
BURIAL 119

Ipiutak type. Articulated adult skeleton. Thirty-five meters east of Burial 118. The skeleton lay supine; the skull was missing. Wood fragments surrounded the skeleton to a depth of 30 centimeters.

BURIAL 120

Ipiutak type. Articulated adult skeleton. Twenty-four meters east of Burial 118. The skeleton lay supine, with head towards the west the arms at the sides, at a depth of 60 centimeters in a log coffin. Near the right forearm lay one semilunar blade (Type 1), one discoidal blade fragment, with five flint and obsidian chips, also a bird bone.

BURIAL 121

Ipiutak type. Articulated adult skeleton. Three meters east of Burial 120. The skeleton lay supine, with head to the west, in a log coffin, 60 centimeters deep. Two leister prongs and a wedge lay in the loose gravel, 25 centimeters above the coffin.

BURIAL 122

Ipiutak type. Articulated adult skeleton. Southeast of and adjoining Burial 53. The skeleton lay in a log coffin, at a depth of 75 centimeters, supine, with head to the west. The left arm was bent at the elbow so that the forearm lay over the chest. The right hand was over the pubic region. An ornamental band, Type 1, and a whetstone lay across both tibias. Flint chips lay by the left lower leg and the right forearm. In addition there were:

1 retouched flake
2 flint cores

BURIAL 123

Ipiutak type. Articulated child skeleton. Between Burial 121 and Burial 119, in the same direct east-west line. The skeleton lay supine, with head towards the west, in a log coffin, 50 centimeters deep. No artifacts.

BURIAL 124

Ipiutak type. Articulated adult skeleton. Just south of Burial 35. The skeleton lay in a log coffin, 75 centimeters deep, supine, with head towards the west and hands over the pubic region. A whale vertebra lay on top of the west end of the coffin, a walrus mandible over the center. Two layers of log covering lay across it, with 10 centimeters of sterile gravel between them. The walrus mandible lay between these two layers of logs. Fragments of skin clothing clung to some of the bones. There were no artifacts.

BURIAL 125

Tigara type. Scattered fragments of an adult skeleton. Two hundred meters south of the east end of Row A in the Ipiutak village site. A mandible, leg bones, and ribs with Tigara-type artifacts lay in the surface sod over an area 3 by 4 meters. This is probably the remains of a recent rack burial of the historic Tigara village.

BURIAL 126

Ipiutak type. Articulated child skeleton. Thirty-five meters north of Burial 124. The skeleton lay supine, head west, in a mass of wood fragments, 25 centimeters deep. There were no artifacts.

BURIAL 127

Ipiutak type. Articulated adult skeleton. Eighty-five meters west of Burial 88. The skeleton lay in a log coffin 1 meter wide, supine, with head towards the west. Short log cross pieces lay underneath, forming a floor. Depth, 45 centimeters. There were no artifacts.

BURIAL 128

Ipiutak type. Articulated adult skeleton. Twelve meters west of Burial 127. The skeleton lay prone, with the head towards the west, in a well-preserved log coffin. Depth, 40 centimeters. Six needles were found underneath the skeleton.

BURIAL 129

Ipiutak type. Articulated adult skeleton. Ten meters west of Burial 128. The skeleton lay supine, with the head towards the west; one femur lay across the other, indicating that the burial had been disturbed. It was enclosed in a log coffin at a depth of 30 centimeters.

BURIAL 130

Ipiutak type. A cache of elaborate Ipiutak grave objects. Seventy meters west of Burial 15. A tight bundle of ivory objects was found so close to the surface that the butt ends appeared above ground. They lay in a deposit of
sterile, coarse gravel. There were no bones, wood, or culture refuse. The artifacts include:

1 lance or dagger, Type 2
3 swivels, Type 4
6 openwork carvings, Types 2, 4, 11, 16
1 chain
2 ornamental link objects, Types 1, 2
4 carved ivory rods, Type 3
2 openwork carvings, use uncertain
1 fragment, use uncertain

**Burial 131**

Uncertain type. Ten meters northeast of Burial 82. Articulated from pelvic bones downward, with feet towards the south. The rest of the bones were found north of the pelvis, in a disordered pile, with the skull and a human jaw resting on top, just below the surface; near-by were a dog skull and a jaw. The flesh from the back was preserved. The dog skeleton extended along the left leg, from hip to tibia, of the human skeleton. Small bones and an arrowhead were found in the dog skeleton. Thirty centimeters to the north of the body was an arrow-point. A hair pin (?) lay to the west and two needles rested near the skull. Five arrowheads scattered north of the skeleton do not in all probability belong to this burial.

**Finds**

8 arrowheads, Type 2a, unidentified
2 unidentified fragments
2 worked ivory

**Burial 132**

Uncertain type. Two meters south of Burial 131. An articulated adult skeleton lay in north-south direction 25 centimeters below the surface. The hands covered the pubic region. Parts of an infant skull rested on the right shoulder. A complete dog skeleton, with its head on the right femur and its hind quarter covering the feet, was found close to the right leg of the skeleton. In the left hand was a composite knife handle. An arrowpoint, Type 1, lay on the pelvic bone. The flesh on the thigh was preserved. (Pl. 100, Fig. 3.)

Additional artifacts found:

1 arrowpoint, Type 1
2 chisels
1 unidentified fragment

**Burial 133**

Uncertain type. This disarranged skeleton, consisting of a complete foot and a pile of bones, was found 14.7 meters northeast of Burial 82. A small quantity of wood and an arrowpoint, Type 1, were found immediately below the surface.

**Burial 134**

Uncertain type. Thirteen and one half meters north of Burial 82. The scattered human bones, wood, and an arrowhead, Type 2a, indicated that the skeleton had been in a north-south direction.

**Finds**

3 unidentified fragments

**Burial 135**

Ipiutak type. Ten meters northeast of Burial 82. Forty-two fragments of arrowpoints bore no obvious relation to the skeleton.

**Burial 136**

Ipiutak type. Thirteen meters east of Burial 133. The contents of this burial consisted of part of a whalebone shovel and a semilunar blade, Type 1, and a quantity of wood; no bones were found.

**Burial 137**

Uncertain type. The articulated skeleton rested on its back, with the hands over the pubic region and head towards the east. It lay 219 meters west of Burial 82, near the beach, 40 centimeters below the surface. A dog skull and a few dog bones lay near the right leg of the skeleton and an almost complete dog skeleton near the left leg. A cutting board rested on the femur; a retouched flake lay near-by.

Additional finds:

2 rare unidentified implements

**Jabbertown Burial 1**

Ipiutak type. Six hundred meters east of Burial 103, 5 meters from the lagoon shore. An articulated adult skeleton in a log coffin, 30 centimeters deep, lay supine, with head to the north. The bones in the trunk were somewhat disturbed. A stone celt lay between the femurs. One meter south of this burial we found a number of Ipiutak flint points.
Jabbertown Burials 2 to 15

Ipiutak type. A row of 14 burials extended in an east-west line. The easternmost grave was 200 meters west of Jabbertown Burial 1 and 25 meters from the lagoon shore. A series of very shallow deposits containing log fragments with numerous scattered grave objects and human bones extended over an area of 52 meters in length. Artifacts were found from the surface to a depth of 30 to 40 centimeters. Those that lay in sterile gravel were remarkably well preserved; those in the organic, decay-blackened turf were badly weathered. The shallow deposit and scattered character of the remains made it very difficult to distinguish individual burials; however, some were outlined by log fragments. In general, the remains indicate that the series of bodies were placed on the surface or in a very shallow trench in an east-west line and then covered with driftwood logs. A large number of elaborate objects were found in these graves, indicating that considerable care was taken with the burial. It was impossible to determine whether the bodies were buried articulated or disarticulated, since in such shallow burials bones and artifacts soon become scattered.

FINDS, JB2
1 arrowhead, Type 1
1 lance head, Type 1
1 lance head, fragmentary
1 adze head, Type 1
2 adze blades, Type 2
2 ornamental link objects, Type 1
2 ivory rods, Type 4

FINDS, JB3
1 adze head, Type 2
1 openwork carving, Type 16
1 openwork carving, unidentified
2 unidentified fragments

FINDS, JB4
3 arrowheads, Type 6, unidentified
3 inset blades, Types 1, 2, fragments
1 ornamental band, Type 1
1 swivel, Type 1
4 openwork carvings, Types 10, 12, 13
1 ornamental link object, Type 2
4 unidentified fragments

FINDS, JB5
1 unidentified arrowhead
2 inset blades, Type 2, fragment
1 flint blade, fragment
1 awl
1 swivel, Type 2
2 openwork carvings, Types 12, 13
1 ornamental chain link
1 unidentified fragment

FINDS, JB6
1 fragmentary flint blade
1 flint core
1 swivel, Type 2
4 openwork carvings, Types 4, 8, 13
1 unidentified fragment

FINDS, JB7
4 arrowheads, Types 1, 3, unidentified
1 flaker handle, Type 3
1 swivel, Type 1
7 openwork carvings, Types 13-15
1 implement, use uncertain, Type 10
3 unidentified fragments
1 worked antler

FINDS, JB8
7 arrowheads, Types 1, 3, 6
1 knife side blade, Type 6
1 button
2 swivels, Type 1
8 openwork carvings, Types 2, 3, 9, 10, 15, 16
1 ornamental chain link
1 carved ivory rod, Type 5
2 rare unidentified implements

FINDS, JB9
2 arrowheads, Type 3, unidentified
1 button

FINDS, JB10
8 arrowheads, Types 1-3, unidentified
1 animal carving
1 swivel, Type 1
5 openwork carvings, Types 3, 4, 9, 11, 12
1 ornamental chain link
1 ornamental link object, Type 2

FINDS, JB11
3 arrowheads, Types 1, 3
1 awl
2 swivels, Types 1, 2
5 openwork carvings, Types 2, 14-16
2 ornamental chain links
1 worked bone

FINDS, JB12
2 arrowheads, Types 1, 3
1 adze blade, Type 2
2 swivels, Types 1, 2
6 openwork carvings, Types 3, 7, 11, 14, 15
1 ornamental link object, Type 1
2 carved ivory rods, Types 1, 3
1 ring
1 unidentified openwork carving
2 unidentified fragments

Finds, JB13
1 inset blade, Type 1
1 harpoon blade
1 harpoon foreshaft, Type 1
1 swivel, Type 3
4 openwork carvings, Types 10–13
3 ornamental chain links
2 unidentified fragments

Finds, JB14
2 openwork carvings, Type 13
1 ornamental chain link
1 ornamental link object, Type 2

Finds, JB15
1 swivel, Type 2
3 openwork carvings, Types 10, 12
1 ornamental chain link

JABBERTOWN BURIAL 16

Fifteen meters west of Jabbertown Burial 15. The burial contained no human bones, but a few pieces of wood; at the east end a twisted object and at the west end, a knife with side blades.

Additional artifacts were:
1 arrowhead, Type 1
2 arrowpoints, Types 1, 2
2 inset blades, Types 1, 4
1 lance head fragment
1 openwork carving, Type 12

JABBERTOWN BURIAL 17

This was actually not a grave, but three flint arrowpoints and some wood were scattered over a 44.5-meter long line west of Jabbertown Burial 16.

Finds
1 inset blade, Type 1

JABBERTOWN BURIAL 18

Situated 44.5 meters west of Jabbertown Burial 16. Three meters long by 1.5 meters wide. Pieces of wood were scattered in a west-east direction. Near the east end were human bones and six arrowheads (Type 1), and four flint blades; near the west end were five arrowheads and two flint blades. About 1 meter southwest of the last pile of bones were one arrowhead and one blade.

Finds
13 arrowheads, Types 2, 3, unidentified
7 arrowpoints, Types 1, 1a, fragments
14 inset blades, Type 1, fragments
1 harpoon foreshaft, Type 1
1 openwork carving, Type 2

JABBERTOWN BURIAL 19

Thirty meters west of Jabbertown Burial 18, pieces of wood were scattered in a west-east direction. A few human bones and two openwork carvings (Type 4 and unidentified) were also found.

JABBERTOWN BURIAL 20

Five and one half meters east of Jabbertown Burial 2; 4.6 meters long and about 2 meters wide. Pieces of wood, as well as a few scattered human bones, were strewn in a west-east and north-south direction.

Finds
14 arrowheads, Types 1–4, unidentified
2 arrowpoint fragments
8 inset blades, Type 1, fragments
1 openwork carving, Type 15
1 ornamental link object, Type 1
1 ivory rod, Type 5
2 rare unidentified implements
1 unidentified fragment

JABBERTOWN BURIAL 21

Forty centimeters east of Jabbertown Burial 20; 4.8 meters long and 2 meters wide. Four long logs extended in a west-east direction, at the eastern end of which was a post. In the center we found a few human bones. Scattered over the burial were the artifacts listed below:

18 arrowheads, Types 1–6, fragment
3 arrowpoints, Types 1, 2
1 rare form arrowpoint
2 inset blades, Type 1, fragment
1 barbed harpoon head
1 root pick
1 ornamental harpoon head, Type 2
2 labrets
3 openwork carvings, Types 8, 15–16
2 rare unidentified implements
1 unidentified fragment

JABBERTOWN BURIAL 22

Fifty centimeters east of Jabbertown Burial
21; 4.4 meters long and 2 meters wide. A small quantity of wood in the center of the area, dispersed in a west-east direction. Human bones, presumably from one or two adults and one child, were strewn over the area; in the center were a pile of long bones and, at the eastern end, a skull.

**Finds**

15 arrowheads, Types 1-4, unidentified
2 adze heads, Type 1
1 mattock
1 antler death mask
2 openwork carvings, Types 8, 10
1 rare unidentified implement
1 worked bone

**Jabbertown Burial 23**

Eighty centimeters west of Jabbertown Burial 28. Four and a half meters long and 2 meters wide. Human bones and grave goods lay between two large logs extending west and east, but very few of these were found near the western end.

**Finds**

17 arrowheads, Types 1, 2, 4, 6, unidentified
3 arrowpoints, Type 1, fragments
17 inset blades, Type 1, fragments
2 harpoon heads, rare form
1 lance head, Type 1
1 swivel, Type 2
3 openwork carvings, Types 12, 15
1 ornamental link object, Type 2
1 unidentified openwork carving

**Jabbertown Burial 24**

Six meters west of Jabbertown Burial 23. Three meters long and 2 meters wide. No human bones were found. Pieces of wood were spread in west-east and north-south directions.

**Finds**

2 arrowheads, Type 1, unidentified
2 arrowpoints, Type 1a, fragment
6 inset blades, Type 1, fragments
1 chisel

**Jabbertown Burial 25**

Four meters west of Jabbertown Burial 24. Three and a half meters long and 2 meters wide. The area contained scattered pieces of wood and a few human bones.

**Finds**

1 whalebone shovel
1 openwork carving, Type 12
1 rare unidentified implement

**Jabbertown Burial 26**

Ten meters west of Jabbertown Burial 25. Two and a half meters long and 1.75 meters wide. Human bones and a lance head were found between two pieces of wood extending north-south; the southerly edge was marked by a long log extending west-east.

**Finds**

1 unidentified openwork carving

**Jabbertown Burial 27**

About 4 meters west of Jabbertown Burial 26 and 2.9 meters south of the base line. Pieces of wood extended northwest-southeast and northeast-southwest. Two human skulls, but no grave goods, were found.

**Jabbertown Burial 28**

Between Jabbertown Burials 27 and 23, at a distance of 4 meters. Wood was strewn in an east-west direction.

**Finds**

2 arrowpoints, Type 1
2 inset blades, Type 1, fragment
1 openwork carving, Type 13

**Jabbertown Burial 29**

About 6 meters west of Jabbertown Burial 25. In addition to two human bones, a post and two arrowheads, Types 1 and 2, were found.

**Jabbertown Burial 30**

**Finds**

1 arrowpoint fragment
2 inset blade fragments
1 adze blade, Type 2
APPENDIX 3. ANALYSIS OF IRON

SPECTROGRAPHIC ANALYSIS. BY LESTER W. STROCK

A small fragment of the iron engraving tool from the Ipiutak excavations was furnished me for spectrographic analysis in order to determine whether the material is of terrestrial or meteoric origin.

The specimen was badly corroded and cemented with other material—presumably oxidation products. A similar fragment of iron from the Shara Murun Basin, Inner Mongolia, stated to be several hundred years old, was furnished for reference, together with fragments of the Cape York, Greenland, iron meteorite.

Since qualitative spectra alone suffice to distinguish readily between terrestrial and meteoric iron, ultraviolet spectra of the specimens were recorded in juxtaposition on a photographic plate for convenient comparison. The entire samples were placed in craters of carbon electrodes and burned to completion in a direct current arc. A spectrum of pure iron to be used as a wave length reference was photographed on the same plate.

Visual inspection of the spectra revealed the striking difference in composition between the Alaskan and Mongolian irons and the Greenland meteorite. The characteristically high nickel and cobalt contents of all meteoric iron is revealed by the large number of spectral lines of these elements in the Cape York meteorite, whereas none of them are visible in spectra of the two irons. As documentary proof of this result, an enlarged positive copy of the spectrum for the wave length region 3116 Å to 3015 Å accompanies this report (Pl. 101). Lines due to iron are easily identified by reference to the iron reference spectrum placed on the same chart. In addition to the iron lines in the Cape York meteorite, the following other lines have been identified in this small region of its spectrum and labeled on the chart:

<table>
<thead>
<tr>
<th>COBALT</th>
<th>NICKEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>3044.005*</td>
<td>3037.935</td>
</tr>
<tr>
<td>3048.888</td>
<td>3050.819*</td>
</tr>
<tr>
<td>3061.819</td>
<td>3054.316</td>
</tr>
<tr>
<td>3072.344</td>
<td>3064.623</td>
</tr>
<tr>
<td>3082.618</td>
<td>3080.755</td>
</tr>
<tr>
<td>3086.777</td>
<td>3097.118</td>
</tr>
<tr>
<td>3089.595</td>
<td>3099.115</td>
</tr>
<tr>
<td>3101.554*</td>
<td>3101.879</td>
</tr>
<tr>
<td>3105.468</td>
<td>3114.124</td>
</tr>
</tbody>
</table>

* Strongest lines are italicized.

The average composition of 318 meteoric irons tabulated by O. C. Farrington (1907) is 90.85 per cent iron, 0.59 per cent cobalt, and 8.52 per cent nickel, which differs only slightly from published analyses of the Cape York meteorite (7.50 per cent nickel and 0.49 per cent cobalt) according to data given by V. M. Goldschmidt. Spectra of both the Mongolian and Point Hope, Alaska, irons show no trace of a resemblance to this meteoric iron composition. Further evidence of the same nature is the presence of a weak line in the Cape York meteorite spectrum due to the rare element germanium (Ge 3039.064) which geochemical investigations have shown to be a constant and characteristic constituent of meteoric iron. It is not visible in the Alaskan or Mongolian irons.

All evidence secured in this study shows the Point Hope, Alaska, engraving tool fragment submitted to be terrestrial iron readily distinguishable from meteoric iron by qualitative spectrographic examination.

1 See p. 83 for microchemical analysis by Frederick H. Pough.

2 Naturwissensch., 18, 999 (1930).
APPENDIX 4. DOG SKULLS FROM IPIUTAK

BY OLAUS J. MURIE

Among the remains recovered from the Ipiutak excavations at Point Hope, Alaska, was a small collection of dog bones which were forwarded to the writer for study. There are four incomplete skeletons with skulls, one other skull in good condition, and several fragmentary skulls and miscellaneous bones. Through the kindness of the American Museum of Natural History and the Museum of Comparative Zoology at Cambridge, a series of Eskimo dog skulls from Labrador, Greenland, and Ellesmereland were made available, and the Peabody Museum of Natural History furnished specimens of Samoyed, Siberian, Keeshond, and Pekinese. In the writer's personal collection are skulls of Chow, Siberian, Spitz, and miscellaneous registered breeds.

The difficulty in identification of remains of domestic dogs is obvious to anyone who has worked with such material. External appearances of two dogs may be strikingly dissimilar, yet the skulls may be confusingly alike. Then, too, there is much variation among the individuals of any given dog type that has not been rigidly bred true to a set standard. There are notable individual differences among the skulls from Labrador and Greenland. Likewise there are differences among Ipiutak dogs. How shall we interpret these variations? What characters are most diagnostic? Were the Ipiutak dogs one variable type, or do they represent several types that in life would be quite dissimilar in appearance?

To begin with, an attempt was made to set apart the Ipiutak skulls from certain other well-marked dog groups. The slope of the frontal region, as seen in profile, together with the zygomatic width and size easily eliminated such wolf-like types as the collie and police dog, as well as the wolf itself. The proportions of the Ipiutak skulls and their measurements are shown in Figs. 58 to 60, and in Table 4.

It became obvious at once that these skulls belong with the northern group which includes the Eskimo dogs. The Chow is easily eliminated in this instance because of its smaller size and proportions. A skull of an aged Samoyed dog lent by the Peabody Museum was the only one available for comparison. There has been some resorption of bone in this old animal, but, even allowing for this, it appears to be built on too "trim" and slender a structure for identification with the Ipiutak skulls.

Compared with a series of Eskimo dog skulls from the eastern Arctic, including Ellesmereland, Greenland, and Labrador, the Ipiutak skulls fall below them in general skull size. The eastern dog skulls are heavier in structure and some of them have a deeper concavity in the slope of the frontal area.

A careful comparison was made with several available skulls of the so-called "Siberian husky." One of these was the skull of Togo, the leader of Seppala's team of Siberians, lent to the writer by the Peabody Museum. Another was the skull of Angiak, a typical Siberian dog from St. Lawrence Island in the writer's collection. A third skull is also from St. Lawrence Island, labeled "Pinayou's dog," believed to be fairly typical of the Siberian sled dog. Several other skulls were available from St. Lawrence Island, but these are without specific data as to type of dog.

Although the three Siberian skulls mentioned above are not identical in characters by any means, they are probably representative of this type of dog. As we know it today, the Siberian sled dog in actual use, discounting as much as possible mixtures with outside breeds in modern times, occurs in a variety of colors—white, black, black and white, and blackish brown, in all possible combinations. Some have brown eyes, some have pale blue eyes (the latter sometimes referred to as "glass-eyed").

The Ipiutak dog skulls appear to fall into this Siberian class of dogs. Ipiutak skull B-137-1 agrees remarkably well with the modern dog Togo mentioned above. The lengths of the two are almost identical and they are similar in proportions, but the rostrum of Togo is narrower (and narrower than in the other modern Siberians), and the dentition is lighter. Angiak's skull is smaller than Togo's, though with a relatively wider rostrum, and the teeth are larger, though not so large as those of B-137-1. The skull of "Pinayou's dog" is the largest of the three Siberians and more massive in all measurements than B-137-1, but the teeth are still
not quite so large as in the latter.

B-137-2 of the Ipiutak series is almost identical in shape and size with the skull of Angiak, being only slightly shorter, and in this instance the teeth are of nearly the same size. In as variable an animal as the domestic dog the slight differences between these two must be negligible. (See Fig. 58a, b.)

The skull of B-131 is more massive than that of either Togo or Angiak, but is quite comparable with that of "Pinayou's dog." B-131 is slightly shorter, the tip of the rostrum is broader, the upper canines flare outward at a greater angle, and the dentition is heavier.

H-51 of the Ipiutak series is shorter than any of the three Siberians and the slope of the forehead is deeper. The tip of the rostrum is broader as in the case of B-131, the upper canines flare...
outward in the same way, and the dentition is heavier than in the Siberians.

One skull, B-132, is immature, which accounts for the narrow shape of the skull across the zygomatic arches. It is, however, otherwise comparable with H-51 and B-131, and has the same heavy dentition.

One mandible, H-43, is strikingly different from anything else in the collection (Fig. 60i). It is much larger than any of the other Ipiutak specimens. It compares fairly well with some of the largest Eskimo dog mandibles from Greenland and Labrador, but with larger teeth. It is from a young animal, and the bony structure is apparently not fully developed. It is hard to place this specimen. It represents a much larger animal than the other Ipiutak specimens. One may speculate that it represents an unusual individual of the eastern Arctic type, or that it had some wolf blood in its ancestry. The teeth approach those of the wolf in size.

It is of interest to note that in a collection of

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bones from the middens of Punuk Island, adjacent to St. Lawrence Island, there is a mandible of a wolf pup. The teeth are a little larger than those of the Ipiutak specimen. It suggests that a young wolf may have been kept as a pet. Summarizing the results of these comparisons, there appear to be three dog types represented by the Ipiutak specimens:

First, there are the two skulls, B-137-1 and B-137-2, which, in proportions and measurements, appear to be identical with the modern so-called Siberian husky. (See Fig. 58a, b, c.)
TABLE 4
MEASUREMENTS (IN MILLIMETERS) OF IPIUTAK DOG SKULLS AND OTHER SKULLS USED FOR COMPARISONS

<table>
<thead>
<tr>
<th>Skull Type</th>
<th>Condylar Length</th>
<th>Zygomatic Breadth</th>
<th>Palatal Length</th>
<th>Upper Carnassial (Crown Length)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ipiutak, B-137-1</td>
<td>187</td>
<td>112</td>
<td>105</td>
<td>21</td>
</tr>
<tr>
<td>Ipiutak, B-137-2</td>
<td>178</td>
<td>103</td>
<td>98</td>
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<tr>
<td>Ipiutak, B-131</td>
<td>185</td>
<td>115</td>
<td>101</td>
<td>20.7</td>
</tr>
<tr>
<td>Ipiutak, B-132</td>
<td>184</td>
<td>102</td>
<td>101</td>
<td>21.3</td>
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<tr>
<td>Ipiutak, H-51</td>
<td>177</td>
<td>114</td>
<td>96</td>
<td>-</td>
</tr>
<tr>
<td>Siberian dog Angiak, ♂</td>
<td>179</td>
<td>108</td>
<td>93</td>
<td>19</td>
</tr>
<tr>
<td>O.J.M.* 3282</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siberian dog Togo, ♂</td>
<td>183</td>
<td>113</td>
<td>99</td>
<td>18</td>
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<td>P.M.Y. 0.1354</td>
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<tr>
<td>Siberian dog, &quot;Pinayou's&quot; ♂</td>
<td>192</td>
<td>116</td>
<td>102</td>
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<td>O.J.M. 119</td>
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<td>Samoyed, 14 yrs. old</td>
<td>165</td>
<td>100</td>
<td>91</td>
<td>16.7</td>
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<td>P.M.Y. 0.1897</td>
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<td>Eskimo dog, Greenland</td>
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<td>124</td>
<td>107</td>
<td>21.3</td>
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<tr>
<td>A.M.N.H. 14050</td>
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<td>Eskimo dog, Greenland</td>
<td>191</td>
<td>117</td>
<td>101</td>
<td>20</td>
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* Collection of O. J. Murie.

b Peabody Museum, Yale University.

e Museum of Comparative Zoology, Harvard College.

Second, there are three other skulls, B-131, B-132, and H-51, that are slightly different. They are somewhat heavier in structure, with broader rostrum, a much more developed sagittal crest, and more concave slope to the forehead. The concavity of the forehead is particularly noticeable in H-51. One of these, B-132, is an immature, under-developed skull, but unmistakably shows the characters common to these three. Are we dealing with sexual characters? Or are these differences to be found within a general “Siberian” type of sled dog? These three skulls suggest those of the eastern Eskimo dog, but are smaller.

If we allow for the influence of “outside” dog breeds among the eastern Eskimo dogs, perhaps the original breed would be closer to these three Ipiutak dogs. Among a large number of skulls from St. Lawrence Island there is at least one which is very similar to these three heavy-muzzled Ipiutak skulls and undoubtedly represents the same type of dog. This skull has the appearance of a recent specimen, but unfortunately there is no information on what kind of dog it came from.

With the comparative material available at this time, it is difficult to reach greater refinement in the identification of these Ipiutak skulls. We can say that at least two of them are of the so-called Siberian husky type, as we know it today. The other three may possibly be variants of the same type, which is not improbable, but may also hark back to another dog which had been interbred.

Third, still another animal is represented by the mandible H-43 (Fig. 60i), which is even larger than that of the eastern Eskimo dog and suggests a small wolf or a wolf hybrid.

These facts are a good indication that the Ipiutak dog skulls are of Asiatic origin.
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PLATES
PLATE 1

ARROWHEADS—IPIUTAK HOUSES

1–3. **Type 1:** With inset flint side blades. 93 specimens (16 complete); found in 39 houses; antler. 5 retain 1 or 2 side blades. Length, 12.9–19.4 cm.; thickness, 7.7–8 cm. Round, subangular, or oval cross-section. Point round or ground down to 1 or 2 sharp edges; butt conical and smooth. Body ornamented with 4 incised lines. Most arrowheads had 2 side blades; 1 (H37), 3. 1 has 8 lines; 1 (H71), with 9 lines; 2 (H57 and H72), 2 lines; 1 (H37), with 1 short, transverse, incised line, and 1 (H57), 3 short, oblique lines between vertical, possibly owners’ marks.

4. **Type 1A:** Heavy, normally with 1 side blade and without incised lines. 1 specimen from H11; antler. Length, 16.2 cm.; thickness, .9 cm.

5–9. **Type 2:** With a flint blade set in point. 49 specimens (17 complete), found in 29 houses; antler. 3 retain flint blade. Length, 7.6 cm.–14.5 cm.; diameter, .5–.8 cm. Majority, like Fig. 5, round or oval in cross-section; 4 incised lines. 8 (H17, 19, 32 [Fig. 7], 33, 41, 50) quadrangular in cross-section, with deep cut lines (cf. Pl. 32, Figs. 15–16). 6 triangular in cross-section, with deep cut line on flat side. 2 (H32 [Fig. 8], 33) with 3 short transverse lines (owners’ marks?).

10. **Type 2A:** Flat and broad with end blade, without incised lines or with broken lines. 1 specimen from H18; antler. Without incised lines (cf. Pl. 32, Figs. 19–20).

11, 12. **Type 3:** With barbs and flint end blade. 15 specimens (2 complete); from 13 houses; antler. Fig. 12 retains part of flint blade. Fig. 11 has 4 barbs, with keel-shaped point, rounded base, decorated with 3 incised lines, 1 central and 2 lateral (cf. Pl. 33). Lines on single barb continue to base of blade slot. Fig. 12 has 5 barbs in 3 rows, closer to body, with only central line. Except for 2, all have the 4 incised lines. Fig. 11, with incised cross; Fig. 12, with 2 pairs of short oblique lines near butt, possibly owners’ marks.

13, 14. **Type 4:** With barbs and flint side blades. 4 specimens; found in H40, 52, 55, 58 (2 complete, except for blades); antler. Barbs in 2 opposite rows, alternating; 2 opposite blade slots, 1 close to point, other farther down. Fig. 13 with 3 barbs; Fig. 14, with 5 barbs and a sharp point, diamond-shaped in cross-section. All with 4 incised lines. Fig. 13 with 2 spurred oblique lines (owners’ mark?) in two places.

15, 16. **Type 5:** With inset end blade and 1 or more side blades. 3 specimens; found in H14, 43, 53; antler. Length, 11.4–14.4 cm.; diameter, .7 cm. All oval in cross-section, with 4 incised lines. Slot for side blade placed halfway down 1 of lines.

17–19. **Type 8:** Without blade slots or barbs. 5 specimens; found in H6, 15, 34, 50; 4 antler; 1 ivory. 2 (H15, 34) with round points, subangular in cross-section, with 4 deeply cut lines (Fig. 17). 1 (Fig. 18, H15), with long, sharp point, diamond-shaped in cross-section, sharp edges and rounded body with 4 incised lines. Fig. 19 (H15), ivory, head shorter and thicker; point conical and blunt; 4 incised lines; marks on butt indicating that it was screwed in a shaft; probably a bird arrowhead.

20, 21. **Bird Arrowheads:** Only 2 found in houses, both ivory. Fig. 20 (H11) cylindrical, with deep, round, socketed butt; almost flat, roughly faceted point. Fig. 21 (H69) with flat tang; round hole in center of top, probably for inset.

Not Illustrated: 125 fragments, unidentifiable type, found in 47 houses.
PLATE 2
FLINT WEAPON BLADES CHIPPED ON BOTH FACES—PIPUUTAK HOUSES

1–6. Arrowpoints, Type 1: With a straight base. 76 specimens; found in 39 houses. Fig. 1 longest; Fig. 6 shortest. Width, .8–1.5 cm.; thickness, 2.5–4 mm. Majority of gray or greenish flint; 1 chalcedony; 1 black siliceous slate (Fig. 3); 1 rock crystal (cf. Pl. 35). 14 specimens with 1 side partly chipped; edges always chipped, but part of original surface visible.

7, 8. Arrowpoints, Type 1A: With straight slanting base. 11 specimens; from 11 houses; flint. Almost all of size of Figs. 7 and 8; same thickness as Type 1; with 1 exception, delicate (cf. Pl. 35, Figs. 21–24).

9–11. Arrowpoints, Type 2: With concave base. 8 specimens; from 8 houses; 6 flint; 1 black siliceous slate; 1 gray silicified slate. Length, 2.2–4.2 cm. (Fig. 10); width, approximately 1 cm.; thickness, 2.4–3 mm. Except for last one, have very fine chipping (cf. Pl. 35, Figs. 25–32).

12. Arrowpoints, Type 2A: With concave, slanting base. 4 specimens; found in H33, 46, 61, and 68; only two complete, 1 shorter and broader than Fig. 12. All thin and delicate. Thickness, 2.3–2.5 mm. (cf. Pl. 35, Figs. 33–36).

13, 14. Arrowpoints or Harpoon Blades: Short, broad, with straight base. 3 specimens; found in H9, 15, and 46. Fig. 15, finely chipped. Used either in arrowheads or harpoon heads.

15. Rare Form of Arrowpoint: Semi-stemmed; found in H51. Thickness, 3.1 mm. (cf. Pl. 80, Figs. 1–14).

16. Rare Form of Arrowpoint. With pointed base; found in H70 (cf. Pl. 35, Fig. 41). 33 fragments of arrowpoints from 25 houses not classified according to types.

17–23. Inset Blades, Type 1: Slender, delicate, asymmetrical. 71 specimens; found in 40 houses. Length, 2.1–5 cm. (Fig. 17); width, .5–1.5 cm.; thickness, 1.5–3.1 mm. All with 1 straight edge for inserting in a shaft; other edge ranges from slightly convex to convex or angular. Most made for arrowheads, Types 1 and 4; largest, possibly side blades for lance heads (cf. Pl. 36, Figs. 1–36).

24, 25. Inset Blades, Type 3: Short, semilunar to triangular. 34 specimens; found in 19 houses. Length, 2.1–3 cm.; width, .9–1.5 cm.; thickness, 1.6–3.7 mm. Considerable variation in shape; rather crude. Most are probably side blades for harpoon heads of Types 1 and 3; some possibly for arrowheads.

26–29. Inset Blades, Type 4: Long, slender, delicate. 20 specimens; from 11 houses. Fig. 29 longest, of black siliceous slate; others flint. Shape varies from long and slender (Fig. 28) to almost semilunar (Fig. 26). Thickness, 3.1–4.8 mm. Presumably for lance heads.

30–33. Inset Blades, Type 5: Moderately short, broad, crude. 28 specimens; found in 21 houses. Length, 2.8–3.5 cm.; width, 1.3–1.7 cm.; thickness, 2.6–4.9 mm. Fairly constant type, characterized by size and crudeness. Some possibly blanks of other types. Some with rounded or even flat points (Fig. 32). Not found in situ, but some possibly side blades for lance heads; others for knives.

Of 153 unclassifiable fragments, 114 from 48 houses, small, probably used in arrowheads; 39 from 18 houses, large, probably side blades for lance heads or knives.

34–39. Harpoon End Blades: Broad, with straight base. 31 specimens; found in 23 houses. Fig. 34 and 4 others chalcedony; rest flint. Length, 2.7–6.7 cm.; width, 1.4–3.1 cm.; thickness, 3–.9 mm. Some nicely chipped (Figs. 36 and 39); some (Fig. 35) rather crude. 13 partly chipped on 1 side, leaving areas of original surface untouched; similar to those found in harpoon heads, Type 2 (Pl. 4).

1. 60.2-3580, H63 14. 60.2-2952, H46
2. 60.1-7756a, H10 15. 60.2-3840, H51
3. 60.2-3273, H56 16. UA, H70
4. UA, H36 17. 60.2-2872, H41
5. P-3420, H32 18. 60.1-7886, H13
6. 60.2-2820, H41 19. 60.2-3844, H53
7. P-3709, H43 20. 60.2-3845, H53
8. UA, H38 21. 60.2-3073, H47
9. 60.2-2932, H45 22. 60.2-2934, H45
10. UA, H33 23. 60.2-3846, H53
11. UA, H26 24. 60.2-2935, H45
12. UA, H61 25. 60.2-3374, H57
13. 60.2-3843, H53 26. 60.2-2617, H37
27. 60.2-2811, H40
28. P-4127, H55
29. P-4010, H50
30. 60.2-2813, H40
31. 60.1-6021a, H17
32. 60.2-2936, H45
33. 60.2-3087, H51
34. P-3856, H49
35. 60.2-2813, H40
36. UA, H36
37. 60.2-3836, H34
38. P-3716, H43
39. 60.1-7955a, H15
PLATE 3
HARPOON HEADS—IPIUTAK HOUSES

1–12. Type 1: Slender, pointed, with open shaft socket, 2 flint side blades; multi-pronged spur. 49 specimens; found in 24 houses; 48 antler; 1 ivory. 6 retain 1 or both side blades. Length, 6–11.3 cm.; width, 1–2 cm. Upper part (from line hole) round in cross-section, awl-shaped. Blade slots parallel to line hole, from edge of which they extend. Except 2 (H10 and H64 [Fig. 5]), decorated with 1 to 11 incised, straight lines extending longitudinally from upper end of blade slots to ends of spur. Fineness of lines varies; usually 2 deeply cut lines, 1 on each side in middle of space between blade grooves. Lines closest to blade grooves often send a branch off towards line hole which is always round. On lower end of head, surrounding shaft socket, a wide, shallow lashing groove forms slot on 1 side. Lateral bifurcated or trifurcated spur; on Figs. 1–5 on right (Fig. 5 has almost 3 dorsal spurs); on Figs. 6–11 on left. Figs. 10–12 exceptional forms. Lower part of Fig. 10 (H32) with flat point, besides normal lines, has panel of short longitudinal lines on 1 side, 2 transverse spurred lines, and 4 pairs of oblique short lines on other. Fig. 11 (H53) has long, flat, slightly bifurcated spur with 2 parallel, narrow, serrated ridges along 1 side. Fig. 12 (H20) ivory, oval in cross-section, much heavier than others.

13–18. Miniature Harpoon Heads, Type 1: Miniature forms without side blades; usually without incised lines. 20 specimens; found in 12 houses; 18 antler; 2 ivory. 6 blanks without line hole and with shallow shaft socket. Length, 3–6.2 cm.; width, .5–.9 cm. Fig. 13 has 2 sharp ridges imitating side blades, otherwise an exact copy of normal harpoon head. On Figs. 14 and 17, shaft socket continues to point, including oblong line hole. Figs. 15 and 17 have no lashing slot. Fig. 16 has deeply cut lines instead of side blades, suggesting side blade grooves. 11 of them very carefully made, may have been used for small game; may also be toys.

19–21. Harpoon Heads, Type 1a: Slender, pointed, with open shaft socket and cut line hole; no blades or lashing slots. 3 specimens; antler. Fig. 19 (H10) crude; with single spur. Line hole rectangular; lashing groove merely indicated. Fig. 20 (H43) has flat spur and wide lashing groove. Fig. 27 (H17) has extremely long point, 2 spurs, and fairly deep lashing groove.

1. 60.2-3255, H54
2. P-4133, H55
3. 60.1-8149b, H21
4. P-4134, H55
5. 60.2-3684, H64
6. 60.2-3685, H64
7. UA, H35
8. 60.2-3686, H64
9. UA, H66
10. P-3432, H32
11. 60.2-3847, H53
12. 60.1-8129a, H20
13. P-3855, H49
14. 60.2-3277, H56
15. P-3436, H32
16. UA, H35
17. P-4136a, H55
18. P-4136b, H55
19. 60.1-7778a, H10
20. P-3715, H43
21. 60.1-8033a, H17
PLATE 4
HARPOON HEADS—IPIUTAK HOUSES

1–15. Type 2: Broad, with closed shaft socket; slit for end blade at right angles to line hole. 37 specimens (including 8 blanks); found in 30 houses; 36 antler; 1 ivory. 7 retain flint blade. Oval in cross-section; greatest width at right angles to line hole. Width, .8–2.4 cm., measured across line hole; length, 5.6–10.2 cm. Spur usually trifurcated (Figs. 1–5); Figs. 6 and 14, bifurcated spur; Figs. 9–12, plain; Figs. 7 and 8 are transitional forms. 21 decorated with incised lines, but no 2 alike. Pattern duplicated on both sides of head. Decoration on Fig. 8 unfinished. Design elements are single or double, straight or curved lines of varying thickness, and spurred lines. More elaborate decoration as heads become more pointed. Figs. 14 and 15 are exceptions; pointed, but with a few simple, very deeply incised lines. Blade in Fig. 10 is not a normal harpoon blade, but a side blade for a knife (Type 1). Transverse groove on lower part of Fig. 3 is for a lashing, as sides of socket are cracked.

16. MINIATURE HARPOON HEAD, Type 2: Miniature form of Type 2, with closed shaft socket, slit for end blade at right angles to line hole, and trifurcated spur. 1 specimen; from H56; ivory, rather crude, but possibly functional.

1. 60.2-3202, H52
2. 60.1-7841, H11
3. 60.2-2635, H37
4. UA, H30
5. 60.2-3074, H47
6. 60.2-3276, H56
7. 60.1-8129b, H20
8. 60.2-2742, H39
9. 60.1-8149c, H21
10. 60.1-8032a, H17
11. 60.1-8032b, H17
12. P-3433, H32
13. 60.1-7960, H15
14. 60.2-3096, H51
15. UA, H31
16. P-4137, H55
PLATE 5

HARPOON HEADS—IPIUTAK HOUSES

1–10. Type 3: Slender; pointed, with inset flint side blades; closed shaft socket; decorated with incised lines. 11 specimens; found in 11 houses; antler. 2 retain 1 or both side blades. Unlike Types 1 and 2, Type 3 has definite front and back, due to curve of line hole; space between openings is narrow in front and wide in back. Considerable variation in shape and decoration. Figs. 1–5 have long, flat point. Back of Fig. 1 decorated with thin lines and 2 longitudinal rows of triangular dots; back of Fig. 2 has straight, deeply cut lines with rows of thin, short lines between. Fig. 3 resembles Fig. 1, except for 2 dot and circle figures with radiating lines below line hole. Similar figure back of Fig. 4, besides 3 pairs of curved lines on spur. Traces of red paint in lines on Figs. 3 and 4. Back of Fig. 5 has straight or slightly curved lines and rows of longitudinal dots. Fig. 6 has awl-shaped point and a lashing groove around shaft socket, broken in 2 places. Decoration complicated; main elements, straight lines, curved, spurred lines, rows of short, very thin, oblique lines, and, in front of blade grooves, triangular panels, one with cross-hatching. Fig. 7, constricted around line hole and decorated with deeply cut lines. Figs. 8–10, rather short and thick, with same form of spur; delicate incised straight and curved lines, rows of short lines, and spurred lines. Figs. 1, 2, and 6 have little hole in the spur. Shaft socket of Fig. 8 unfinished.

11, 12. Miniature Harpoon Heads, Type 3: Slender; pointed; with closed shaft socket; without blade slots. 6 specimens (2 blanks); from H7, 13, 18, 32, 34, and 69; antler. Length, 4.3–5.7 cm.; diameter, approximately .6 cm. 1 blank has trifurcated spur; others, plain spur. Fig. 11 has rectangular line hole; Fig. 12, 4 incised lines. 3 heads may have been used.

13, 14. Harpoon Heads, Type 4: Short; broad; with open shaft socket and end blade at right angles to line hole. 3 specimens; found in H9, 34, and 68; antler. Groove and slot for lashing and plain lateral spur; lower part decorated with straight, deeply cut lines.

15. Rare Form: Round ivory head, related to Type 2, with end blade slit at right angles to line hole and closed shaft socket, but with extremely long, heavy spur with 1 side barb, and peculiar decoration. Round in cross-section; edge of spur serrated. Decoration consists of single and double, straight lines extending longitudinally or transversely, ladder-like design, and pairs of short, oblique lines. 1 specimen; from H11.

16. Rare Form: Long, heavy ivory head, with inset side blades, open shaft socket, 2 line holes, 1 above and 1 below shaft socket; round in cross-section at upper line holes, but flattens out towards point at right angles to axis of line holes. Blades chipped and partly ground. 2 lashing slots, 1 on each side of scarfaced shaft socket, both broken. Butt, incomplete, with only 1 spur, but presumably were 2 more. Except for point, whole head has elaborate decoration, same pattern on both sides. 1 specimen; from H69.

1. 60.2-2960, H46
2. 60.2-2409, H34
3. UA, H59
4. 60.1-8149a, H21
5. 60.1-8033, H17
6. 60.2-3584, H63
7. 60.2-3095, H51
8. UA, H70
9. UA, H36
10. P-4011, H50
11. P-3437, H32
12. 60.1-8069a, H18
13. 60.2-2501, H34
14. UA, H68
15. 60.1-7842, H11
16. P-4366, H69
PLATE 6
OTHER HARPOON PARTS, LANCE HEADS OR DAGGERS, AND ICE PICKS—
IPIUTAK HOUSES

1. Harpoon Socket Pieces, Type 1: With fixed tang; carved and inlaid, representing animal head; 2 specimens; 1 ivory (Fig. 1); 1 antler. Fig. 1 carved and engraved, represents upper part of 2 animal heads with 1 mouth. Eyes crescent-shaped, with round pupils. 1 head has pupils with round holes, 1 with red ocher inlaid. Shaft socket cylindrical, 1 cm. in diameter, open at bottom. Mouth slot extends into base of flat, crude tang, forming oblong hole, possibly for line. Second socket piece (H2) with rather long body, restricted in middle, with scarfed tang (cf. Pl. 38, Figs. 2, 3).

2, 3. Harpoon Foreshafts, Type 1: Short, loose, with line hole and conical, cylindrical, or wedge-shaped butt. 13 specimens; found in 10 houses; 10 antler; 3 ivory. Length, 6.6–11.1 cm.; diameter, .7–1.3 cm. All but 1 have 4 equally spaced, incised longitudinal lines. 3, like Fig. 2, have almost cylindrical butt, resembling foreshaft from B108 (Pl. 38, Fig. 5); 1 (cf. Pl. 38, Fig. 1) with 2 line holes, 1 above other. 3, like Fig. 3, have a wedge-shaped butt, to fit into an oblong socket (cf. Pl. 38, Fig. 9). 1 has lateral line hole. Conical point indicates use with harpoon heads with closed shaft socket.

A ring (not illustrated) like those found in burials with this type of foreshaft (Pl. 38, Figs. 4, 8) found in H12; ivory, conical. Length, 1.4 cm.; diameter, 1.4 cm.

4, 5. Harpoon Foreshafts, Type 2: Long shafts, normally with line hole, probably fixed in harpoon shaft. 20 specimens (2 complete); found in 18 houses; 8 antler; 12 ivory. Length, 12.5–25 cm. 10 points, all blunt, 8 flattened; 2 conical; former for open-socketed harpoon heads; latter for closed socket. All butts have oblong line holes; 3 wedge-shaped; 1 conical. 3 complete foreshafts without line holes, but a scarfed butt (Fig. 4). Fig. 5, a fragment of very long shaft (cf. Pl. 39, Figs. 1, 2), has 2 deeply cut and 2 thin, equally spaced, longitudinal lines. 4 longitudinal lines found on most specimens.

6, 7. Miniature Foreshafts, Type 1: Small shafts, with broad, beveled butt; line hole or groove near butt. 11 specimens; found in 8 houses; antler. Length, 4.8–9 cm.; diameter, .8 cm. 8 with oblong line hole just above beveled butt; 3 with groove or notch in same place. 4 with round point; 1, flat point. Probably used with miniature harpoon heads.

8. Miniature Harpoon Foreshafts, Type 2: Very slender shafts, with line hole near wedge-shaped butt. 30 specimens; found in 18 houses; 23 antler; 7 ivory. Length, 5.6–19 cm.; width, .3–.8 cm. All but 3 with 2 or more, usually 4, incised lines. 22 quadrangular in cross-section; 1 triangular; balance round to oval. 9 with flattened, blunt point; others with sharp point; some apparently reworked. Presumably used with miniature harpoon heads, either as toys or as actual weapons.

9–12. Lance Heads, Type 1: Long, slender, with inset flint side blades and perforated butt. 7 specimens (1 blank); found in H4, 8, 15, 43, and 71; ivory. Figs. 9–11 oval in cross-section with narrow butt, as if set into shaft. Fig. 9 with long blade groove in 1 edge; flint blade still in position. 1, from H4, very much like it and also with part of blade left, not illustrated. Fig. 10 with blade grooves for 4 side blades, 2 in each edge. Both sides decorated with long incised lines forming pattern differing little on each side. Fig. 11 with grooves for 2 side blades, 1 on each edge and at different levels. Fig. 12, rectangular in cross-section, probably had 4 side blades, 2 on each edge. Both sides decorated with same pattern.

Interpretation as lance heads uncertain; some possibly daggers or, like Fig. 9 with 1 cutting edge, knives. 37 pieces of ivory shafts with blade slots in 1 or both sides and perforated butts are presumably fragments of this type; from 24 houses; vary in cross-section from flat, oval, to subangular; 3 decorated.

13, 14. Ice Picks: Relatively heavy shafts with perforated or scarfed tang. 22 specimens; found in 17 houses; ivory. Length, 11.5–33 cm.; thickness, 1.5 cm. Most are subtriangular in cross-section; a few subquadangular, or oval. 4 with oblong, lateral line hole near butt; balance, like Fig. 13, have scarfed, sometimes flattened tang; Fig. 14 has both. Classification not quite certain, but probable, as similar forms found in burials with other harpoon parts (cf. Pl. 39, Fig. 8). Some with blunt point, possibly fixed harpoon foreshafts.

2 specimens, not illustrated, resemble common Eskimo ice picks, presumably intrusive. 1, antler, like most common Tigara type; the other, fragmentary, ivory, has very long, flattened, and scarfed tang. 33 butts of ivory shafts with oblong line hole and subangular or oval in cross-section, found in 21 houses, possibly fragments of ice picks.

1. 60.2-2637, H37
   6. UA, H31
2. P-3438, H32
   7. 60.1-8177a, H22
3. 60.2-3280, H56
   8. 60.2-3381, H57
4. 60.2-3380, H57
   9. 60.1-7971, H15
5. 60.1-8030, H17
   10. P-3718, H43
   11. UA, H71
   12. UA, H71
   13. 60.2-3098, H51
   14. P-4142, H55
PLATE 7
MISCELLANEOUS HUNTING IMPLEMENTS—IPIUTAK HOUSES

1–4. Side Prongs for Bird Darts: Curved, with barbs along 2 sides, lashing slot, and beveled tang. 11 specimens; found in 10 houses; ivory. 6 complete, all about same size. Body almost square in cross-section; point and tang flat; inside edge of tang sharp; barbs set off from body; usually 2 on outer and 3 on inner side. Figs. 2–4 from H11, 57, and 12, decorated; almost identical with decoration on Okvik side prongs.

5–7. Barbed Points: Fragmentary, with barbs on 2 sides. 11 specimens; from H2, 4, 15, 28, 50, and 57. Fig. 6 antler; balance ivory. Round in cross-section. Figs. 5 and 6 with broad barbs; others with narrow barbs set off from body. Fig. 6 has 4 incised longitudinal lines and slot near point. Possibly fragments of end prongs for bird darts.

8–10. Gull Hooks: Slender, double-pointed shafts, perforated or grooved in middle. 11 specimens; from 8 houses; antler. 7 with oblong hole or slit through central part; 4 with median groove. Fig. 8 has 4 incised, equally spaced longitudinal lines.

11–16. Leister Prongs: Curved, barbed points with sharp, pointed tang. 39 specimens; found in 24 houses; 20 ivory; 19 antler. Length, 13.6–24.5 cm. Cross-section round, oval, or subangular. 20 with 2 to 4 incised longitudinal lines; some shallow, others deeply cut. Narrow barbs, sharply set off from body; barbs vary from 2 to 6, arranged in 1, 2, or 3 rows. Most with flat tang; Fig. 11 and 2 others have conical tang. Interpretation as leister prongs not quite certain, but their shape and excavation in groups of 2 or 3 indicate that 2 or more were used together in end of shaft, either as bird dart or leister.

17. Salmon Spear Prongs and Bar: Set found in H13 undoubtedly belong to same salmon spear; decorated with 4 incised lines and triangular dots.

18. Center Prong for Salmon Spear: Straight, with flat, sharp point, long lashing slot, and triangular butt. 10 specimens (including Fig. 17); found in 9 houses; 9 antler; 1 bone. Length, 10.7–17.2 cm. Point with 2 sharp edges. Both sides of lashing slot have plane face and step for side prong. Butt varies in size and shape; Fig. 18 has unusually large butt. All except Fig. 17 undecorated.

19, 20. Side Prongs for Salmon Spear: Curved strips of antler with both ends beveled. 11 specimens (including Fig. 17); found in 9 houses. Fig. 19 longest; Fig. 20 shortest; oval, round, or subquadangular in cross-section. Besides the faces, of which upper is shorter than lower, has a pair of oblong knobs or ridges in each end to support lashing. 7 have 4 incised, longitudinal lines.

21–24. Barbs for Salmon Spear: Short, curved, with sharp point, lashing slot, plane face, and step for side prong. 22 specimens (including Fig. 17); found in 17 houses; antler. Length, 3.6–6.4 cm. Fig. 23, one of a pair found in H42, has hollowed-out step. 3 decorated with from 1 to 4 incised lines.

1. 60.2-2500, H34
2. 60.1-7857, H11
3. 60.2-3386, H57
4. 60.1-7879, H12
5. 60.1-7963, H15
6. 60.2-2413, H28
7. 60.2-3387, H57
8. P-3444, H32
9. P-4145, H55
10. P-4144, H55
11. P-4147, H55
12. 60.1-8047b, H17
13. 60.2-2489, H34
14. 60.1-7900, H13
15. 60.2-3593, H63
16. 60.2-2490, H34
17. 60.1-7915a-c, H13
18. P-3449, H32
19. 60.1-8101, H19
20. P-4370, H69
21. UA, H60
22. P-4148, H55
23. P-3629, H42
24. 60.2-2844, H41
PLATE 8

KNIFE HANDLES AND ENGRAVING TOOLS—IPJUTAK HOUSES

1-7. KNIFE HANDLES, TYPE 1: With blade slot in side and end. 27 specimens; found in 19 houses; 21 antler; 6 ivory. Length, 6.5-14 cm. Except for 2, all have ridge around upper end. Blade slot: length, 2-10 cm. Fig. 1, with lower end cut off, retains flint blade (side blade for knives, Type 2). Fig. 2 has blade slot 6.5 cm. long and incised lines on lower part. Fig. 3 has blade slot 7.5 cm. long and hole, possibly for suspension. Fig. 4 decorated with incised curved lines on sides and straight, transverse, and longitudinal lines on back. Blade slot runs through to butt, forming wide opening, which possibly contained stone blade. 3 others, 1 from same house as Fig. 4, have same sort of undulating back. Figs. 5-7 ivory. Figs. 5 and 6 have wide blade slots; Fig. 7, a narrow slot which apparently had a metal blade. 3 other handles have narrow blade slots. Inset blades of Types 3 and 5 were possibly used in knives of this type with short blade slot.

8. UNIQUE ANTLER KNIFE HANDLE, WITH BLADE SLOTS IN BOTH ENDS: Found in H49. Slots less than 1 mm. wide; consequently, could not possibly have had flint blades, continue along side as on preceding handles. Slots, length .9 and 2.1 cm.

9. KNIFE HANDLES, TYPE 2: With blade socket in end. 3 specimens; found in H2, 13, and 55; antler. Rather crude; about same size. Socket oblong; probably contains flint blade.

10-14. KNIFE HANDLES, TYPE 3: Almost or completely split in 2 symmetrical halves by longitudinal cut through middle of blade slot. 33 specimens; found in 24 houses; 19 antler; 14 ivory. Length, 8.3-11.9 cm. Figs. 10 and 1 other complete. Only 3, including Fig. 14, identifiable as composite knives, consisting of 2 separate strips lashed together. All others in 1 piece, but broken. In 3 houses, H20, 41, and 63, both kinds found. None contained blade, therefore form unknown. Size and shape of blade slot suggest metal blades; most slots only about 1 mm. wide; few, about 2 mm. wide, may have held thin flint blade. No suitable blades found. Depth of blade slots varies from 6 to 16 mm. 3 handles decorated with incised lines. Fig. 11 with ring-shaped butt and deeply cut, curved lines above ring. Fig. 12 with butt shaped like animal head with 2 eyes, a suspension hole as mouth, and decoration as in Fig. 9. Butt of Fig. 13 hollowed out, possibly socket for stone tool.

15-24. ENGRAVING TOOLS: Slender shafts, with slot for ground squirrel tooth or metal point. 19 specimens; found in 17 houses; 17 ivory; 2 antler. 3 retain a pointed incisor of a ground squirrel in slot; 1 (Fig. 24), a piece of iron. Fig. 15 the longest; Fig. 18 the shortest. Decoration of all ivory specimens always concentrated around middle of shaft (Figs. 15-23). Like Figs. 15 and 16, 4 have central section curved out, leaving 4 more or less curved “columns.” 1 like Fig. 17, but has 4 protruding knobs in ring on each side of bulb. Fig. 21 has loose ring around middle. 1, like Fig. 22, has quadrangular middle section, decorated with incised spurred lines. Fig. 23 has most elaborate engraving on shaft and knobs decorated with asterisks.

1. P-3721, H43
2. 60.1-7965a, H15
3. 60.1-7965b, H15
4. 60.2-3482, H62
5. 60.2-3388, H57
6. UA, H35
7. UA, H71
8. P-3861, H49
9. 60.1-7896a, H13
10. 60.1-7966a, H15
11. P-4150, H55
12. 60.2-2513, H34
13. 60.2-3594, H63
14. 60.2-2845, H41
15. UA, H71
16. 60.2-3483, H62
17. P-3631, H42
18. 60.2-3741, H65
19. 60.2-2902, H44
20. 60.2-2902, H44
21. 60.1-8156, H21
22. 60.2-2516, H34
23. P-3724, H43
24. 60.2-3103, H51
PLATE 9
ADZES—IPIUTAK HOUSES

1–10. ADZE HEADS, TYPE 1: With an end blade socket, grooved or scarfed for lashing to handle. 50 specimens; found in 31 houses: 45 antler; 4 bone; 1 ivory. 9 retain stone blade in socket. Length, 5.9–13.5 cm.; width, 2.2–6 cm. Blade sockets: length, 2–5 cm.; width, 1–2 cm. 4 with no groove, but scarfed face, roughened surface, or notches in sides for lashing. 2 with blade sockets in both ends. Figs. 1–5 represent most common form with broad plain lashing groove and plane face for haft, only variation in shape of front part. Blades, of greenish or black silicified slate, have blunt beveled edge. Fig. 6 has 3 oblique grooves on upper surface and flat face underneath. Fig. 7 has extra groove in middle of wide groove and 2 notches behind it. Fig. 8, of bone, has no groove or notches, but surface roughened around middle; retains part of blade in socket. Rear part of Figs. 9–10 carved and engraved, representing animal head, with eyes, nostrils, and mouth. Fig. 9 is also ornamented on front part.

11–13. ADZE HEADS, TYPE 2: With end blade socket and 1 or 2 hafting slots. 4 specimens; found in H7, 32, 50, and 57; antler. Fig. 11 has 2 lashing slots in lower surface, 1 on each side of hollowed-out face for haft. Oblique slots meet on upper surface, with common opening. Upper surface decorated with incised lines containing traces of red paint. Blade slot: length, 2.3 cm.; width, .5 cm. Figs. 12 and 13 of unusual shape; Fig. 12 with 2 lashing slots; Fig. 13 with 1 slot and wide groove on opposite side, retains blade of almost black silicified slate with blunt, beveled edge.

14. ADZE HANDLE: Found in H41; antler. Lower part carved to fit small hand; decorated with 1 long, deeply cut line along back and 3 oblique, slightly curved lines on each side.

15. WOODEN ADZE HANDLE: Found in H36; badly decomposed; with flat, slanting face on top for head.

2. P-4157, H55 7. 60.2-2751, H39 12. 60.2-3391, H57
3. P-3730, H43 8. 60.1-8147, H21 13. P-4016, H50
4. 60.1-7781, H10 9. 60.2-3743, H65 14. 60.2-2850, H41
5. 60.1-7782, H10 10. 60.2-2971, H46 15. UA, H36
PLATE 10
GROUND STONE IMPLEMENTS—IPIUTAK HOUSES

1. Adze Blades, Type 1: Ground, with blunt, beveled edge. 19 specimens; found in 16 houses; gray, greenish, or black silicified slate. Most specimens fragmentary; smallest complete; length, 4 cm.; width, 3.3 cm.; largest, length, 8.5 cm.; width, 5 cm.; thickness, 1–1.5 cm. Edge of Fig. 1 almost straight, but usually edge is curved. Rear always narrower than bit; 1 almost triangular in outline. Sides ground only near cutting edge.

2, 3. Adze Blades, Type 2: Rectangular to triangular ground blades with sharp edge. 8 specimens; found in H5, 7, 15, 29, 50, and 55; silicified slate; 1 argillaceous slate. Fig. 2 the smallest; Fig. 3 the largest; both with slightly beveled, but very sharp edge. Except for Fig. 2, only front part carefully ground.

4–6. Adze Blades, Type 3: Large, 4-sided, with sharp cutting edge. 48 specimens; found in 32 houses; 47 silicified slate; 1 argillaceous slate. Length, 10.7–23.5 cm.; width, from 3–4.5 cm.; thickness, 2.5–4 cm. Cross-section varies from rectangular to square; upper surface, plain or slightly curved towards cutting edge; lower surface curved as in Fig. 4 or angular as in Fig. 5. Fig. 6 unusually long, square in cross-section, with straight lower surface curved near cutting edge. Some specimens ground on all 4 sides, some only on 2; upper and lower surfaces always carefully worked. Blade presumably hafted directly on handle, though no signs of lashing notches.

7–10. Whetstones, Type 1: Irregular, with 1 or several rubbed surfaces. 103 specimens; found in 43 houses; 75 gray or greenish argillaceous slate; 17 graywacke; 7 sandstone; 4 silicified slate. Fig. 7 of fine-grained sandstone, square in cross-section, rubbed on 4 sides. Fig. 8 slate, rectangular in cross-section, rubbed on 4 sides. 9 specimens resemble Fig. 9, slate, small, square in cross-section, rubbed on 4 sides. 3 with narrow grooves on 1 or more surfaces, possibly used to sharpen needles and awls. Similar grooves on Fig. 10, sandstone, of same shape as Fig. 9. Oblong, rather flat pebbles also used as whetstones.

11. Whetstones, Type 2: Slender, 4-sided, with broad groove in 1 surface. 4 specimens; found in H15, 16, 45, and 62; all sandstone. Fig. 11 and 1 more with grooved surface rounded. This type possibly used to polish arrowshafts (cf. Pl. 81, Fig. 12).

12, 13. Stones with Petroglyphs: 7 whetstones and 3 pebbles; argillaceous slate; found in H3, 4, 16, 17, and 65, with designs scratched on surface. Fig. 12 has small circle with radiating, straight lines on 1 side. Fig. 13 has designs on 2 surfaces; on 1 surface straight, radiating lines; on other, tree-shaped figures.

14, 15. Small Chisels: Ground stone implements with short, sharp, transverse cutting edge. 6 specimens; found in H15, 26, 33, 55, and 70; hard green or black silicified slate; all about same size; width of cutting edge, 2–3 mm. Except for Fig. 15, with bit in each end, rear only partly ground; rest very carefully worked, even polished. An unidentifiable implement, of same material and size, but with round, blunt point, found in H14.

16. Red Ocher: Red ocher used for paint, found in H6, 11, 36, and 48. Fig. 16 largest lump, very impure, containing small pebbles. 2 pieces of ferruginous sandstone, probably also used for paint, found in H40 and 45.

17. Jet: Lumps of jet; found in H7, 45, 46, 53, 54, and 65; used for inlays.

18. Pumice: Found in H12, 40, 44, and 46, probably used in skin-dressing, for polishing, etc.


1. UA, H60
2. P-4160, H55
3. P-4020, H50
4. 60.1-7989, H16
5. P-3867, H49
6. 60.1-7739, H10
7. 60.2-3848, H53
8. 60.2-2642, H37
9. UA, H67
10. 60.2-2975, H46
11. 60.1-7992, H16
12. 60.1-8013, H17
13. 60.1-7991, H16
14. P-4163, H55
15. UA, H33
16. UA, H48
17. 60.2-2946, H45
18. 60.2-3056, H46
19. 60.2-3566, H62
PLATE 11
FLAKING IMPLEMENTS—IPIUTAK HOUSES

1–5. Flaking Hammer Heads: Cylindrical to bell-shaped, with hafting groove. 21 specimens; found in 20 houses; walrus penis bone and antler. Length, 6.5–12.3 cm.; width, 2.5–3.3 cm.; round to oval in cross-section. Figs. 2 and 4 with wide longitudinal groove for haft. Fig. 3 decorated, but badly weathered. Incised lines suggesting an animal head still visible on rear; straight and curved lines on front. Fig. 4 has row of short incised lines, in front of groove. Fig. 5 has ladder-like decoration on both front and rear.

6, 7. Hammers: Presumably flaking hammers; antler. Fig. 6, found in H60, is obviously a hammer, with head shaped as in Fig. 5. Fig. 7, from H68, more dubious, but has been used as hammer or pounder.

8–11. Flint Flaking Handles, Type 1: Curved strips with spatulate butt and groove for flaker point. 11 specimens; found in 10 houses; antler. All about same length and width. Groove, in most cases, so flat, it resembles slight concavity. All have flat knob on lower side of point to support lashing. 6 decorated on 1 or both sides with incised lines, mostly curved. Decoration on Fig. 9 consists of extremely delicate double lines, some straight, some concentric ellipses. Fig. 10 has incised lines in connection with 2 holes in edge. Back of Fig. 11 has concentric circles, with cross in center; also straight and curved lines. Concentric circles also occur on broad part of 2 not illustrated.

12. Flint Flaking Handles, Type 2: Narrow, curved strips, with groove for flaker point. 2 specimens; found in H20 (Fig. 12) and 60; antler; rather crude. Fig. 12 with 2 long, very roughly incised lines on back (cf. Pl. 43, Figs. 15–16).

13. Flint Flaking Handles, Type 3: Flat objects, with groove for flaker point and broad, forked butt. 1 specimen; found in H32; antler. Like Type 1 except for flaring butt, which is more pronounced on specimens in burials (cf. Pl. 43, Figs. 17–19). Both sides of Fig. 13 decorated.

14–18. Flint Flaker Points: Slender, curved strips of bone, with flat or rounded point. 130 specimens; found in 52 houses. Length, 3.9–18.6 cm.; width, .5–2 cm. Made from walrus ribs split lengthwise and smoothed on upper side. Usually natural surface of bone forms lower side, so that implement has natural curvature of bone. Semilunar, elliptical, or round cross-section. Points usually have right slant. About half have 1 or 2 notches or, as in Fig. 14, a lashing groove near butt. Fig. 15 has 2 grooves; Fig. 16 has unusual arrangement of notches. Notch is farther from butt than usual in Fig. 17. Figs. 18 and 2 others are so heavy they presumably were used without separate handle.

1. P-3725, H43
2. 60.2-3289, H56
3. 60.2-3290, H56
4. UA, H35
5. 60.1-7780, H10
6. UA, H60
7. UA, H68
8. P-3454, H32
9. 60.2-3849, H53
10. P-4152, H55
11. 60.1-7779, H10
12. 60.1-8125, H20
13. P-3455, H32
14. 60.2-3599, H63
15. 60.1-7877, H12
16. P-3450, H32
17. 60.2-2639, H37
18. 60.1-7973a, H15
PLATE 12
SIDE BLADES FOR KNIVES—IPIUTAK HOUSES

Flint blades chipped on both sides and with 1 cutting edge.

1–6. Type 1: Slender, symmetrical, with pointed or blunt ends. 49 specimens; found in 29 houses; 44 flint; 4 chalcedony; 1 silicified slate. Fig. 1 longest; Fig. 6 shortest; Fig. 2 widest; Fig. 6 narrowest; average thickness, 5.5 mm. 8 with blunt end; remainder pointed.

7–12. Type 2: Slender, with curved edge and more or less straight back, pointed or blunt ends. 81 specimens; found in 41 houses; 73 flint; 5 chalcedony; 3 silicified slate. Length, 4.2–8 cm.; width, 1.8–3.2 cm.; average thickness, 5.45 mm. 13 specimens with blunt ends; rest pointed.

13–18. Type 3: Slender, with straight or slightly curved edge and curved back, pointed or blunt ends. 41 specimens; found in 30 houses; 38 flint; 2 silicified slate; 1 chalcedony. Fig. 13 longest and widest; Fig. 18 shortest. Average thickness, 5.25 mm. 12 with blunt ends; remainder pointed.

19–23. Type 4: Moderately broad, with lobate edge, curved back, and pointed ends. 58 specimens; found in 35 houses; 51 flint; 4 silicified slate; 3 chalcedony. Fig. 23 longest and broadest; shortest is 3.6 cm. long; slenderest, 1.7 cm. wide; average thickness, 5.15 mm. Fig. 23 found in wooden handle, so decayed it could not be preserved. (Text fig. 21.)

1. P.3386, H43
2. 60.2-3850, H53
3. 60.2-2937, H45
4. UA, H61
5. 60.2-3692, H64
6. 60.2-3752, H65
7. 60.1-7952b, H15
8. 60.2-2431, H28
9. UA, H71
10. 60.2-2938, H45
11. 60.1-8195a, H23
12. P.4177, H55
13. 60.2-2367, H27
14. 60.2-3494, H62
15. UA, H71
16. UA, H71
17. P.4182, H55
18. P.3880, H49
19. P.3486, H32
20. 60.2-2753, H39
21. 60.2-3851, H53
22. UA, H48
23. 60.2-3753, H65
PLATE 13

SIDE BLADES FOR KNIVES—IPIUTAK HOUSES

Flint blades chipped on both sides and with 1 cutting edge.

1-11. **TYPE 5**: Mostly slender, with flat, straight base. 83 specimens; found in 46 houses; 64 flint; 17 chalcedony; 2 silicified slate. Length, 3.2–8.8 cm.; width, 1.1–4.9 cm.; average thickness, 5.75 mm. Great majority are slender like Figs. 1–5; only 10 can be called broad (Figs. 8–11). Transitional forms represented by Figs. 6, 7. Variation in form due to curvature of cutting edge; slightly curved edge is most common. Back is straight or slightly convex. Majority have blunt points; 14 have flat point, like Fig. 7; 5 have sharp point.

12–16. **TYPE 6**: Mostly broad, with flat, slanting base. 26 specimens; found in 19 houses; 17 flint; 6 chalcedony; 3 silicified slate. Length, 4.2–8.3 cm.; width, 2.2–4.2 cm.; average thickness, 6.3 mm. 16 broad, with strongly curved edge, and a more or less curved back; 5 leaf-shaped, except for butt, very much like Type 1. 10 with blunt point, 10 with sharp point, and 1 with flat point. 14 with left slanting base as in Figs. 12–14; 8 with right slanting base as in Fig. 16; 2 with angular base as in Fig. 15.

17–22. **TYPE 7**: With flat or blunt base and concave back. 11 specimens; found in 7 houses; 6 flint; 5 chalcedony. Figs. 17 and 22 represent extremities in size. Average thickness, 5.75 mm. Fig. 17 flat at both ends; others with flat or blunt base and blunt or sharp point. Forms like Figs. 20–22 may be end blades.

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1. P-4189, H55
2. 60.1-8167a, H22
3. 60.2-2977, H46
4. 60.1-8000a, H16
5. UA, H36
6. 60.1-7888g, H13
7. 60.1-8116a, H20
8. 60.2-3076, H47
9. 60.2-3495, H62
10. 60.2-3105, H51
11. P-4335, H58
12. 60.2-2606, H29
13. 60.1-7952a, H15
14. 60.2-2939, H45
15. UA, H33
16. 60.2-2534, H34
17. 60.2-3106, H51
18. UA, H31
19. 60.2-3107, H51
20. UA, H33
21. 60.1-8167b, H22
22. 60.1-8116b, H20
END BLADES AND SEMILUNAR BLADES—IPIUTAK HOUSES

Flint blades chipped on both sides.

1–6. END BLADES, TYPE 1: Double-edged, symmetrical, lanceolate. 30 specimens; found in 18 houses. Length, 5.1–8 cm.; width, from 1.9–2.5 cm.; average thickness, 5.7 mm. A rather uniform type varying only in slenderness and sharpness of points.

7–12. END BLADES, TYPE 2: Double-edged, asymmetrical, slender, with sharp point. 12 specimens; found in 7 houses. Illustrated blades show difference in shape and size. Average thickness, 5.2 mm. Fig. 12, unusual form, with very wide butt.

13–18. END BLADES, TYPE 3: Symmetrical or asymmetrical, stemmed or semi-stemmed. 29 specimens; found in 24 houses. Fig. 16 smallest; Fig. 18 largest; average thickness, 6.65 mm. Most of them symmetrical; only 5 asymmetrical. Symmetrical form with sharp point and 2 cutting edges; asymmetrical form with blunt point and 1 cutting edge, suggesting difference in use. Symmetrical blades possibly used on spears or lances; asymmetrical blades perhaps for knives. 13 specimens with distinct tang set off from rest of blade (Figs. 13–14, 17–18). Rest with suggestions of tang or none at all.

19–22. SEMILUNAR BLADES, TYPE 1: Large sized, semilunar to subtriangular, with curved cutting edge. 35 specimens; found in 24 houses. Fig. 20 largest; smallest 4.4 cm. long and 2.9 cm. wide; average thickness, 5.6 mm. 20 with fine chipped cutting edge and more or less crude, straight, or slightly convex back. 15 with no definite cutting edge, possibly unfinished. Subtriangular form (Fig. 21) found only among these possibly unfinished. Shape of blade reminiscent of ulu blades; possibly so used. Some, like Fig. 20, with indications of hafting or wrapping around back.

23–25. SEMILUNAR BLADES, TYPE 2: Small, semilunar to subtriangular blades. 17 specimens; found in 12 houses. Length, 2.7–4 cm.; average thickness, 5.2 cm. With few exceptions, rather crude and without distinct cutting edge. 4, like Fig. 25, with finer chipping along curved side, indicating same use as preceding type; others may be scraper blades. 4, like Fig. 23, with small projection at each end of straight side, probably related to some sort of hafting.

In all the houses 676 fragments of flint blades have not been classified.

1. 60.1-7812a, H11  10. 60.2-3855, H53  18. UA, H31
2. 60.2-3852, H53  11. 60.2-3856, H53  19. UA, H33
3. 60.2-3759, H65  12. 60.2-3857, H53  20. 60.2-3256, H54
4. 60.2-3853, H53  13. 60.2-3858, H53  21. 60.1-8083, H19
5. UA, H48  14. UA, H30  22. 60.2-3119, H51
6. 60.2-2754, H39  15. 60.1-7957a, H15  23. 60.1-7891a, H13
7. 60.1-8019a, H17  16. 60.2-3077, H47  24. P-3886, H49
8. 60.2-3854, H53  17. UA, H60  25. 60.2-3611, H63
9. 60.2-3496, H62
PLATE 15
DISCOIDAL BLADES—IPIUTAK HOUSES

Chipped on both sides.

1–8. Type 1: Subquadrangular outline, 1 sharp, convex edge. 83 specimens; found in 40 houses. Illustrated blades show differences in shape and size. Average thickness, 7.5 mm. Edge very sharp, formed by fine chipping from both sides. Fig. 1 unusual in shape and workmanship, having a strongly curved edge, with fine chipping continuing around margin. Usually, sides and back are cruder, or, like sides of Fig. 3, not chipped at all. These are probably scraper blades; many of them fit into wooden handle for two-handed scraper (cf. Pl. 22, Fig. 16).

9–12. Type 2: Subtriangular outline, 2 sharp, convex edges. 11 specimens; found in 11 houses. All about same size and shape. Average thickness, 7.2 mm.

13–16. Type 3: Oval to elliptical outline. 26 specimens; found in 18 houses. Smallest, 4.4 cm. long and 3.3 cm. wide; largest, 6.3 cm. long and 4.7 cm. wide; average thickness, 7.1 mm. In most specimens, the entire margin is finely chipped. 8 are more crude at one end, resembling Type 1.

17–20. Type 4: Round. 23 specimens; found in 18 houses. The entire edge, or most of it, sharp and finely chipped. Diameter of smallest, 3.7 cm.; largest, 5.5 cm.; average thickness, 6.85 mm. None so perfectly disc-shaped as those found in burials (cf. Pl. 46, Fig. 16) or middens (cf. Pl. 85, Figs. 16–17).

37 fragments have not been classified.

1. 60.2-3257, H54 8. 60.2-3762, H65
2. 60.1-7750a, H10 9. 60.2-3861, H53
3. 60.2-3859, H53 10. P-4202, H55
4. 60.2-3860, H53 11. UA, H43
5. 60.2-3302, H56 12. P-3387, H43
6. 60.2-3612, H63 13. 60.2-3513, H62
7. 60.2-2988, H46 14. 60.1-8300, H2
   15. 60.2-3514, H62
   16. 60.1-8168, H22
   17. 60.2-3862, H53
   18. P-3510, H32
   19. 60.2-2760, H39
   20. UA, H60
SIDESCRAPEERS—IPIUTAK HOUSES

Flint flakes chipped on 1 face and on 1 or 2 margins.

1–5. CONCAVE: Oblong or angular flakes chipped on 1 concave margin. 173 specimens; found in 56 houses. No attempt made to give them a definite shape; some with minor chipping or retouching along the rest of margin.

6–10. CONVEX: Oblong or angular flakes chipped on 1 convex margin. 70 specimens; found in 42 houses. No definite shape. Some with minor chipping or retouching along the rest of margin.

11–15. STRAIGHT: Oblong or angular flakes chipped on 1 straight margin. 50 specimens; found in 32 houses. No definite shape. Some with minor chipping or retouching along the rest of margin.

16–20. DOUBLE CONCAVE: Oblong flakes chipped on 2 concave margins. 62 specimens; found in 40 houses. More uniform in appearance than preceding types; 14 worked on surface giving them a definite form (Figs. 16–18).

1. UA, H36 8. 60.2-3764, H65
2. 60.2-2442, H28 9. P-3768, H43
3. 60.2-3863, H53 10. P-3922, H49
4. UA, H26 11. P-4341, H58
5. 60.2-3128, H51 12. 60.2-2761, H39
6. 60.2-3306, H56 13. UA, H61
7. UA, H38 14. 60.2-3129, H51
15. UA, H36 16. 60.2-3307, H56
17. P-4213, H55 18. 60.2-3078, H47
19. 60.2-2941, H45 20. 60.2-2864, H41
PLATE 17
SIDESCRAPERS—IPIUTAK HOUSES

Flint flakes chipped on 1 face and on 2 margins.

1–6. CONCAVE-CONVEX: Oblong, curved flakes chipped on concave and convex margin. 57 specimens; found in 35 houses. Rather uniform type: 20 chipped on upper surface and on margins giving them a more “finished” appearance.

7–11. CONCAVE-Straight: Oblong and angular flakes chipped on concave and straight margins. 33 specimens; found in 25 houses. Figs. 7 and 10 have been chipped on surface. 3 specimens have a beak, chipped only on concave margin (Fig. 8); 2 shaped as in Fig. 11.

12–16. CONVEX-Straight: Oblong and rounded flakes chipped on convex and straight margins. 21 specimens; found in 19 houses. Rather uniform type.

17–22. DOUBLE-Straight: Oblong flakes chipped on 2 straight margins. 29 specimens; found in 21 houses. Rather uniform type. 8 specimens, chipped on 1 surface as well as on margins.

1. 60.2-2815, H40
2. 60.2-3698, H64
3. 60.2-3864, H53
4. 60.1-7922a, H14
5. 60.2-3765, H65
6. 60.2-3617, H63
7. P-4218, H55
8. UA, H33
9. 60.1-8165a, H22
10. UA, H25
11. 60.1-8113c, H20
12. 60.2-2942, H45
13. 60.2-2993, H46
14. 60.1-7866a, H12
15. UA, H70
16. 60.2-3137, H51
17. 60.2-2373, H27
18. UA, H35
19. UA, H33
20. 60.2-3213, H52
21. UA, H36
22. 60.1-7747a, H10
PLATE 18

ENDSCRAPERS—IPIUTAK HOUSES

Flint flakes chipped on 1 face and on 1 short margin.

1–5. Type 1: Thick. 48 specimens; found in 32 houses. Some variation in size as well as in shape. Smallest, 2 cm. long and 2.2 cm. wide; largest, 7 cm. long and 4.5 cm. wide. 23 taper gradually from a wide scraping edge to a narrow butt (Fig. 1). 9 have an oval or subangular outline as in Fig. 2; 9 are long and slender like Fig. 4. Figs. 3 and 5 are unique. Figs. 4 and 5 have almost straight scraping edge. Most of them are thickest in front and chipped to steep angle.

6–10. Type 2: Oblong, thin. 7 specimens; found in H3, 9, 15, 33, 46, and 71. Sides smoothed by fine chipping.

11–15. Right Slant: Mostly oblong and thick, with a right slanting scraping edge. 47 specimens; found in 31 houses. Vary from carefully made implements like Fig. 11 to raw flakes merely chipped on end like Fig. 15. 40 also chipped on sides. In most of them scraping edge is chipped to steep angle. Fig. 14 has right slanting edge on both ends.

16–20. Left Slant: Like preceding type, except for left slanting scraping edge. 10 specimens; found in 9 houses. Fig. 20, an unusual form, with 1 concave side chipped to steep angle, as if used as sidescraper and end-scraper.

1. 60.1-7924, H14 8. UA, H71 15. 60.2-3768, H65
2. 60.1-7863, H12 9. UA, H33 16. P-3382, H42
3. 60.2-2385, H27 10. 60.2-3004, H46 17. P-3539, H32
4. 60.1-7865, H12 11. 60.2-3623, H63 18. 60.2-2816, H40
5. 60.2-3314, H56 12. 60.2-3624, H63 19. UA, H70
6. 60.1-7951a, H15 13. P-3777, H43 20. P-3782, H43
7. 60.1-7949a, H15 14. 60.2-2683, H37
FLINT FLAKES CHIPPED ON 1 FACE.

1-6. **GRAVERS, TYPE 1**: Slender, curved flakes chipped to a point on 1 end. 50 specimens; found in 27 houses. 33 with point turned to right; 17, to left. All chipped along sides; about half also on upper surface. 10 with definite wider rear part; some, like Fig. 6, form transitional stages to Type 2.

7-12. **GRAVERS, TYPE 2**: Broad, curved flakes chipped to a point on 1 end. 26 specimens; found in 20 houses. 15 with point turned to right; 11, to left. Chipped along sides; 12, on upper surface as well. Some, like Fig. 7, form transitional stage to Type 1.

13-15. **GRAVERS, TYPE 3**: Slender, curved flakes chipped to point on both ends. 10 specimens; found in 7 houses. All carefully made and about same size and shape. 3 with points turned in opposite directions (Fig. 14).

16-18. **GRAVERS, TYPE 4**: Slender, straight flakes chipped to point on 1 end. 15 specimens; found in 15 houses. Most of them carefully chipped along sides and on 1 surface.

19-21. **S-SHAPED SCRAPERS**: Double-curved flakes chipped on both long sides. 8 specimens; found in 8 houses. Classification of 2 roughly chipped scrapers from H11 and H17 uncertain.

22-24. **SPATULA-SHAPED SCRAPERS**: Oblong flakes chipped along both sides. 8 specimens; found in 7 houses. Finest chipping on slender section, indicating that it was used for scraping; wide part possibly served as a handle.

240 fragments of scrapers and gravers from all houses not classified.

1. 60.2-2944, H45 9. 60.2-2817, H40 17. 60.1-7950b, H15
2. 60.1-7950a, H15 10. 60.2-3009, H46 18. UA, H26
3. 60.1-7998a, H16 11. 60.2-3010, H46 19. 60.1-7999a, H16
4. 60.1-8017a, H17 12. 60.2-2943, H45 20. 60.2-3319, H56
5. 60.2-3008, H46 13. UA, H66 21. UA, H66
6. UA, H26 14. UA, H35 22. 60.1-8308k, H3
7. UA, H68 15. 60.2-3771, H65 23. 60.2-3520, H62
8. 60.1-7868a, H12 16. 60.1-7998b, H16 24. P-4064, H50
1. *Oval Scrapers*: Oval to elliptical, thick flakes chipped on 1 surface and along edges. 12 specimens; found in 10 houses. Finest chipping is along 1 side and 1 or both ends; also chipped to a steeper angle, indicating use as sidescrapers and endscrapers. Fig. 1 is unusual in size; balance are about size of Fig. 2. 7 specimens have small sharp point at 1 end.

3–5. *Notched Scrapers*: Small, oblong, or angular flakes with chipped notches. 6 specimens; found in 6 houses. Fig. 3, chipped on both faces and on 1 margin, has 2 opposite notches. Fig. 4 with 4 chipped notches. Fig. 5 chipped only around the 2 notches. Of 2 not illustrated, chipped on 2 sides, 1 has 1 notch, the other 2 opposite notches.

6. *End Sidescrapers*: Oblong flakes chipped on 1 or 2 long and 1 short side. 2 specimens; found in H10 and 32.

7. *Pointed Scrapers*: Triangular flakes chipped on 2 sides meeting in a point. 2 specimens; found in H38 and 43.


9–11. *Drills, Type 1*: With broad base and slender point. 7 specimens; found in H4, 34, 36, 45, 51, and 59. 3, like Fig. 9, with thick, chipped base, and chipped point, round or diamond-shaped in cross-section. 2, like Fig. 10, made from thin flakes and with rather flat, chipped point. Fig. 11 is unique in size.

12, 13. *Drills, Type 2*: Slender, thick. 7 specimens; found in 6 houses. Fig. 12 pointed at both ends. 2, like Fig. 13, carefully made, with straight butt. 3 crude and indefinite in type.

14–16. *Drills, Type 3*: Thin, slender flakes with chipped, flat point. 7 specimens; found in 7 houses. Possibly used as small knife blades rather than drills, because of their thin, flat point. Fig. 16 is a very slender flake with retouched edges.

17–19. *Small Oblong Blades Chipped on Both Faces*: 15 specimens; found in 12 houses. This group undoubtedly includes blades for different purposes. 4, like Fig. 17, have 1 chipped cutting edge; these may be small side blades for knives. 3 are leaf-shaped thin blades like Fig. 18; 7 are rather thick, subtriangular or subquadrangular, with sharp edges.

20. *Subtriangular Blades*: Chipped on both faces and on 2 long edges. 4 specimens; found in H10, 33, 48, and 50.

21. *Thick Oval Blades*: Chipped on both faces, with sharp edges. 2 specimens; found in H12 and 17.

22, 23. *Four-Sided Blades*: Chipped on both faces. 3 specimens; found in H41, 42, and 47 (cf. Pl. 81, Fig. 2).

24. *Thin, Symmetrical, Stemmed Blades*: Chipped only on edges; either knife blades or projectile points. 2 specimens; from H33 and 50.

25. *Rare Form of Blade*: Chipped on both faces and on convex edge. From H53.

26. *Unique Specimen from H51*: Made from silicified slate; chipped on both faces, with sharp edges and point. Possibly used as drill or punch.

*Not Illustrated*: 550 retouched flakes; from 67 houses. These flakes have minor chipping of a more casual character on 1 or more edges, so that they are unclassifiable with normal scrapers. 212 used flakes; from 51 houses. Raw flakes, with retouching on 1 or more edges, presumably derived from use. 216 cores and blanks; from 55 houses. Included are flint tools ranging from cores to almost finished scrapers and blades. Thousands of raw flakes found but discarded, except for samples from a few houses.

1. 60.2-2464, H28
2. 60.2-2765, H39
3. P-3783, H43
4. 60.1-8188a, H23
5. 60.2-3141, H51
6. P-3540, H32
7. UA, H38
8. 60.1-7892, H13
9. UA, H59
10. 60.2-2945, H45
11. 60.2-3138, H51
12. 60.1-7999b, H16
13. 60.1-7926a, H14
14. 60.2-3234, H52
15. 60.2-3325, H56
16. UA, H48
17. P-3932, H49
18. 60.1-8305, H3
19. UA, H60
20. UA, H33
21. 60.1-7869a, H12
22. 60.2-2869, H41
23. 60.2-3079, H47
24. UA, H33
25. 60.2-3865, H53
26. UA, H31
PLATE 21

SHOVELS—IPIUTAK HOUSES

1, 2. Whalebone Shovels: Oblong, flat pieces of whalebone with straight sides and sharpened end. 24 specimens (all fragmentary); found in 22 houses. 3, like Fig. 1, with narrow handle at 1 end; only Fig. 1 has a pierced handle; 4 with holes near sides, like Fig. 2; 2 with a pair of holes in center of blade. Widths of blades, 11–13 cm.

3. Shovel Blades, Type 1: Curved segments of mammoth ivory with hafting holes. 4 specimens; found in H15, 27, 60, and 64. Fig. 3 is the single complete example.

4. Shovel Blades, Type 2: Flat pieces of whalebone with section cut out to receive handle. 3 specimens; found in H19, 52, and 56. 1, not illustrated, with notches in both sides for hafting; another, with broad groove on lower surface, presumably also for hafting.

5. Shovel Blades of Walrus Scapula: 5 specimens; found in H2, 18, 60, 63, and 64. Spine cut off and part of condyle removed to allow space for shaft which was held by lashing passing through 2 holes in blades. 1 specimen has 1 hole and a notch in the edge.

1. P-3841, H43
2. 60.2-3144, H51
3. 60.2-3704, H64
4. 60.1-8093, H19
5. 60.1-8073, H18
PLATE 22
TOOLS—IPIUTAK HOUSES

1–3. Mattock Blades: Walrus tusks with wide, beveled edge, scarred face for haft, and notches or grooves for lashing. 118 specimens; found in 51 houses. Length, 10–35 cm.; width, 4–8 cm. Variation in length mainly due to differences in wear. Scarfed face, either 5–6 cm. or 10–12 cm. long; in latter, it is sometimes divided into 2 equal-sized faces at a different level. Figs. 1 and 3 are only blades with broad, deeply cut grooves. Fig. 2 represents commonest type, with pairs of notches along edge. 2 or 3 pairs of notches are most common, but some have 4 or 5 pairs; these sometimes combined with shallow grooves.

4–6. Root Picks: Round or flat pieces of ivory or bone, pointed or with short beveled edge and lashing grooves or notches. 34 specimens; found in 23 houses; 30 from walrus tusk; 4 from walrus penis bone. Length, 8–24.5 cm.; width, 2.5–4 cm. Majority are flat; 10 definitely round. Most complete picks have short edge, approximately 1.5 cm. long. 2 with edge 2–2.5 cm. long, possibly mattocks, but classified as root picks because of slenderess. Mattocks usually made from base of large tusks, root picks from points or from small tusks. Most picks have 2–3 cm. long scarred face for haft; 1 of penis bone has double face, 10 cm. long. 6 have 1, 2, or 3 lashing grooves; remainder, 2 pairs of notches in sides.

7, 8. Wedges: Pieces of antler or ivory with wedge-shaped point. 43 specimens; found in 25 houses, 40 antler (Fig. 7); 3 ivory (Fig. 8). Length, 5–25 cm.; width, 2–5 cm.

9–11. Cutting Boards: Pieces of ivory with cutting marks on 1 or 2 faces. 15 specimens; found in 11 houses; 7 unworked pieces of ivory; 5, like Fig. 9, oblong flat pieces of ivory, usually the core, with rounded ends; 1 with an asterisk incised near 1 end. Fig. 10 has flat head with wide mouth carved in 1 end; head with 2 holes for inset eyes and traces of incised lines on upper surface; 1 hole surrounded by 3 concentric spurred circles on lower surface (cf. Pl. 68). Fig. 11 is fish-shaped.

12, 13. Marlin Spikes: Walrus ribs split lengthwise on convex surface, towards flat point. Point and adjacent edges worn. 39 specimens; found in 25 houses. In 10 specimens, condyle forms a handle as in Fig. 13.

14. Grinding Stones: Slabs or flat pebbles of graywacke or sandstone, ground on 1 or more surfaces. 36 specimens; found in 21 houses. Most are fragments, largest complete stone, 35 by 21 cm. Ground surfaces usually have slight depression in the middle. Some with traces of red paint on surface were presumably used to grind red ocher. Fig. 14, of sandstone, probably for other purposes, since it is ground on 4 surfaces.

15. Two-Handed Scraper, Type 1: Caribou leg bone (metatarsus) split lengthwise to form 2 sharp scraping edges. 7 specimens; found in H7, 17, 41, 47, and 68.

16. Two-Handed Scraper, Type 2: 1 specimen; found in H49. Wide central part has a slot for stone blade, 3.5 cm. long and 1 cm. wide. Two handles round in cross-section. Blade used with this handle possibly discoidal form, Type 1 (cf. Pl. 15, Figs. 1–8).

1. 60.1-7819, H11
2. 60.1-8144, H21
3. UA, H61
4. UA, H70
5. UA, H60
6. 60.1-7849, H11
7. 60.2-3637, H63
8. 60.2-3479, H65
9. 60.1-7984a, H15
10. 60.2-3034, H46
11. P-3963, H49
12. 60.1-7933, H14
13. P-4245, H55
14. P-4173, H55
15. 60.2-3428, H57
16. P-3974, H49
1-4. **Ivory Scoops**: 6 specimens (4 complete); found in H11, 15, 17, 46, 55, and 68. Fig. 1 has flat, curved handle, with triangular hole, decorated with incised line following outline of hole and surrounded by very fine radiating lines. Back of bowl has scratchy decoration, resembling sun design. Side edges, sharp and worn, as from use as a cup-shaped scraper. Fig. 2 is rather crude and clumsy, with short vertical handle. Figs. 3 and 4 both have broken handles.

5. **Antler Spoons**: 2 specimens; from H2 and 13. Have long narrow handle and shallow, spatulate bowl.

6. **Bird Bone Tube**: Cut bird bone, a needle case or a sucking tube for water. 1 specimen; found in H64. Near one end incised transverse line; other end broken.

7, 8. **Pieces of Birchbark Vessels**: Fragments of birchbark; found in H15 (3), 49 (2), and 65 (many). Only small rolls of bark from H49; those from H15 and 65 with rows of small holes, indicating that they were sewed or tied to other pieces. Fig. 7, a square piece, has holes along all 4 edges. No indication of shape and size of vessel.

9. **Handle**: Ivory; found in H63. Round in cross-section in middle and flattens out towards ends; lower edges of holes worn.

10. **Meat Fork (?)**: 2 curved and pointed strips of antler; found in H45 and 58; possibly meat forks.

11. **Pyrites**: 26 lumps; found in 20 houses. Used to make fire.

<table>
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<th>Reference</th>
<th>House</th>
<th>Item</th>
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PLATE 24

SEWING TOOLS, CLOTHING, AND ORNAMENTS—IPIUTAK HOUSES

1–4. Needles: 98 specimens; found in 31 houses. Made of bird bone, pointed, with round eye hole in 1 end. Length, 4.1–10.6 cm.; thickness, less than 1 mm.; thickest, 3 mm. Flat or rounded in cross-section. Many with eye holes no larger than in steel needles. 163 unfinished needles and bird bones with long, straight grooves, in process, were found in 40 houses.

5–9. Awls: Slender, pointed implements of antler, ivory or bone. 332 specimens; found in 59 houses. 237 antler; 93 ivory; 2 bone. Majority are scraps of antler or ivory, pointed at 1 end, or reworked implements; a great number made of fragmentary arrowheads. Very few with a standard shape; consequently, variation is extreme. Characteristic is sharp, often carefully ground point. 2 specimens, not illustrated, have hole as for a strap in 1 end.

10–13. Bodkins: Slender, pointed, ivory implements with carved “head.” 4 specimens; found in H43, 51, 56, and 60. Shafts round in cross-section, and rather blunt point. Fig. 10 has crude head; Fig. 11 has 4 raised rings around top, and 2 longitudinal incised lines extending from the top almost to point. Upper part of Fig. 12 carved into sort of handle. At top of Fig. 13 carved animal head decorated with incised lines, and eyes inlaid with jet. Lower part has 4 incised, equally spaced longitudinal lines. Use of these bodkins is undetermined.

14. Snow Goggles: 2 ivory specimens, 1 blank; found in H11 and 69. Fig. 14 decorated with incised lines and circles with radiating lines.

15–21. Brow Bands: Flat, curved antler or ivory strips with perforations in ends. 27 specimens; found in 17 houses; 19 antler; 8 ivory. Width, 1–2 cm. 7 undecorated; remainder have incised lines on outer surface. Fig. 15 only complete specimen. Ivory bands have uniform decoration consisting of straight or slightly curved lines radiating from circles with triangular cross-hatched panels near circles (Figs. 16, 17). Main feature of decoration on antler bands is either spurred lines (Figs. 18, 21) or bands of squares or rectangles (Figs. 19, 20). Fig. 21 is profiled on outer surface.

22–25. Ornaments (?): Carved flat ivory objects. 6 specimens; found in H39, 41, 45, 56, and 62. Two groups: Figs. 22–24 oblong, undecorated objects with a plate and 2 projections at 1 end. One projection on Fig. 22 is broken off. Fig. 23 and especially Fig. 24 may be unfinished. It is uncertain whether they have served the same purpose. Fig. 25, representing the second group, which may be identified as buttons, has incised double lines forming a distinct pattern and cross-hatching in upper corners; a circular space in center is sunk, cross-hatched, and has a double perforation. Another specimen from same house duplicates Fig. 25. Third specimen is semilunar, undecorated, and has only 1 hole in center.

26–28. Buttons (?): Ivory objects, perforated for attachment to garments. 3 specimens; found in H10, 32, and 69. Fig. 26, undecorated, has double perforation in center, 1 flat and 1 profiled side. Fig. 27 has 3 holes in a line, 1 flat, and 1 convex side; latter decorated with incised spurred lines. Fig. 28 is undecorated.

Not illustrated: 1 ivory plate with 2 round holes is part of a composite labret (cf. Pl. 48, Fig. 11); found in H6.

1. UA, H33
2. P-4266, H55
3. 60.2-3038, H46
4. P-4267, H55
5. 60.2-2704, H37
6. 60.1-8049a, H17
7. 60.1-7769a, H10
8. 60.2-3341, H56
9. 60.2-2485, H29
10. 60.2-3154, H51
11. P-3823, H43
12. UA, H60
13. 60.2-3342, H56
14. 60.1-7833, H11
15. 60.1-7759, H10
16. UA, H66
17. 60.1-8037a, H17
18. 60.2-3350, H56
19. P-4306, H35
20. UA, H59
21. P-3597, H32
22. 60.2-2790, H39
23. 60.2-3561, H62
24. 60.2-3351, H56
25. 60.2-2947, H45
26. 60.1-7774, H10
27. P-3600, H32
28. P-4401, H69
PLATE 25
HUMAN AND ANIMAL CARVINGS—IPIUTAK HOUSES

1–5. Human Heads: 5 specimens; found in H13, 32, 42, 49, and 50. Fig. 1 of antler, almost cylindrical, hollow, with oblong opening in top. Base split by 2 broad cuts in sides. Face realistically carved, with very wide nose, high cheek bones, large mouth, and round eye holes, which were undoubtedly inlaid with jet. 2 transverse incised lines on each cheek presumably indicate tattooing; 2 circles on the chin probably represent labrets. Other curved lines, plain or spurred, found on face and around an opening in back. Head possibly a harpoon socket piece. Fig. 2, of bone, hallowed out from back, has 1 small, rectangular hole in top of skull and 1 in side. Only facial features remaining are eyes and eyebrows (cf. Pl. 52, Figs. 3–5). Fig. 3 a nicely carved antler face with concave back, as if prepared for lashing to a round stick; supporting this assumption is a round hole in each side of forehead connected by deep groove in back and flat tang below chin. On top, incised schematic face (Text Fig. 29). Fig. 4, of bone, has same concave back and holes in sides as Fig. 3. Eyes have jet insets. Transverse lines on face probably represent tattooing; 2 dots on chin may indicate labrets. Fig. 5 a wedge-shaped piece of antler, with crude human features.

6–10. Seals: 10 specimens; found in 9 houses. 9 ivory; 1 (Fig. 9) wood. Length, 4.5–12 cm. Have flat back and, all except 2, slot in throat, probably for suspension. Fig. 6 has carefully made head, hind legs, and tail; incised lines represent spine and ribs (cf. Pl. 52, Figs. 6, 8). Fig. 7 has suggestions of fore legs. Fig. 10 a different type; flat, with suspension hole in end, protruding flippers and deep groove across neck. May possibly have been hung by suspension hole, and flippers and neck used as hooks.

11–17. Small Attachments Carved to Represent Animals: 7 specimens; found in H15, 27, 32, 38, 42, 55, and 63. Fig. 11, antler, with long curved "neck" and deep longitudinal groove on convex side. Head resembles bird head with curved beak, and long ears behind eyes. Round eye sockets were presumably inlaid with jet. Fig. 12, of antler, undoubtedly represents polar bear head on long stem. Head with inset eyes, carefully carved snout, small ears, and a Y-shaped design on forehead (cf. Pl. 52, Fig. 9 and Fig. 10). Stem decorated with incised lines like design representing spine on back of seal figures. Fig. 13, of ivory, unfinished; probably intended as a head like Fig. 12. "Body" restricted in middle, with deep, incised line along back, and indication of ribs. Fig. 14 also of ivory, unfinished; indications of head with open mouth, and ribs on body. Fig. 15 of ivory; actually a long hook with decorated stem; represents animal. Ladder-like design along back; also decorated with spurred lines. Fig. 16 antler; possibly a hook, with flat stem, and indications of fore legs and head. Fig. 17 ivory, shaped like serpent head; decorated with incised lines; broken.

Not Illustrated: 3 small bear heads, found in H2 and 7.

1. P-3973, H49
2. P-3599, H32
3. P-4109, H50
4. 60.1-7914, H13
5. P-3685, H42
6. 60.2-2529, H34
7. 60.2-2877, H41
8. 60.2-3158, H51
9. P-3975, H49
10. 60.2-2469, H28
11. 60.2-2403, H27
12. UA, H38
13. P-3686, H42
14. P-3618, H32
15. 60.1-7975a, H15
16. 60.2-3656, H63
17. P-4305, H55
PLATE 26

MISCELLANEOUS OBJECTS—IPIUTAK HOUSES

1–8. Pendants: Ivory or antler objects with suspension holes. 15 specimens; found in 11 houses. 14 ivory; 1 antler. Length, 2.8–9 cm. Fig. 1 flat, with 1 side carved to represent fish head. Lower part of Fig. 2 round and carved in shape of crooked neck terminating in small animal head. Fig. 3 shaped like round animal head, with protruding, pierced jaw. Fig. 4, round animal head, has large open mouth, nostrils, and eyes. Fig. 5 represents animal head; suspension hole forms mouth and 2 small grooves, eyes. Figs. 6 to 8 not decorated. 1 specimen, not illustrated, has incised lines and triangular dots on 1 side. These objects may be pendants for mask-like sets (Pl. 54).

9–13. Fragments of Openwork Carvings: 10 specimens; found in H2, 20, 31, 50, 59, 62, and 63; 9 ivory; 1 antler. Figs. 9–11 more or less unfinished fragments, all twisted. Too fragmentary to be classified, but resemble forms from burials. Fig. 12 may be part of swivel-like object (openwork carvings, Type 1, Pl. 59, Fig. 1), or of a swivel, Type 4 (Pl. 58). Twisted towards point, it presumably had 2 animal heads carved on base which is perforated by a shaft bearing with triangular opening in front. On outside are 3 parallel incised longitudinal lines. Fig. 13, of antler, too fragmentary to be classified, consists of 2 pieces, only 1 illustrated; both pierced in broad end, and decorated with incised lines. A decorated fragment from H2 and 2 presumably unfinished pieces slightly resembling openwork carvings, Type 12 (Pl. 65, Fig. 9), are not illustrated. Openwork carving, Type 16, from H2 is illustrated in Text Fig. 35. A chain with 2 links was found in H9.

14. Fragment of Antler Death Mask (?): Thin strip of antler, found in H11, decorated with concentric circles and radiating lines (cf. Pl. 49, Fig. 1).

15, 16. Pieces of Mask-like Sets of Carvings: 4 specimens; found in H2, 19, and 58; all ivory. A top piece with heavy eyebrows is from H2. Fig. 15, probably from bottom of mask, has row of holes for suspension of pendants (cf. Pl. 54). Both sides decorated with concentric circles, with cross in middle. Fig. 16 presumably 1 of side pieces. 1 specimen from same house (H16) may be a base piece.

17, 18. Decorated Antler Tubes: 5 specimens; found in H9, 42, 43, 44, and 51. Only 3 decorated; other 2 plain, curved tubes. Length, 7.5 and 21.7 cm. Both sides of tube (Fig. 17) decorated with incised lines forming animal head (cf. Pl. 76, Fig. 11). Fig. 17 cut behind head. Decoration on Fig. 18 restricted to ends; a stylized variation of the decoration on Pl. 76, Fig. 11. Deep lashing groove cut around each end. Probably a trinket box closed at each end with wooden plug. A schematic face on the specimen from H9.

19. Ornamental Bands: 4 specimens: found in H42, 46, 51, and 67; 2 antler; 2 ivory. All bent and undecorated (cf. Pl. 51, Figs. 5, 6).

1. 60.2-2948, H45
2. 60.2-3246, H52
3. UA, H68
4. P-3687, H42
5. 60.2-3160, H51
6. 60.1-7897a, H13
7. P-3601, H32
8. 60.1-8055a, H17
9. UA, H31
10. 60.2-3568, H62
11. 60.1-8130a, H20
12. 60.1-8130b, H20
13. 60.2-3665, H63
14. 60.1-7829, H11
15. P-4350, H58
16. 60.1-8099, H19
17. 60.2-3161, H51
18. P-3688, H42
19. 60.2-3055, H46
PLATE 27
MISCELLANEOUS OBJECTS—IPIUTAK HOUSES

1–5. HOOKS: 17 specimens; found in 11 houses; 13 ivory; 4 antler. Length, 3.3–13 cm. 9 with round or oblong suspension hole in upper end; 1 (Fig. 4) with knob. Fig. 2 has 4 equally spaced, incised longitudinal lines on upper end of shank. 1, not illustrated, from H3, of antler, decorated with deeply incised lines; rows of holes between lines inlaid with jet. Use uncertain. Fig. 3, with flat short prong, may be belt hook.

6–8. SWIVELS, TYPE 2: Small, rounded blocks with an I-beam for line fastening at 1 end and perforation for free-turning shaft in other. 3 specimens; found in H35, 43, and 49; 2 antler; 1 ivory. All different in shape; Fig. 8 closest to those in burials (cf. Pl. 57, Figs. 1–4).

9. SWIVEL, TYPE 3: Small, ivory, relatively long and slender, with perforation for line attachment and bearing for swivel shaft. 1 specimen; found in H11. Decorated with deeply incised lines (cf. Pl. 57, Fig. 5).

10–12. RINGS AND CYLINDERS: 9 specimens; found in 8 houses; 5 ivory; 4 antler. Fig. 10, a ring, 1 cm. high, decorated on outside with equally spaced, deeply cut, vertical lines across middle; between them, pair of short lines near each edge. 1 similar, not illustrated. Fig. 11, an antler cylinder, with thick walls and concavity in 1 end. Same concavity found on 2 ivory cylinders, not illustrated. 1 cylinder with heavy walls, 2 cm. high, made of walrus molar. Fig. 12, 1 of 3 cylinders with rather thin walls; with perforation near 1 end. Use uncertain.

13, 14. IVORY PEGS: 5 specimens; found in H3, 4, 9, 12, and 63. Stem pointed; head flat or round. 1 similar to Fig. 13 found in Burial 33 (cf. Pl. 75, Fig. 1).

15–18. ORNAMENTAL BANDS, TYPE 1: Flat, oblong objects with 1 or more perforations for tying or sewing to garment. 6 specimens, all antler; found in H52, 57, 60, and 63. 2 elliptical and undecorated, as in Fig. 15. Fig. 16 broken, with deeply incised lines following outline. Fig. 17 like Fig. 15 except for deep longitudinal groove cut from both sides, leaving opening in middle. Fig. 18 decorated on both sides, not duplicated. 1 specimen, not illustrated, split lengthwise through center, restricted in middle, with 4 holes in sides and 1 in each end (cf. Pl. 50, Figs. 3–5).

19, 20. FRAGMENTS OF WINGED OBJECTS (?): 2 specimens; both ivory. Fig. 19, found in H34, may be center of winged object. Back retains part of angular socket. Fig. 20, from H32, possibly part of wing, has been re-worked so decoration is partly cut away. Classification uncertain.

21. INSET BIRD BONES: Hollow bird bone, with thinner bone or wooden shaft fitted into cavity. 3 specimens; found in H17, 32, and 71. 2 with thin bird bone insets; 1 with pointed wooden shaft.

1. 60.1-7790, H10
2. P-4302, H55
3. 60.1-7975b, H15
4. UA, H30
5. 60.1-7913, H13
6. P-3834, H43
7. P-3970, H49
8. UA, H35
9. 60.1-7838, H11
10. 60.1-8159, H21
11. P-4304, H55
12. UA, H71
13. 60.2-3657, H63
14. 60.1-7883, H12
15. UA, H60
16. 60.2-3655, H63
17. UA, H60
18. 60.2-3245, H52
19. 60.2-2532, H34
20. P-3602, H32
21. P-3603, H32
PLATE 28

IMPLEMENTS OF UNCERTAIN USE—IPIUTAK HOUSES

1–7. Type 1: Awl-shaped implements, probably bird arrowheads. 40 specimens; found in 25 houses. 33 antler; 7 ivory. Length, 5.7–9 cm. 22 decorated with 2 or, usually, 4 equally spaced, incised longitudinal lines, as on arrowheads. 3 are undoubtedly reworked arrowheads. Tang conical, perforated; point end rounded (Fig. 1), keel-shaped (Fig. 3), saddle-shaped (Fig. 4), or crown-shaped (Figs. 6, 7). 7 specimens with distinct screw-thread-like impressions, as if forced into shaft. 2 specimens, similar to Fig. 5, have 3 short, oblique, incised lines near tang, exactly like those interpreted as owners’ marks on arrowheads. If interpretation is correct, perforation was used for cord, to tie head to shaft. Inset blade in Fig. 2 probably secondary, since most slots too small for any blade (Fig. 3). Included in this group, 1 specimen with transverse groove instead of slot.

8–11. Type 2: Antler shafts, subangular to round in cross-section, with 1 long groove along 1 side and short groove on other. 32 specimens; found in 17 houses. Length, 6.6–9.6 cm. Grooves terminate in opposite ends, combine with hole where they meet. 26 with transverse groove near end where long groove terminates; 2, where short groove terminates. 6 with 2 longitudinal incised lines, equally spaced from grooves. Undetermined, but possibly part of trap or snare.

12–14. Type 3: Small bird bone tubes with notches or transverse groove near 1 end. 39 specimens; found in 16 houses. Length, 5.4–8 cm. Cut straight at 1 or both ends. Possibly parts of squirrel snare.

15, 16. Type 4: Slender shafts, pointed at both ends. 39 specimens; found in 18 houses. 37 antler; 2 ivory. Length, 4.1–10.3 cm. Possibly a variety of uses.

17–23. Type 5: Wedge-shaped to conical ivory or antler objects with flat top and curved or straight, transverse edge. 25 specimens; found in 21 houses; 23 ivory; 2 antler. Length, 3.2–7 cm. 9 ornamented; 4 with 2 to 4 incised, equally spaced, longitudinal lines or deeply cut grooves; 5 with more elaborate decoration. Fig. 17 has belt around top and 4 incised, longitudinal lines. Fig. 18 has pattern of spurred lines on 1 side and suggestions of similar but unfinished design on other. Fig. 19 has same pattern on both sides, a spurred arch and longitudinal lines. Decoration on Figs. 20 and 21 is scratchy, including circles and radiating lines (cf. Pl. 75, Fig. 19).

24, 25. Type 7: Ring-shaped objects, with angular or rounded flat projection. 5 specimens; found in H8, 15, 19, 46, and 51; 4 antler; 1 ivory. All about same size. 1 with pronounced scalloped edge found in beach cut (cf. Pl. 77, Fig. 5). They may be rings for belts or other parts of costume, possibly used with hooks (cf. Pl. 27, Fig. 3).

26, 27. Type 8: Spool-shaped antler objects. 5 specimens; found in H9, 36, 37, and 40. Stem pierced by slot and ends carved to fit over round shaft. Possibly attached to bows.

28, 29. Type 9: Flat ivory objects, with deep notch near each end. 5 specimens; found in H2, 7, 15, 36, and 37.

1. 60.2-3444, H57
2. 60.2-2785, H39
3. UA, H48
4. 60.2-3445, H57
5. UA, H36
6. P-4364, H69
7. 60.2-2705, H37
8. 60.2-2711, H37
9. 60.1-7967a, H15
10. 60.1-7905, H13
11. 60.2-3718, H64
12. 60.1-8105a, H19
13. 60.2-3162, H51
14. 60.1-7840a, H11
15. 60.2-3659, H63
16. UA, H33
17. UA, H31
18. UA, H72
19. 60.2-4782, H63
20. 60.2-3835, H27
21. P-3609, H32
22. 60.1-8127, H20
23. P-4308, H55
24. 60.2-3841, H51
25. 60.1-7977, H15
26. 60.2-3837, H37
27. 60.2-4781, H40
28. 60.1-7983, H15
29. UA, H36
PLATE 29

IMPLEMENTS OF UNCERTAIN USE—IPIUTAK HOUSES

1. **Type 6**: Bones with flat, worked point. 6 specimens; found in H14, 26, 32, 63, and 70. Variety of bones used; 4 bones split lengthwise. Included, a piece of ivory with same shape of point. Length, 9.5–14 cm.

2, 3. **Type 10**: Long, slender ivory or antler shafts, with eye hole in 1 end. 6 specimens; found in H4, 9, 10, 13, 55, and 71; 3 antler; 3 ivory; all fragmentary. Longest piece, 29 cm., has scarfed face at one end; 1 is pointed. Former is possibly a fishhook shank; the latter, a trout needle.

4. **Type 11**: Spoon or spatulate-shaped antler implements. 5 specimens; found in H4, 6, 46, and 55. Blade of Fig. 4 had upturned edges. 1 with perforated handle. Possibly narrow spoons.

5. **Type 12**: Curved ivory object with flat, blunt point. 1 specimen; found in H31. With distinct handle, oval in cross-section, and suspension hole in end. Other end has 1 flat and 1 arched surface and tapers towards point (cf. Pl. 22, Figs. 12, 13; Pl. 76, Figs. 8–10).

6. **Type 13**: Ivory shafts, with plate and eye hole in one end. 2 specimens; found in H13 and 55. Fig. 6 has 3 round sockets in plate, arranged as if to represent eyes and mouth. Other end broken off. Second specimen, 14.2 cm. long, has pairs of notches in side of plate and shaft, which has a single notch end.

7. **Type 14**: Pointed objects made from walrus tusks. 4 specimens; found in H34, 50, 51, and 60.

8, 9. **Type 15**: Ivory objects, with rounded or oblique sharp edge in 1 end. 4 specimens; found in H32 and 51. 3 from core of tusk.

10–17. **Rare Unidentified Implements**: 64 specimens, found in 35 houses.

10. Dagger-like ivory implement, from H66; edges of blade sharp, similar, from H3 and 4.

11. Curved piece of antler with oblong socket in 1 end and 4 deeply cut longitudinal grooves, presumably handle for endscrapper. Found in H32.

12. Piece of antler, pointed, with 2 scarfed faces, and knob at other end. Possibly a fixed foreshaft. From H33.

13. Smaller form of Fig. 10; from H67; ivory. Groove combines 2 holes in blade; another groove extends from hole in handle to end.


15. Curved piece of antler, with socket in 1 end, possibly for scraper. Found in H31.

16. Implement with sharp, curved edge, made of caribou scapula. From H63.

17. Flat, smooth piece of core of walrus tusk. From H61.

1. P-3610, H32 7. 60.2-2588, H34 13. UA, H67
2. P-4309, H55 8. 60.2-3163, H51 14. UA, H31
3. 60.1-7765a, H10 9. 60.2-3164, H51 15. UA, H31
4. 60.2-3055, H46 10. UA, H66 16. 60.2-3666, H63
5. UA, H31 11. P-3613, H32 17. UA, H61
6. P-4307, H55 12. UA, H33
PLATE 30

RARE IMPLEMENTS OF UNCERTAIN USE—IPIUTAK HOUSES

1. Curved antler shaft, oval in cross-section, with knob in middle.
2. Curved ivory shaft, round in cross-section, decorated at ends.
3. Flat piece of ivory, perforated in both ends.
4. Curved piece of ivory, crescent-shaped in cross-section, with longitudinal slit; decoration on convex surface.
5. Peculiar-shaped ivory object.
6. Small whale’s tooth, hollow, perforated near edge; may have served as ferrule.
7. Ivory object, resembles a trace buckle. No signs of wear in loops.
8. Flat ivory ring, decorated with spurred concentric circles on 1 side.
9. Flat piece of antler with serrated edges.
10. Ivory peg, decorated around flat top.
11. Ivory plug, with 1 large round socket in center of cap, surrounded by 4 equally spaced, smaller sockets. Oblong perforation in base opening in side.
12. Slender antler shaft.
13. Flat piece of ivory with notches at ends.
14. Round antler shaft with flat point and conical perforated tang. Possibly variation of type interpreted as bird arrowheads (cf. Pl. 28, Figs. 1–7) or a toy weapon point.
15. Toy ivory weapon point. Point carved to represent an end blade.
16. Possibly a toy ivory weapon point. Flat “head” has sharp edges.
17. Pointed ivory shaft perforated near butt. Possibly a toy ice pick.
18. Pointed ivory shaft with notch in butt end.
19. Flat, pointed, and perforated ivory piece, broken off at 1 end. Possibly part of snowshoe needle.

In addition, 280 unidentifiable fragments of implements were found in 57 houses; 160 ivory; 100 antler; 20 bone.

520 pieces of ivory, 253 pieces of antler, and 16 pieces of bone were worked but not completed.

1. 60.2-3569, H62
2. 60.2-3866, H53
3. 60.2-3668, H63
4. UA, H31
5. UA, H38
6. UA, H68
7. 60.2-3439, H57
8. 60.2-2794, H39
9. UA, H33
10. UA, H36
11. P-3691, H42
12. 60.2-3440, H57
13. 60.2-2607, H29
14. P-3604, H32
15. 60.1-7908, H13
16. P-4311, H55
17. 60.1-8042a, H17
18. P-4318, H55
19. 60.1-8154, H21
1–3. Toy Bows: 13 more or less fragmentary specimens, found in 12 houses. Fig. 1, the largest, with 1 end broken off, has new notch cut in side. It is a reflex bow, with both ends curving forward; thickest in middle; flatter towards ends. Front side is arched; the back flat. Fig. 2 represents same type, but not so much curved, with relatively wider wings. Fig. 3 and 1 more bow have suggestions of same wide wings. Others apparently more slender.

4. Pointed Wooden Sticks: 4 pointed sticks; found in H36, 49, and 52. Fig. 4 and another from same house have notch in 1 end.

5, 6. Paddle-Shaped Objects: 3 specimens; found in H5, 10, and 37.

7. Flat Wooden Pieces Notched at the Ends: 14 specimens, with notches in 1 or both ends; found in H15, 16, 37, 40, 55, 65, and 68. Width, 3.5–8.5 cm. 6 perforated; 2 with longitudinal scratches on 1 side, like those found on sled shoes.

8. Curved Wooden Objects with a Knob in One End: 4 specimens; found in H16 and 65. 2 almost complete and identical specimens; from H65. Elliptical in cross-section, flatter towards knob which seems to be handle. These and a third piece from same house have a slot above knob. It is a definite tool, but so far unidentifiable.

9. Throwing Board (?): 1 specimen; found in H15. With flat handle; 1 surface flat, with remnants of longitudinal groove and oblong socket near point; back arched. Identified as throwing board because of handle, groove, and socket, which may have contained a peg.

In addition, 83 worked, but unidentifiable pieces of wood, found in 21 houses.

1. 60.2-3737, H65
2. P-4131, H55
3. 60.2-3474, H62
4. 60.2-3250, H52
5. 60.2-3270, H37
6. 60.1-7766, H10
7. 60.2-2719, H37
8. 60.2-3808, H65
9. 60.1-7986, H15
PLATE 32
ARROWHEADS—IPIUTAK BURIALS

1–8. Type 1: With inset flint side blades. 201 specimens; found in 42 burials; 183 antler; 18 ivory. Length, 12–22 cm.; diameter, 7–8 mm. All round to oval in cross-section, with smooth conical butt. 1 and occasionally both edges between uppermost blade and point ground down to form knife-like cutting edge. 4 equally spaced incised longitudinal lines extend nearly full length in all such heads. 5 heads have slots for 3 side blades, staggered (Fig. 8). Remainder have only 2; in every case these are set 1 before the other, on opposite edges of head, nearer to point than butt. Found in all types of Ipiutak burials.

9, 10. Type IA: Heavy; normally with only 1 inset flint blade. 11 specimens; all antler. 3 retain blades. All but 1 lack the 4 incised lines; otherwise same as Type 1. Found only in B89, 90, 101, 102. 1 head (B89) has 4 incised lines, as on all Type 1 heads. 4 heads unusually short (10 cm.), others as much as 23.5 cm. long. 10, unique arrowhead because of unusual length, 30 cm. It has two blade slots far apart and has been classed with Type 1a because of its thickness and absence of incised lines.

11–13, 15–18. Type 2: With flint blades set in points. 143 specimens; found in 30 burials; 142 antler; 1 ivory. Length, 11–18 cm.; diameter, 7–8 mm. 30 retain flint end blades. Majority oval to round in cross-section; all with 4 parallel incised lines as in Type 1. Heads from B64 and 108 have 4 lines cut so deeply that they are roughly quadrangular in cross-section (Figs. 15–16) (see Pl. 1, Fig. 7). Smooth conical butt. Occurs in all types of Ipiutak burials.

14, 19–20. Type 2A: Unusually broad and flat, with end blades, lacking incised lines, or with 1 or more broken, incised lines. 40 specimens; all antler. 17 retain flint end blades. Same as Type 2, except for broad, flat form and broken or absent incised lines. All found in the group of uncertain or peculiar graves (B89, 90, 101, 102, 101, 131, and 134).

1. 60.1-7305a, B8 2. P-4417, B89 3. P-4418, B89 4. P-4416, B89 5. 60.2-4236, B106 6. P-4415, B89 7. 60.2-4237, B106 8. P-4437, B89 9. P-4564, B101 10. 60.2-3920, B90 11. P-4444, B89 12. 60.2-4337, JB10 13. 60.2-4109, B97 14. 60.2-3923, B90 15. 60.1-7714c, B64 16. P-4646, B108 17. P-4446, B89 18. 60.2-4110, B97 19. P-4568, B101 20. P-4445, B89
ARROWHEAIS—IPIUTAK BURIALS

1–20. Type 3: With barbs and flint end blades. 154 specimens; found in 27 burials; all antler. Length, 11.5–18 cm.; diameter, 5–8 mm. 24 retain flint end blades. Barbs vary from 1 to 8 (Figs. 4–10), but 2, 3, and 4 barbs are most common. Barbs usually long and sharp, and lie close to shaft, but some very short (Fig. 5). Barb slots occasionally cut so deeply that heads are very fragile (Fig. 11) and would probably break when striking game. Smooth, conical butts. 1 (Fig. 10, a unique specimen) has a roughened screw-thread-like butt, as if it had been screwed into shaft; threading is unintentional. 1 to 4 incised lines normally cut in each head. Such incisions often made in each barb. Incisions cut so deeply in arrowheads found in B64, 67, and 108 that shafts are roughly quadrangular like Type 2 from same burials (Fig. 7). Fig. 20 unique, lacks incised lines, is unusually broad and rather crude. Found in B101, 1 of uncertain group; resembles Types 1a and 2a, which are limited to these burials. Type 3 arrowheads found in 27 burials, but most numerous in B94, 96, 97 (33 specimens); occur in all types of burials found in Ipiutak cemetery.

21. Type 4: With barbs and inset flint side blades. 3 specimens; found in B26, JB22 and 23; all antler. Approximately same size as Type 3. 1 (Fig. 21) has 1 blade slot cut just above and between 2 barbs. Other 2 have 2 blade slots cut in opposite sides above and below pairs of barbs. All 3 partly disintegrated, but characteristic incised lines are still visible.

1. 60.1-7306, B8
2. 60.2-3984, B96
3. 60.2-4223, B106
4. 60.2-3985, B96
5. 60.2-3986, B96
6. 60.2-3989, B96
7. P-4656, B108
8. 60.1-7714d, B64
9. UA, B67
10. 60.2-3988, B96
11. 60.2-3933, B90
12. 60.2-4120, B97
13. 60.2-3948, B94
14. 60.1-7310a, B8
15. 60.2-3987, B96
16. 60.2-3990, B96
17. UA, JB9
18. 60.2-3991, B96
19. 60.2-4356, JB11
20. P-4578, B101
21. UA, JB22
ARROWHEADS—IPIUTAK BURIALS

1–4. Type 5: With a flint end blade and 1 or more inset flint side blades. 20 specimens; found in 11 burials (B9, 16, 73, 89, 94, 96, 97, 106, 108, JB20, JB21) and in each of the different types of burials; most common in B9 (5 specimens); all antler. Length, 14–19 cm.; diameter, 5–7 mm. 7 retain 1 or more blades; 10 have slots for 2 side blades (Figs. 2–3); 9 have slots for 1 side blade (Fig. 1); 1 has slots for 3 side blades (Fig. 4). All with smooth conical butt and 4 equally spaced, parallel, incised lines. All oval to round in cross-section, except those from B108 which have deep incised lines and quadrangular cross-section characteristic of all arrowheads from that burial.

5–10. Type 6: With a flint end blade, and barbs set in opposite directions; 12 specimens; found in 8 burials (B11, 22a, 26, 73, 94, 96, 97, JB21). None found in articulated burials. All antler. 2 retain flint end blades. Barbs very sharp; lie close to shaft. Barb slots cut so deeply that heads are extremely fragile. All have 2, 3, or 4 barbs; on some barbs are set with points together (Fig. 5); some with barbs on opposite edge (Fig. 7); some with 2 barbs directed forward and 2 to the rear (Fig. 8). Where surface preserved, all have characteristic parallel incised lines; in some, extending to points of barbs. Fig. 10 is unique. Length, 38 cm., butt broken away. 3 barbs point towards rear and 1 barb (near broken butt) points forward. Incised lines extend from base of barb forward to next barb. All other Type 6 heads approximately same size as those of Types 1–4; length, 14–17 cm. Butts smooth and conical.

11–21. Type 7: Fantastic form, probably not used in hunting, but only as grave furniture. 21 specimens; found in 10 burials (B26, 73, 91, 94, 96, 97, JB4, 8, 21, 25) but most common in B26 (6 specimens). None found in articulated burials; all antler. 1 retains flint end blade. Approximately the same size as Types 1–5; length, 13.5–20 cm. All with smooth conical tang and characteristic parallel incised lines. Fig. 11 has slot cut through shaft, just below blunt end. Deep incisions near butt may be blade slots. Figs. 12 and 13 have blunt points apparently representing bird or animal heads. "Eye" of Fig. 12 is round perforation; that of Fig. 13, small round boss. Fig. 14, triangular in cross-section, has series of notches cut in 3 rather sharp edges. Fig. 15 has 3 barbs and broad flat "point." Fig. 16 is cut through to produce 3 separate filaments near point end. Fig. 17, partially disintegrated, has wide slot cut through flat central section. Fig. 18 has 4 barbs and flat "point"; a section of ring-like point broken. Fig. 19 extremely thin, with flat S-curve carved at center of shaft. Fig. 20 also very thin, with peculiar flange along 1 side, has 4 parallel incisions, 2 of which pass through flange. The most elaborate arrowhead (Fig. 21) has openwork carved "wings."

Not Illustrated: Type 8, without blade slots or barbs (cf. Pl. 1, Figs. 17–19). 1 specimen; found in B74.

Not Illustrated: Arrowhead fragments of unidentifiable type, 261 specimens; 258 antler; 3 ivory; found in 39 burials and in all different types of Ipiutak burials.

1. 60.2-4254, B106 8. 60.1-7480, B22a 15. 60.1-7512a, B26
2. P-4458, B89 9. 60.2-3949, B94 16. P-4501, B91
3. 60.1-7334a, B9 10. 60.2-3994, B96 17. 60.2-4140, B97
4. 60.2-4133, B97 11. 60.2-3958, B94 18. 60.2-4324, JB4
5. 60.2-3992, B96 12. P-4820, JB8 19. 60.2-4005, B96
6. 60.2-4124, B97 13. 60.2-4139, B97 20. 60.2-4006, B96
7. 60.2-3993, B96 14. 60.2-4004, B96 21. 60.2-4007, B96
Plate 35

Arrowpoints—Ipiutak Burials

1–20. Type 1: Chipped, with straight base. 100 specimens; found in 33 burials. Length, 2.2 (Fig. 19)–6 cm. (Fig. 12). All extremely thin, no more than 2–3.5 mm. thick. Fine, very regular chipping. Some made by removing diagonal spalls which extended almost full width of point. Long, slender, delicate points from burials have finer chipping technique than those generally found in houses, but some (Figs. 16–19) are the same. These thicker in proportion to width than larger points and more irregular in outline. Materials utilized are flint, jasper, chalcedony, and siliceous slate. Fig. 20 of siliceous slate is unique because it has been chipped as usual and partially rubbed on both faces.

21–24. Type 1A: Chipped, with a straight slanting base. 29 specimens; found in 12 burials. In material, size, form, extreme thinness, fine and regular chipping, these points are same as Type 1. Distinguished only because of slanting base which is frequently difficult to distinguish from straight base; hence, classification has slight significance. Type 1A not confined to any single type of arrowhead and occurs in all types of Ipiutak burials.

25–32. Type 2: With concave base. 32 specimens; found in 13 midden-like burials. Chipping technique, extreme thinness, and general form again same as Type 1. Some have pronounced "fish-tail" butt (Fig. 26). Others have more or less straight edges (Fig. 25). They occur in arrowheads of all types.

33–36. Type 2A: Chipped, with concave slanting base. 19 specimens; found only in 9 midden-like burials. Chipping technique, size, thinness, and materials same as in preceding types. This type associated with no particular type of arrowhead.

37, 38. Rare Form: Chipped, with concave slanting base, emphasized to form barb. 4 specimens (B73 and 96). Technique and general form like those of preceding types.

39. Rare Form: Chipped, with concave, but unusually broad base. 5 specimens; found in B73, 85, and 96. Technique and general form as in above.

40. Rare Form: Chipped, with restricted body. 2 specimens; found in B89 and 101. Technique as above.

41. Rare Form: Chipped, with pointed base. 3 specimens; found in B72, 80, and JB20. Technique as above.

42, 43. Arrowpoints or Harpoon Blades: 3 specimens; found in B73, JB13, JB18. Short, broad, chipped points with a straight base. Length, 3.3–3.8 cm.; thickness, 3 mm.

Not Illustrated: Unclassifiable arrowpoint fragments, slender and delicate, presumably from arrowpoints of Types 1 to 2a. 107 specimens; found in 32 burials.

Not Illustrated: Unclassifiable point fragments, relatively broad, presumably from arrowpoint or harpoon blades like Figs. 42 and 43. 12 specimens; all from B135.

1. 60.1-7328c, B9
2. 60.1-7300a, B8
3. P-4502, B91
4. P-4630, B105
5. P-4605, B101
6. UA, JB28
7. UA, B73
8. UA, B73
9. 60.1-7328b, B9
10. UA, B73
11. UA, B80
12. P-4463, B89
13. UA, JB24
14. UA, B90a
15. UA, B80
16. 60.1-7300c, B8
17. UA, B73
18. UA, B73
19. UA, B73
20. 60.1-7328b, B9
21. UA, B73
22. 60.1-7292b, B7
23. P-4605a, B101
24. P-4605b, B101
25. 60.2-4041, B96
26. 60.1-7292b, B7
27. 60.1-7300b, B8
28. 60.1-7292c, B7
29. UA, B73
30. UA, B66
31. 60.1-7715a, B65
32. P-4879, JB21
33. 60.2-3868, B72
34. 60.1-7715b, B65
35. 60.1-7328a, B9
36. 60.1-7328d, B9
37. 60.2-4042, B96
38. UA, B73
39. 60.2-4043, B96
40. P-4463a, B89
41. UA, B80
42. UA, JB18
43. UA, B73
PLATE 36
INSET FLINT SIDE BLADES—IPIUTAK BURIALS

1–36. Type 1: Slender, delicate, asymmetrical. 218 specimens; found in 33 burials; in all Ipiutak burial types, but most common in those containing bundles of arrowheads (B8, 9, 89, 73, etc.). In addition to those listed here, 59 found in Types 1 and 1a arrowheads; 3 in Type 4 arrowheads. Length, 2.1–6 cm.; width, 6–11 mm.; thickness, 1.5–2.5 mm. Chipping technique as in arrowpoints. Materials same as for arrowpoints.

37–39. Type 2: Slender, delicate, symmetrical. 7 specimens; found in 6 burials. Some inset blades found in arrowheads, probably of this type since, when in place, it is impossible to distinguish symmetrical from asymmetrical blades. In size, chipping technique, and extreme thinness, Type 2 and Type 1 blades are the same. Distinction of the 2 types on basis of symmetry probably has little significance.

40. Type 3: Short, semilunar to triangular. 1 specimen; from B73. Such blades may have been set in harpoon heads rather than arrowheads. More common in Ipiutak houses (cf. Pl. 2, Figs. 24, 25); also in the Near Ipiutak graves (5 specimens). Length, 2.7 cm.; width, 1.3 cm.; thickness approximately the same as Type 1 and 2 blades.

41–44. Type 4: Slender, delicate, very long. 14 specimens; found in B8, 16, 23, 26, 92, 96, 97, and JB16. Length, 6–9.9 cm.; width, 7–12 mm.; thickness, 2.5–3.5 mm. In addition to those listed, 13 blades were found inset in lance heads (Pl. 40). It is not always possible to distinguish inset blades for lances from inset blades for arrowheads; some listed under Type 4 may be for either lance or arrowheads. Fig. 41, however, is obviously too large for any arrowhead. Chipping technique same as Types 1 and 2. Diagonal chipping appears most clearly on Fig. 42.

NOT ILLUSTRATED: Inset blade fragments, 138 specimens; found in 30 burials. 127 are probably fragments of Types 1 and 2 (for arrowheads); while 11 are probably fragments of Type 4 (for lance heads).

1. UA, JB20
2. 60.1-7301a, B8
3. 60.1-7507b, B26
4. 60.2-4154, B97
5. 60.2-4155, B97
6. P-4471, B89
7. 60.1-7301g, B8
8. P-4908, JB23
9. 60.1-7329k, B9
10. UA, JB18
11. 60.1-7507a, B26
12. 60.1-7329h, B9
13. 60.1-7329b, B8
14. 60.1-7329f, B9
15. 60.1-7329j, B9
16. P-4466, B89
17. 60.1-7301c, B8
18. 60.1-7329d, B9
19. UA, JB24
20. 60.1-7443, B15-20
21. 60.1-7329f, B9
22. 60.2-3879, B72
23. UA, B73
24. 60.1-7329a, B9
25. 60.1-7329c, B9
26. 60.1-7301c, B8
27. 60.2-4156, B97
28. UA, B73
29. UA-4386, B74
30. UA-4387, B74
31. 60.2-3880, B72
32. UA, JB20
33. 60.2-4059, B96
34. 60.1-7329b, B9
35. 60.2-4157, B97
36. 60.1-7301d, B8
37. 60.1-7293a, B7
38. 60.1-7301b, B8
39. UA, JB5
40. UA, B73
41. 60.2-4165, B97
42. 60.1-7301a, B8
43. UA, JB16
44. P-4535, B92
PLATE 37
HARPOON HEADS—IPIUTAK BURIALS

1-4. Type 1: Slender, sharp-pointed heads, with open foreshaft socket, inset flint side blades, and barbed spur. 12 specimens; found in 3 burials (B74, 89, and 108); antler. Inset flint blades remain in 7 specimens. Heads precisely like Type 1 from Ipiutak houses (cf. Pl. 3). All have characteristic parallel incised lines, 2 are somewhat unusual, with square rather than round line holes (Fig. 1). 6 found in B108, an "articulated type," at westernmost end of Ipiutak cemetery near village site. Fig. 2 was found in place on point of long foreshaft (Type 2). 5 are from B74 in the area of midden refuse and probably contained midden material as well as grave goods.

5, 6. Type 2: Broad, with closed socket, an end blade slit at right angles to axis of line hole. 5 specimens, found in B96 and 108; antler. Flint end blades remain in 2 specimens. Although heads from graves have same general features (end blades, closed socket, etc.) as Type 2 head from Ipiutak houses, they are smaller and thinner through axis of line hole than those from houses. Length, approximately 6 cm. Surface has weathered from all but 1 specimen (Fig. 5), on which a series of incised lines extends from near point to line hole and out to 4 barbs on spur. All but 1 of these heads from B108 were in association with short foreshafts (Type 1). An unfinished harpoon head (not illustrated), from B74, apparently of this type, but thick through axis of line hole like heads of Type 2 from houses.

7, 8. Type 3: Slender, pointed, with a closed socket, inset flint side blades. 5 specimens; from B73, 74, and 108; antler. Flint blades remain in 2 specimens. Same as Type 3 heads found in houses (Pl. 5, Figs. 1-10). Surface on all specimens has weathered so that decoration, if present, has been obliterated. The spur of Fig. 8 is perforated.

9, 10. Type 4: Short, broad; with open socket; lashing slots, and end blade at right angles to line hole. 2 specimens; found in B108; antler. 1 retains flint blade. Same as those found in houses (Pl. 5, Figs. 13, 14). Surfaces have disintegrated so that incised decorations, if present, are obliterated.

11. RARE FORM: Very small, slender head with closed socket, flint end blade, restricted body, and triangular spur. 1 specimen; found in B73; antler. Simple incised decoration consists of lines parallel to the slot-like line hole.

12. RARE FORM: Heavy, thick head with closed socket, end blade slit, and multi-barbed spur. Rear part pentagonal in cross-section; front diamond-shaped. Remains of incised decoration on surface. 1 specimen; found in B72; ivory.

13. RARE FORM: Unusually long head (15 cm.) with open socket and end blade slit cut at right angles to axis of line hole, lashing slots, and a multi-pronged spur. Elliptical in cross-section, it has a series of short bars along 1 edge of end blade slit. Surface disintegrated. 1 specimen; found in JB23; ivory.

14. RARE FORM: Unusually long head (18 cm.) with open shaft socket, lashing slots, and end blade slit parallel to axis line hole, and double-barbed spur. 1 specimen; found in JB23; ivory. Elliptical in cross-section, like Fig. 13, but with relatively sharp edges.

1. UA-4402, B74
2. P-4657, B108
3. P-4482, B89
4. UA-4403, B74
5. P-4663, B108
6. P-4665, B108
7. UA-4407, B74
8. P-4668, B108
9. P-4670, B108
10. P-4671, B108
11. UA, B73
12. 60.2-3889, B72
13. P-4924, JB23
14. P-4923, JB23
PLATE 38
HARPOON SOCKET PIECES AND FORESHAFTS—IPIUTAK BURIALS

1–3. Type 1: Carved and inlaid, representing animal heads; with fixed tang. 3 specimens; found in B33, 54, and 64; antler. 2 retain loose foreshafts of Type 1; Fig. 3 has butt of broken foreshaft also in place. All 3 have line holes through body, indicating that they were lashed to harpoon shaft. Fig. 1 has eye-like boss on each side, outlined by deep grooves. Fore end, a broad mouth, has excavated eye hole in lower lip. Between lips and on each side of foreshaft socket is small animal head with eye sockets and incised nostrils. Much of surface weathered away; 26 inlay sockets remain. Large sockets, as at center of each side boss, set with small ivory rings; 1 retains a jet plug. Presumably all sockets inlaid with jet. T-shaped groove in both edges just below line hole, connected through hole with grooves around eye boss, at upper end of which is another hole. Socket is conical. Diameter, 1.1 cm.; depth, 3.0 cm. The tang is broken away. Fig. 2 with inlaid eyes similar to Fig. 1; nostril sockets were probably also inlaid. Deep longitudinal grooves extend along each side; short deep slot in lower surface. Between eyes and nostrils are 2 curved lines connected by short transverse lines. The socket is conical. Diameter, 1.1 cm.; depth 3.4 cm. Tang is broken. Fig. 3 also has jet inset eyes (without ring); ears are in low relief; nostrils indicated by deep incisions; and curved ladder-like design between nostrils and eyes. Longitudinal incisions with short converging lines cut in lower surface parallel 2 deep slots meeting to form line attachment.

4, 5. Type 2: Carved and inlaid, representing animal heads with loose tangs attached with antler pegs. 2 specimens; found in B108 and in a test pit (probably a disintegrated grave) adjoining B108; antler, including loose foreshafts remaining in place. Fig. 4 has loose ivory ring on foreshaft, covering line hole in foreshaft; possibly used to tighten line running from foreshaft to harpoon shaft proper. A cylindrical tang 5 cm. long set in deep socket in butt of socket piece where it was fastened by transverse peg. Whole surface badly weathered, but 1 large jet inlay left near butt. Sockets for inlays in position of eyes and nostrils. Deep incisions mark jaws. Transverse line hole passes through object at head of loose tang. Fig. 5 approximately same as Fig. 4, but 2 pegs fasten loose tang (7 cm.) in butt; 1 peg in place. Same transverse line hole at head of loose tang, inlaid eyes, nostrils, and deep incisions marking jaws. 7 jet inlays in place in at least 13 sockets.

6, 7. Type 3: Carved and engraved, with bifurcated butt for attachment to wooden harpoon shaft. 2 specimens; found in B26; ivory. Engraved eyes and nostrils; a complex incised pattern covers surface of both. Fig. 6, with excavated nostrils and indications of teeth in both jaws, apparently recut. Fig. 7 is complete; broad slot, probably a line attachment, is cut transversely. Entire remaining surface engraved with very fine incised lines. Less realistic than Fig. 6, only eyes indicated.

8. Rings for Harpoon Mounts: 1 specimen; found in B108; ivory. Like ring found in place on socket piece (Fig. 4) from same grave.

9. Harpoon Foreshafts, Type 1: Short, loose foreshafts with line hole and conical, cylindrical, or wedge-shaped butt. 5 specimens; found in B33, 64, and 108; antler. 4 found in place in socket pieces of Types 1 and 2 (Figs. 1, 2, 4, 5). All with 4 equally spaced longitudinal incised lines extending nearly full length. Point of Fig. 9 is flat; others conical.

1. 60.1-7634ab, B33
2. 60.1-7712ab, B64
3. 60.1-7687, B54
4. P-4673, B108
5. P-4672, B108
6. 60.1-7515, B26
7. 60.1-7516, B26
8. P-4674, B108
9. P-4675, B108
HARPOON FORESHAFTS AND ICE PICKS—IPIUTAK BURIALS

1–5. Harpoon Foreshafts, Type 2: Long shafts, normally with line hole; probably were fixed in harpoon shaft. 9 specimens; found in B8, 26, 72, 97, and 108; 4 ivory (Figs. 1–3); 5 antler (Figs. 4–5). Fig. 1 largest; length, 63 cm. Fig. 4 smallest; length, 29.5 cm. All with tapering butt for insertion in harpoon shaft, and blunt, flattened point fitting open-socketed harpoon heads. Type 1 harpoon head in place on foreshaft of this type found in B108. Figs. 1 and 2, found in B8, have deep grooves cut from line hole to near point on both broad surfaces. Fig. 2 has 2 line holes. Parallel lines with short spurs incised on both specimens. Fig. 3 and another foreshaft like it, both from B108, have same deep grooves and parallel incised lines. Fig. 4 and 2 additional foreshafts from B26 and 97 have 4 equally spaced grooves or deep incisions like those cut in arrowheads. Fig. 5 and another specimen like it from B72 are flat and quadrangular in cross-section. Both have deep grooves from line hole to point.

6. Miniature Foreshafts, Type 1: Small, with broad, beveled butt and line hole or groove near butt. 1 specimen; found in B108; antler. Length, 10 cm. (cf. Pl. 6, Figs. 6, 7).

7. Harpoon Foreshaft, Rare Type: Short, with knob at butt end. 1 specimen; found in B108; ivory. Round in cross-section, with round point for harpoon with closed socket, and 4 equally spaced incised lines.

8–12. Ice Picks: Relatively heavy, with perforated or scarfed tang. 10 specimens; found in B26, 35, 47, 72, 102, 106, and 108; 9 ivory; 1 bone. Fig. 8, with flat perforated tang, found with harpoon foreshafts in B108, is, presumably, a harpoon ice pick. Fig. 9, with scarfed and knobbed butt, quadrangular in cross-section, resembles some early forms of Eskimo harpoon ice picks. Figs. 10, 11, and 12, classification uncertain. Forms vary, with no clear indication of hafting in shafts. Possibly picks used in excavating ice holes for fishing. Only 4 of 10 specimens quite certainly ice picks, or like early forms of Eskimo ice picks. 3 found in B108; 1, in B26.

1. 60.1-7304b, B8
2. 60.1-7304a, B8
3. P-4677, B108
4. P-4678, B108
5. 60.1-7524, B26
6. P-4680, B108
7. P-4679, B108
8. P-4682, B108
9. 60.1-7530, B26
10. 60.2-4271, B106
11. 60.1-7689, B35
12. 60.1-7670, B47
PLATE 40

LANCE HEADS—IPIUTAK BURIALS

1–8. Type 1: Long, slender, with inset flint side blades and perforated butts. 18 specimens; found in 13 burials; ivory. Length, 25–50 cm. 13 points retaining at least some of original surface bear incised ornamentation; hence, probably all were decorated. 4 retain inset flint blades. All but 2 relatively flat in cross-section, with blade slots in both edges. 1 incomplete (not illustrated) has 9 blade slots, 4 on 1 edge, 5 on other. Fig. 1, largest specimen in this type (48.5 cm.), has point end broken away, but 4 blade slots, equally spaced, remain, all in 1 edge. It is subtriangular in cross-section. Fig. 2, most well-preserved, has 3 blade slots, 2 on 1 side, 1 on the other; engraved decoration on both faces. Fig. 3 only lance head in collection retaining all of original inset blades. Virtually all of original surface weathered away, but deep longitudinal incisions remain on both faces. Fig. 4, unique, with undulating edges; triangular in cross-section; and with single deep slot from hilt to near point on 1 surface only. Single inset blade remains in place, but slot probably cut for a series of flint blades. Butt broad and concave on lower surface, as if cut to fit against round shaft. Both surfaces bear incised design (Text Fig. 40). Fig. 5 found in bundle of arrowheads with articulated skeleton. Only small fragment of 1 of the 4 inset blades remains; others complete, extremely long and thin. Hilt has 2 line holes. Both surfaces engraved with parallel incised lines. Fig. 6, with 3 blade slots, bears incised ornamentation on both faces. Fig. 7, with 6 blade slots, 3 on each edge, has both surfaces engraved.

9–13. Type 2: Long, with flint blade slots and conical or flat tang, lacking perforation of Type 1. 6 specimens; found in B8, 11, 26, 72; ivory. Length, 24–50 cm. Fig. 9, flat in cross-section like Type 1, has 1 long slot, probably for series of inset blades along 1 edge; a long and short slot on opposite edge. Short slot, only 2.5 cm. above butt, indicates head was mounted on shaft. Both surfaces incised. Fig. 10, round in cross-section, has 2 blade slots set in opposite edges, resembles Type 1 arrowheads, but is much larger. Fig. 11, triangular in cross-section, has 1 long blade slot in 1 of three broad surfaces; other 2 surfaces engraved. Butt is knobbed for hafting. Fig. 12, round in cross-section, has 2 blade slots cut in opposite sides. 4 parallel incised lines resemble those on arrowheads and other weapon points. Fig. 13 unique in that it has an end blade slit and no slots for inset blades.

1. P-4779, JB2  2. 60.2.3961, B94  3. 60.2.4190, B100  4. 60.1.7495, B23  5. P-4499, B89  6. 60.2.4168, B97  7. 60.2.4069, B96  8. 60.2.3962, B94  9. 60.1.7586, B26  10. 60.1.7307a, B8  11. 60.1.7588, B26  12. 60.2.3890, B72  13. 60.1.7362, B11
PLATE 41

LANCE HEADS OR DAGGERS AND DAGGERS OR KNIVES—IPIUTAK BURIALS

1-4. Lance Heads or Daggers, Type 1: Long, slender, pointed implements, with inset side blades and carved hilts. 4 specimens; from B26, 97, 98; ivory. Length, 34-53 cm. Fig. 1 has 2 blade slots in each edge, staggered; 2 blades remain in place. 4 equally spaced incised lines extend from hilt to upper end of foremost blade. Hilt is grotesque animal, with long flat snout, eye sockets (probably inlaid), raised ears, and very small body, partially hollow (cup-shaped), legs are not clearly defined. Hole, 1 cm. in diameter, cut from rear into the hollow of body may indicate that implement was set on shaft like a lance, but it could also be for a wrist strap. Center of back has socket. Traces of engraving remain on back. Fig. 2 triangular in cross-section; 2 blade slots in thin (right hand) edge; point broken. Hilt probably a stylized animal head. Traces of engraving on both broad surfaces. Curve due to warping. Fig. 4, also from B26, has 3 blade slots in 1 edge, 2 in other. Flat and thin; no more than 5 mm. thick. Both surfaces retain traces of engraving. Hilt too short for a dagger; hence, may have been fixed to lance shaft.

5, 6. Lance Heads or Daggers, Type 2: Long, slender, pointed, with inset side blades and hand guards (?). 2 specimens; from B26, 130. Fig. 5, found with cache of elaborate objects in B130, has 2 blade slots in each edge; point broken. Traces of decoration on both faces. Flat piece consists of 3 rings, found as illustrated. Very loose on shaft. Butt resembles that of fixed lance head. Presence of “guard” probably accidental. Curve possibly due to warping. Fig. 6 has 2 blade slots in each edge, staggered. 4 equally spaced incised lines extend nearly full length. “Guard,” as illustrated, consists of 3 rings, like Fig. 5, is also loose on shaft. Butt is flat, with central perforation, suggesting that head may have been mounted on a shaft.

7-11. Daggers or Knives: Relatively broad, with inset side blades and hilts, indicating they were not hafted. 5 specimens; from B26, 96, 97; ivory. Fig. 7 with 2 deep slots in each edge extending from 9 cm. above butt to within 3 cm. of point. Undulating base of each groove suggests each contained 3 inset side blades. Both broad faces, engraved with duplicate designs (Fig. 40). Implement warped towards core of tusk. Fig. 8 has 2 slots in left hand edge, 5 cm. apart; opposite edge scalloped. Engraving remains on upper, flat face. Reverse side is slightly convex. Fig. 9, B97, broken at butt and at upper, ring end. Blade slot 6 cm. long in right hand edge. Both surfaces engraved. Fig. 10 has 1 short and 1 long blade slot in each edge; positions of short and long slots reversed on opposite edges. Longest slot, 9 cm. Both surfaces engraved. Fig. 11 has groove along left hand edge, possibly a blade slot (partially disintegrated), or simply a groove representing a blade slot. Both surfaces engraved. Two sockets are drilled in reverse surface at ends of scallop.

Note: Illustrated: Fragments of lances, daggers, or knives, long slender implements with side blade slots. 9 specimens; from B26, 71, 72, 98, JB2, 16, 26; ivory. 1 retains an engraved design.

1. P-4547, B98
2. 60.2-4170, B97
3. 60.1-7527, B26
4. 60.1-7590, B26
5. P-4694, B130
6. 60.1-7523, B26
7. 60.1-7589, B26
8. 60.1-7585, B26
9. 60.2-4172, B97
10. 60.2-4072, B96
11. 60.2-4073, B96
PLATE 42

HUNTING IMPLEMENTS—IPIUTAK BURIALS

1, 2. BARBED PRONGS: Curved, with sharp pointed tang. 9 specimens; found in B8, 65, 97, 108, 117, and 121; 5 ivory; 4 antler. All complete prongs have 4 short bars along 1 edge. 4 equally spaced incised lines cut in these as in other weapon points. Length, 22.5–32 cm. (cf. Pl. 7, Figs. 11–16).

3, 4. SIDE PRONGS FOR BIRD DARTS: Short, curved points with bars along 2 edges, lashing slot, and beveled tang. 4 specimens; found in B8 and 74; ivory. 3 complete prongs found together in B74. Although badly weathered, visible traces of engraved decoration. All have peculiar angular tang and upward pointing spur found on some Okvik side prongs for bird darts. Fourth prong is fragmentary.

5–9. BIRD ARROWHEADS: Blunt heads, with shaft sockets in the base. 5 specimens; found in B89 and 100; ivory. 4 carved heads found in bundle of arrowheads, with articulated skeleton (B89). Fig. 5 has 4 spirally carved elements. Fig. 6 is cut in 2 sections; Figs. 7 and 8 in 4.


11–13. GULL HOOKS: Double-pointed bars. 3 specimens; found in B98; antler.

14. ARROW-Straightener: Unique; from B32; ivory. Both surfaces engraved with scratchy, irregular parallel lines.

15, 16. SIDE PRONGS FOR A SALMON SPEAR: Curved strips of antler; both ends beveled. 3 specimens; found in B35 and 53 (cf. Pl. 7, Figs. 19, 20).

17. CENTER PRONG FOR A SALMON SPEAR: 1 specimen; antler, found in B53, together with 2 side prongs (cf. Pl. 7, Fig. 18).

18. BARB FOR A SALMON SPEAR: 1 specimen; found in B32; antler (cf. Pl. 7, Figs. 21–24).

NOT ILLUSTRATED: Fragments of barbed prongs like those found in the houses (cf. Pl. 7, Figs. 5–7), 2 specimens; found in B74 and 105; ivory.

1. 60.1-7308a, B8  7. P-4481, B89  13. P-4556, B98
2. P-4685, B108  8. P-4479, B89  14. 60.1-7611, B32
3. UA-4410, B74  9. 60.2-4204, B100  15. 60.1-7661, B35
5. P-4480, B89  11. P-4555, B98  17. 60.1-7684, B33
6. P-4478, B89  12. P-4554, B98  18. 60.1-7606, B32
PLATE 43
TOOLS—IPIUTAK BURIALS

1, 2. NEEDLES: Bird bone, with minute drilled eye holes. 50 specimens; found in B54, 117, 118, 128, and 131. Length, 4.2–7 cm. Extremely slender, sharp pointed needles with eye holes sometimes smaller than those in steel needles.

3. ENGRAVING TOOL: Slender shafts, with slot for a squirrel tooth or metal point. 2 specimens; found in B15 and 54; ivory. 1 (Fig. 3) bears engraved decoration; other, relief decoration; these more common in the houses (cf. Pl. 8, Figs. 15–24).

4–6. AWLS: Slender, pointed implements of bone, antler, or ivory. 6 specimens; found in B9, 21, 33, 96, and JB5, 11; 3 ivory; 2 bone; 1 antler. Fig. 6 the only well-made and polished specimen.

7. KNIFE HANDLES, TYPE 3: 1 specimen; found in B132; antler. Composed of 2 separate strips, not of 1 shaft slit down so as to spring shut on the blade tang. Probably made for stone blade, since slots are 5 mm. wide.

8. FLAKING HAMMER HEADS: Cylindrical to bell-shaped objects with groove for hafting. 2 specimens; found in B72 and 117; walrus penis bone (cf. Pl. 11, Figs. 1–5).

9, 10. FLINT FLAKER POINTS: Thin, curved strips of bone with flat or rounded points. 12 specimens; found in B7, 26, 33, 72, 74, 118. Points of this kind presumably lashed in flint flaking handles (Figs. 11–19). Length, 9.5–21 cm. (cf. Pl. 11, Figs. 14–18).

11–15. FLINT FLACING HANDLES, TYPE 1: Curved strips, with spatulate butt and groove for flaker point. 11 specimens; found in B8, 26, 32, 33, 73, 81, 94, 101, and 102; antler. Length, 16–18.5 cm. Fig. 12 has human head in relief, showing raised nose, mouth, teeth, and eye sockets which were probably inlaid. Those retaining original surface decorated with incised designs (Text Fig. 19). Only 1 (Fig. 13) has triangular perforation.

16. FLINT FLACING HANDLES, TYPE 2: Narrow, curved strips with groove for flaker point. 8 specimens; found in B7, 8, 26, 33, 74, 79, and 102. All are made from antler. 1 is decorated with simple incised design of parallel and spurred lines.

17–19. FLINT FLACING HANDLES, TYPE 3: Flat antler objects with a groove for flaker point and broad forked butt. 6 specimens; found in B15–20, 26, 92, and JB7. All engraved with elaborate incised designs (Text Fig. 19). Flaring butts cut from forked prongs of caribou antler. Fig. 19 has a thin perforation near point. Another (not illustrated) has 2 sections of shaft cut out. A knob at the point was cut to hold lashing for flaker point.

1. 60.1-7692a, B54
2. 60.1-7692b, B54
3. 60.1-7689, B54
4. 60.1-7348a, B9
5. 60.2-4360, JB11
6. 60.2-4074, B96
7. 60.2-4817, B132
8. 60.2-4282, B117
9. UA-4416, B74
10. 60.1-7648a, B33
11. UA, B102
12. 60.1-7604, B32
13. 60.2-3965, B94
14. 60.1-7520, B26
15. P-4611, B101
16. UA, B79
17. P-4797, JB7
18. 60.1-7533, B26
19. P-4534, B92
PLATE 44
TOOLS—IPIUTAK BURIALS

1, 2. Adze Heads, Type 1: Heads with end blade socket, grooved or scarfed for lashing to handle. 5 specimens; found in B32, 94, and JB2, 22; antler. Fig. 1, the smallest (7 cm. long), retains a broken blade of silicified slate. Lower surface has rectangular depression for head of adze handle. Fig. 2 is the largest (11 cm. long). Blade slots cut in all heads are approximately 1 cm. wide (cf. Pl. 9, Figs. 1–10).

3, 4. Adze Heads, Type 2: Heads with end blade socket and 1 or 2 hafting slots. 3 specimens; found in B33, 79, and JB3; antler. Fig. 3 has deep rectangular socket for head of adze handle and 2 lashing slots. Upper end carved to represent an animal snout. Fig. 4 has broad slot in which handle was set as in an ax, but blade was at right angles to axis of handle, as in all adzes.

5. Adze Heads, Type 3: Broad flat piece of antler with 4 holes for lashing head to handle. 1 specimen; found in B26.

6. Two-Handed Scraper: Caribou (metatarsus) with 2 sharp cutting edges. 3 specimens; found in B32 and 34 (cf. Pl. 22, Fig. 15).

7. Wedges: Pieces of antler with a wedge-shaped point. 4 specimens; found in B72, 79, 102, and 121.

8, 9. Picks: Blunt-pointed implements with hafting grooves. 2 specimens; found in B8 and JB21. Fig. 8, made from walrus penis bone, has 2 grooves for haft lashings and rectangular depression for head of handle. Point is broken away. Fig. 9, ivory, has carved animal head on poll with eye sockets (probably inlaid) and an open mouth.

10. Mattocks: Walrus tusks with wide, beveled, cutting edge and grooves for hafting; used to cut sod blocks. 5 specimens; found in B8, 72, 103, 109, and JB22 (cf. Pl. 22, Figs. 1–3).

1. 60.1-7603, B32
2. UA, JB22
3. 60.1-7638, B33
4. UA, B79
5. 60.1-7517, B26
6. 60.1-7608, B32
7. UA, B79
8. 60.1-7319, B8
9. P-4526, JB21
10. 60.2-3892, B72
PLATE 45

SHOVEL BLADES AND SHOVELS—IPIUTAK BURIALS

1, 2. SHOVEL BLADES, TYPE 1: Curved segments of mammoth ivory, with round hafting holes. 2 specimens; from B72 and 9. Fig. 1, broken at base, apparently had pointed tang as well as lashing holes for hafting. Fig. 2 is complete (cf. Pl. 21, Fig. 3).

3, 4. SHOVEL BLADES, TYPE 2: Flat pieces of whalebone with section cut out to receive shovel handle. 3 specimens; from B74, 102, 106. Fig. 4 has rectangular section cut out of inner concave surface. Fig. 3 has triangular section cut out of back or slightly convex surface. A larger unillustrated specimen (B74), resembling Fig. 3, is 42 cm. long.

5, 6. WHALEBONE SHOVELS: Flat pieces of whale rib with a sharpened end. 6 specimens; from B42, 67, 69, 117, 136, and JB25. Fig. 5 apparently had some sort of handle attached by means of perforations at lower end. Central perforations were for an attached hand grip. Another shovel (B67) is the same type. Upper left hand part (point) is broken away. Fig. 6 has a well-defined handle and perforations for an attached hand grip. 3 fragmentary implements are of this kind.

1. 60.2-3893, B72
2. 60.1-7347, B9
3. UA, B102
4. 60.2-4235, B106
5. 60.2-4795, B69
6. 60.2-4281, B117
PLATE 46

CHIPPED FLINT IMPLEMENTS—IPIUTAK BURIALS

1–6. Side Blades for Knives: Flint blades, chipped on both surfaces, with 1 cutting edge. Fig. 1, Type 1, slender, symmetrical, pointed or blunt ends. 4 specimens; found in B9, 26, 99, and 100 (cf. Pl. 12, Figs. 1–6). Fig. 2, Type 2, slender, curved edge, and more or less straight back, pointed or blunt ends. 1 specimen; found in B15 (cf. Pl. 12, Figs. 7–12). Fig. 3, Type 4, moderately broad, lobate edge, curved back, pointed ends. 4 specimens; found in B7, 43, 74, and 89. Fig. 3 is unusually thin in cross-section (cf. Pl. 12, Figs. 13–23). Fig. 4, Type 5, moderately slender; flat straight base. 5 specimens; found in B26, 33, 91, and 92 (cf. Pl. 13, Figs. 1–11). Fig. 5, Type 6, moderately broad; flat slanting base. 3 specimens; found in B32, 34, and JB8 (Pl. 13, Figs. 12–16). Fig. 6, Type 7, flat or blunt base; concave back. 1 specimen; found in B96 (cf. Pl. 13, Figs. 17–22).

7–10. END BLADES FOR KNIVES OR LANCES: Chipped on both faces, double-edged. Figs. 7 and 8, Type 1, symmetrical, lanceolate, pointed. 2 specimens; found in B8. These 2 more regular and more evenly chipped than examples from houses. They are thick; 7 and 8 mm. through center. Fig. 9, Type 2, asymmetrical, slender, sharp-pointed. 1 specimen; found in B74 (cf. Pl. 14, Figs. 7–12). Fig. 10, Type 3, symmetrical or asymmetrical, stemmed or semi-stemmed. 1 specimen; found in B89 (cf. Pl. 14, Figs. 13–18).

11, 12. SEMILUNAR BLADES, Type 1: Large-sized. 3 specimens; found in B117, 120, 136 (cf. Pl. 14, Figs. 19–22).

NOT ILLUSTRATED: Blade fragments, 12 specimens; from B9, 65, 74, 80, 89, 96, 100, 102, JB5, 6.

13–16. Discoidal Blades: Chipped on both faces. Fig. 13, Type 1, subquadrangular outline, sharp convex edge. 6 specimens; found in B15, 47, 107, 117, 118 (cf. Pl. 15, Figs. 1–8). Fig. 14, Type 2, subtriangular outline; 2 sharp convex edges. 2 specimens; found in B23, 63 (cf. Pl. 15, Figs. 9–12). Fig. 15, Type 3, oval to elliptical outline. 2 specimens; found in B34, 35, sharpened around entire margin (cf. Pl. 15, Figs. 13–16). Fig. 16, Type 4, round. 4 specimens; found in B35, 63, 106. More perfectly disc-shaped than blades from houses, but like those from middens (cf. Pl. 85, Figs. 16–17).

NOT ILLUSTRATED: Discoidal blade fragments, 2 specimens; found in B7, 120.

17. HARPOON BLADES (?): 1 specimen; found in JB13 (cf. Pl. 2, Figs. 34–39).

18. DRILL: Quadrangular blade, with broken base of drill point; edges relatively sharp. 1 specimen; from B94.

19, 20. VERY SMALL RECTANGULAR BLADES: With concave ends. 2 specimens; from B26.

21–23. Side scrapers: Flint flakes, chipped on 1 face and on 1 or 2 long margins. Fig. 21, concave edge. 6 specimens; found in B72, 74, 106 (cf. Pl. 16, Figs. 1–5). Fig. 22, straight edge. 3 specimens; found in B33 and 74 (cf. Pl. 16, Figs. 11–15). Fig. 23, concave-convex: 4 specimens; found in B72, 74, 100, 108 (cf. Pl. 17, Figs. 1–6).

NOT ILLUSTRATED: Side scraper, convex edge. 2 specimens; found in B74. (cf. Pl. 16, Figs. 6–10).

NOT ILLUSTRATED: Side scraper, convex-straight. 1 specimen; found in B74 (cf. Pl. 17, Figs. 12–16).

24–27. ENDSCRAPERS: Chipped on 1 face only. Figs. 24–25, Type 1, stout. 2 specimens; found in B80, 90A (cf. Pl. 18, Figs. 1–5). Fig. 26, Type 2, oblong, thin. 1 specimen; found in B25 (cf. Pl. 18, Figs. 6–10). Fig. 27, right slant. 1 specimen; found in B74 (cf. Pl. 18, Figs. 11–15).

28–30. GRAVERS: Chipped on 1 face only. Fig. 28, Type 1, slender, curved, pointed at 1 end. 1 specimen; from B74 (cf. Pl. 19, Figs. 1–6). Fig. 29, Type 2, broad, curved, pointed at 1 end. 1 specimen; from B74 (cf. Pl. 19, Figs. 7–12). Fig. 30, Type 4, slender, straight, pointed at 1 end. 1 specimen; from B97 (cf. Pl. 19, Figs. 16–18).

31. SPATULA-SHAPED SCRAPERS: 1 specimen; from B100 (cf. Pl. 19, Figs. 22–24).

NOT ILLUSTRATED: Fragmentary scrapers, 2 specimens; from B74.

32. RETOUCHEd FLINT FLAKES: 10 specimens; from B7, 25, 32, 74, 97, 100, 122, 137.

NOT ILLUSTRATED: Used flakes, 11 specimens; from B7, 19, 10, 35, 73, 74, 77, 80, 90, and JB2, 18.

33. Raw Flint FLAKES: 226; found in 38 burials; all types of burial.

NOT ILLUSTRATED: Flint cores and blanks, 18 specimens; from B7, 63, 71, 73, 79, 80, 81, 89, 98, 101, 122, and JB6.

1. 60.1-7509a, B26
2. 60.1-7376, B15
3. UA, 4418, B74
4. P-4532, B92
5. P-4823, JB8
6. 60.2-4075, B96
7. 60.1-7303a, B8
8. 60.1-7303b, B8
9. UA-4419, B74
10. P-4483, B89
11. UA, B120
12. 60.2-4818, B136
13. 60.2-4280, B117
14. 60.1-7486, B23
15. 60.1-7652, B34
16. 60.2-4281, B106
17. P-4838, JB13
18. 60.2-3966, B94
19. 60.1-7506b, B26
20. 60.1-7506a, B26
21. 60.2-3894, B72
22. 60.1-7632a, B33
23. 60.2-3895, B72
24. UA, B90a
25. UA, B80
26. 60.2-4785, B25
27. UA-4422, B74
28. UA-4424, B74
29. UA-4425, B74
30. 60.2-4173, B97
31. 60.2-4200, B100
32. 60.2-4269, B106
33. 60.1-7289a, B7
PLATE 47

GROUND STONE IMPLEMENTS—IPIUTAK BURIALS

1-3. Whetstones, Type 1: Irregular, with 1 or several ground surfaces; shale, sandstone, or slate. 15 specimens; from B15, 23, 33, 74, 89, 100, 102, and 117. All but 1 of shale or sandstone-like, easily breakable material. 6 slender, rectangular stones like Fig. 1; balance are irregular, with 2 to 4 rubbed surfaces. Several cut with very fine grooves, possibly used to sharpen needles.

Not illustrated: Whetstones, Type 2. Slender, 4-sided with broad groove in 1 surface. 1 specimen; found in B89. A characteristic implement in Near Ipiutak burials (cf. Pl. 81, Fig. 12).

4. Pyrites Used for Fire Making: 1 specimen; found in B54.

5. Red Hematite and Ferruginous Sandstone Used for Paint: 7 specimens; from B30, 33, 72, 76, and 89.

6-12. Adze Blades, Type 2: Rectangular to triangular ground stone implements with sharp cutting edge. 13 specimens; found in B7, 10, 15, 33, 56, 76, 89, 101, and JB2, 12, and 30; siliceous slate. Fig. 11 smallest (4 cm. long); Fig. 6 largest (15 cm. long). All but Fig. 6 relatively thin and were undoubtedly set in antler adze heads (cf. Pl. 9). Fig. 9 has steeply beveled cutting edge and approaches blunt-edged blades (Type 1) most common in houses. All others exceedingly sharp.

13-15. Chisels: Ground stone, with short, sharp, transverse cutting edge. 6 specimens; found in B10, 74, 91, 102, and JB24; siliceous slate. Fig. 13, rectangular in cross-section, is rubbed on all 4 surfaces. Cutting edge is 4 mm. broad. Fig. 14 is rubbed only on narrow edges. Bit is 8 mm. broad. Fig. 15, rubbed on 4 surfaces, has bit only 3 mm. wide. All chisels found in burials are larger than any from houses.

16. Small Chisels: 3 specimens; found in B101 and 132. All ground on 3 or 4 surfaces, about same size. Bit of Fig. 16 is 1 mm. broad (cf. Pl. 10, Figs. 14, 15).

17-19. Adze Blades, Type 3: Large, 4-sided implements with sharp cutting bit. 4 specimens; found in B33, 70, 115, and JB1. Length, 17-31.5 cm. Cutting edges exceedingly sharp (cf. Pl. 10, Figs. 4-6).

1. 60.2-4202, B100
2. 60.1-7628a, B33
3. 60.1-7628b, B33
4. 60.1-7685, B54
5. UA, B76
6. P-4608, B101
7. P-4782, JB2
8. P-4783, JB2
9. UA, JB30
10. 60.1-7626, B33
11. 60.1-7373, B15
12. P-4484, B89
13. 60.1-7351, B10
14. UA, B102
15. UA-4437, B74
16. P-4607, B101
17. 60.2-4323, JB1
18. 60.2-3867, B70
19. 60.1-7623, B33
PLATE 48

IVORY, BONE, AND STONE OBJECTS—IPIUTAK BURIALS

1. Snow Goggles: Carved ivory. 2 specimens; found in B26 and 79. Fig. 1 is oval, curved to fit across eyes; notch on lower edge fits nose bridge. 2 holes at each end for line to fasten goggles on head. Outer convex surface engraved with an elaborate incised design (Text Fig. 27). Second fragmentary pair has narrow eye slit as in Fig. 1; rectangular rather than oval and somewhat wider.

2, 3. Buttons: Small ivory objects with perforation for lashing to garment. 5 specimens; found in B26, JB8 and 9. 3 nearly identical; found in B26. Only 1 (Fig. 3) retains original surface and is decorated with incised concentric circles enclosing a socket probably inlaid with jet. Opposite side cut to make a beam resembling that on Fig. 2. 1 button (not illustrated), is flat, semilunar, 4.5 cm. long, with central drilled hole.

4. Bird Bone Tubes: Cut bird bones used as needle cases or as sucking tubes for water. 5 specimens; from B32, 34, and 65. 1 (Fig. 4) engraved with animal head and ladder-like design. Largest, not illustrated, is 18 cm. long and 1 cm. in diameter.

5, 6. Unidentified Implements, Type 3: Slender bird bones with notch or groove at 1 end; possibly part of a ground squirrel snare. 2 specimens; found in B18 and 22 (cf. Pl. 28, Figs. 12–14).

7. Ivory Scoop: Small, with perforated handle. 1 specimen; found in B15 (cf. Pl. 23, Figs. 1–4).


9, 10. Jet Plates: 1 flat and 1 convex surface. Fig. 9 has 2 connected holes on flat surface. Fig. 10, 5 round grooves, 1 of which contains an ivory peg. Use unknown.

11–15. Labrets: 5 specimens; found in B22, 90, and JB21. Fig. 12 is carved of limestone; Figs. 13–14, marble. A deep groove divides them into 2 elliptical discs; a smaller and thinner to be placed inside the mouth; a larger, outside of cheek. Fig. 14, the largest, is 11.9 cm. long, 5.1 cm. wide, 2.4 cm. thick, and weighs 7 ounces. Fig. 13, a fraction smaller, weighs 6 ounces. Inner broken plate of Fig. 13 was about 1.5 cm. shorter than inner plate of Fig. 14, which is 9 cm. These, found close together in same grave but not in connection with a skull, are curved in longitudinal direction. Figs. 11 and 15 are composite labrets, composed of an outer stone plate and an inner ivory plate. The inner plates, which are cut away to form the grooves, have 2 perforations for pegs which fitted into holes in upper plates. Fig. 11 has an outer plate of oil shale (?); Fig. 15, 1 of limestone. Found in same partly articulated burial, close to the mandible. Common to all 5 labrets is an incised line across the outer surface (Fig. 13).

16. Perforated Brown Bear Jaws: 4 specimens; found in B16, 19, and 33. All have 1 or more perforations indicating that they were suspended or fastened to something. 2 have articulating process cut away (Fig. 16).

1. 60.1-7518, B26
2. P-4824, JB8
3. 60.1-7522a, B26
4. 60.1-7605a, B32
5. 60.1-7423, B18
6. 60.1-7473, B22
7. 60.1-7380, B15
8. 60.2-4279, B106
9. UA, B73
10. 60.1-7323, B8
11. 60.2-3939, B90
12. 60.1-7462, B22
13. P-4884, JB21
14. P-4883, JB21
15. 60.2-3940, B90
16. 60.1-7650b, B33
PLATE 49

BURIAL OBJECTS—IPIUTAK BURIALS

1. 4. Antler Death Masks: Thin plates of antler placed over face of bodies at time of burial. Two specimens; from B107a and JB22. Fig. 1 found on face of articulated skeleton in B107a. Upper left and lower right sections weathered away. Upper edge cut straight; lower, scalloped. Only outer surface engraved with 2 sets of concentric circles in position of eyes. Fig. 4, found in a scattered or midden-like burial, not associated with skeleton, has 2 eye holes and a broad notch to fit over bridge of nose. Outer surface also incised; upper part broken away.

2. 3. Slender Cleats of Antler: 2 specimens; from B107a. Probably lashed or pinned to mask (Fig. 1). 2 pairs of small drilled holes visible on left of mask; those on right for second cleat broken away.

5. 6. Ivory Noseplugs: Carved objects representing birds’ heads, with inlaid jet eyes. Both specimens found in nostrils of skull in B41. Eyebrows incised over each eye and on crest of each head in trident design.

7. Loon’s Skull Set with Ivory Eyes: Found at the knee of articulated skeleton (B21). Cylindrical eyes have groove encircling convex fore end. Pupils are jet inlays. Skull intact; was probably buried with skin and feathers in place.

8. Polished Ivory Cylinder: Found with loon’s skull (Fig. 7), B21. Length, 1 cm.

9–13. Ivory Eyes: With jet pupils. 5 specimens; found in skulls from B24, 41, 51. Fig. 9, found in skull with noseplugs (Figs. 5, 6), was only 1 in that skull, but second may have been lost. Disc-shaped, with deep encircling groove around margin, indicating that it was buttoned into eyelids when body was buried. Figs. 10, 11, spool-shaped pair. Found in adult male skull of articulated skeleton (B24), deep in eye sockets with convex outer surfaces flush with brow ridges. A pair (Figs. 12, 13) clearly resembles Figs. 10 and 11. They are about same size, but conical rather than spool-shaped. Found in skull of articulated skeleton (B51).

14–16. Mouth Covers for Skulls: Concave-convex objects placed over mouths of bodies at time of burial. 3 specimens; from B8, 41, 61. Figs. 14 and 16 found with skulls; Fig. 14 in B41 with skull which contained noseplugs and flat eye (Fig. 9). Both engraved or slit to represent mouth. Figs. 14 and 16 have a series of sockets and raised ridges on each “lip,” suggesting lips were sewed together. Sockets possibly inlaid with jet. Both have holes at ends for tying around the head. Fig. 15, unlike others, found in midden-like burial, not in association with skull; hence, identification is uncertain. If a mouth cover, it must have been buttoned into lips like a labret. Process on inner surface could be held inside mouth. No perforations for lashing. Outer convex surface has 2 round sockets, probably for jet inlays, which might represent labrets. Surface weathered, so that no ornamentation remains.

1. UA, B107a
2. UA, B107a
3. UA, B107a
4. UA, JB22
5. 6.0.1-7664a, B41
6. 6.0.1-7664b, B41
7. 6.0.1-7459a, B21
8. 6.0.1-7459b, B21
9. 6.0.1-7459c, B41
10. 6.0.1-7459d, B24
11. 6.0.1-7459e, B41
12. 6.0.1-8993b, B51
13. 6.0.1-8993a, B51
14. 6.0.1-7662, B41
15. 6.0.1-7325, B8
16. 6.0.1-7701, B61
PLATE 50

BONE, ANTLER, AND IVORY ORNAMENTAL OBJECTS—IPIUTAK BURIALS

1. Hair Pin: 1 specimen; found near head of articulated skeleton in B131. Very sharp, curved; bone. Broad upper end is articulating surface of bone. Traces of line engraving on shaft just below triangular opening.

2. Brow Band: 1 specimen; found near wrist of articulated skeleton in B43; antler. Both ends broken away. Traces of line engraving on upper curved surface (cf. Pl. 24, Figs. 15–21).

3–5. Ornamental Bands, Type 1: Flat oblong objects with 1 or more perforations, possibly for tying or sewing to garment. 12 specimens; 7 antler; 5 ivory. Fig. 3 found in midden-like burial (B8). Possibly a pendant, since only 1 perforation at point. Flat, spatulate, with traces of incised ornamentation on both surfaces. Fig. 4 found lying across tibia of articulated skeleton in B122. Flat and slightly curved longitudinally. Both surfaces incised, not duplicating. 5 perforations for lashing or sewing. Fig. 5 found associated with skeleton in B32. Both surfaces incised with duplicating patterns. 5 perforations for lashing or sewing.

Of those not illustrated, 2 found beside femur, just below pelvis of an articulated child skeleton in B50; 2 more beside knees of an articulated child skeleton in B60; and 1 beside tibia of articulated adult skeleton in B117. Remaining 4 found in scattered or midden-like burials. No 2 are identical, but all have same general form and perforations for affixing.

6, 7. Pendants: Small decorated ivory objects, with suspension hole. 2 specimens; found at knees of articulated adult skeleton in B29; 1 from walrus tooth; 1 from flat piece of tusk. Both engraved.

8–13. Spatulate Objects: Curved and spatulate bands, with engraved decoration. 11 specimens; from B9, 89, 96; 10 ivory; 1 antler. Figs. 8 and 9 from B96, both broken at small end. Longitudinal curving possibly due to warping with drying. Both flat, with oval "head" set off by step. Ridge along back of Fig. 8 absent from Fig. 9. Traces of engraving upon reverse side of this specimen, but not on Fig. 8. Fig. 12 found lying against left forearm of skeleton in B89 (wrist guard?). Fig. 13 and 2 similar objects found under left hip of same skeleton, 2 more fragmentary specimens found in burial, but in association with second skeleton. Fig. 10 and second specimen like it found with Figs. 8 and 9 in a midden-like burial (B96). Ridge along back of Fig. 10 like that on Fig. 8. All engraved on both surfaces (cf. Text Fig. 41).

1. 60.2-4816, B131  2. 60.1-7667, B43  3. 60.1.7324, B8  4. UA, B122  5. 60.1-7612, B32  6. 60.1-7597, B29  7. 60.1-7596, B29  8. 60.2-4078, B96  9. 60.2-4079, B96  10. 60.2-4080, B96  11. 60.1-7346, B9  12. P-4493, B89  13. P-4494, B89
ORNAMENTAL BANDS—IPIUTAK BURIALS

1–12. Ornamental Bands, Type 2: Flat bands, with engraved and openwork ornamentation. 16 specimens; from B8, 9, 17, 25, 26, 61, 65, 66, 72, 94, 96, JB21; 14 ivory; 2 antler. Fig. 1, from B96, the longest, 44 cm., is broken away at both ends. 2 fragments from same burial probably parts of this object. Reverse side flat and undecorated, except for small sockets below the end horizontal ridges. Groove cut in edge of each scallop. Fig. 2 complete; retains traces of engraving on both faces. Fig. 3 engraved on upper, slightly convex surface only. Lower surface flat and only roughly finished, as if meant to be lashed to flat surface. 2 holes at each end and at center for lashings, in addition to I-beam at upper end. Fig. 4, from B96, resembles in part spatulate objects from same grave (Pl. 50, Figs. 8, 9). 1 surface slightly convex; other flat. 3 slots in groove near upper end by which it could be fastened to some other object. Longitudinal curve may result from warping. Figs. 5 and 6 lay side by side along hip of articulated adult skeleton (B61). Almost straight when found but, in drying, warped towards core of tusk from which they were made. Extremely thin, less than 2 mm. Decorated on 1 surface (Text Fig. 38). Both have 2 perforations at each end. Fig. 5 has series of 9 perforations along 1 edge. Fig. 7 (B25) probably represents caribou foot. Reverse surface flat and undecorated. Probably lashed down by line passed through 2 perforations. Traces of engraving on upper surface. Fig. 8 very thin, approximately 2 mm. thick. Traces of engraving on both surfaces. Fig. 9 engraved only on upper, slightly curved surface. Lower, flat surface rough and unfinished. 5 slots in longitudinal groove probably used to sew or lash object to flat surface. Figs. 10 and 11 found in same burial (B94). Fig. 10 probably represents bird head: eye composed of 2 concentric circles; small bar at center of groove (beak) would serve to lash it. Fig. 11 engraved on both surfaces. Left edge relatively sharp. Fig. 12 (B66) a series of discs, each engraved with concentric circles. Reverse surface flat and undecorated.

Of those not illustrated, 1 (B72), antler, has a stylized animal head, with eye sockets, carved at 1 end. Remaining 2 are fragments of thin bands with traces of engraving on 1 surface (B9, 17); 1 antler; 1 ivory.

1. 60.2-4082, B96 5. 60.1-7702, B61
2. 60.1-7719, B65 6. 60.1-7703, B61
3. P-4887, JB21 7. 60.2-4786, B25
4. 60.2-4083, B96 8. 60.1-7337, B9
9. 60.1-7532, B26
10. 60.2-3970, B94
11. 60.2-3968, B94
12. UA, B66
PLATE 52

HUMAN AND ANIMAL CARVINGS—IPIUTAK BURIALS

1–5. HUMAN HEADS: 5 specimens; from B74, 77, and 108; 2 ivory; 3 antler. Fig. 1 found with articulated skeleton in burial containing 3 bodies, is 1 of the pendants probably attached to the elaborate mask-like set of carvings (PL. 54). Flat, not ornamented on reverse side. Peculiar raised ridge extends from cheeks over nasal bridge; teeth clearly represented with engraved lines. Fig. 2 found in deposit which is probably part burial and part midden (B74). One eye socket retains jet inlay. Figs. 3 to 5 found together in B108; antler. Fig. 4 represents a skull; Fig. 3 is less clearly a skull; Fig. 5 represents a complete head. All hollow and thin walled. Fig. 3, which possibly fitted over end of round shaft, has round perforations at each ear. 1 jet eye remains in place. Fig. 4 has round hole at top of head and at each ear. Fig. 5 has ears carved in relief and 3 curved ridges extending from chin over cheeks, as if to represent scarification. This object may also have been placed over a round shaft.

6–8. SEALS: 6 specimens; from B32, 47, 56; ivory. A pair found in each burial. Figs. 6 and 7, from B32, each has an excavated slot in chin, probably for suspension. Heads and fore flippers are the same, but engraved designs on backs differ. Fig. 8 has similar suspension hole at chin, but no eye sockets and no flippers. Engraved along back is a skeleton design.

9, 10. POLAR BEARS: 2 specimens; from B32; ivory. Fig. 10 has the skeleton design engraved on body. On each flank is a "brand." An engraved Y figure extends from top of head to muzzle. Deep slot cut from chin along throat and belly to tail. Teeth represented by engravings. Fig. 9 a complete head of mammoth ivory with small hole at neck, probably for suspension; has same Y figure at top of head. 1 eye socket retains jet plug. Lower part of head is hollow.

11–17. SMALL ATTACHMENTS REPRESENTING ANIMALS: 14 specimens; from B32, 33, 60, 61, 65, 74, 94, 96, 99, 105, and JB10; 10 ivory; 3 antler; 1 jet. Fig. 11 resembles a fish head; broken away behind gills and below back. 1 eye socket retains a jet inlay. Fig. 12 is a caribou foot. Ends in a thin tube suggesting that foot was fixed on a shaft. Fig. 13 is a flipper or hand, with hole drilled transversely below digits. Series of parallel lines engraved horizontally around shaft. Fig. 14 found on shoulder of articulated skeleton in B61. Probably was pegged into some other object and fixed by lashings passed through mouths of 2 heads opening into round drill holes at throats. Eye sockets and 2 sockets along back were probably inlaid with jet. Fig. 15, carved from jet, with raised eyes and ears has a short "beak" and may represent a griffin's head. Broken at neck. Figs. 16 and 17 are serpent-like heads with unusually long muzzles. Fig. 16 has 17 small sockets cut in surface (probably in-laid) and outlined by incised circles. Hole is drilled through from mouth to neck and there is a slot at throat. Fig. 17 has eye sockets, but is not drilled longitudinally. Same Y figure on top of head as in Figs. 9 and 10.

All but 1 of the 7 specimens not illustrated are unidentifiable animal heads with drilled eye sockets. All are probably fragmentary. 1 (B94) is a hand or flipper resembling Fig. 13.

1. P-4410, B77 8. 60.1–7621, B32 11. 60.2–4344, JB10
2. UA-4442, B74 9. 60.1–7622, B32 12. P-4641, B105
3. P-4690, B108 10. 60.1–7619, B32
4. P-4689, B108 11. 60.1–7620, B32
5. P-4688, B108 12. P-4641, B105
6. 60.1–7620, B32
13. UA-4443, B74 14. 60.1–7704, B61
15. 60.1–7697, B60
16. 60.1–7636, B33
17. UA, B99
PLATE 53
ANIMAL CARVINGS—IPIUTAK BURIALS

1-8. Unidentifiable Animals: 8 specimens; from B9, 15–20, 23, 26, 42, 73, 81, 100; ivory. Fig. 1, found near shoulder of articulated skeleton in B42, probably represents a baby walrus. Eye and ear sockets were probably inlaid with jet. Slots are cut through each of 3 remaining flippers. Holes are drilled on each side just behind the fore flippers. A hole drilled between juncture of hind flipper joins slots cut in on each side of short tail. Intricate engraved design covers whole upper part of body and legs, and 2 raised drop-like bosses are carved on both flanks. Fig. 2 a fantastic figure, with stylized head at each end. Head at left end, with a gaping mouth, cut on upper surface by 2 crescent-shaped grooves in position of nostrils or eyes. The hump behind head may represent a body with 4 short legs (cf. Pl. 41, Fig. 1). Ridges on central section extend only halfway around body. The lower jaw of right hand head broken away. Fig. 3 is badly weathered. Head has 2 large, deep eye sockets, an open mouth, and very large, concave “ears.” A round hole, 1 cm. in diameter, is drilled through body vertically, at center of raised flange. Shoulders and hip bones are in relief. Holes are drilled horizontally, between fore and hind legs. A broad groove at base of both fore and hind feet indicates that figure was lashed to small round shaft. Fig. 4 is concave on reverse side, indicating that it was lashed to broad rounded edge on shaft, probably through 3 perforations in each edge. There are eye sockets, nasal sockets, and a socket in center of back. Hind flipper and short tail suggest a seal. Fig. 5 suggests a man-seal with shoulders and arms of a man and hind flippers of a seal. It has a wide flat head with a broad open mouth. Reverse side is flat. Fig. 6 is flat; probably broken away at each end. A groove is cut longitudinally on each surface. Fig. 7, a frog-like figure with well-defined fore feet or flippers, is curved, as if for lashing against a curved surface. Perhaps sewed to a garment. Found in test digging near the B15–20 group. Fig. 8, a flat and slightly concave figure, has a large, rectangular, and perforated projection on reverse side. Obviously affixed to some large object. Upper surface in relief. 2 parallel grooves cut around margin of muzzle appear to represent mouth and tongue. An excavated line attachment in nose is broken out.

1. 60.1-7665, B42
2. UA, B73
3. UA, B81
4. 60.1-7338, B9
5. 60.1-7580a, B26
6. 60.2-4205, B100
7. 60.1-7447, B15-20
8. 60.2-4784, B23
PLATE 54

MASK-LIKE SET OF IVORY CARVINGS—IPIUTAK BURIALS

Found articulated, as illustrated, lying on breast of a child skeleton. The skeleton lay between knees of an adult male; a female lay beside the male. All 3 skeletons articulated and enclosed in a rectangular log tomb. Brown fibrous remains of wooden backing for the carvings were visible; hence, they were probably affixed to a wooden background placed over the child skeleton. A second tear-drop-shaped piece of jet was found balancing the one illustrated, but was lost in the gravel while removing skeletons.

Reverse surfaces of the 4 pieces in frame are flat, roughly finished, and undecorated; at end of each piece are 2 lashing slots; at center of outer margin of both top and bottom pieces are additional lashing slots. Rectangular strips below frame are engraved on outer surface only. Lower 1 lay across upper 1 when found. 2 lashing slots in upper piece, 5 in lower.

14 of the pendants were found on the flat strips; 1, in shape of a human head (Pl. 52, Fig. 1), was found near right arm of child.

The cheek plugs are conical pieces of ivory which were found upright, still embedded in wood fiber.

8 of the 45 sockets cut in the frame retain jet inlays. 2 large ones below mouth probably represent labrets. A series of ridges terminating in sockets in the upper lip resemble those on the mouth covers (cf. Pl. 49) and suggest the practice of stitching the lips shut.

 Entire surface is weathered and only traces of what must have been an elaborate incised design remain.
PLATE 55
MASK-LIKE SET OF IVORY CARVINGS—IPIUTAK BURIALS

This set was found, during the search for burials, as a unit, but in an unorganized heap, not associated with a skeleton. Hence, proper arrangement was not known until set shown in Pl. 54 was found in B77. Reverse surfaces of 6 frame pieces are flat, roughly finished, and undecorated. Lashing slots for joining pieces and for affixing them to a background are at center of outer edge and at ends of each piece.

Larvae-like cleats at each side of mouth have excavated eye holes in under surfaces; these lie over perforations in base of depressions which hold cleats; hence, the 2 parts of mouth must have been lashed together by means of these cleats. Additional cleats must have fitted in the depressions at the upper corner of the frame.

The large jet inlays below the mouth, as in Pl. 54, probably represent labrets. All the 80 sockets cut in the surfaces were probably inlaid with jet. Only 11 inlays remain. Stylized animal heads are carved in relief at center of upper frame piece and lower ends of side pieces. The incised design is shown in Text Fig. 39.

The flat strips of ivory shown below the frame are like those in Pl. 54, but are engraved on both surfaces. The position of the 3 small rectangular cleats in the lower row is uncertain. All but 1 of the pendants are perforated for suspension. All but 3 retain traces of engraving.

60.1.7713a-k, B64
60.1.7714k-u, B64
1–8. Swivels, Type 1: 8 specimens; found in B32, JB4, 7, 8, 10, 11, 12; 3 ivory; 5 antler. Large oblong blocks with an I-beam for line fastening and perforation for swivel shaft. 5 retain free-turning antler swivel shafts with knobs at 1 end and transverse dowel slits near center. Blocks, length: 9–16 cm.; width: 4–6.5 cm. PIns, length: 13.5–19 cm. Transverse slots cut through blocks at base of I-beams on 4 specimens (Figs. 3, 4, 5, 8). Fig. 5 has series of 3 perforations in 1 side of block; opposite side has crude sculptured animal head. Fig. 7 carved in relief, apparently represents an animal's open jaws with upper jaw on 1 surface, lower jaw on other. Pieces of jet inlaid on each side at junction of jaws. Holes excavated in both surfaces at apex of jaws; 1 inlaid with jet. Similar holes appear in 2 other specimens (Figs. 2, 8). Surfaces of all but 1 disintegrated.

All large swivels of this type were found in graves, none in 72 excavated houses, suggesting that swivels, like many other objects from this site, have some ceremonial or supernatural significance.

1. 60.1-7610, B32
2. 60.2-4329, JB4
3. 60.2-4362a–b, JB11
4. 60.2-4352, JB10
5. P-4826, JB8
6. P-4825, JB8
7. 60.2-4374, JB12
8. P-4799, JB7
PLATE 57
SWIVELS—IPIUTAK BURIALS

1-4. SWIVELS, Type 2: 9 specimens; from B9, 96, JB5, 6, 11, 12, 15, 23; antler. None with incised decoration. Small rounded blocks with I-beam for line fastening at 1 end and perforation for free-turning shaft at other. Only Fig. 1 retains shaft; this, like Type 1, has dowel pin set in shaft. Fig. 1 almost same as Type 1, but much smaller. Smallest of Type 2, 5 cm. long, 3.3 cm. wide; largest (Fig. 1) is 7.5 cm. long, 3.5 cm. wide. All Type 2 lack excavated holes as on Type 1 (Pl. 56); none sculptured to represent an animal head. 1 with round perforation on side near broad end possibly had jet inlay, as in Pl. 56, Fig. 7. Swivels apparently made for practical use.

5-13. SWIVELS, Type 3: Small, ivory, relatively long and slender, with perforation for line attachment and bearing for swivel shaft. 12 specimens; found in B8, 11, 18, 71, 81, 89, 106, JB13. Fig. 5 smallest, virtually same as 1 found in houses (cf. Pl. 27, Fig. 9). Fig. 11 largest, found with Figs. 10 and 12 in B81. Incised decoration on Fig. 7 composed of nucleated circles with tangential lines. Neck is ridged as on some Type 1 swivels. Figs. 8 and 9 engraved with series of parallel lines. Fig. 10 has deep groove cut longitudinally in each edge. Similar deep groove in each edge of Fig. 12; also in upper and lower surfaces. 3 sockets cut in section around shaft bearing; 1 retains a jet inlay. Inlays may represent stylized animal head.

Lower section of Fig. 13 represents animal head with eye sockets (probably inlaid), a snout, and open mouth. “Throat” is the shaft bearing.

2 swivels of Type 3 with precisely similar form. All are more elaborate than Types 1 and 2 and suggest symbolic or ceremonial significance. Presumably all swivels are related in function.

1. 60.2-4361, JB11
2. 60.2-4084, B96
3. 60.2-4085, B96
4. 60.2-4376, JB12
5. 60.1-7371, B11
6. P-4840, JB13
7. P-4490, B89
8. P-4491, B89
9. 60.1-7318, B8
10. UA, B81
11. UA, B81
12. UA, B81
13. 60.1-7316, B8
PLATE 58
SWIVELS—IPIUTAK BURIALS

1–10. SWIVELS, TYPE 4: Relatively long and slender implements, with line attachment at point and cylindrical shaft bearing in base; carved so body is composed of 2 spirally twisted elements. 18 specimens; from B8, 9, 11, 26, 66, 73, 89, 94, 96, 97, 105, 130; ivory. Length, 9–18 cm.; shaft bearing diameter, 5–15 mm. Bands of parallel incised lines are cut longitudinally on 9 specimens. Fig. 10 has more complex design, including circles enclosing a cross. 3 additional swivels retain traces of incised designs. Twisted elements forming body of swivels may be round in cross-section (Fig. 3) or flat (Fig. 4). 6 specimens with round line holes at point; balance, a bar or slit. Fig. 5 has 3 sockets cut in margin about shaft bearing; these probably held jet inlays and may represent a stylized animal head. Fig. 9, found with cache of elaborate, carved objects (B130), was entwined in an openwork carving (Type 3). Though separate implements, they are illustrated together because they were found in this position. In Fig. 10 the 2 twisted elements are slit so that 2 sections of body consist of 4 spiral bands. Similar slits are cut in Fig. 7. Bifurcated flange at shaft bearing suggests caribou foot motive carved on other specimens (Pl. 52, Fig. 12).

Specimens, not illustrated, resemble Figs. 1 and 2 most closely.

All these implements could function as actual swivels, since they have unobstructed shaft bearings, but they approach the elaborate, carved objects described on Pl. 59 which are apparently entirely symbolic or ceremonial.

1. P-4492, B89
2. UA, B66
3. 60.1-7315, B8
4. P-4700, B130
5. P-4640, B105
6. 60.1-7565, B26
7. P-4699, B130
8. 60.1-7344, B9
9. P-4704, B130
10. 60.2-4177, B97
PLATE 59

OPENWORK CARVINGS—IPIUTAK BURIALS

1–9. Openwork Carvings, Type 1: Swivel-like objects lacking a usable shaft bearing. 12 specimens; found in B16, 26, 65, 72, 90a, 94, 96, 97, 98, 106; 11 ivory; 1 jet. Length, 5.3–16 cm. A small socket in base of Fig. 1 may symbolize shaft bearing of a usable swivel. Each edge of lower loop has a deep slot with parallel incised lines. Figs. 2 and 4, with a knob at the base like the swivels, have sharp point suggesting bird head and beak carvings (Pl. 69). In Fig. 3 a human head is carved at upper end from which extends an arm-like appendage terminating in a hand or flipper. Base also has a socket in position of shaft bearing. Smallest specimen (Fig. 4) was found with Fig. 2 in B96. Figs. 5 and 6 both have sockets in base. The latter, carved from jet, is much too fragile to be of practical use.

Figs. 8 and 9, found together in B106, are unusually well preserved because they lay in clear gravel beneath any possible organic material. Both are engraved (Text Fig. 32). Perforations are cut through broad base of both carvings in position of shaft bearings, but neither is functional.

4 sockets bored in margin of base on 1 side of Fig. 8 and 1 socket in opposite side were probably inlaid with jet. Broad base of Fig. 9 is a stylized animal head with eye sockets (probably inlaid) and an open mouth. “Throat” is a unusable shaft bearing.

Two of the specimens, not illustrated, resemble Figs. 2 and 4. The other is fragmentary.

1. 60.1-7718, B65
2. 60.2-4087, B96
3. 60.2-3971, B94
4. 60.2-4088, B96
5. 60.1-7391, B16
6. UA, B90a
7. 60.2-4178, B97
8. 60.2-4273, B106
9. 60.2-4276, B106
PLATE 60
OPENWORK CARVINGS—IPIUTAK BURIALS

1–8. Openwork Carvings, Type 2: Swivel-like objects with broad oval opening at base in position of shaft bearing, and a flange. 13 specimens; found in B26, 92, 94, 96, 97, 130, JB8, 11, 18, 22; ivory. Length, 6.3–20 cm. 2 retain traces of incised decoration. 9 are carved so that body is composed of spirally twisted elements. Fig. 1 has broad oval opening at base and scalloped flange. Body of Fig. 2 composed of 3 slender bars, a broad oval opening at base, and a flat flange. Fig. 3 is broken at point. Parallel incised lines extend along twisted elements. A long slot cut through left side of lower loop terminates at flat curved flange. Fig. 4 is composed of 2 flat bands spirally twisted, with an opening at base between 2 flanges. Fig. 5 is incised with parallel lines along each spiral band of body; long curved flange at base is broken. Fig. 6 is a flat object with 2 broad oval apertures at base. Fig. 7 has small round perforation in base and a loop instead of a flange. Fig. 8, composed of 3 spirally twisted elements, has broad oval (vertical) opening between twist and flange in position of a shaft bearing.

The 5 specimens not illustrated all have general form of swivels, the broad aperture at base and the flange, but no 2 of these are alike and none duplicates any illustrated.

1. P-4536, B92
2. 60.2-3972, B94
3. 60.2-4179, B97
4. P-4701, B130
5. 60.2-4089, B96
6. UA, JB22
7. P-4833, JB8
8. 60.1-7562, B26
PLATE 61
OPENWORK CARVINGS—IPIUTAK BURIALS

1–9. OPENWORK CARVINGS, TYPE 3: Swivel-like objects lacking shaft bearings or opening at base; but with flat flange like Type 2. 10 specimens; from B18, 23, 26, 96, 97, JB8, 10, 12; ivory. Length, 11.5–23 cm. 7 carved with a spiral twist. Fig. 1 is carved so that basal flange terminates in flipper-like appendage. Fig. 2 has a screw-thread spiral at the point, part of which is broken away. Surface of Fig. 3 is decorated with incised lines. Point is broken away. Fig. 4 has broad scooped flange scalloped about margin. Fig. 5 has carved animal head at point with eye sockets for inlays and beak-like mouth. Base also probably represents an animal head. 2 deep eye sockets are cut below high created “eyebrows.” Twisted elements are not attached at intersections. Fig. 6 is relatively flat, 1.3 cm. thick. Some of the original surface remains, but has no engraved design. Fig. 7 is remarkably well preserved, because it lay in clear gravel below level of organic material. Twisted elements are attached at each intersection, but the specimen seems to be unfinished. Fig. 8 is also well preserved because of its position in clear gravel. It is engraved with simple bands of parallel lines, circles, and ovals. The point is flat and rounded, but has rather sharp edge as does long flat flange at base. Fig. 9 terminates at point in long “flat” screw thread. The surface, which is intact, is not engraved.

1. 60.2-4379, JB12
2. 60.1-7413, B18
3. 60.1-7499, B23
4. 60.1-7422, B18
5. 60.2-4180, B97
6. 60.1-7421, B18
7. P-4834, JB8
8. 60.2-4090a, B96
9. 60.1-7557, B26
PLATE 62
OPENWORK CARVINGS—IPIUTAK BURIALS

1–10. Openwork Carvings, Type 4: Spirally twisted objects suggesting swivels. 15 specimens; from B26, 30, 91, 94, 96, 97, 130, JB6, 10, 19; ivory. Length, 10–20 cm. Surfaces on all but 1 specimen badly weathered. Fig. 1 terminates in a flat flange with relatively sharp edge. Fig. 2 most closely resembles swivels with line hole at point and broad concave base. Fig. 3 has flat flange at both ends. Figs. 4 and 6 were found together in a cache of elaborate objects. Fig. 6 was broken and repaired by lashings through 2 drilled holes. In drying, broken ends have sprung apart. Fig. 5 is composed of flat, ribbon-like elements. Upper end is broken. Fig. 7 has 2 spirally twisted elements which make 3 complete turns about axis. They are not attached at the inner sections. Upper end is broken away. Each element is engraved with a series of small circles with tangential lines. Fig. 8 resembles 2 interwoven figure eights. The upper end has a suspension hole. Fig. 9 is a flat band which makes 3 complete turns about itself and is then bifurcated at base. Both ends are broken away. Traces of engraved designs include circles with tangential lines. Fig. 10, probably an unfinished implement, illustrates the manner of cutting spiral objects.

The three carvings not illustrated are fragmentary. Like those of Type 3, no 2 of these objects are alike.

1. 60.1-7561, B26
2. P-4506, B91
3. P-4789, JB6
4. P-4703, B130
5. 60.2-4090, B96
6. P-4705, B130
7. 60.2-4181, B97
8. P-4790, JB6
9. 60.2-4091, B96
10. 60.1-7598, B30
PLATE 63

OPENWORK CARVINGS—IPIUTAK BURIALS

1-3. **Type 5:** Carvings with flaring, cup-shaped base. 3 specimens, from B25, 26, 96; ivory. An opening cut through from cup-shaped base to central opening in Figs. 1 and 3, but not in Fig. 2. All 3 bases resemble bit of a deep gouge, as does upper end of Fig. 3. General form and openings through to base again suggest swivels. Traces of engraving on Fig. 3 include concentric circles and circles with tangential lines. Base of Fig. 1 is at top.

4. **Type 6:** Carvings composed of 3 slender, curved elements. 2 specimens; from B22a, 26; ivory. A simple pattern of engraved lines remains on part of 1 specimen not illustrated.

5–8. **Type 7:** Carvings made from hollow base of walrus tusks. 6 specimens; from B18, 26, 28, 71, JB12; ivory. Lower end of each specimen illustrated has hollow, oval shape of base of tusk. Carvers used this natural hollow in tusk, simply extending it into granular core.

9–12. **Type 8:** Rectangular carvings composed of 6 elements arranged to form a vertical and a horizontal opening. 6 specimens; from B19, 15–20, JB5, 6, 21, 22; ivory. Length, 5–11 cm. Figs. 9 and 12 are cut from base of tusk. There are no line attachments and no traces of engraved decoration.

13–16. **Type 9:** Relatively flat, multi-looped carvings. 6 specimens; from B22, 26, 72, JB8, 10; ivory. Fig. 13 is slightly concave on reverse side. Simple engraved designs are limited to upper (convex) surface. Base of Fig. 14 shaped like deep gouge. Fig. 15 is cut from base of tusk.

1. 60.1-7602, B25
2. 60.2-4092, B96
3. 60.1-7553, B26
4. 60.1-7542, B26
5. 60.1-7592, B28
6. 60.2-4380, JB12
7. 60.1-7562, B26
8. 60.1-7547, B26
9. P-4788, JB6
10. UA, JB22
11. 60.1-7450, B15-20
12. UA, JB5
13. 60.1-7466, B22
14. 60.2-4347, JB10
15. 60.1-7546, B26
16. 60.2-3898, B72
PLATE 64

OPENWORK CARVINGS—IPIUTAK BURIALS

1–10. Type 10: Flat bands with ornate cut-out designs. 17 specimens; from B15–20, 18, 20, 26, 71, 91, 92, 96, and JB4, 8, 13, 15, 22; ivory. Length, 9.5–36 cm. Fig. 1 perforated at both ends (1 end broken). Bars along each side are triangular in cross-section. In Fig. 2 part of lower central section is broken away. Fig. 3, a composite Type 2 swivel, was found, as illustrated, impaled on the band. This may be accidental, since band does not fit triangular opening in body of swivel. Upper edge of band is serrated; broken at right end. Reverse side duplicates illustrated surface. Fig. 4 has small perforation at center which may have been used to pin object to a flat surface. Fig. 6 terminates in a figure resembling a fish tail. Figure on left end of Fig. 8 resembles a flipper or hand. Opposite end is broken. Figs. 9 and 10 are both broken at ends.

The 6 specimens not illustrated are fragmentary. No 2 are alike. None closely resembles any of those illustrated.

1. P-4539, B92  
2. 60.1-7567, B26  
3. 60.2-4094ab, B96  
4. P-4505, B91  
5. 60.2-4330, JB4  
6. P-4831, JB8  
7. P-4832, JB8  
8. P-4854, JB15  
9. P-4855, JB15  
10. 60.1-7438, B20
PLATE 65
OPENWORK CARVINGS—IPIUTAK BURIALS

1–4. Type 11: Relatively flat objects; round to oval in outline; cut-out designs. 11 specimens; from B15–20, 25, 26, 96, 130, JB10, 12, 13; ivory. Diameter, 5–8.5 cm. Fig. 1 is concave on reverse surface; both surfaces engraved. Fig. 2 is also concave on reverse side. Faint traces of an engraved flipper motive are visible on each corner of lower end. The 2 sockets of Fig. 3 were probably inlaid with jet plugs. Reverse side is also slightly concave. Fig. 4 is also concave on reverse side.

No 2 of unillustrated objects are alike and are only in general like those shown.

5–13. Type 12: Elongated objects with cut-out designs; 16 specimens; from B19, 22, 22a, 26, 28, 30, JB4, 5, 10, 13, 15, 16, 23, 25; ivory. All these implements are concave on the reverse side which is in no case ornamented or smoothly finished, possibly indicating that they were fastened over some elongated convex surface. Three specimens (B22, 22a, 26) resemble Fig. 7. Remainder consist of a series of loop-like sections. Only Fig. 7 bears traces of engravings and this has 2 flipper motives at 1 end. The upper end of Fig. 8 is carved to represent a stylized animal head, with eye sockets (presumably inlaid) and an upper lip. Figs. 8–10, 12 are fragmentary. Fig. 11 has an animal head with eye sockets, and nostrils at lower end; whole possibly intended to represent a fish.

1. 60.2.4095, B96
2. 60.1.7568, B26
3. 60.1.7441, B15–20
4. P.4841, JB13
5. UA, JB25
6. P.4929, JB23
7. 60.1.7477, B22a
8. P.4928, JB23
9. P.4856, JB15
10. 60.2.4346, JB10
11. P.4849, JB13
12. UA, JB16
13. 60.1.7433, B19
OPENWORK CARVINGS—IPIUTAK BURIALS

1–12. Type 13: Objects resembling ornamental chain links (cf. Pl. 70). 28 specimens; from B16, 17, 18, 22, 22a, 26, 99, 100, JB4, 5, 6, 7, 13, 14, 25, 28; ivory. Length, 7.5–14.5 cm. 2 specimens in this group, Figs. 2 and 8, may be terminal links of elaborate chains (cf. Pl. 70). Rest are unlike chain links, being either thicker in cross-section or carved so that there is a process at each end of loop. They were grouped with these openwork carvings rather than with chain links because they resemble specific objects of this type (Figs. 1, 2, 4, 8). 11 specimens are carved with a spiral twist (Figs. 3, 4, 8, 11). 3 have a flipper-like appendage as in Fig. 6. All of those illustrated are complete, unbroken implements. Figs. 3 and 9 are unusually well preserved, because they lay in clear gravel beneath organic debris.

1. 60.1-7416, B18
2. P.4851, JB14
3. P.4805, JB7
4. 60.1-7404, B17
5. 60.1-7544, B26
6. UA, JB25
7. UA, JB28
8. 60.2-4206, B100
9. P.4802, JB7
10. P.4852, JB14
11. 60.1-7393, B16
12. 60.1-7405, B17
OPENWORK CARVINGS—IPIUTAK BURIALS

1–17. **Type 14**: Unique carvings, which may have had some practical use. 18 specimens; from B9, 16, 17, 18, 19, 15–20, 22, 26, 94, JB7, 11, 12; ivory. Length, 3.5–20 cm. The preceding 13 “types” of openwork carvings presumably had some supernatural significance. All these carvings may have had the same purpose, since each is unique, but forms suggest a practical use as an attachment or a working tool. Figs. 1, 9, 10, 11, and 16 may be line attachers similar to those used by historic Eskimo. Fig. 2, with slot in broad end, may be a knife handle. Figs. 3 and 15 suggest arrow-straighteners. The outer, convex surface of the “handle” of Fig. 3 is engraved with 3 parallel lines. Fig. 5 has a vertical perforation between ring and flange. Traces of line decoration on flange and opposite side of ring are visible. It resembles a swivel. Fig. 6, with long deep slot in reverse edge, may be knife handle. Figs. 7 and 8, with flat surface on 1 edge, were possibly fixed to flat surface. Fig. 7 has a small perforation in the tip for a fixing pin or a cord. 3 sockets in right side possibly held jet inlays. Fig. 8 has deep, gouge-shaped base, like objects illustrated in Pl. 63, Figs. 1–3. Figs. 12–14 may be handles. Fig. 17 is a hook with openings cut through upper edge of ring and laterally through the hook proper.

An unillustrated specimen is similar to Fig. 7.

1. P-4804, JB7
2. 60.2-3973, B94
3. 60.1-7464, B22
4. 60.1-7340, B9
5. 60.1-7551, B26
6. 60.1-7555, B26
7. 60.1-7396, B16
8. 60.1-7432, B19
9. 60.1-7407, B17
10. 60.1-7550, B26
11. 60.2-4359, JB11
12. 60.1-7408, B17
13. 60.1-7415, B18
14. 60.1-7406, B17
15. 60.1-7449, B15-20
16. 60.2-4377, JB12
17. P-4803, JB7
PLATE 68
OPENWORK CARVINGS—IPIUTAK BURIALS

1–17. **Type 15**: Objects carved to represent animals. 21 specimens; from B16, 18, 19, 22, 26, 96, JB7, 8, 11, 12, 20, 21, 23; 20 ivory; 1 antler. 2 link-like objects with lower ends carved to represent animal heads are from JB11 (Figs. 1, 2). 1 eye socket (Fig. 2) retains jet inlay. Heads of Figs. 1 and 2 have been identified as rodents (ground squirrel or beaver?) by form of teeth. These may be “ornamental links” (cf. Pl. 72). Figs. 3–7 terminate at lower ends with frog-like heads. Eye sockets were probably inlaid with jet. “Mouths” of Figs. 3–5 are represented by grooves along edge of flange. In Figs. 3 and 6, 2 sockets represent nostrils; Fig. 6 has an open mouth. Eye sockets of Fig. 4 are at center of a boss. Fig. 5 retains an incised design. Spiral twist of Fig. 3 is like that of openwork carvings, Type 3 (Pl. 61). Fig. 7 has form of openwork carvings, Type 12 (Pl. 65), and may have been placed over an edge or rim. Head is frog-like and eye sockets were probably inlaid. Incised design is limited to upper, convex surface. Fig. 8 is flat, like openwork carvings. Type 10 (Pl. 64), with eye sockets, nasal grooves, and flipper-like figures at lower end. Fig. 9 faintly resembles a seal with fore flippers in relief and hind flippers engraved, but nose is broad flat snout. Eye sockets were probably inlaid. Fig. 10 must represent a fish. No mouth or eye sockets are visible in weathered surface. Fig. 11 has 4 feet or flippers, a head with an open mouth, eye sockets, and very large ears. Fig. 12 is flat band, like openwork carving, Type 10 (Pl. 64). The 2 heads probably represent seals. Fig. 13 is also double-headed. Both heads are represented by eye and nasal sockets, but only lower head has mouth. In Fig. 14, eye sockets are drilled in each side of the loop. Object is made from base of tusk; hence, lower part is hollow. Fig. 15 again has a frog-like head with “mouth” represented by groove cut in edge at lower end. Eye sockets absent. Grooves on reverse side of head resemble fish gills. An ivory ring (Fig. 16) with 2 appendages represents what appear to be human hands. Fig. 17, antler, also has frog-like head at lower end; hollow upper end possibly an animal head with 2 eye sockets.

Of the unillustrated carvings, 1 resembles Fig. 3, another Fig. 13, and a third, Fig. 16. The fourth is fragmentary. None is precisely identical to any one illustrated.

1. P.4800, JB7
2. P.4801, JB7
3. 60.1.7390, B16
4. 60.1.7414, B18
5. 60.2.4096, B96
6. 60.2.4378, JB12
7. 60.1.7463, B22
8. 60.1.7580b, B26
9. 60.2.4355, JB11
10. P.4927, JB23
11. P.4829, JB8
12. 60.2.4364, JB11
13. P.4885, JB21
14. P.4930, JB8
15. 60.1.7431, B19
16. 60.2.4375, JB12
17. 60.1.7545, B26
PLATE 69
OPENWORK CARVINGS—IPIUTAK BURIALS

1–8. Type 16: Objects carved to represent bird heads. 11 specimens; from B17, 26, 94, 96, 130, JB3, 8, 11, 21; ivory. Length, 10–32 cm. Fig. 1, with spiral twist characteristic of so many Ipiutak carvings, probably represents the puffin. Eye sockets probably had jet inlays. Fig. 2 is a combination of bird, man and sea mammal. Upper end, a bird head with long sharp beak (probably a loon) and eye sockets, retains an incised design. A human head, with raised nose, eye and mouth sockets, protrudes below bird head; at base is circle formed by 2 flipper-like figures. Behind flippers is short projection like seal’s tail. Figs. 3–8, with long sharp beaks, may all represent loons’ heads. All except Fig. 4 have eye sockets. Fig. 3 has broad socket in base. Long flat flange at base of Fig. 5 probably lashed to some flat surface. Traces of incised ornamentation remain at flange and upper part of beak. Fig. 7, like Fig. 3, with broad socket in base, was made from butt of tusk.

Of the carvings not illustrated, 1 (JB3) has relatively short bird head and spiral twist as in Fig. 1; another (JB8) resembles Fig. 7; the third (B17) is unusually long and slender like Fig. 5.

Not Illustrated: Openwork carving fragments, 45 specimens; from B16, 17, 19, 26, 91, 92, 94, 96, 99, 106, 130, JB3, 10, 12, 19, 23, 26; 43 ivory; 2 antler. 5 carvings have the spiral twist; 3 have eye sockets for inlays; 1 has an animal head. 1 retains traces of engraving.

1. 60.1-7569, B26 4. P-4710, B130 7. 60.2-4363, JB11
2. 60.2-4097, B96 5. 60.2-3975, B94 8. P-4886, JB21
3. 60.1-7581, B26 6. 60.1-7582, B26
PLATE 70

CHAINS AND ORNAMENTAL CHAIN LINKS—IPIUTAK BURIALS

1–3. IVORY CHAINS: 3 specimens; from B93, 130, 96 (illustrated in that order). Figs. 1 and 3 are well preserved, have incised lines cut along outer edge of each link. Fig. 3 has small perforation at end of uppermost link and engraved flange on lower. Hook at lower end of Fig. 2, carved with characteristic spiral twist, has perforation through shank. Fig. 1 is only object found in a deposit believed to be a burial, although no remains of a skeleton were found. Fig. 2 was found with a cache of elaborate carved objects.

4–11. ORNAMENTAL CHAIN LINKS: 18 specimens; from B15, 16, 22a, 100, JB5, 8, 10, 11, 13, 14, 15; ivory. Possibly terminal links for chains or parts of linked objects similar to Pls. 71, 72. Figs. 4 and 5 have frog-like heads like those on openwork carvings, Type 15 (Pl. 68). 1 eye socket in Fig. 5 retains jet inlay. Fig. 4 has open mouth. Fig. 6 has 4 sockets for inlays; 2 in position of eyes and 2 drilled horizontally at "shoulders." Fig. 7 is probably a bird head, but beak is no longer defined. Fig. 8 resembles 1 link of object illustrated in Pl. 72, Fig. 5. Figs. 9, 10, 11 are probably parts of linked objects like that illustrated in Pl. 72, Figs. 5–6. Long slender beaks indicate that they represent loon heads. Fig. 10 holds a fish between tips of beak. Fig. 11 bears traces of incised decoration. All 3 have eye sockets for inlays.

Of those not illustrated, 1 (JB14) resembles Fig. 4; 1 (B100) is a bird head similar to Fig. 9, and another (B100) resembles Fig. 8; remainder are fragmentary.

1. P.4546, B93 5. 60.1-7397, B16
2. P.4707, B130 6. 60.2-4366, JB11
3. 60.2-4102, B96 7. 60.1-7377, B15

9. UA, JB5
10. 60.2-4353, JB10
11. P.4827, JB8
1–8. Linked Carvings: 17 specimens; from B8, 18, 21, 23, 26, 99, 100, 130, JB2, 4, 10, 12, 14, 20, 23; ivory. Length, 12–37 cm. Both ends of Fig. 1 broken away and entire object much weathered. It has a broad, deep socket in central section; hence, it may have been set on end of a shaft. Entire piece, including pendant links, was cut from 1 piece of ivory. Figs. 2 and 5, from same burial (26), possibly joined by line passed through perforations at lower end of Fig. 2 and upper end of Fig. 5. Fig. 5 has straight links, while those of Fig. 2 are spirally twisted. Figs. 3 and 4 are each a pair of similar links. Fig. 4 may have been suspended by means of perforation in upper end. Figs. 5 and 6 both terminate in links resembling swivel blocks. A round perforation through end of each lower link resembles swivel shaft bearings. A third specimen (not illustrated, B130) resembles Fig. 5, but perforation does not extend entirely through link. Fig. 8, broken at upper end of intersection, spirally twisted elements, has eye sockets drilled in both edges of lower ring and in “shoulders” of pendant link, which may symbolize animal heads. Body of small link is hollow. It was probably carved from base of tusk.

1. P-4785, JB2
2. 60.1-7540, B26
3. UA, B99
4. UA, JB20
5. 60.1-7541, B26
6. 60.2-4210, B100
7. 60.2-4385, JB12
8. 60.1-7498, B23
PLATE 72
ORNAMENTAL LINKED OBJECTS—IPIUTAK BURIALS

Fig. 1 was found below hips of articulated adult skeleton in B21 which was also supplied with 5 antler tubes and loon's skull set with ivory eyes. Both animal heads are identical on reverse. A ladder-like design is engraved at throat of each head. Eyes were probably inset with jet. Perforation between jaws and 1 through neck of lower head. Muzzle of upper head is hollow. First head has same Y figure on top as Pl. 52, Figs. 9, 10, and 17.

Fig. 2 was found in a midden-like burial. Lower ring resembles a swivel block with shaft bearing in lower edge. Carved head on upper ring has both nasal and eye sockets, 1 of latter retains jet inlay. Mouth is a deep groove. Parallel incised lines are engraved around both rings.

Fig. 3 is badly weathered. Head carved on lower ring probably represents a bird.

Fig. 4 is composed of two separate links which were found linked together, but can be separated, like a Chinese puzzle. One part is carved like an animal head; the other is unidentifiable because of much weathering but is scalloped around edge and may represent webbed feet.

Fig. 5 has pendant bird head which lacks usual eye sockets.

Fig. 6, 2 linked heads representing a bird and carnivore, probably a wolf, has a deep slot at throat of upper head, also pronounced ears carved in relief. All 4 eyes were probably inlaid. Fig. 7 has what is probably a stylized head carved at end of lower ring. Both rings have slight spiral twist.

A fragmentary specimen is not illustrated (JB23).

1. 60.1-7457, B21 2. 60.1-7314, B8 3. 60.2-4331, JB4
4. 60.1-7425, B18 5. 60.2-4345, JB10
6. P-4850, JB14 7. P-4709, B130
PLATE 73
CARVED IVORY RODS—IPIUTAK BURIALS

1-4. Type 1: Slender carved ivory rods used in preparing bodies for burial. 4 specimens; from B21, 26, 94, and JB12. Fig. 1 was found thrust through cervical vertebrae and lying along inner surface of lower vertebrae, in a partially articulated skeleton in B21. The upper end, which lay at the throat, is carved to represent a human hand; lower end, a stylized caribou foot. Screw threads near upper end do not continue entirely around shaft. Additional 3 rods included in this type were found in scattered, midden-like burials, not in association with skeletons; hence, their purpose is doubtful. No 2 are alike and they are only generally similar to Fig. 1. Fig. 2 is carved at upper end to represent a bird head with an extremely long beak. Eye sockets were probably inlaid. Fig. 3 resembles Type 2 in part.

5-6. Type 2: Rods with a slot at each end. 4 specimens; from B16, 18, 22, and 91; ivory. Fig. 5 has deep groove between end slots. Rectangular in cross-section; upper end slightly twisted. Fig. 6 lacks groove and is flatter. Upper end carved to represent an animal head; break below it was repaired with lashing through perforations. Other 2 specimens were fragmentary, but 1 has groove as in Fig. 5. Among fragments of carved rods are 3 specimens apparently part of same type of implement. 1 complete specimen was found in a test pit (Pl. 77, Fig. 1).

7-9. Type 3: Slender, pointed implements, possibly daggers. 6 specimens; from B96, 130, and JB12. Fig. 6 has a hand or flipper carved at flat butt end and engraved circle with tangential lines just above it. A long slot is cut in central part of shaft. Point very sharp. Fig. 8 and 3 more rods closely resembling it were found in B130, the cache of elaborate objects. Fig. 9 is carved with spiral twist motive characteristic of many grave objects. It is somewhat rectangular in cross-section. These implements are too fragile for functional weapons and were possibly symbolic or ceremonial.

1. 60.1-7456, B21 4. 60.2-4384, JB12 7. 60.2-4103, B96
2. 60.2-3978, B94 5. P-4507, B91 8. 60.2-4383, JB12
3. 60.1-7525, B26 6. 60.1-7428, B18 9. P-4695, B130
PLATE 74

CARVED IVORY RODS—IPIUTAK BURIALS

1−3. TYPE 4: Slender pointed implements with cut-out ornamentation. 4 specimens; from B19, 92, and JB2. Fig. 1 is 1 of a pair found in B92. 1, not illustrated, is a duplicate except for 3 rather than 4 cut-out sections; point is intact. Curve is intentional, not result of warping. Fig. 2 may represent a bird head at upper end. Butt is wedge-shaped. Fig. 3 has open socket at butt.

4, 5. TYPE 5: Pointed implements, possibly ceremonial daggers. 2 specimens. Both thin, flat, probably too fragile for actual use; may be intended for grave furniture only. Fig. 5 is flat on 1 surface, slightly convex on other.

6−9. UNCLASSIFIED IVORY RODS: 4 specimens; from B53, 94, 96, and 108. Fig. 6 lay between 2 articulated skeletons in B53 and may represent a whale. The eye socket was cut in only 1 surface. A narrow panel filled with cross-hatching incised on reverse side. Fig. 7 retains traces of elaborate incised designs on both flat surfaces, possibly a meat fork. Lower end of Fig. 8 suggests a whale head. Lower end of slot broken. Both surfaces engraved with irregular circles with radiating lines. Fig. 9 found with harpoon heads, foreshafts, and ice picks in an articulated burial. Upper end terminates in very small animal head.

10−12. CARVED IVORY ROD, FRAGMENTS: 7 specimens; from B16, 15−20, 26, 92, and 96. Fig. 10, with oblique slots, is unique. Surface retains traces of incised ornamentation. Fig. 11 is 1 of 3 similar rod fragments found in B16. They resemble Type 2. Fig. 12, with cut-out loops, is also unique. From excavations around B15−20 group.

Remaining 2 specimens resemble Type 3 and may be daggers.

1. P-4537, B92
2. 60.1-7435, B19
3. P-4748, JB2
4. UA, JB20
5. P-4822, JB8
6. 60.1-7681, B53
7. 60.2-3979, B94
8. 60.2-4105, B96
9. P-4686, B108
10. 60.1-7529, B26
11. 60.1-7400, B16
12. 60.1-8275, B15-20
PLATE 75
UNIDENTIFIED IMPLEMENTS—IPIUTAK BURIALS

1. **Ivory Pegs**: Flat, disc-shaped, with sharp point on 1 surface. 1 specimen; found in B33. Possibly peg for throwing board (cf. Pl. 27, Figs. 13–14).

2, 3. **Ivory Rings**: 3 specimens; found in B26, JB12. Jet disc set in ring (Fig. 2); probably an inset eye like those on harpoon socket pieces (Pl. 38, Figs. 1–2). Fig. 3 is a short cylinder engraved with bands of lines.

4. **Flat Oblong Piece of Ivory**: With broad groove across lower edge; parallel lines engraved on both broad surfaces. 1 specimen; found in B74.

5. **Fluted Jet Cylinder**: With 15 round sockets; 1 socket in each end.

6. **Thin Curved Piece of Ivory**: With perforations in wings. From B137. Possibly an ornament which was fixed to a convex surface. Triangular engraved designs.

7. **Tubular Piece of Antler**: With broad flat base containing socket.

8. **Unidentified Implements, Type 1**: Bird arrowheads with a line hole (?). 3 specimens; from B9 and 73 (cf. Pl. 28, Figs. 1–7).

9. **Flat Strip of Ivory**: With 2 prongs on 1 edge. Upper end broken away; 1 surface engraved with parallel lines.

10. **Unidentified Implements, Type 10**: Slender shafts with an eye hole; possibly trout needles or fishhook shanks. 1 specimen; antler (cf. Pl. 29, Figs. 2, 3).

11. **Miniature Foreshafts (?)**: Needle-like points with an eye hole. 2 specimens; from B10 (cf. Pl. 6, Fig. 8).

12. **Projectile Point (?)**: With bifurcated spur and square line hole.

13. **Flat, Double-Pointed Implement**: With large eye hole.

14, 15. **Rake-like Objects**: Ivory implements with sharp teeth, handles, and excavated eye holes. 2 specimens; found in B16, 108. 1 (Fig. 14) found with a collection of hunting gear (harpoons, arrows, etc.) in B108. The back is carved in shape of bear head and 2 fore legs connected by a cross bar. Of the 9 sockets, presumably for jet inlays, 2 represent eyes. There are 3 perforations, 1 at each end of row of teeth. Under surface is slightly concave. Fig. 15 has flipper-like appendage carved on butt of handle.

16. **Ivory Rod**: With loop at 1 end and short lateral hook or barb. 1 end broken away.

17. **Forked Ivory Implement**: 1 surface incised with 2 parallel lines.

18. **Unidentified Implements, Type 11**: Slender spoon-shaped ivory implements resembling narrow spoons of modern Tikerarmiut. 2 specimens; found in B32, 33 (cf. Pl. 29, Fig. 4).

19. **Unidentified Implements, Type 5**: Conical to wedge-shaped ivory implements, with flat point; possibly boot creasers or wedges. 2 specimens; found in B33 and 54. 1 found with collection of needles below pelvis of female skeleton (cf. Pl. 28, Figs. 17–23).

20. **Short, Ivory, DROP-SHAPED IMPLEMENT**: Possibly point for staff or ice pick.

1. 60.1-7639, B33
2. 60.2-4386, JB12
3. P-4837, JB8
4. UA-4444, B74
5. P-4500, B89
6. 60.2-4819, B137
7. 60.1-7700, B60
8. UA, B73
9. 60.2-4182, B97
10. P-4807, JB7
11. 60.1-7359a, B10
12. 60.1-7674, B47
13. 60.1-7720, B65
14. P-4687, B108
15. 60.1-7389, B16
16. 60.1-7411, B17
17. 60.1-7345, B9
18. 60.1-7613, B32
19. 60.1-7688, B54
20. 60.1-7320, B8
PLATE 76
UNIDENTIFIED IMPLEMENTS—IPIUTAK BURIALS

1. Broad, Spatulate Antler Implements: Possibly fragments of ladles. 2 specimens; from JB20, 21. Handle of Fig. 1 carved to represent caribou foot; handle of second implement has long slot.

2. Dagger-Shaped Implement: With slightly curved tang and sharp flat point. Found in JB25. Long slot cut from left to right and from top to bottom so that "blade" consists of 4 slender filaments.

3. Hammer-Shaped Antler Implement: Possibly a flaking hammer. Found in B35. Head not battered, as when used as a hammer.


5. Triangular Openwork Antler Objects: Two specimens; found in JB8. Bar at left is hollow, as if set on shaft.

6. Strip of Ivory: With concave lower surface, 4 lashing slots, and round central perforation; 1 end broken. Apparently was lashed to a long convex edge.

7. Spatula-Like Antler Object: Fragment, very thin, with wide hole in upper end. Found in B94.

8-10. Unidentified Implements, Type 12: Curved pieces of ivory with flat rounded point, possibly elaborate marlin spikes (cf. Pl. 22, Figs. 12, 13). 3 specimens; found in B32, 63, 97. Fig. 8 is pocked with decay; has animal head carved on upper end. Projection at right of Fig. 9 forms loop. "Blade" slightly concave; upper section cut with long slot and partly "twisted" like openwork previously described (cf. Pl. 29, Fig. 5).

11. Antler Tubes: 6 specimens; found in B21, 64. Tube from B64 found with mask (Pl. 55) contained several arrowheads. Fig. 11, the smallest, is 1 of 5 tubes found with articulated skeleton in B21. All 5 with incised designs; most represent human faces and animal heads (Text Figs. 28, 29, 45). Length of largest, 33 cm.; diameter, approximately 3.5 cm.


Not Illustrated: 12 unidentified implements, including 2 long, slender, double-pointed antler shafts, possibly meat forks or crude weapon points, from B53, 100; antler implement, possibly an unfinished foreshaft, Type 1, from B101; ivory shaft, possibly a Type 2 foreshaft, from B105; ivory marlin spike or awl, from B107; perforated shaft which may be side prong for salmon spear, from B32; small cleat with serrated edge, from B108; very small ivory spatula, from B60; small, wedge-shaped ivory object, from B74; forked ivory object from B8; and a small rectangular perforated antler block, from B107.

Not Illustrated: Unidentifiable fragments of antler, ivory, and bone implements: 105 specimens; from 47 burials; 48 antler; 6 bone; 5 are fragments of antler plates, probably death masks (cf. Pl. 49), from B97 and JB3. 1 (B54) is a perforated shaft butt.

1. P-4882, JB21 2. UA, JB22 3. 60.1-7658, B35 4. 60.1-7442, B15-20 5. UA, JB18 6. 60.1-7645, B33 7. 60.2-3980, B94 8. 60.1-7711, B63 9. 60.2-4183, B97 10. 60.1-7609, B32 11. 60.1-7452, B21 12. 60.2-4820, B137
PLATE 77
OBJECTS FROM TEST CUTS AND INTRUSIVE IMPLEMENTS

1. Sling Handle (?): Slender ivory rod, perforations at each end connected by deep groove. Almost rectangular in cross-section; found in a test excavation near B30 (cf. Pl. 73, Fig. 5).

2–5. Implements from Beach Cut: Found in house floor debris exposed by surf cutting at western end of Ipiutak site. Selected from 75 implements excavated from 3 house floors exposed on cut bank, all illustrated Ipiutak types. Fig. 2, an engraved ivory carving, an unidentifiable animal head with eye sockets, resembles those from Ipiutak burials. Surface engraved with simple design. Fig. 3 a flint hand drill with unusually slender, sharp point. Fig. 4 an ivory labret unlike large labrets from Ipiutak burials (Pl. 48, Figs. 11–15). but similar to labrets from historic Tigara site. Fig. 5 is an unidentified ivory ring like those illustrated in Pl. 28, Figs. 24, 25.

6–18. Implements of Historic Tigara Type: Excavated in Ipiutak houses and burials. A knife with rubbed slate blade and wooden handle (Fig. 6), found in gravel above floor of H65. Figs. 7 and 8 are 2 of 3 rubbed slate knife blades, like Fig. 6, found while removing turf from H16, 42, and 66. There are also 4 fragments of rubbed slate blades from H15, 29, 32, and 34. At least 1 of these was found in turf above refuse deposit. Exact location of other fragments unknown. Figs. 9 and 10 are chipped flint arrowpoints of Tigara type found during excavation of H25 and 35. Another point of this type was found just below surface above B3. Fig. 11, an antler arrowhead with 4 short barbs, from H50, has shoulder at base of tang. Fig. 12 is an ivory bolas weight from H18. Figs. 13 and 14 are lance heads of flaked and partially rubbed silicified slate from HS9 and B97. Fig. 15 is a bone boat or blubber hook barb from H31. 3 potsherds (Figs. 16–18) were found in the midden-like burials (96, 98, 102). Figs. 16 and 17 have paddle impressions on outer surface like those from the middens (cf. Pl. 86, Figs. 18, 19). Fig. 18 has check-stamped design on outer surface as in Pl. 91, Fig. 11.
PLATE 78

HUNTING EQUIPMENT—NEAR IPIUTAK BURIALS

1–7. Harpoon Heads: 8 specimens; 3 ivory; 5 antler. No 2 alike. Fig. 1, antler; short, broad, open socket, blade slit at right angles to line hole; deep groove above line hole on both faces; simple line decoration. The blade is like arrowpoints or harpoon blades, Type 1 (Pl. 80, Figs. 15–18). Fig. 2, antler, probably like Fig. 1, but so badly disintegrated that distinctive features have disappeared. Fig. 3, antler; unfinished head resembling Ipiutak Type 3 (Pl. 5, Figs. 1–10). Fig. 4, ivory; slender, pointed; no blade, open socket; small line hole offset on left side; simple line decoration on reverse side. Fig. 5, ivory; slender, pointed; no blade; 2 short barbs; small line hole offset on right side; bifurcated spur; open socket. Simple line decoration on reverse side. Fig. 6, antler; point broken; slotted line hole; open socket with no lashing slots (cf. Pl. 84, Fig. 11). Fig. 7, antler; short, pointed; blade slit in right edge; open shaft socket; line hole offset to left side; deep groove as in Fig. 1, on both faces; simple line decoration (cf. Pl. 84, Figs. 9, 10).

Not Illustrated: An unfinished head (B87) resembling Fig. 4.

8–11. Arrowheads, Type 1: Long, slender; end blade slot; blunt-pointed butt; fixed in shaft with ivory ring; 2 longitudinal incised lines; round in cross-section. 14 specimens; found in B1, 4, 86, and 87; antler. Bundle of these arrowheads lay on knees of child skeleton in B1; fragments of wooden shafts remained.

12–14. Arrowheads, Type 2: Short, round to oval in cross-section; end blade slits; clip butt for hafting; some have 2 or 4 equally spaced longitudinal incised lines; 4 retain blades (cf. Pl. 80, Figs. 15–18). 15 specimens; from B1, 3, 85, 86, and 87; all antler. 2 specimens (B1) have slots extending above clip butt which probably held inset blades.

15, 16. Arrowheads, Type 3: Short, round in cross-section; end blade slits; round socket in base for hafting; 4 equally spaced, short, longitudinal, incised lines. 10 specimens; from B1 and 2; antler.

17–21. Arrowheads, Rare Forms: Fig. 17 short, oval in cross-section; clip butt; 2 barbs close to shaft. 1 specimen; from B85; antler. Fig. 18 slender, round shafts with blunt butt, like Type 1 arrowheads, but with 1 side blade slot near point. 2 specimens; from B4; antler. 2 longitudinal incised lines. Fig. 19 relatively broad, flat, and crude, like Type 1a from Ipiutak. 1 specimen; from B85. 1 side blade slot near point. Figs. 20 and 21 relatively broad, flat, and crude; end blade slit; resembles Ipiutak Type 2a, or those from uncertain burials grouped with Ipiutak. 4 specimens; from B85; antler. Fig. 20 is one of the largest; Fig. 21, the shortest. 2 have blunt pointed butts like those of Type 1; other a conical tang. Fig. 20 has 1 longitudinal incised line.

Not Illustrated: Arrowhead fragments. 13 specimens; from B1, 86, and 87; antler.

22, 23. Barbed Prongs: Triangular in cross-section; short barbs, grooved or notched at each side of broad edge; beveled tang; series of longitudinal grooves in broad edge. 5 specimens; from B3, 85, 86, and 87; ivory.

24, 25. Bird Arrowheads: Blunt heads, with shaft socket in base. 4 specimens; from B2, 85, and 86; ivory. Only 2 illustrated are carved at point, like modern Eskimo heads. Both engraved.

26. Barbs for Salmon Spear: Sharp barbs, with flat face and slot for lashing against side prongs. 2 specimens; from B85; antler.

27. Center Prong for Salmon Spear: Straight, sharp point; triangular butt with 2 flat faces and slot for lashing to side prongs. 1 specimen; from B86; antler.

28. Side Prongs for Salmon Spear: Curved strips of antler with inset ivory barb and flat face at butt for lashing to center prong. 2 specimens; from B4 and 87. Perforations in shaft served to bind barbs more securely.

1. 60.1-7268, B3
2. 60.1-7235, B1
3. UA, B83
4. P-4942, B86
5. 60.1-7280, B4
6. P-4943, B86
7. P-4944, B86
8. 60.1-7245a, B1
9. 60.1-7245b, B1
10. 60.1-7281a, B4
11. 60.1-7281b, B4
12. 60.1-7267a, B3
13. UA, B85
14. P-4937, B86
15. 60.1-7254a, B2
16. 60.1-7254b, B2
17. UA, B85
18. 60.1-7282a, B4
19. UA, B85
20. UA, B85
21. UA, B85
22. P-4945, B86
23. 60.1-7269, B3
24. P-4941, B8
25. UA, B85
26. UA, B85
27. P-4947, B86
28. P-4965, B87
PLATE 79
HUNTING IMPLEMENTS AND TOOLS—NEAR IPIUTAK BURIALS

1,2. Whaling Harpoon Heads: Large, heavy heads with closed shaft socket, long slender spur, and blade slots at right angles to line hole. 2 specimens; from B83 and 85; ivory. Line holes are gouged, not drilled. Broad grooves extending back from line holes are duplicated on reverse surfaces. In Fig. 1 an incised line extends full length of head from blade slit to end of spur. Above line hole, small incised figure of whale. Inverted V-shaped slots in point of each head form side slots joining about 4 cm. below points. Heads were probably equipped with 2 side blades meeting at point to make an end cutting blade, or they had an end blade and 2 smaller side blades.

3. Harpoon Ice Pick (?): Double-pointed ivory implement without scarfing. 1 specimen; from B86; ivory.

4–6. Mattocks: Walrus tusks cut for hafting. 3 specimens; from B1 and 87. Fig. 4 flat and wedge-shaped, has no hafting groove, but a scarfed, rectangular poll. Fig. 5 has 2 broad hafting grooves; blunt; possibly used as hammer. Fig. 6 with dull cutting edge and broad hafting groove resembles those found in Ipiutak houses.


1. UA, B83
2. UA, B85
3. P-4951, B86
4. 60.1-7234, B1
5. 60.1-7233, B1
6. P-4968, B87
7. 60.1-7271, B3
PLATE 80
CHIPPED FLINT ARROWPOINTS, INSET BLADES, AND HARPOON BLADES—NEAR IPIUTAK BURIALS

1–14. Arrowpoints: Pentagonal to diamond-shaped points, probably for Type 1 arrowheads. 32 specimens; from B1 (14), 3 (7), 4 (10), 85 (1). Made from the same material as those from Ipiutak. Length, 2.3–5 cm.; average, about 3 cm. Majority with straight base as in Figs. 1, 2, and 7. 2, like Fig. 6 from B4, have elongated stem. All regularly made and evenly chipped and, like Ipiutak arrowpoints, unusually thin, measuring no more than 2–3 mm. Made from flakes; on some, 1 surface is retouched only at edges. Fig. 14, considerably larger than all rest, was only 1 found in second group of Near Ipiutak graves (B85).

15–18. Arrowpoints or Harpoon Blades, Type 1: Relatively broad points with concave base, for arrowheads and harpoon heads. 1 found in Type 2 arrowhead (Pl. 78, Fig. 12), and 1 in a harpoon head (Pl. 78, Fig. 1). 19 specimens; 2 from B1; 16 from B3; 1 from B4. Length, 3–5.8 cm.; average, about 4.5 cm. Fig. 18, exceptionally small, more closely resembles Type 2 Ipiutak arrowpoints than do others. The regularity of chipping and extreme thinness (2.5 mm.) are like those of the arrowpoints.

19. Arrowpoint, Rare Form: 1 specimen; from B85. Broad base of this specimen is similar to that of rare form from Ipiutak graves.

20–22. Arrowpoints or Harpoon Blades, Type 2: Broad and relatively short points with straight base. 15 specimens; from B1 and 3. Length, average 4 cm. No larger than Type 1 arrowpoints; hence, possibly so used. Chipping technique and extreme thinness are similar to above implements.

23–25. Harpoon or Lance Blades: Large, broad blades with straight base; too large for arrowheads. 8 specimens; from B1, 2, 3, and 5; approximate size of Figs. 23 and 24; 3, from B1, size of Fig. 25. Length, 4.7–7 cm.; width, 2–3.7 cm. All thin for size, measuring 3–4 mm. Chipping technique same as for smaller implements. Points too large for any harpoon heads found in Near Ipiutak graves, except 2 whaling harpoon heads. Possibly Fig. 25 is from such a harpoon and smaller 1 from large walrus harpoon heads.

26, 27. Inset Blades, Type 1: Slender, delicate, double-pointed blades for arrowheads; like inset blades Type 1 from Ipiutak. 2 specimens; from B4; 1, clear quartz.

28, 29. Inset Blades, Type 2: Short, broad, subtriangular blades for arrowheads or harpoon heads; 4 specimens, from B1 and 4. Like inset blades Type 3 from Ipiutak.

30, 31. Inset Blades, Type 3: Very long, slender blades like Ipiutak inset blades, Type 4. 2 specimens; from B3. Possibly side blades for whaling harpoon heads, as suggested in description of those heads. Fig. 31 same length as slots in whaling harpoons.

Not Illustrated: Chipped flint blade fragments, retouched on both faces. 34 specimens; 15, from B1, 2, 3, 4, and 87, are probably parts of arrowpoints; 19, from B1, 2, 3, 5, and 85, are probably parts of harpoon or knife blades.

1. 60.1-7276b, B4 2. 60.1-7228d, B1 3. 60.1-7275c, B4 4. 60.1-7276f, B4 5. 60.1-7276d, B4 6. 60.1-7276e, B4 7. 60.1-7276a, B4 8. 60.1-7228c, B1 9. 60.1-7228b, B1 10. 60.1-7228a, B1 11. 60.1-7260a, B3 12. 60.1-7228c, B1 13. 60.1-7260b, B3 14. UA, B85 15. 60.1-7262a, B3 16. 60.1-7228a, B3 17. 60.1-7262d, B3 18. 60.1-7279, B4 19. UA, B85 20. 60.1-7262c, B3 21. 60.1-7262c, B3 22. 60.1-7262f, B3 23. 60.1-7261a, B3 24. 60.1-7262a, B1 25. 60.1-7229a, B1 26. 60.1-7275a, B4 27. 60.1-7232, B1 28. 60.1-7275a, B4 29. 60.1-7232a, B1 30. 60.1-7264b, B3 31. 60.1-7264a, B3
PLATE 81

TOOLS, ORNAMENTS, UNIDENTIFIED IMPLEMENTS—NEAR IPIUTAK BURIALS

1. **FLINT KNIFE BLADE**: Asymmetrical, chipped on both faces, 1 cutting edge, notched for hafting. 1 specimen, from B3.

2, 3. **UNIDENTIFIED FLINT BLADES**: Possibly knives. 4- and 5-sided blades with sharp retouched edges along entire margin. 2 specimens; from B1 and 2. Very thin (3 mm.).

4. **FLINT KNIFE BLADE**: Symmetrical, double-pointed, chipped on both faces; 2 cutting edges. 1 specimen; from B86. Similar to many knife blades from middens (cf. Pl. 85, Figs. 1-6) and Ipiutak houses (Pl. 14, Figs. 1-6).

5-9. **FLINT SIDESCRAPERS**: 6 specimens; from B1 and 3. Flakes retouched from 1 face only. Fig. 5 convex-edged; Fig. 6 straight; Fig. 7 concave-convex; Fig. 8 straight-convex; Fig. 9 S-shaped. All are types common in Ipiutak houses. 1, not illustrated, is fragmentary.

10, 11. **FLINT GRavers**: Flakes retouched on 1 face only. 2 specimens; from B1 and 4. Like gravers, Type 2, from Ipiutak houses.

**NOT ILLUSTRATED**: Retouched flint flakes, 5 specimens, from B3, 4, and 86; Raw flint flakes, 41 specimens; from B1, 3, 4, 5, 83, 85, and 86.

12. **WHETSTONES**: Rectangular sandstone objects with rubbed surfaces. 7 specimens; from B1, 3, 4, 5, and 83.

Fig. 12, **Type 1**, with broad groove in 1 face, is most common; 5 specimens, from B1, 3, 4, 5, and 83. **Type 2**, not illustrated, has same shape but lacks groove; both from B3. Length, 7.4-12 cm.; all relatively flat; thickness, 1-1.5 cm.

**NOT ILLUSTRATED**: Paint grinding stone, 1 specimen; from B2. Flat beach pebble with rubbed surface retaining traces of red coloring.

13. **ADZE HEADS**: Antler implements, with blade socket and hafting slot. 2 specimens; from B83 and 84. Both same type and size. Section cut from 1 edge extends into narrow slot. Handle probably set into edge of head, extending entirely through it.

14. **FLAKING HAMMER HEAD**: Cylindrical ivory object, with hafting groove. 1 specimen. Ends battered, as if used for hammering.

15. **KNIFE HANDLE**: Composite type, with slit at 1 end. 1 specimen; antler.

16. **Awl**: Slender, pointed bone implement. 1 specimen.

17. **CARVED HUMAN FIGURE**: Flat ivory figure, with human head and rectangular torso. 1 specimen. Thickness, 7 mm. 9 parallel lines engraved vertically from mouth to chin; 2 parallel lines cut out from outer corner of each eye; another line cut down nose which is in only slight relief.

18. **Needle**: Slender; sharp-pointed; bird bone with minute drilled eye hole. 1 specimen.

19–22. **UNIDENTIFIED IMPLEMENTS**: Cylindrical blunt-pointed pins. Fig. 19, 1 of 2 specimens from B3 and 4; 1 antler; 1 ivory. Figs. 20 and 21 are small cylindrical ivory plugs; 2 of 4 specimens from B86. Fig. 22 is also from B86; broad part is flat and scarfed on reverse side; narrow part is cylindrical; possibly a throwing board peg.

23, 24. **BREAST ORNAMENTS**: Flat, diamond-shaped ivory objects. 2 specimens; from B1 and 87. Fig. 23 found on sternum of child skeleton in B1.

25. **ENGRAVED IVORY FRAGMENT**: 4 joined, triangular figures remain on 1 surface.

26. **AMBER**: Roughly spherical piece of amber.

**NOT ILLUSTRATED**: Unidentified fragments of antler, bone, and ivory implements. 23 specimens; from B1, 3, 4, 84, 85, 86, and 87.

1. 60.1-7264c, B3  10. 60.1-7278, B4  19. 60.1-7286, B4
2. 60.1-7252, B2  11. 60.1-7225, B1  20. P-4954, B86
3. 60.1-7231, B1  12. 60.1-7221a, B1  21. P-4952, B86
4. P-4948, B86  13. 60.2-4394, B84  22. P-4956, B86
5. 60.1-7224b, B1  14. UA, B85  23. 60.1-7246, B1
6. 60.1-7233a, B1  15. 60.1-7240, B1  24. P-4967, B87
7. 60.1-7259, B3  16. UA, B85  25. P-4966, B87
8. 60.1-7224a, B1  17. P-4965, B87  26. UA, B85
9. 60.1-7258, B3  18. 60.1-7283, B4  27. 60.2-4394, B84
PLATE 82

WEAPONS AND TOOLS—BURIALS 103 AND 104

1–8. Implements from Burial 104: 23 specimens; 6 ivory; 13 flint; 2 antler; 1 bone; 1 slate. Fig. 1, grooved ivory mattock blade with blunt edge. Fig. 2, carved ivory polar bear with lightly engraved mouth and nostrils. Fig. 3, socketed arrowhead of the Near Ipiutak Type 3 (cf. Pl. 78, Figs. 15, 16); antler. Fig. 4, flint scraper of Ipiutak type, convex-concave edges. Fig. 5, rubbed slate knife blade. Fig. 6, ivory flint flaker handle; like Ipiutak Type 3. Fig. 7, bone marlin spike; like Ipiutak. Fig. 8, unfinished ivory whaling harpoon head with carved polar bear in relief. Blade slit and foreshaft socket are merely indicated; possibly only a grave object.

Not illustrated: 2 worked ivory and antler objects; 2 flint blade fragments; 11 raw flint flakes; a young walrus tusk.

9–17. Implements from Burial 103: 25 specimens; 5 ivory; 3 antler; 15 flint; 1 pottery; 1 stone. Fig. 9, ivory arrowhead with end blade slit and clipped base resembling Near Ipiutak Type 2 (cf. Pl. 78, Figs. 12–14). Fig. 10, arrowpoint of silicified slate; thick, coarse chipping; unlike Ipiutak and Near Ipiutak implements. Fig. 11, flint sidescraper, like Ipiutak type with convex-straight edge. Fig. 12, potsherd with paddle impression; unusually thin (6 mm.) and well fired; different from coarse historic Tigara pottery and paddle-impressed Jabbertown pottery. Fig. 13, flaker point, bone, conical ends. Fig. 14, unidentified antler implement. Fig. 15, flint blade, retouched on both surfaces, with 1 convex cutting edge. Fig. 16, double-grooved ivory mattock blade. Fig. 17, crude stone lamp found on breast of adult skeleton below floor in refuse deposit.

Not illustrated: 3 worked ivory fragments; 2 flint blade fragments; 1 rubbed slate fragment; 1 worked antler fragment; 10 raw flint flakes.

1. 60.2-4292, B104
2. 60.2-4293, B104
3. 60.2-4294, B104
4. 60.2-4295, B104
5. 60.2-4296, B104
6. 60.2-4297, B104
7. 60.2-4298, B104
8. 60.2-4299, B104
9. 60.2-4283, B103
10. 60.2-4284, B103
11. 60.2-4285, B103
12. 60.2-4286, B103
13. 60.2-4287, B103
14. 60.2-4288, B103
15. 60.2-4289, B103
16. 60.2-4290, B103
17. 60.2-4291, B103
1-5. Harpoon Heads: 7 specimens; 1 ivory; 2 antler; 3 bone; 1 fragmentary. Fig. 1, ivory, suggests Near Ipiutak type (Pl. 78, Fig. 4) with line hole cut obliquely to left. No blade slots, no lashing slots, open socket with groove for lashings; probably trifurcated spur with 1 spur broken away. Fig. 2 has end blade slot at right angles to line hole, lashing slots, and spur. Diamond-shaped in cross-section; antler. Figs. 3, 4, and 5 are bladeless, blunt-pointed; bone. Only Fig. 3 has line hole. Figs. 4 and 5 are grooved for foreshaft lashings.


7, 8. Chipped Flint Arrowpoints: 7 fragmentary specimens. Lower part of stem broken away, Fig. 7. Fig. 8 and a similar specimen are butts of broad and very thin points like those from Near Ipiutak burials (Pl. 80, Fig. 21). Balance are thin point fragments.

9. Chipped Flint Lance Blade: 1 specimen, with pronounced tang. Relatively thin, measuring 5.7 mm. through center.

10. Engraving Tool Handle: 1 specimen; ivory. Central broad section is 4-sided; each side engraved with 2 triangular panels. Point grooved for lashings to retain metal or rodent tooth bit as on engraving tool handles from Ipiutak houses.

11-13. Polished Ivory Ornaments: Fig. 11 resembles diamond-shaped breast ornaments from Near Ipiutak burials (cf. Pl. 81, Figs. 23, 24). All square-sided; were apparently inset in some other object, perhaps a wooden implement.

14. Bone Drinking Tube or Needle Case: 1 fragment; bird bone.

15. Needle: 1 specimen; bird bone. Eye hole broken away.

16. Unidentified, Double-Pointed Pin: 2 specimens; antler. 1 end of each flattened, as if intended for hafting as points or bars.

17. Adze Head: 1 specimen; antler. Socketed for blade and notched for handle, like 1 from Near Ipiutak burials (Pl. 81, Fig. 13).

18. Flaking Hammer Head: 1 specimen; ivory. Grooved for haft lashings; battered on both ends; cylindrical (cf. Pl. 81, Fig. 14).

19-21. Mattock Blades: 4 specimens; ivory. Figs. 19 and 20 are flat on reverse surface and have 1 broad groove for haft lashings. Fig. 21 is end of tusk; broken at upper end; double-grooved for haft lashings. All blunted-edged.

22. Marlin Spike: 1 specimen. Walrus rib cut to blunt point.


24. Discoidal Blade: 1 specimen; chipped flint. Retouched on both surfaces.

25. Side Blades for Knives: 4 specimens; chipped flint. Retouched on both surfaces; 1 cutting edge.

26. End Blades for Knives: 1 specimen; chipped flint. Retouched on both surfaces; with 2 cutting edges.

27, 28. Flint Scrapers: 10 specimens. Retouched on 1 face only. Fig. 27, endscraper with right slanting edge. Fig. 28, concave sidescraper.

Not Illustrated: Large flint blade fragments. 9 specimens; chipped on both faces. Probably fragments of knife blades and discoidal blades.

Not Illustrated: Used flint flakes; 8 specimens. Worked ivory fragments, 11 specimens. Worked antler fragments, 5 specimens.

1. 60.2-2282
2. 60.2-2283
3. 60.2-2285
4. 60.2-2286
5. 60.2-2287
6. 60.2-2289
7. 60.2-2290
8. 60.2-2292
9. 60.2-2294
10. 60.2-2298

11. 60.2-2299
12. 60.2-2300
13. 60.2-2301
14. 60.2-2302
15. 60.2-2303
16. 60.2-2304
17. 60.2-2306
18. 60.2-2307
19. 60.2-2308

20. 60.2-2309
21. 60.2-2310
22. 60.2-2312
23. 60.2-2313
24. 60.2-2315
25. 60.2-2316
26. 60.2-2318
27. 60.2-2319
28. 60.2-2320
PLATE 84

WEAPON POINTS—THE MIDDENS

1–8. Arrowheads: 16 specimens; from M4, 11, 20, 21, 23, and 24; antler. Fig. 1, and a second like it, from Midden 23 are same as Ipiutak Type 1 (cf. Pls. 1 and 32). Both have 2 inset side blades, a conical tang, and longitudinal incised grooves. Figs. 2 and 3, and 2 more like them, from M4, 11, and 20; relatively broad, flat, and crudely made; same as Ipiutak Type 2a (cf. Pl. 32, Figs. 19–20), with end blade and broken incised lines. Flint points thin like Ipiutak points, but broader. Figs. 4 and 5, and 2 more like them, all from M20, have 2 or more side bars. Resemble Ipiutak Type 3. Fig. 6, and 3 more like it, from M4, 20, and 21, resemble Ipiutak Type 8 (Pl. 1, Figs. 17–19), lacking end and side blade slits. 2 have longitudinal incised lines characteristic of Ipiutak heads. Fig. 7, an unusually broad, thick head, with an end blade slit (broken out), has smooth, conical tang. Fig. 8 is identical with Okvik heads.

9–14. Harpoon Heads: 7 specimens; from M3, 9, 10, 21, 24, and 27; 6 antler; 1 ivory. Fig. 9 has 1 side blade, an open socket lashing slot, a line hole cut obliquely to left, and a broad notched spur, partly broken away. 3 deep grooves cut in each face. Fig. 10 resembles Fig. 9, with 1 side blade and 3 grooves incised on both faces. Fig. 11 resembles extremely crude bladeless harpoons from H24 (cf. Pl. 83, Figs. 3, 4). Figs. 12 and 13 resemble Ipiutak Type 1 heads with 2 slit side blades set parallel to line hole, open sockets, and bifurcated spur, but they are less slender and have different line decoration. One not illustrated, M9, resembles these, but has only 1 side blade. Fig. 14, ivory, resembles Okvik harpoon heads. Almost square in cross-section at line hole; has an end blade slot at right angles to line hole, an open socket with lashing slot, and multi-barbed spur.

15. Center Prong for a Salmon Spear: 1 specimen; from M25; antler. Flint blade found in lashing slot, probably indicates spear prong was later utilized as knife handle. Point is cut away.

16. Barbs for Salmon Spear: 2 specimens; from M21 and 33; antler.

17. Miniature Harpoon Head: 1 specimen; from M24; antler. Has small open shaft socket, barb, and asymmetrical line hole.


19–29. Chipped Flint Arrowpoints: 25 specimens; from M4 (2), 10 (1), 20 (20), 25 (2). Figs. 19, 20, 21, and 22 same as Ipiutak arrowpoints, Type 1, 15 specimens. Figs. 23 and 24, 3 specimens, are same as Ipiutak Type 1a. Fig. 25, 3 specimens, are same as Ipiutak Type 2. Fig. 26 resembles Fig. 25, but thicker and more crudely made. Found with Okvik type harpoon head, Fig. 14. Fig. 27 only stemmed point. Thin like all Ipiutak points; same chipping technique. Fig. 28 unique, resembles diamond-shaped points from Near Ipiutak burials (cf. Pl. 80, Figs. 1–14). Made from silicified slate. Fig. 29 also unique, with rounded base.

30–37. Chipped Flint Side Blades: 8 specimens. Presumably inset in arrowheads, harpoon heads, or knives. All but Figs. 30 and 32 larger and more crudely made than inset blades for arrowheads from Ipiutak site; some, like Fig. 34, are flakes retouched only on margins. These larger specimens probably are knife blades.

38, 39. Chipped Flint Lance Blades: 2 specimens; from M20 and 21. Relatively thick and irregularly chipped points with tang for hafting like those found in Ipiutak houses (cf. Pl. 14, Fig. 13).

Not Illustrated: Fragments of slender delicate points like Figs. 19–20, 39 specimens; from M1, 4, 6, 8, 10, 11, 20, 21, 24, 26. Fragments of broad points, like those in arrowheads, Figs. 2–5. 13 specimens; from M1, 4, 8, 10, 11, 21, 31, 33.

1. 60.2-4594, M23 14. 60.1-8255, M10
2. 60.2-4556, M20 15. P-5009, M25
3. 60.2-4557, M20 16. P-4973, M21
4. 60.2-4558, M20 17. 60.2-4597, M24
5. 60.2-4559, M20 18. 60.2-4631, M26
6. 60.2-4561, M20 19. 60.2-4562, M20
7. 60.2-4555, M24 20. 60.2-4563, M20
8. 60.1-8265, M11 21. 60.1-8214a, M4
9. 60.2-4596, M24 22. P-5006, M25
10. P-4969, M21 23. 60.2-4564, M20
11. 60.2-4633, M27 24. 60.2-4565, M20
12. 60.1-8244a, M9 25. 60.2-4566, M20
13. 60.1-8210, M3 26. 60.1-8253, M10
27. 60.2-4578, M20
28. 60.2-4579, M20
29. 60.2-4580, M20
30. 60.1-8206, M1
31. 60.2-4601, M24
32. P-5017, M25
33. 60.2-4644, M33
34. 60.1-8227a, M6
35. 60.1-8263b, M11
36. P-5016, M25
37. 60.1-8263a, M11
38. 60.2-4581, M20
39. P-4979, M21
PLATE 85
STONE IMPLEMENTS—THE MIDDENs

1–7. END BLADES FOR KNIVES: Double-edged flint blades chipped on both surfaces. 18 specimens; from M1, 4, 5, 10, 11, 21, 24, and 29. Figs. 1–6 like Ipiutak Type 1. Fig. 7 like Ipiutak Type 2.

8–12. SIDE BLADES FOR KNIVES: Single-edged flint blades chipped on both surfaces. 21 specimens; from M4, 6, 7, 10, 11, 20, 21, 24, 25, 26, 28, 31, and 33. Fig. 8 like Ipiutak Type 1. Fig. 9 like Ipiutak Type 2. Fig. 10 like Ipiutak Type 3. Figs. 11–12 like Ipiutak Type 4.

13–17. DISCOIDAL BLADES: Flint blades chipped on both surfaces. 12 specimens; from M1, 4, 6, 8, 20, 21, 24, 25, and 32. Figs. 13–14 like Ipiutak Type 1. Figs. 15–16 like Ipiutak Type 3. Figs. 17 like Ipiutak Type 4.

18–20. DRILL POINTS: Flint implements, chipped on both surfaces, with slender point. 4 specimens; from M1, 20, 21, and 24. Fig. 18 like Ipiutak Type 1. Fig. 19 like Ipiutak Type 2. Fig. 20 like Ipiutak Type 3.

21. FRAGMENT OF NOTCHED SCRAPER: 1 specimen; from M11; silicified slate. Upper surface retouched only at margin; reverse retouched over entire surface.

22. RUBBED TOOL: Fragment from M20; siliceous slate.

23. RUBBED SLATE ULU BLADE: Slate implement, with 1 edge sharpened by rubbing on both surfaces. 1 specimen; from M24.

24–33. FLINT SIDESCRAPERS: Retouched only on 1 surface. 13 specimens; from M1, 6, 7, 9, 10, 11, 20, 21, 24, and 25. Fig. 24 concave. Fig. 25 convex. Fig. 26 straight. Fig. 27 double-concave. Fig. 28 concave-convex. Fig. 29 concave-straight. Figs. 30–32 double-straight. Fig. 33 quadruple-concave.

NOT ILLUSTRATED: Fragments of blades, chipped on both surfaces. Probably knife blades, like Figs. 1–12. 73 specimens; from M1, 3, 4, 6, 7, 8, 9, 10, 20, 21, 23, 24, 25, 26, 30, 31, and 33.

NOT ILLUSTRATED: Flint sidescraper, fragments. 15 specimens; from M1, 6, 9, 11, 20, 21, 24, 25, 30, 31, and 32.

NOT ILLUSTRATED: Flint blanks. 18 specimens; from M1, 4, 5, 6, 9, 10, 21, 24, 25, and 31.

NOT ILLUSTRATED: Retouched flint flakes. 25 specimens; from M1, 5, 7, 11, 20, 21, 24, 25, and 33.

NOT ILLUSTRATED: Used flint flakes. 23 specimens from M1, 4, 10, 11, 23, 24, 25, and 26.

1. 60.1-8261, M11
2. 60.2-4602, M24
3. 60.1-8294a, M1
4. 60.1-8252a, M10
5. 60.2-4603, M24
6. 60.2-4641, M29
7. P.4977, M21
8. P.5012, M25
9. 60.2-4643, M31
10. 60.2-4604, M24
11. 60.1-8213a, M4
12. 60.1-8252b, M10
13. 60.1-8205, M1
14. 60.1-8236a, M8
15. P., M25
16. 60.1-8212a, M4
17. 60.2-4617, M24
18. P.4988, M21
19. 60.2-4642, M20
20. P.5018, M25
21. 60.1-8259a, M11
22. 60.2-4587, M20
23. 60.2-4624, M24
24. 60.1-8203a, M1
25. 60.1-8203b, M1
26. 60.2-4618, M24
27. P.4987, M21
28. P.4986, M21
29. 60.1-8231, M7
30. 60.1-8260, M11
31. 60.2-4619, M24
32. 60.1-8251, M10
33. 60.1-8225, M6
PLATE 86

MISCELLANEOUS IMPLEMENTS—THE MIDDEN

1. **Flint Flaker Handle**: 1 specimen; from M9; antler. Spatulate butt; groove for flaker point (cf. Pl. 11, Figs. 8–10).
2. 3. **Flint Flaker Points**: 9 specimens; from M9, 10, 11, 24, 25, and 26; 8 bone; 1 antler. All with blunt rounded point; used for pressure flaking (cf. Pl. 11, Figs. 14–16). Fig. 2 is 1 of smallest; Fig. 3, 1 of largest.
4–6. **Flaking Hammer Heads**: 3 specimens; from M4, 6, and 20; illustrated in that order. All with broad battered base and hafting groove. Fig. 4 made from walrus penis bone. Figs. 5 and 6 are ivory (cf. Pl. 11, Figs. 1–5).
7. **Adze Head**: 1 specimen; from M21; antler. Broad socket in base for blade and slot for haft or haft lashing (cf. Pl. 9, Fig. 13).
8. **Bone Awl**: 1 specimen; from M25.
9. **Notched Bird Bone**: 1 specimen; from M21 (cf. Pl. 28, Figs. 12–14).
10, 11. **Whetstones**: 2 specimens; from M11 and 33; sandstone-like material. Fig. 10, M11, has broad groove as in those from Near Ipiutak burials (cf. Pl. 81, Fig. 12).
12. **Hematite Used as Paint**: 1 specimen; from M8, 1 end has been rubbed away.
13, 14. **Unidentified Implements**: 2 specimens; from M4; antler. They resemble miniature 4-legged stools.
15. **Two-Handed Skin Scrapers**: 3 specimens; from M21, 25, and 27. Caribou metatarsal bones. All cut at right angles to long axis of distal end (cf. Pl. 22, Fig. 15).
16. **Grinding Stone**: 1 specimen; from M6 (cf. Pl. 22, Fig. 14).
17. **Adze Blade**: 1 specimen; from M20 (cf. Pl. 10, Figs. 2, 3).
18, 19. **Pots: M4, 5, 9, 10, 11, and 20. Handful of very small sherds, each probably representing no more than a fragment of a pot, found in a group in each midden. Fig. 18, largest fragment of sherd from M20, is thinner and better fired than Tikerarmiut pottery. Outer surface decorated with paddle impressions, exactly like sherd found in B103 (Pl. 82, Fig. 12). Fig. 19 is 1 of 4 small sherds from M5, all parts of 1 larger sherd. Also thinner and better fired than historic Eskimo pottery, with outer surface decorated with paddle impressions. Sherds from M4, 9, 10, and 11, in each case fragments of a larger piece, are extremely coarse, thick, and poorly fired, like those from historic Tigara.
20, 21. **Mattocks**: 11 specimens; from M4, 9, 20, 21, 24, 25, 26, and 27; ivory. Fig. 20 is 1 of smallest; Fig. 21, 1 of largest. 6 have 1 broad, scarred, hafting groove as in Fig. 20. Balance, like Fig. 21, have 2 or more grooves for haft lashings.

**Not Illustrated**: 4 root picks like those found in Ipiutak houses (Pl. 22, Fig. 4). Worked fragments of antler, 21 specimens. Worked fragments of bone, 8 specimens. Worked fragments of ivory, 19 specimens.

<table>
<thead>
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<th>No.</th>
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<th>Middens</th>
<th>Notes</th>
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<td>P.5036, M25</td>
<td>15. 60.2-4634, M27</td>
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<td>P.5001, M21</td>
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<td>60.1-8258, M11</td>
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<td>6.</td>
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<td>13. 60.1-8219b, M4</td>
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<td>7.</td>
<td>P.4974, M21</td>
<td>14. 60.1-8219a, M4</td>
<td>21. UA, M26</td>
</tr>
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PLATE 87

BIRNIRK TYPES—TIGARA BURIALS 160, 171, AND 172

1, 2. Harpoon Heads, Type 1: Open socket, flint side blades, trifurcated spur. 4 specimens; from TB171, 1 specimen (Fig. 2) from TB160; 4 ivory; 1 antler. Elliptical in cross-section, sharp-pointed, and edged. 2 engraved lines on both faces outline a central panel.

3, 4. Harpoon Head, Type 2: Open socket, flint end blade, trifurcated spur, short side barbs, oval in cross-section. 2 specimens; from TB160 and 172; 1 ivory; 1 antler. Engraved lines set off short side barbs.

5. End Blades for Whaling Harpoon Heads: Very thin, sharp, triangular, rubbed slate. 4 specimens; found together in TB160.

6–9. Arrowheads: 6 specimens; from TB160 and 171. Fig. 6 is 1 of 2 identical ivory heads; from TB171. Fig. 7 is also 1 of 2 identical bone heads; from TB171. Fig. 8, of ivory, with slender barb lying close to shaft is unique; from TB160. Fig. 9, with 2 barbs, 1 broken, and an end blade slot, is also unique; TB160; antler. Characteristic of all these heads is the long, cylindrical, and pointed tang.

10–13. Bolas Weights: 30 specimens; 13 (Figs. 12, 13) from TB160; 17 from TB171 (Figs. 10, 11); ivory.

14, 15. Flint Knife Blades: 2 specimens, from TB160. Retouched on both faces.

16. Bone Daggers: 2 specimens; from TB171. Pointed, double-edged blades with oval hilt. 1 not illustrated is larger; length, 32.5 cm.

Not Illustrated: 1 unworked flint flake, TB160; 1 flint blank, TB172.

Not Illustrated: Walrus scapula shovels, 2 specimens, from TB160.

1. 60.2-4426, TB171
2. P-6150, TB160
3. P-6151, TB160
4. 60.2-4436, TB172
5. P-6152, TB160
6. 60.2-4429, TB171
7. 60.2-4430, TB171
8. P-6156, TB160
9. P-6157, TB160
10. 60.2-4431, TB171
11. P-6158, TB160
12. 60.2-4432, TB171
13. P-6159, TB160
14. P-6171, TB160
15. P-6172, TB160
16. 60.2-4434, TB171
17. 60.2-4429, TB171
WESTERN THULE TYPES—TIGARA BURIALS 253 AND 186

1–3. Harpoon Heads, Type 1: Open socket, 2 barbs, simple spur, round or triangular line hole. 2 specimens; from TB253; 1 from TB186; 2 ivory; 1 antler. Fig. 3 has peculiar short barb on spur. Fig. 2 has double Y figure above line hole.

4, 5. Harpoon Heads, Type 2: Open socket, single barb, simple spur, round line hole. Fig. 4 has rudimentary (unusable) blade slot in edge opposite barb. 2 specimens; from TB253; 1 antler; 1 ivory.

6. Arrowhead: 2 short barbs; sharp double-edged; from TB253; antler.

7. Barbed Prong: Fragment; from TB186; ivory.

8, 9. Barbs for Salmon Spear: 2 specimens; from TB186; ivory. Fig. 9 is flat on reverse surface. Fig. 8 is type of barb found in Kobuk River sites.

10. Snowshoe Needle (?): 1 specimen; from TB186; antler.

11. Unidentified: Conical ivory implement with round socket in broad end; from TB186.


13, 14. Flint Lance Blades: Diamond-shaped, pointed tang. 2 specimens; from TB186.


16. Slate Knife Blade: 1 specimen; from TB253. Left-hand edge is sharp from point to hafting notch. Right-hand edge is thick and squared off from butt to notch, then sharp to point.
PLATE 89

TIGARA TYPES, WEAPONS AND TOOLS—TIGARA BURIALS

1-5. ARROWHEADS: Elliptical to round in cross-section, conical, shouldered tang. 16 specimens, 2 fragmentary; from TB283, 314, 348, 383, 389, 414, 423, 496, 519, and 529; 15 antler, 1 ivory. Fig. 5 with 4 small knobs forming ring around tang. Majority bladeless with barbs; 4 examples with end blade like Fig. 5.

6, 7. HARPOON HEADS: 3 specimens, from TB233, 260, and 338. Fig. 6, antler, with closed shaft socket, lashing slots, traces of line decoration. Fig. 7, ivory, closed shaft socket, 4 barbs, bladeless, pentagonal in cross-section. Third specimen undeterminable.

8. DART HEAD: Conical tang, 2 specimens; from TB381; antler.

9. HARPOON SOCKET PIECE: Circular in cross-section, flattened, tapering (tang); 4 with perforated body; 1 with perforated tang. Deep conical socket. 9 specimens; TB247, 298, 315, 320, 368, 496, 499, 501, 502; walrus penis bone.

10. MOVABLE HARPOON FORESHAFT: Conical tang and point, body elliptical in cross-section, central round line hole. 4 specimens; from TB150, 314, 508, 511; antler.

11. COMPOSITE KNIFE HANDLE: Fragmentary, 1 specimen; from TB381; ivory. Blade slit 2 mm. wide.

12. FIXED HARPOON FORESHAFT: Rectangular in cross-section, point conical, oblique tang roughened. 1 specimen; from TB150; ivory.

13, 14. ICE PICKS: 4 specimens; from TB150, 352, 367, 401; 2 antler; 1 ivory; 1 walrus penis bone (a re-worked harpoon socket piece). Fig. 13 round in cross-section with conical tang. Fig. 14 plano-convex in cross-section with flat tang.

15. LANCE HEAD: Flat strip of antler with scarfed tang and depression at point for end blade. 1 specimen; from TB246; antler.

16. FLOAT MOUTHPIECE: Spool-shaped, 1 specimen; from TB166; ivory.

17. BLADDER DART MOUTHPIECE: Cylindrical with perforated flange, from TB517; ivory.

18, 19. BOLAS WEIGHTS: 11 specimens; from TB286, 311, and 381; ivory; 2 unfinished, carved from 1 piece of ivory, but not separated.

20. BIRD DART SIDE PRONG: Originally 4 lateral barbs, 1 broken off. 1 specimen; from TB242.

21, 22. LEISTER PRONGS: A pair found in TB527, antler.

23. CUP-SHAPED SCRAPER: 3 specimens; from TB178, 305, and 312; ivory.

24. BIRD BONE AWL: 1 specimen; from TB233.

25. TWO-HANDED SCRAPER: 1 specimen; from TB234; caribou metacarpal bone.

26. SNOW SHOVEL EDGE: 2 specimens; from TB357 and 462; whalebone. Other specimen of same shape, but with 7 perforations.

27. FLAKING HAMMER HEAD: 2 specimens, from TB159; ivory. Back scarfed for handle; front part battered from use. 2 flaker points in same grave.

28. ROOT PICK: 1 specimen; from TB305; ivory. Handle shows traces of incised decoration which seems to have covered entire surface. Near top is row of whale's tails and along front 1 complete and 1 part of whale figure.

29. BLUBBER HOOK BARBS: 1 specimen; from TB313; walrus penis bone.

30. MOUNTING FOR WEAPON SHAFT OR KAYAK PADDLE: With oblong deep socket. 1 specimen; from TB381; ivory.

31. SLED SHOE: 1 specimen; from TB319; antler.


1. 60.1-8914, TB414
2. 60.1-8887, TB314
3. 60.2-4488, TB423
4. 60.1-8912, TB414
5. 60.2-4508, TB496
6. 60.2-4453, TB233
7. 60.1-8863, TB338
8. 60.1-8872, TB381
9. 60.1-8933, TB496
10. 60.1-8856, TB314
11. 60.1-8873, TB381
12. 60.2-4414, TB150
13. 60.2-4415, TB150
14. 60.1-8904, TB401
15. 60.2-4460, TB246
16. 60.2-4424, TB166
17. 60.2-4509, TB517
18. 60.2-4486, TB311
19. 60.2-4473, TB286
20. 60.2-4459, TB242
21. 60.1-8880, TB327
22. 60.1-8879, TB527
23. 60.2-4438, TB178
24. 60.2-4454, TB233
25. 60.2-4456, TB234
26. 60.1-8862, TB328
27. 60.2-4417, TB159
28. 60.2-4483, TB305
29. 60.1-8855, TB313
30. 60.1-8874, TB381
31. 60.1-8860, TB319
PLATE 90
TIGARA TYPES, WEAPONS AND TOOLS—TIGARA BURIALS

1–7. Arrowpoints: Chipped on both faces, stemmed, flat to diamond-shaped in cross-section. 25 specimens; from TB150, 208, 290, 313, 364, 468, and 517; flint. Thickness, 3–9.5 mm. The 18 specimens from TB517 are cracked or discolored, probably from exposure to fire.

8–10. Lance Blades: Chipped on both faces, stemmed, elliptical in cross-section. 9 specimens from TB290, 293, 355, 432, 480, and 517; flint. Thickness, 7.5–9 mm.


12, 13. Side-scrapers: Unifacially chipped along 1 margin, 2 specimens. Fig. 12, from TB517, has convex scraping edge and is cracked and discolored by fire. Fig. 13, from TB482, has straight scraping edge.

14, 15. Harpoon Blades: 6 specimens; from TB361 and 517 (5); ground slate. Thickness, 2 mm.

16. Harpoon Blade: Blank for whaling harpoon head. 1 specimen; from TB150; slate.

17, 18. Whetstones: 17 specimens; from TB234, 235, 246, 302, 303, 318, 366, 512, and 517. Fig. 17, of sandstone, is 4-sided. Fig. 18, of 9 from TB517, is also of sandstone and has 6 facets.

19–24. Knife Blades: Stemmed. 9 specimens; from TB169, 175, 294, 401, 403, 421, 473, and 517; ground slate. Figs. 19–20 single-edged; 21–24 double-edged.

25. Drill Point (?): Dull edges and short rounded bit. 1 specimen; from TB489; ground slate.

26–28. Ulu Blades: All have convex cutting edge and great majority are unworked on back. 4 are perforated like Fig. 26 and only 1 (Fig. 27) has tang. 55 specimens; from TB132, 134, 135, 144, 150, 151, 166, 168, 183, 196, 205, 224, 233, 242, 256, 260, 265, 278, 305, 311, 342, 364, 380, 381, 382, 385, 389, 404, 414, 423, 450, 454, 462, 511, 515, 517 (15 specimens), 519, and 528; ground slate.

29. Ulu with Ivory Handle and Ground Slate Blade: Blade has tang, but no perforations. 1 specimen, from TB131.

Not Illustrated: 38 unworked flint flakes from TB144, 150 (19), 183, 191 (10), 190, 228, 246, 283, and 527; rubbed red ocher from B233; chalk and rubbed graphite from TB517 and rubbed jet from TB166.
PLATE 91
TIGARA TYPES, HOUSEHOLD UTENSILS—TIGARA BURIALS

1–3. Clay Lamps: Shallow, round or 4-sided flat bowls caked with residue of burned oil. 5 specimens; found in TB285, 347, 380, 389, and 524. All round, except Fig. 1. Very crude and thick (1.5–1.9 cm.) and poorly fired. These are the only complete lamps, but some of numerous potsherds from articulated burials undoubtedly were lamp fragments.

4–6. Clay Pots: 26 more or less fragmentary specimens (Fig. 5, restored). 13 with round or pointed base like illustrated specimens; 13 with flat base. All have straight or slightly incurved rim. Fig. 5 has horizontal groove on outside below rim. Fig. 4 was undoubtedly higher than wide (height, 14 cm.; diameter, approximately 12 cm.); others have their greatest extension in other direction (Fig. 5, 9.4 by 11.1 cm.; Fig. 6, 6.1 by 8.2 cm.). Potsherds indicate that much larger pots were used and buried, but owing to the coarse material and poor firing the larger pots were crushed by the weight of the earth covering the graves, leaving only some of the smaller ones intact. Some of the large potsherds are 2.8 cm. thick at the base. The 13 round-based pots were found in TB169, 290, 336, 357, 372, 392, 433, 439, 500, 502, 505, and 511, the flat-based in TB331, 341, 342, 378, 381, 384, 386, 421, 460, 474, 482. In addition, 68 articulated burials contained plain potsherds.

7. Fragmentary Clay Lamp (?): With flat basin and low, vertical walls on 2 sides on surface. 1 specimen; from TB302. Numerous impressions of small feathers which, with coarse sand, have been used as tempering material.

8. Pottery Paddle with Concentric Grooves: Partly burned fragment made of whalebone. 1 specimen; from TB392.

9–11. Potsherds with Paddle Impressions: 14 specimens; from TB346 (Fig. 9), 348, 360, 373, 403 (Fig. 10), 412 (Fig. 11), 432, 457, 475, and 480. Fig. 9, with vertical grooves, and Fig. 11, check-stamped, are unique; rest have concentric circles as in Fig. 10. Fig. 9 is part of a very large pot, approximately 27 cm. in diameter at the rim, which is 1.4 cm. thick. The sherd, Fig. 10, is probably part of a globular pot, approximately 23 cm. in diameter (body measure) with a rim 1.4 cm. thick. Fig. 11 is part of a pot approximately 22 cm. wide at rim which is 1.1 cm. thick. These sherds are somewhat finer and harder than most of the plain potsherds.

12. Fragment of Soapstone Vessel: 1 specimen; from TB334; thickness, 1.2 cm.

1. 60.1-8897, TB380
2. 60.1-8850, TB347
3. 60.2-4486, TB384
4. 60.2-4483, TB372
5. 60.1-8901a, TB392
6. 60.2-4484, TB372 (?)
7. 60.2-4482, TB302
8. 60.1-8902, TB392
9. 60.1-8852L, TB346
10. 60.1-8906, TB403
11. 60.1-8909, TB412
12. 60.1-8887, TB334
PLATE 92

TIGARA TYPES, SEWING TOOLS, CLOTHING, AND ORNAMENTS—TIGARA BURIALS

1. Snow Goggles: With finely incised decorative lines. 1 specimen; from TB191; ivory.

2. Brow Band: Decorated on outer surface; pair of suspension holes in each end. 1 specimen; from TB233; antler.

3. Carved Polar Bear: Legless, with perforation for attachment of front legs; small eye sockets and traces of engraving; from TB234; ivory.

4–7. Tooth Pendants: Five specimens, with suspension groove, from TB162; 5 perforated teeth from TB 290 and 60 from TB305.

8, 9. Amber Beads: Perforated; 6 specimens; from TB290.

10, 11. Thimble Holders: Fig. 10 from TB259; Fig. 11 from TB162; ivory.

12. Attachment for Needle Case (?): Ivory. Found in TB162 together with the thimble holder (Fig. 11), 3 bodkins (Figs. 15, 16), and 2 unidentified ivory objects (Fig. 21).

13–16. Bodkins: 4 specimens; from TB139, 162, and 234; ivory. Figs. 13 and 14 have triangular head. Figs. 15 and 16 have flat upper part decorated with spurred and broken lines.

17. Needles of Bird Bone: 4 specimens. Found in 2 needle cases from TB143 and 265. 1 has minute eye hole.

18. Drinking Tube: Long, hollow bird bones. 7 specimens; from TB207, 212, 246, 248, 274, 309, 449, and 469. Fig. 18 decorated with incised lines.

19, 20. Needle Cases: All decorated in same style with plain, spurred, or broken lines. 5 specimens; from TB143, 234, 258, 265, and 470. 2 are like Fig. 19; 3 like Fig. 20.

21. Unidentified Ivory Objects: Two specimens; from TB162. Fig. 21 is decorated with spurred lines and on 1 side with incised, stylized bird figure with long beak and neck (loon?).

22. Ivory Mounting: 3 specimens; 2 like Fig. 22 from TB283 and 1 larger from TB463.

23. Bag Handle: Wooden center part is inserted in sockets in carved ivory end pieces, which are decorated with plain and spurred lines. The butt of each terminal link is perforated. From TB305.

24. Wooden Ladle: Ivory carvings on handles are embedded in the wood. From TB305.

1. 60.2-4450, TB191
2. 60.2-4455, TB233
3. 60.2-4457, TB234
4. 60.2-4418, TB162
5. 60.2-4475, TB290
6. 60.2-4476, TB290
7. 60.2-4477, TB290
8. 60.2-4478, TB290
9. 60.2-4479, TB290
10. 60.2-4480, TB259
11. 60.2-4419, TB162
12. 60.2-4420, TB162
13. 60.2-4423, TB234
14. 60.2-4441, TB139
15. 60.2-4421, TB162
16. 60.2-4422, TB162
17. 60.2-4412, TB143
18. 60.2-4505, TB469
19. 60.2-4471, TB265
20. 60.2-4413, TB143
21. 60.2-4423, TB162
22. 60.2-4472, TB283
23. 60.2-4424, TB305
24. 60.2-4485, TB305
PLATE 93

MODERN TYPES—TIGARA RACK BURIALS

1, 2. Arrowheads, Type 1: Sharp pointed and edged with 1 short barb. 9 specimens; from TB125; antler.
3 have 2 small knobs on conical tang.
3. Arrowheads, Type 2: 2 long barbs lying close to shaft; offset by groove. End blade socket with lashing groove. 2 small knobs on tang. Owner's mark above tang. 1 specimen; from TB125; antler.
4. Bird Arrowhead: Blunt-pointed; conical. 3 specimens; from TB125; antler. 1 has the tang slit for hafting.
5. Slate Lance Points: Symmetrical, sharp-edged, pronounced tang. 2 specimens; from TB441 and 443.
6. Flint Flaker: 1 handle and 2 points; from TB125. The points are flat and made from antler. Ivory handle has deep groove for the flaking point and spatulate butt.
7. Blubber Hook Barb: 1 specimen; from TB441; bone.
8. Bow Bracer: Curved strips of antler used to reinforce wooden bow. 3 specimens; from TB125, 440, 443.
9. Composite Knife Handle: Very thin slot, probably for metal blade. 1 specimen; from TB125; antler.
11. Harpoon Ice Pick: Scarfed and wedge-shaped butt with knobs for hafting. 1 specimen; from TB125; antler.
12. Sled Shoes: 2 specimens; from TB441; whalebone.
13. Carved Human Head: Probably a fragment of a drum handle. 1 specimen; from TB441; ivory.
14. Handle for Blubber Hook: 1 specimen; from TB125; antler.
15. Handle for Drill Cord: Ends carved to represent seal heads. Sockets in the necks for inlays, probably blue glass beads. 1 specimen; from TB125; ivory.
16. Bird Bone Pendants: Perforated in end. 5 specimens; from TB444.
17. Slate Ulu Blades: 4 specimens; from TB441, 442, 443. 2 are semilunar, 2 rectangular.
18. Thimble Holder: Engraved with a simple design of spurred lines. 1 specimen; from TB441; ivory.
19, 20. Unidentified Objects: Forked ivory objects probably attached to needle case. 2 specimens; from TB441. Fig. 20 is engraved with simple design.
21. Flint Endscraper: 1 specimen; from TB441. Identical with modern skin scrapers.
22. Flint Side Scraper: Retouched on 1 edge and 1 surface. 1 specimen; from TB442.
23. Pottery: Fragments of 2 pots, from TB441, 443. Semispherical bowls with rounded base and straight rim. Fig. 23 is 1 cm. thick.

1. 60.2-4395, TB125
2. 60.2-4399, TB125
3. 60.2-4401, TB125
4. 60.2-4402, TB125
5. 60.2-4404ab, TB125
6. 60.2-4404a, TB125
7. 60.2-4401, TB125
8. 60.2-4504, TB443
9. 60.2-4406, TB125
10. 60.1-8919a, TB444
11. 60.2-4407, TB125
12. 60.2-4495, TB441
13. 60.2-4496, TB441
14. 60.2-4408, TB125
15. 60.2-4409, TB125
16. 60.1-8920a, TB444
17. 60.2-4502, TB442
18. 60.2-4497, TB441
19. 60.2-4498, TB441
20. 60.2-4499, TB441
21. 60.2-4500, TB441
22. 60.2-4503, TB442
23. 60.2-4501, TB441
PLATE 94
MODERN TYPES—PINGU BURIAL

1–3. Arrowheads: All precisely the same except for Fig. 3 which is unusually small. 23 specimens; antler. All but 4 have points broken away. Sharp conical tangs have 2 small knobs for hafting. Just above tang is an ownership mark.

4, 5. Flint Arrowpoints: All of same type, with tang and abrupt shoulder. 6 specimens. All very thick, measuring 7–8 mm. through center.

6. Flint Lance Points: Part of the tang is broken from both specimens. 2 specimens. Thick, like arrowpoints, measuring 11 mm. through center. Used for killing caribou from kayak.

7. Finger Rest for Seal Harpoon Shaft: 1 specimen; ivory.
8. Harpoon Foreshaft: Conical butt and point. 1 specimen; ivory. Used with harpoon for seal or walrus.
9. Harpoon Ice Pick: Conical, scarfed tang. 1 specimen; ivory.
10. Cleat for Drum Rim: Fragment of wooden rim remains, pegged into cleat with tiny ivory pegs. 1 specimen; ivory.

11. Unidentified Bone Implement with Flat, Sharp Point: 1 specimen.
12. Handle for Blubber Hook Shaft: 1 specimen; antler.
14. Flint Side scraper: 2 specimens.
15. Drinking Tube: 1 specimen; bird bone.
16. Whaling Harpoon Head: End blade slot at right angles to line hole. 1 specimen; whalebone. Engraved line with short spurs extends from spur part-way round line hole. Same owner’s mark on left edge opposite line hole as on arrowheads.
17. Finger Rest for Whaling Harpoon Shaft: 1 specimen; ivory. Lashing hole just over concave base.
18. Foreshaft for a Whaling Harpoon: Perforations at butt are for fixing foreshaft to wooden shaft. 1 specimen; whalebone.

Not Illustrated: Fragments of harpoon and arrowshafts; flint blade fragment; rough antler mounting.

1. 60.2-4646, Pingu
2. 60.2-4648, Pingu
3. 60.2-4663, Pingu
4. 60.2-4664, Pingu
5. 60.2-4665, Pingu
6. 60.2-4670, Pingu
7. 60.2-4672, Pingu
8. 60.2-4673, Pingu
9. 60.2-4676, Pingu
10. 60.2-4681, Pingu
11. 60.2-4677, Pingu
12. 60.2-4678, Pingu
13. 60.2-4679, Pingu
14. 60.2-4669, Pingu
15. 60.2-4680, Pingu
16. 60.2-4675, Pingu
17. 60.2-4671, Pingu
18. 60.2-4674, Pingu
PLATE 95
WESTERN THULE TYPES—JABBERTOWN HOUSE 2

1. 2. **Harpoon Heads**: Antler, barbed, bladeless, open shaft socket, lashing slots. Fig. 2 has rudimentary blade slot opposite the barb.

3. **Harpoon Foreshaft**: Ivory, conical butt, and flat point for open-socketed harpoon heads.

4. **Barbed Harpoon or Bladder Dart Heads**: Ivory.

5. **Leister Prong**: Antler.

6. **Bird Dart End Prong or Arrowhead**: Antler, scarfed, conical tang.

7. **Arrowhead**: Antler.

8. **Bodkin**: Ivory, triangular head and round body.

9. **Ice Pick**: Ivory, reworked, scarfed, conical tang.

10. **Perforated Polar Bear Tooth**.

11. **Bolas Ball**: Whalebone.

12. **Graver**: Flint, chipped on 1 surface.

13. **Knife Blade**: Flint, chipped on both surfaces.

14. **Sidescraper**: Flint, chipped on 1 surface.

15. **Root Pick**: Bone.

16. **Slate Harpoon Blade**.

17. **Slate Knife Blade**: Single edge.

18. **Ulu Blade**: Slate.

19. **Bone Awl**.

20. **Potsherd**: With paddle impressions.

| 7. P-5078, JH2 | 14. P-5172, JH2 |
The Point Hope Peninsula, aerial views. The contours and ridges are clearly marked.
PLATE 97
TIGARA MOUNDS AND IPIUTAK HOUSES

1. Tigara mounds.
2. House 46.
3. House 65.
4. House 64, with entrance.
PLATE 98
IPIUTAK BURIALS

1. Skeleton with ivory eyes, B21.
2. Skeleton with ivory eyes, B51.
4. Position of mask in Burial 77.
PLATE 99

VIEWS OF EXCAVATION OF HOUSES

1. House 62 showing sterile gravel between entrance and floor.
2. House 37, excavated.
3. House 41, excavated.
4. House 65, detail of floor.
PLATE 100
TYPES OF BURIALS

1. A typical log coffin burial, B29.
2. A double burial, B53.
PLATE 101
QUALITATIVE SPECTROGRAPHIC ANALYSIS OF TWO FRAGMENTS OF IRON

1. Iron reference spectrum.
2. Comparative spectra: iron objects and meteorite. A. Mongolian iron (several hundred years old). B. Point Hope, Alaska, iron (about same age). C. Meteoric iron, Cape York, Greenland.
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