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THE BRUCE COLLECTION OF
ESKIMO MATERIAL CULTURE
FROM KOTZEBUE SOUND, ALASKA

JAMES W. VANSTONE

February 25, 1980

Publication 1305

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PREFACE

In 1894 and 1896 the newly established Field Columbian Museum purchased two collections of contemporary Eskimo ethnographic specimens from Mr. Miner W. Bruce, a former United States government employee who traveled and traded in western Alaska for a number of years beginning in 1892. One of these collections was made in the vicinity of Kotzebue Sound, and the other was made in and around Port Clarence while Bruce was serving as superintendent of the government-operated Teller Reindeer Station. The Port Clarence collection has been published previously (VanStone, 1976), and the Kotzebue Sound collection is described and illustrated in this study.

Although the documentation accompanying both collections leaves much to be desired, they nevertheless must be included among the significant assemblages of nineteenth-century Alaskan Eskimo material culture in American and European museums. Neither, however, has been examined by specialists or referred to with any frequency in publications dealing with Eskimo art and material culture. Studies of both Bruce collections are being published for the primary purpose of making them better known to students of Alaskan Eskimo ethnography.

In an attempt to augment the sparse documentation accompanying the Bruce Kotzebue Sound assemblage, I made a brief visit to Kotzebue in the summer of 1970, taking along photographs of a broad range of specimens from the collection. I had lived and worked in that community for brief periods beginning in 1951, and I hoped that some of the informants who had been helpful to me on previous occasions would be willing to examine the photographs and perhaps recall details about the use of some of the objects in the collection. Unfortunately, even elderly villagers were unable to provide much additional information. Nevertheless, a certain amount was obtained and is included with the descriptions that follow. I would particularly like to thank Mr. Charles Jensen and Mrs. Della Keats of

Kotzebue for their assistance in collecting the field data used in this study.

Publication of this study has been supported, in part, by a grant (92-2024-265) from the National Endowment for the Arts in Washington, D.C., a federal agency. I am grateful to two of my colleagues at Field Museum for assistance during my research on the Bruce Kotzebue Sound collection. Dr. Glen Cole guided me to a more accurate description of the lithic materials, and Dr. Patricia W. Freeman identified a number of mammal bones. Figures 1 and 2 were drawn by Ms. Beth Herman and the remainder by Mr. Zbigniew Jastrzebski. The excellent photographs are the work of Mr. Ronald A. Testa, and the manuscript was typed by Mr. Jim Hanson. For valuable research assistance I wish to express my appreciation to Mrs. Lori Recchia.

I

HISTORICAL BACKGROUND

INTRODUCTION

The traditional Eskimo population of northwest Alaska was organized into a set of "tribes" or "societies" (Burch, 1975, pp. 10-13), each of which was associated with a particular territory and tended to be endogamous. Burch has defined 20 societies between Norton Sound and the mouth of the Colville River, one of which, Kotzebue society, included the area with which this study is concerned and consisted of approximately 425 persons during the early nineteenth century. In the early fall when the shallow waters of Kotzebue Sound and Hotham Inlet began to freeze, these Eskimos were distributed among a number of small communities along the shore of Baldwin Peninsula, the northern shore of Kotzebue Sound, and on the lower Noatak River (Burch, 1975, p. 14).

During the fall, the most important subsistence activity for members of Kotzebue society was fishing through the ice for tomcod, sheefish, and smelt. There was also some caribou hunting in the western sections of the Baird Mountains to the northeast. In normal circumstances, winter was a time of relative inactivity devoted primarily to recreational and ceremonial activities; but as spring approached the men again turned their attention to caribou hunting, and they did some seal hunting along the outer coast.

In March fishing was once more of primary importance, and much of the region's population moved to Hotham Inlet to take advantage of the large schools of sheefish that congregate there in the spring. After this period of intensive fishing, most of the society's members would gather in the main village situated at the tip of Baldwin Peninsula at the site of the present settlement of Kotzebue for several days of dancing and feasting. This gathering, called *qatizut*, served to reaffirm the unity of the society (Burch, 1975, pp. 14, 16, 249).

In April families moved to the outer coast to hunt seals as they basked on the ice, a hunt that continued from shore through May

and June as the ice began to melt. In late June the population of the Kotzebue Sound region moved to their summer camp at Sheshalik, where they were joined by Eskimos from the upper Noatak and lower Kobuk rivers. Late June and most of July were devoted to hunting belugas from kayaks and umiaks, as these animals come into Kotzebue Sound in great numbers every summer. By the end of July several hundred more Eskimos from other societies in northwestern Alaska and Siberia gathered at Sheshalik for a great fair that was a major occasion for intersocietal trade as well as for feasting and athletic competitions. This fair, which grew in size and importance as the nineteenth century progressed, will be discussed in detail later in this chapter.

Toward the middle of August people began to leave Sheshalik and return to their home territories. Kotzebue people usually departed last, since they had only a short distance to travel. Some families or groups of men alone traveled up the Noatak River to hunt caribou. By the end of August all except the caribou hunters were back at their winter settlements, where they fished for salmon, hunted bearded seals, and prepared for winter. Thus the seasonal cycle of subsistence activities was completed (Burch, 1975, pp. 14, 16-17).

EXPLORATION AND EURO-AMERICAN CONTACT

Termination of the Napoleonic wars allowed Great Britain and Russia to resume their rivalry in the north Pacific. The first postwar explorations were those of Lieutenant Otto von Kotzebue, who sailed from Turku (Åbo) in 1815 in the brig *Rurik* and, on August 1, 1816, anchored in the sound that was to bear his name. He remained in the newly discovered sound until August 18, and during this brief period the crew made frequent contacts with Eskimos who were anxious to obtain tobacco in exchange for items of their own material culture. Kotzebue was aware that they also received tobacco and other trade goods from the Chukchi (Kotzebue, 1821, vol. 1, pp. 206-238; VanStone, 1960, pp. 148-149). Kotzebue spent the winter of 1816-1817 in the Hawaiian Islands and went north again in the spring, but he only reached St. Lawrence Island and did not notably extend his explorations. Although he claimed to have independently discovered the sound that today bears his name, it is probable that information regarding it was known to Europeans considerably earlier, derived from natives of the Bering Strait area (Bockstoce, 1977, p. 6).

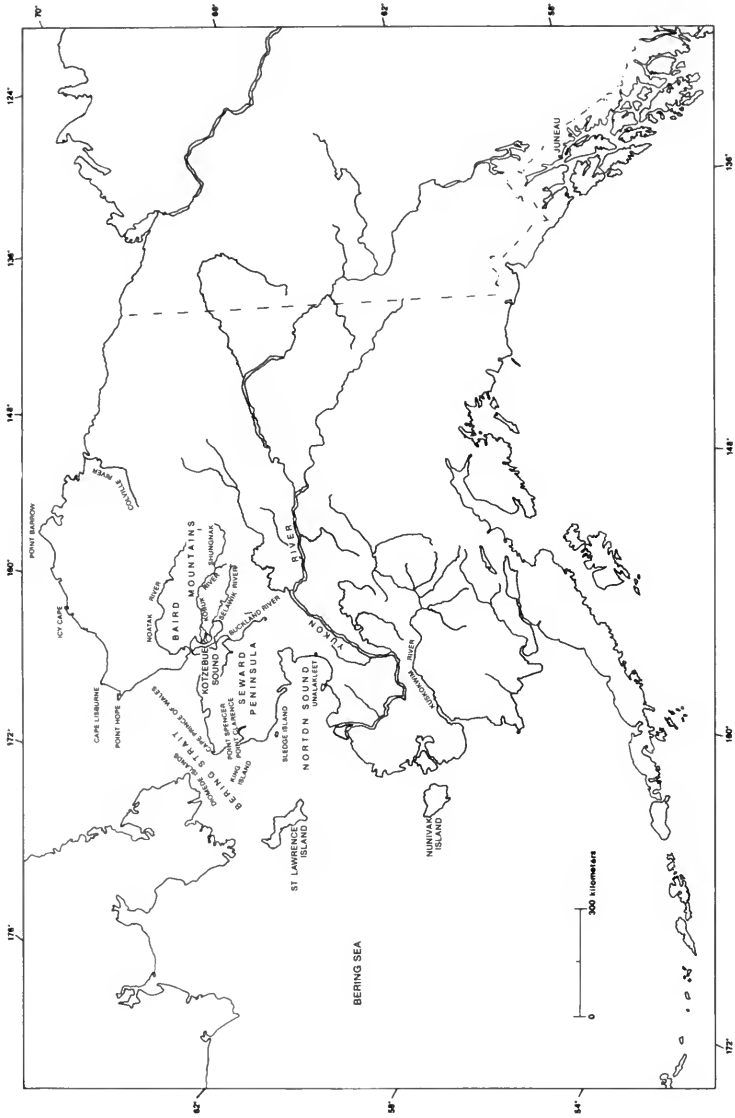


FIG. 1. Map of Alaska.

Two Russian sloops, the *Otkrytie* (*Discovery*) and the *Blagonamernyy* (*Good Intent*) under the command of Captain-Lieutenants M. N. Vasilev and G. S. Shishmarev, visited Kotzebue Sound in July 1820. Shishmarev arrived first on July 9 (Old Style; July 21 New

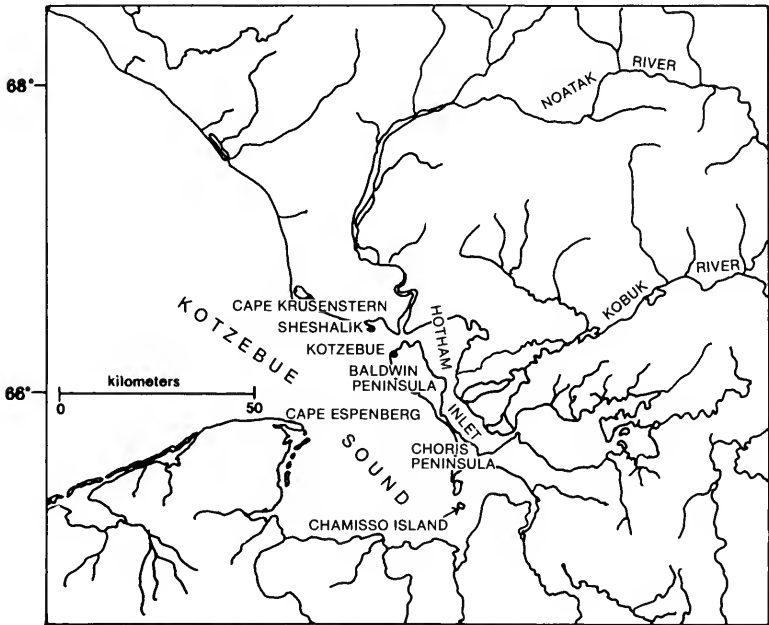


FIG. 2. Map of the Kotzebue Sound region.

Style), and almost immediately Eskimos came out to the ship to trade. The Russians wished to obtain weapons, but the Eskimos desired only to trade fox skins for metal axes and knives. Shishmarev's party did not want furs, and so they gave their tobacco to the Eskimos, who, surprisingly, were not particularly interested in having it. The following day a boatload of Eskimos came aboard, once more hoping to trade furs for axes, cast iron pots, and needles, but especially big knives, guns, powder, and lead. When it became obvious that the Russians would not part with the latter items, the Eskimos immediately stopped trading and returned to shore. Later, when they were again unable to obtain powder and lead, the Eskimos attacked Shishmarev's party and were repulsed with some difficulty.

The Russians saw a village of 101 conical tents at the end of a sandspit, presumably the earliest reference to a summer trading settlement on Kotzebue Sound. On July 16 Vasilev joined Shishmarev, as did the American brig *Pedlar* under the command of Capt. William Pigot. The American captain, who had come from the Hawaiian Islands, declared his intention of trading firearms and ammunition to the Eskimos in exchange for furs. Two days later the Russian ships departed along the coast to the north (Ray, 1975b, pp. 67-69; Bockstoce, 1977, p. 7).

Capt. John Franklin's second expedition, the purpose of which was to reach the mouth of the Mackenzie overland and then explore westward along the coast, was expected to reach Icy Cape in the summer of 1826. He had requested that a vessel meet him in Kotzebue Sound or some other location farther north to bring the party back to England or to furnish it with supplies for a return by land (Gough, 1973, p. 11). Capt. Frederick W. Beechey in the sloop *Blossom* was dispatched in 1825 to cooperate with Franklin and, it was hoped, to meet his party somewhere north of Kotzebue Sound.

The *Blossom* entered Kotzebue Sound on July 22, 1826, and on that day discovered Hotham Inlet, an indentation of the coast that had escaped Kotzebue's notice. Although Beechey remained in the sound only until July 30, his ship was visited by several parties of Eskimos who were anxious to trade furs, dried fish, implements, small wooden bowls, and little ivory figures for blue beads, cutlery, tobacco, and buttons (Beechey, 1831, vol. 1, pp. 342, 343, 352).

In late August and early September when the *Blossom* returned from explorations to the north along the coast, Beechey encountered groups of Eskimos on Choris Peninsula and at Chamisso Island. He obtained large amounts of dried salmon in exchange for a variety of trade goods. The Eskimos were willing to part with everything except their weapons, and Beechey collected a great deal of ethnographic material with the intention of retaining the goodwill of the Eskimos so that they would be similarly well disposed toward Franklin's party should it reach Kotzebue Sound (Beechey, 1831, vol. 1, pp. 394, 408; Bockstoce, 1977).

The *Blossom* departed for winter quarters on October 14, 1826, and there were similar, though less frequent, encounters with Eskimos when Beechey returned the following year. Contrary to Shishmarev's experience, most of the Eskimos encountered by the *Blossom*'s crew were unacquainted with firearms, although people

from the Buckland River seem to have known about the capabilities of such weapons (Bockstoce, 1977, p. 129). Ray (1975a) has demonstrated that a Capt. Gray traded guns and ammunition in this area in 1819, and it is probable that other traders were also active in the Bering Strait region at this time. Supplies of guns, particularly ammunition, must have been sporadic, however, which may be why so few of the Eskimos Beechey's party encountered were familiar with them.

The final Russian explorations in northwestern Alaska were undertaken by A. F. Kashevarov, whose party, in the summer of 1838, traveled in Eskimo skin boats from Cape Lisburne to a point approximately 30 miles east of Point Barrow, returning to Chamisso Island. Near the end of their explorations the members of the expedition stopped briefly at an unidentified settlement on Hotham Inlet, where they traded tobacco for fish. They seem to have had no other contact with the natives of the Kotzebue Sound area (Van-Stone, 1977, p. 62).

In 1848 the first whaling vessel sailed through Bering Strait, and within a few years as many as 150 ships were passing into the Arctic Ocean annually. Kotzebue Sound, although outside the whaling grounds, attracted numbers of whaling and trading vessels because of the Eskimo gatherings there during the summer months. These traders brought a variety of goods, including liquor and firearms (Ray, 1975b, p. 199). Also in 1848 Kotzebue Sound became a base of operations for British naval vessels searching in the Bering and Chukchi seas for Franklin's missing third expedition. Between 1848 and 1854 eight ships and a private yacht were involved in the search, one of which, the *Plover* under Comm. T. E. L. Moore, wintered in Kotzebue Sound in 1849-1850. A large number of Eskimos visited the *Plover* to trade caribou and fish for tobacco, and the vessel's crew made visits to settlements on the Buckland River and Hotham Inlet in the hope of obtaining news of Franklin (Moore, 1851, pp. 28-34; Seemann, 1853, vol. 2, chap. VIII).

The relative isolation from European contacts that the Eskimos of Kotzebue Sound experienced during the early historical period thus came to an end shortly after the middle of the nineteenth century. A period that Burch (1975, p. 253) refers to as "early transitional" began with the influx of whaling ships after 1848 and ended with the establishment of missions and schools throughout northwest Alaska in the 1890's. During this period the Eskimos suffered greatly because of newly introduced diseases, liquor, and a

decline in the major food resources. These trends continued through an "intermediate transitional" period when permanently occupied settlements with missions, schools, and stores served increasingly as focal points for the native population. Traditional societies in the Kotzebue Sound region and elsewhere in northwestern Alaska had ceased to operate by 1890, however, because of biological extinction and dispersal of the Eskimos as a result of events during the transitional period (Burch, 1975, pp. 259-260).

Although most of the explorers whose activities have been described were primarily interested in obtaining food from the Eskimos in exchange for trade goods, we have noted that, beginning with Kotzebue and Beechey, they also acquired Eskimo artifacts. Ludovick Choris, an artist attached to the Kotzebue expedition, noted that the Eskimos did not like the beads that were offered but, "perceiving that we did not have much to their liking, and that we eagerly desired their clothing, their ornaments, and their weapons, they would not sell us furs, and brought us all sorts of objects sculptured from walrus teeth, and pieces of these teeth on which they had drawn designs" (VanStone, 1960, p. 148). Thus a tradition of disposing of native manufactures in exchange for trade goods was established early in the Kotzebue Sound region.

The first person to come to the sound for the specific purpose of obtaining Eskimo artifacts was Johan Adrian Jacobsen, a collector for the Royal Museum of Berlin, who arrived early in 1883. He noted that the people were very aggressive, asked high prices, and "did not bring as many ethnographic objects as I had been given to understand would be forthcoming" (Jacobsen, 1977, p. 159). Apparently many ethnographic specimens had already been purchased by Eskimo traders who took them to St. Michael, where they were purchased by another well-known collector, Edward William Nelson, for the Smithsonian Institution. Nevertheless, Jacobsen was able to dispose of nearly all his stock of trade goods (Jacobsen, 1977, pp. 159-160). Fortunately for the collection described in this study, the supply of artifacts had been replenished before Miner Bruce arrived in the summer of 1894.

TRADE MARKETS

Kotzebue was aware that the items of European manufacture he observed in the possession of Kotzebue Sound Eskimos came from the Chukchi, and the natives Beechey met in 1826-1827 were even

more abundantly supplied with these materials, which suggests a steadily increasing trade across Bering Strait even at this early date (Ray, 1975b, p. 197). Neither Kotzebue nor Beechey, however, mentioned the Kotzebue trade market, which was to be a major aspect of late-nineteenth-century life in the area. This suggests that the market, almost certainly in existence at the time of their explorations, was nevertheless relatively small and unimportant.

When the Russian-American Company established Mikhailovskiy Redoubt (St. Michael) north of the mouth of the Yukon River in 1833, Eskimos living in the immediate vicinity of the post were also using tobacco and a variety of other trade goods. Upon investigation, the Russians learned that most of these trade items had come from their own posts on the Kolyma River in Siberia by way of the Chukchi. Further investigation revealed that the middlemen for this elaborate trade between northeastern Asia and northwestern North America were the Eskimo inhabitants of Sledge and King islands, both strategically situated in the north Bering Sea not far off the coast of Seward Peninsula.

Trade relations between the inhabitants of these islands and Eskimos living in the coastal villages of Norton and Kotzebue sounds, though rooted in the prehistoric past, had grown considerably in the early nineteenth century when Russian trade goods became available in quantity after establishment of a large trading market on the Anyui tributary of the Kolyma River in 1789. Once tobacco and European trade goods began to be available, local markets like the one on Kotzebue Sound became large international markets. The presence of American whaling and trading ships during the second half of the nineteenth century also contributed to the growth of the market at Kotzebue (Ray, 1975b, pp. 97-100). In fact, Ray (1975b, p. 121) believes that by the end of the 1820's native Alaskan and Siberian traders were exchanging European goods at the Kotzebue and other markets in the Bering Strait area in sufficient quantities so that the household inventory of every Eskimo family was affected to some extent.

The most important trade markets or fairs in Alaska were held annually at Nirliq in the Colville River delta, at Sheshalik on Kotzebue Sound, and at Point Spencer on Port Clarence. Of these, the largest was the fair at Sheshalik, which regularly drew 2,000 or more visitors from a dozen or more Eskimo societies (Burch, 1978, pp. 54-55). It has been described in varying degrees of detail by a number of late nineteenth century observers (Simpson, 1875, p. 236;

Hooper, 1881, pp. 25-26; Cantwell, 1889, pp. 71-72; Porter, 1893, p. 137; Nelson, 1899, pp. 261-262).

Students of Eskimo culture have noted that the interregional trade carried out at trade fairs like the one at Sheshalik was structured primarily around trading partnerships. "These were voluntary associations established between individuals of either sex and any age for the ostensible purpose of exchanging goods, and to a lesser extent, services" (Burch & Correll, 1972, p. 25; see Burch, 1970, for a detailed description and analysis of trading partnerships). In addition to trading, a trade fair was characterized by a wide variety of social activities.

Even without specific documentation, we can be sure that when whaling and trading ships visited Kotzebue Sound Eskimo artifacts were an important part of the exchanges that took place. We have also noted that collectors like Jacobsen and Nelson were increasing Eskimo awareness that outsiders were interested in products of local manufacture. Kotzebue Sound, with its large annual gatherings of Eskimos from many areas of Alaska, was certain to reward a collector of native manufactures, and the mechanisms for carrying out such trade were well established. Although we have no information concerning the specific trading methods Bruce used, or even of the trade goods he brought with him, it seems likely that he operated within the framework of the summer trade fair.

MINER W. BRUCE AND FIELD MUSEUM

Miner W. Bruce, a former journalist from Nebraska, arrived in Alaska in the summer of 1892 to become superintendent of the Teller Reindeer Station at Port Clarence on Seward Peninsula. Bruce had received his appointment from the Rev. Sheldon Jackson, first General Agent of Education in Alaska, who, with Capt. Michael A. Healy of the United States Revenue Marine Service, had conceived and carried out a plan to bring domestic reindeer from Siberia to the Port Clarence area. This program, supported by the United States Bureau of Education, was intended to provide Alaskan Eskimos with a new source of food that would offset the decline in sea mammals caused by unrestricted commercial hunting during the second half of the nineteenth century. As a result of disagreements with both Healy and Jackson, Bruce was fired after serving only one year as superintendent of the reindeer station. He had not improved his relations with his former employers by taking

11 Port Clarence Eskimos and a collection of sledges, dogs, kayaks, and other artifacts to Chicago for exhibit at the World's Columbian Exposition in the summer of 1893 (Ray, 1965, pp. 82-83; 1975b, p. 223; VanStone, 1976, pp. 4-5).

When the Columbian Exposition closed, Bruce took his collection and Eskimo entourage to New York City, where they performed for two weeks at Madison Square Garden, and to Washington, D.C., where they appeared before the House of Representatives, had tea at the White House, and were the object of considerable interest at the Smithsonian Institution (Ray, 1975b, pp. 223-224, n. 71).

The Field Columbian Museum (later Field Museum of Natural History) had been established in 1893 to house the natural history collections exhibited at the World's Columbian Exposition. Franz Boas was the first curator of anthropology, and F. J. V. Skiff was the first director. Bruce called at the museum early in 1894 before taking his Eskimo show on the road and, since Skiff was away, met with Boas. He offered to sell the museum an ethnographic collection from Port Clarence. Boas considered the collection an excellent one and recommended it be purchased for the asking price, \$550 (Field Museum Accession [FMA] 96, Boas to Skiff, February 15, 1894). The collection was acquired on October 31, 1894, and cataloged as accession 96 (VanStone, 1976).¹

Meanwhile, William H. Holmes had replaced Boas as curator, and on May 21, 1894, he received a letter from Bruce indicating that Bruce expected to sail from Puget Sound or San Francisco about June 10 for a second trip to Alaska. He hoped to spend some time on the Siberian shore before crossing the Bering Sea to Kotzebue Sound and perhaps proceeding as far north as Point Barrow. Bruce mentioned that he had written Boas about making a collection for the museum and presumed that Skiff and Boas had conferred about the matter. He inquired if Holmes had made up his mind about what material he wanted (FMA 96, Bruce to Holmes, May 21, 1894).

Less than a month later, apparently receiving no reply from Holmes, Bruce wrote directly to Skiff, expanding in some detail on his proposal to collect for the museum.

I propose chartering a sailing vessel for a four month cruise, stopping first at a point on the Siberian side near Bering Straits, following along the

¹In a previous publication the accession number is wrongly given as 65 and the accession date as October 31, 1897 (VanStone, 1976, p. 6).

coast and into the interior, spending probably, two months in that territory, then, crossing over to the Alaska side and spending a month there, the ship returning to San Francisco and I remaining in the country, leaving a point near Port Clarence about the 1st of March and trading up the Yukon River, and coming out near Juno [*sic*] Alaska in the Fall of 1895.

I have examined your collection from the Arctic Country very closely and find that you have nothing from Siberia or the Interior of Arctic Alaska. All of this territory I propose to cover has not, as yet, been visited with a view to making a collection and I believe I will be able to secure for you such a collection that will be prized [*sic*] by the Museum and a credit to myself.

I will furnish you with the collection if you will advance me a certain amount of money which I will invest in such goods as will be best adapted to trading for such articles as you want which sum shall be one third of the amount I am to receive, the balance to be paid to me when you receive my shipment. Or, in other words, I to receive twice the amount I pay for the same.

I may, perhaps, be pardoned for suggesting that my knowledge of the Eskimo language and a pretty good knowledge of the country I expect to visit obtained from nearly five years traveling in Alaska pretty well equips me for the work. [FMA 259, Bruce to Skiff, June 1, 1894]

Bruce exaggerated his Alaskan experience and gave little indication that he understood the problems of travel in the interior. Nevertheless, four days later, perhaps after some prodding by Skiff, Holmes informed the director that he considered the opportunity provided by Bruce's proposed trip to be a good one and went on to outline the type of material he desired: specifically, specimens for "two museum groups, one illustrating the peoples of Arctic Siberia and the other those of Arctic North America" (FMA 259, Holmes to Skiff, June 5, 1894).

As a result of this communication, Skiff wrote to Bruce with a formal proposal to retain the latter's services as a collector for the Field Columbian Museum.

Upon the recommendation of Prof. Holmes, Director of the Department of Anthropology, the Executive Committee of the Board of Trustees of this Museum has authorized me to enter into a contract with you as follows:

You are to represent the Museum in the collection of certain objects, articles, and materials generally illustrating the peoples of Arctic Siberia and Arctic North America. For this purpose, the Museum remits to you herewith exchange for the sum of Five Hundred Dollars (\$500), which amount you are to expend in the purchase of articles attractive and interesting to the tribes of the North, and which you will employ in exchange for those objects, articles, and services which constitute the result of your mission. Having secured such Ethnological collections and material, the

same is to be delivered into the possession of the Museum, and upon the receipt, examination and approval of the same by Prof. Holmes, the Museum will then pay you in cash or by exchange, the further sum of One Thousand Dollars (\$1,000). [FMA 259, Skiff to Bruce, June 15, 1894]

Four days later Holmes himself wrote to Bruce noting that his proposal to collect for the museum had been approved and going on to provide Bruce with detailed instructions concerning the kinds of materials he desired the latter to obtain.

Two central ideas are to be kept in view: I wish to set up two Ethnic Groups, one representing the Eskimo of North Eastern Siberia and the other the Eskimo of Northern Alaska. They are intended primarily to illustrate the peoples. I hope you will observe the people as they live and act and group themselves so as to select some episode that will give a somewhat comprehensive idea of their appearance, character, habits etc.

For the Siberian Group—supposing you select the one mentioned by me—there ought to be two mature reindeer and one young one, a man, a woman, one young girl, or young man or both, and two children. The costumes of all should be perfect and each should have about him such articles, utensils, weapons, playthings, pets, etc., as would be appropriate and tend to make the group interesting. The episode illustrated might be the departure for a journey, welcoming or saying farewell to a guest; the arrival of a hunter with game—a bear, seal or deer—on his sledge. We want enough of some animated scene to fill a case, say 10 × 16 feet in horizontal dimensions.

The Alaskan group should represent a different episode worked out in a similar way, a full team of dogs being necessary to the production of a striking presentation of the subject discussed here. We need especially photographs of groups and full figures as well as of faces for detail. Nothing should be missing from harness or costume. Possibly a Kyak [*sic*] scene might be made effective.

Beside the material for these groups we want all that you may be able to get to illustrate the people and their arts and industries. Take such topics as the domestic arts, fire-making, wood and ivory-carving, hunting, fishing, skin dressing, basket-making, sewing, the toilet, etc., etc. Perhaps I can set up the figure of a man making fire with a drill, a woman carrying her child, etc.

Full notes or a fully elaborated article ought to be furnished. Boats and sledges are always interesting. [FMA 259, Holmes to Bruce, June 19, 1894]

Bruce was unable to reach Siberia because of bad weather, and, not surprisingly, he was also forced to abandon his proposed trip into the interior. It is clear that, having had only limited experience

in one location in Alaska, he greatly underestimated the distances he would have to travel to fulfill his original plan as well as the difficulties of obtaining transportation. It is not clear where Bruce spent the winter of 1894-1895, but on November 16, 1894, he wrote Skiff indicating his intention of extending his collecting activities through the following summer. Presumably he expended much of the summer of 1894 attempting to reach the Siberian mainland (FMA 259, Bruce to Skiff, August 21, November 16, 1894).

It was a year before Skiff heard from Bruce again, but then he learned that a collection had been made for the museum primarily, if not entirely, in the Kotzebue Sound region and that it was in storage in Atlanta. Bruce expected to use the artifacts in connection with another exhibition of Eskimos he had brought south with him and then to deliver them to the museum in Chicago. He had also brought five dogs with him for the exhibit, and they were being held temporarily at the zoo in Washington, D.C. Bruce also spoke of organizing another trip north the following year, at which time he would have "a ship of my own" and would visit northern Siberia. He seemed particularly anxious to justify his traveling exhibition to Skiff, who, in fact, had expressed no particular interest in it.

I suppose you know that my object in bringing the Eskimo to the United States was not for exhibition purposes but to assist me in my effort with Congress to secure an appropriation for the purchase of reindeer in Siberia and bring them across to this side, distribute them among our Eskimo, thus furnishing them food and clothing. Two years ago I was able to secure an appropriation for this purpose and I expect to be as successful this time. [FMA 259, Bruce to Skiff, November 27, 1895]

It is noteworthy that Bruce makes no mention of Sheldon Jackson and obviously wishes to leave the impression that the reindeer program is his own responsibility. Not surprisingly, perhaps, there is no mention anywhere in the museum's correspondence with Bruce referring to his service as superintendent of the Teller Reindeer Station or to the fact that he was dismissed by Jackson.

Bruce believed that the collection he had made for Field Museum was an integral part of his exhibition and hoped that Skiff would have no objections (FMA 259, Bruce to Skiff, November 27, 1895). None were raised, and through the winter and spring of 1896 the exhibition proceeded from Atlanta to Louisville and then to New Albany, Indiana, from which place Bruce expected to bring the collection to Chicago in early May, along with the five dogs that were

to be installed in the new exhibit as proposed by Holmes (FMA 259, January 15, March 19, 1896).

The Kotzebue Sound collection was apparently received by Field Museum on May 6, 1896, and in a letter to Skiff written the same day Bruce made excuses for his failure to collect in Siberia, stressing his intention of reaching that area during the coming summer. Concerning the collection he did make, however, he was extremely enthusiastic.

In the matter of the collection made in Arctic Alaska which I have this day delivered to your Museum, I believe I am safe in saying that it embraces a large number of articles and materials illustrating the people of that region and embraces many objects not heretofore obtained by you, and in number it is about four times greater than that which I turned over to your Museum in 1894. [FMA 259, Bruce to Skiff, May 6, 1896]

Actually, the Kotzebue Sound collection is slightly less than twice as large as the one obtained at Port Clarence.

In spite of the collector's enthusiasm for his own collection, the museum appears to have been less than completely satisfied. Holmes felt that he had received only about one-third of the artifacts necessary for his proposed exhibit, and he was particularly concerned about the absence of material from Siberia. Although he believed Bruce had done his best and "as much as any man could have done," the collection as received was worth "not more than half the sum mentioned in the original agreement." Since Bruce—who, it will be recalled, had already received an advance of \$500—proposed another expedition to secure the rest of the material agreed upon, Holmes recommended a second advance of \$500, with the remaining \$500 to be paid when the original agreement was fulfilled to the museum's satisfaction (FMA 259, Holmes to Skiff, May 7, 1896). The director agreed to this arrangement and informed Bruce (Field Museum, Department of Anthropology correspondence files, Skiff to Bruce, May 7, 1896).

Miner Bruce returned to Alaska in the summers of 1896 and 1897, but there was no further communication with the museum for almost two years. Meanwhile, Holmes resigned in late 1896, and his successor was George A. Dorsey, who had been appointed assistant curator the previous year. In 1897 Bruce made another collection for the museum, consisting of approximately 200 items from various locations in Alaska and Siberia (Accession 546), which

Dorsey considered to be "of great ethnological interest." In addition, he provided Eskimos who served as models for plaster molds sufficient for seven manikins and helped Dorsey identify many specimens in the museum's Eskimo collections. For these services, Dorsey recommended that Bruce be paid the remaining \$500 called for in the old contract, a recommendation the museum's administration approved (FMA 546, Dorsey to Skiff, March 25, 1898).

II THE COLLECTION

INTRODUCTION

In the catalog of the Department of Anthropology at Field Museum of Natural History, the Bruce collection of ethnographic specimens from Kotzebue Sound, Alaska (Accession 259), is assigned 893 numbers representing 1,172 specimens. In many instances more than one object has the same catalog number. At the time this study was begun, 684 catalog numbers representing 866 specimens, including five without numbers and one from Accession 96 acquired from Bruce in 1894, were located in storage and on exhibition (see Appendix). Pairs of mittens, boots, etc. were counted as single specimens. This leaves specimens representing 209 catalog numbers unaccounted for. Of this number, 99 specimens are no longer in the collection, having been sold, exchanged, or consigned to waste many years ago. The rest have apparently been lost or misnumbered.

The present condition of the Bruce Kotzebue Sound collection is better than might be expected, particularly compared with the collection from Port Clarence. This is probably because a greater proportion of the Kotzebue Sound material was on exhibit and thus, to some extent, protected from the dirt and dampness that, until recently, were unfortunate characteristics of museum storage areas. Nevertheless, many ivory, antler, bone, and wooden objects are cracked and broken, and many specimens, particularly those associated with subsistence activities, are incomplete. As was true of the Port Clarence collection, much of the clothing originally included in the Kotzebue Sound assemblage was sold shortly after acquisition, and the remaining items have been badly damaged by insects and lack of humidity control in the storerooms and exhibition areas.

Although the records accompanying the Kotzebue Sound collec-

tion are reasonably informative concerning Bruce's relations with the museum, they tell us nothing about his collecting methods. Presumably, however, he dealt directly with individual Eskimos and native traders, using trade goods purchased with the \$500 advance he received from the museum.

It must be assumed that most of the collection was obtained in Kotzebue Sound, although we know from Bruce's previously cited letter to Holmes of May 21, 1894, that he at least considered proceeding along the coast as far north as Point Barrow. However, even if we could determine with certainty that all the artifacts that are the subject of this study were collected in Kotzebue Sound, the collection could still not be said to have an accurate provenience. As Ray (1977, p. ix) has noted, "Kotzebue Sound" as a historical designation encompassed all the coast between Cape Espenberg and Cape Krusenstern, a vast area that in the nineteenth century included more than 15 settlements and camps (Ray, 1964, pp. 82-85, 93, 94) as well as the major trading center at Sheshalik that, as I have noted, attracted people from as far away as Cape Prince of Wales and Siberia. It is clear, therefore, that many of the objects obtained by Bruce and described in this study were purchased from people who were not permanent residents of the area. Therefore, the provenience "Kotzebue Sound" means as little as "Port Clarence" in accurately determining where a particular artifact was made and used. Nevertheless, one must agree with Ray (1977, p. ix) that such designations, unsatisfactory though they may be, are more useful than those characteristic of many museum collections, which read simply "Alaska" or "Eskimo."

Objects in the Bruce Kotzebue Sound collection are described within the following use categories: sea and land hunting; fishing; tools and manufactures; household equipment; clothing; transportation; personal adornment; smoking complex; toys and models; and raw materials and miscellaneous. With the exception of a category for ceremonial equipment, examples of which do not occur in the Kotzebue Sound assemblage, these duplicate the headings under which the Port Clarence collection was described. The brief descriptions of artifact types that follow should be read while examining the accompanying photographs and drawings. For comparisons I have, as in the Port Clarence study, relied heavily on Nelson (1899). Other ethnographic accounts and published descriptions of museum specimens are, of course, also utilized.

SEA AND LAND HUNTING

The collection contains nine *ice-hunting harpoons*, six of which vary in length from 147 cm. to 206 cm., measuring from the distal end of the socketpiece to the distal end of the ice pick; the remaining specimens are not complete enough for this measurement to be made. All these harpoons are, or were, similar in construction, consisting of a wooden shaft, a socketpiece of walrus penis bone with sharp shoulders and round or wedge-shaped tangs, and bone (4) or ivory (2) ice picks; the picks are missing from three specimens. Seven harpoons have fixed foreshafts, three of ivory and four of antler, and two have closed socketed harpoon heads of antler with spurred tangs that fit over the distal end of the foreshaft. The socketpieces of all specimens are lashed to the shafts with sealskin line (7), caribou sinew (1), or baleen (1). Four socketpieces have three raised encircling parallel lines at or near the center that serve as grooves for the lashing that holds the foreshaft to the socketpiece (figs. 3-4). Ivory finger rests are present on five specimens. They are fastened to the shaft with sealskin line. Each of the Kotzebue Sound ice-hunting harpoons has a retaining line attached to the socketpiece and the ice pick and fastened to the shaft at one or more places. It has been suggested that this line would prevent the loss of socketpiece and ice pick should they accidentally become detached from the shaft (Bockstoce, 1977, p. 33).

In addition to the ice-hunting harpoons just described, the collection contains 16 *sealing harpoon heads* that are essentially similar. All have closed sockets, central oblong line holes, line grooves that extend downward from the line holes, and metal blades, fastened in place with metal rivets, parallel to the line holes (pl. 1b,p). Ten heads are made of antler, four of bone, and two of ivory. Eight have bifurcated spurs, and two of these have sections of sealskin line attached (pl. 1g; figs. 3 and 4). There are four *harpoon head covers* of tanned sealskin. Two have a single sewn seam, and the other two have no seams (pl. 1j).

Two *socketpieces for ice-hunting harpoons* are of walrus penis bone and resemble those on the harpoons previously described in that they have sharp shoulders and round tangs. They also have similar lashing grooves (pl. 2c), and one has a long foreshaft attached (pl. 3c). This socketpiece and foreshaft combination may have been intended for use with a whaling harpoon head. The collection also contains an ivory *foreshaft* that is longer than any of those

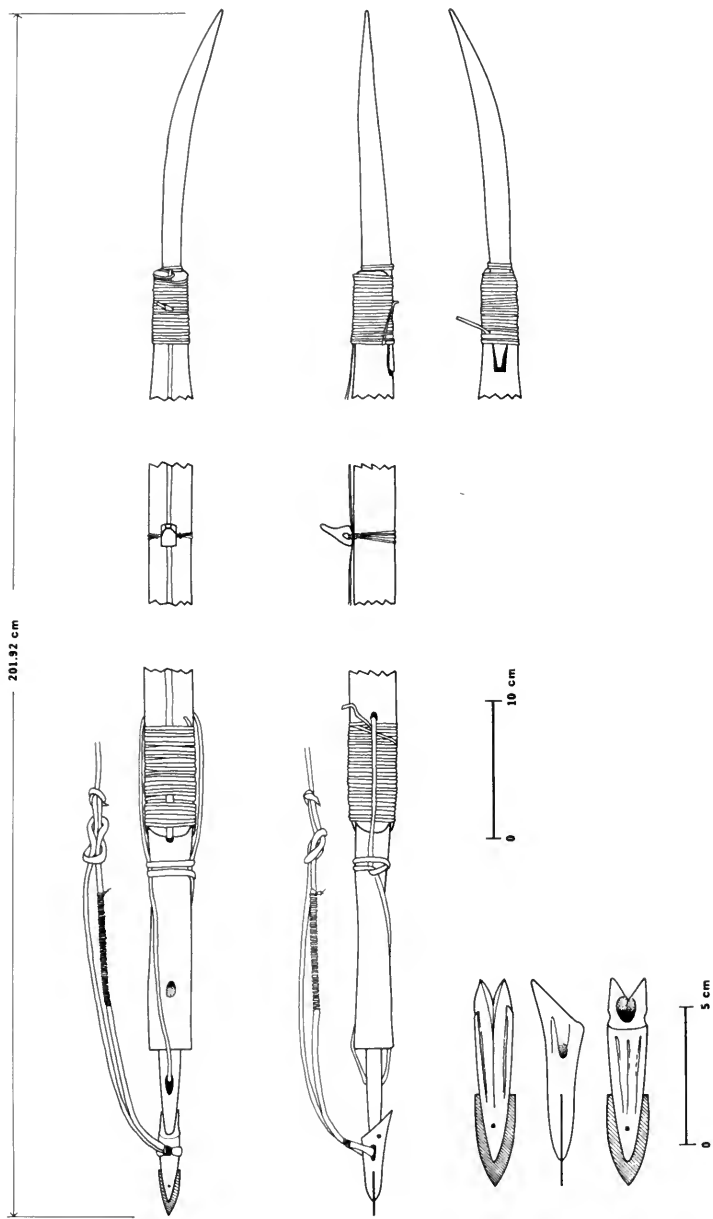


FIG. 3. Ice-hunting harpoon (20140).

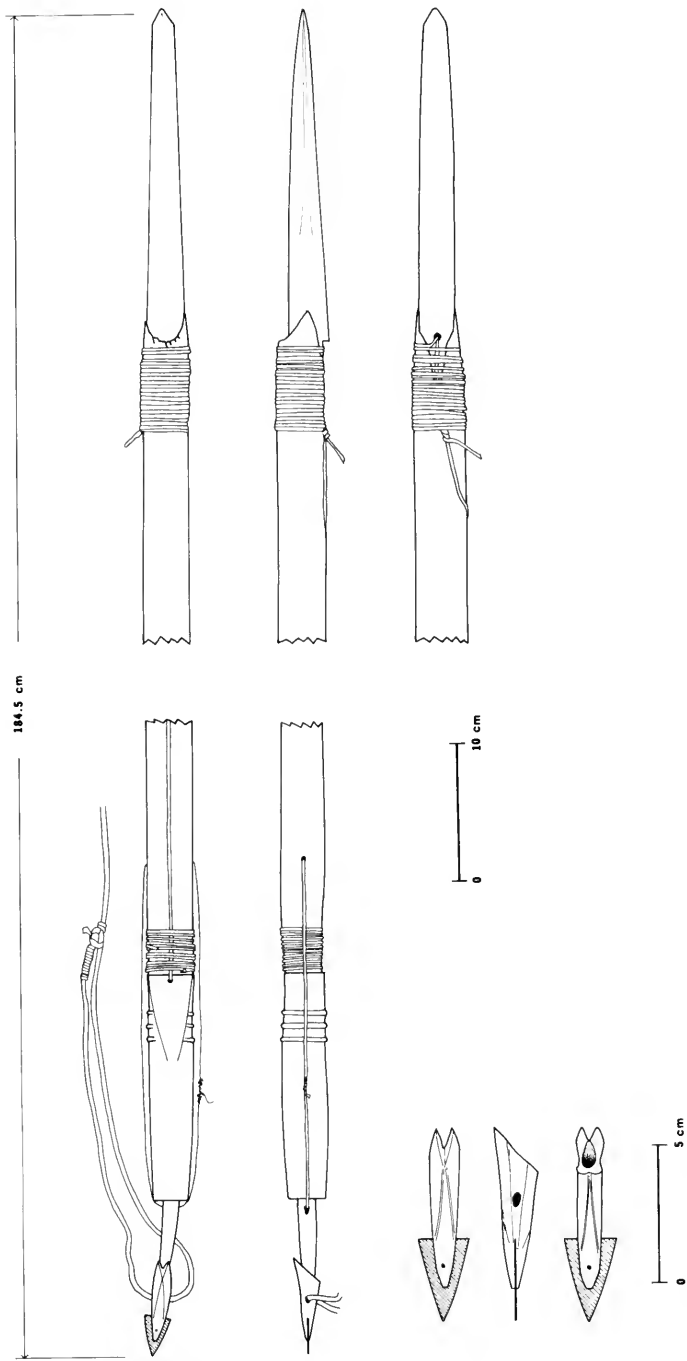


FIG. 4. Ice-hunting harpoon (20144).

on the ice-hunting harpoons but not long enough to have been part of a whaling assemblage. It has a rounded tang and an oblong line hole about two-thirds of the distance from the distal end (pl. 1h). A second foreshaft, made of antler, is much smaller and has a spatulate tang and gouged line hole near the proximal end. This specimen could have been used with a type of sealing harpoon not represented in the collection (pl. 1l).

Sealing harpoon darts in the Kotzebue Sound collection are of two types: those thrown with and without the aid of a throwing board. The former is represented by three specimens measuring 118 cm., 125 cm., and 132 cm. from the distal end of the socketpiece to the end of the shaft. All three have slender, tapered wooden shafts and bone socketpieces with round or wedge-shaped tangs that fit into holes in the shafts and are lashed with caribou sinew. These harpoons have no foreshafts, but on two specimens the small, barbed harpoon dart head fits directly into a slot in the socketpiece. Small plugs of wood in the slots, which would have helped to hold the dart heads in place, are missing from all three specimens. At the proximal end of each shaft are three feathers, of which only the quills remain. At one end the quills are lashed to the shaft with sinew and at the other end they are wedged into narrow slits in the wood. A similar dart collected in Kotzebue Sound by Captain Beechey in 1826-1827 is described and illustrated by Bockstoce (1977, p. 43, fig. 18, no. 37).

The three harpoon darts intended for use without a throwing board are very similar to those just described except that they are somewhat heavier and longer, measuring 149 cm., 163 cm., and 165 cm. They also have symmetrically barbed dart heads that fit into bone socketpieces. The most distinctive differences between the two types are that these specimens have ivory finger rests lashed to the shaft approximately one-third the distance from the distal end and that they lack feathers (fig. 5). Like the harpoons just described, these were used from a kayak. The collection also contains two *harpoon dart heads* similar to those on the sealing harpoons just described.

Throwing boards, which functionally increase the length of the user's forearm, enable bird spears and sealing harpoons to be thrown with greater force by a person seated in a kayak. Nelson (1899, p. 153) noted that among Eskimos living in the vicinity of Unalakleet on Norton Sound the length of a throwing board was equal to the distance from the user's right elbow to the tip of his ex-

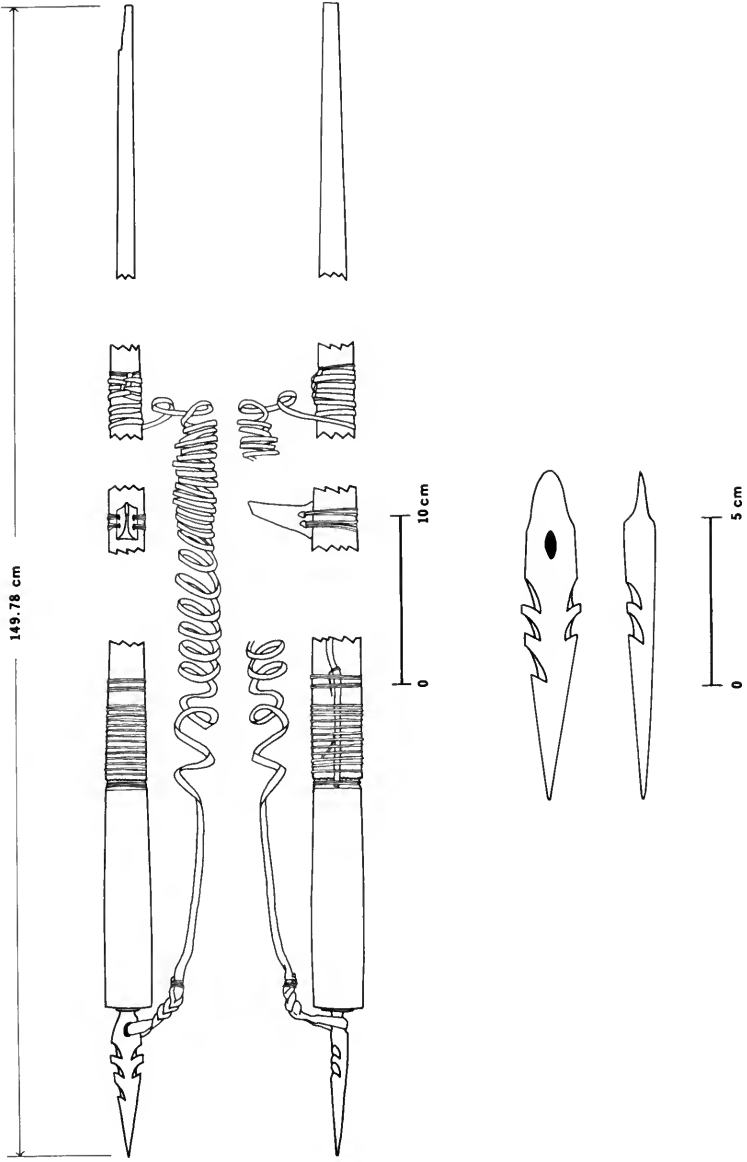


FIG. 5. Sealing harpoon dart (20135).

tended index finger. The nine specimens in the Kotzebue Sound collection, all made of spruce for right-handed individuals, approximate the length mentioned by Nelson. They are grooved on one side, with an ivory tip at the distal end that is morticed into the frame and was inserted into a groove in the butt of the spear or harpoon dart. Each has a hole for the first finger and a grip for the rest of the hand (pl. 2a,e,f). Throwing boards, like skin scrapers, show many slight variations in the design of the grip, since each hunter fashioned this artifact in his own way for his own use. The specimens described here closely resemble two throwing boards that Beechey collected in Kotzebue Sound (Bockstoce, 1977, pp. 44-45, fig. 20, nos. 39-40).

The collection contains two bone *socketpieces* for sealing harpoons, both with threaded tangs and wooden plugs in the distal end to hold the dart head in place (pl. 2b,d). According to informants, the sockets of wooden shafts that received threaded socketpieces were not themselves threaded on the inside. The threads on the socketpiece would be sufficient to keep it from pulling out if the joint was bound with sinew or sealskin lashing.

A single harpoon *finger rest* of ivory has a lashing slot and a concave lower surface to fit over the shaft (pl. 1o).

Two ivory *whaling harpoon heads* have closed sockets with a central line hole and a blade slit at right angles to the line hole (pl. 1i). These heads are the only identified whaling equipment in the Kotzebue Sound collection and may have come from Point Hope or other whaling communities in northwestern Alaska.

There are four *ivory float nozzles* (pl. 1f,k) and a *float toggle* (pl. 1n) that have wide, scored grooves for lashing.

Nelson (1899, pp. 142-144) describes a large number of small ivory blocks, made in a variety of forms, that were used to attach one float line to another or to join lines along the shafts of spears. Eleven such *cord attachers* have been identified in the Kotzebue Sound collection. Some are inset with small round pieces of baleen, engraved with circle-dot designs, or carved in the shape of seals. The illustrated specimens are typical (pl. 1c-e,m).

Seals were also taken in nets in western and northwestern Alaska during the fall and winter (Nelson, 1899, p. 126). The collection contains four incomplete *seal nets* of various lengths. They are made of sealskin, and the mesh is large enough to admit the head of a seal. Belugas could also have been taken in such nets. There is a large

shuttle and a *mesh gauge* used in the manufacture of such nets. The former is 53 cm. long and latter 30 cm. with a gauge 16.5 cm. in length. Aside from their size, they resemble shuttles and gauges used in the manufacture of fish nets.

Two *seal scratchers* (Nelson, 1899, p. 129) of spruce (used to make a noise that attracted seals) are essentially similar in construction. The distal end is divided into two parts that come to a point and over which are fastened seals' claws held firmly in place by sealskin lashing (pl. 1a).

When rifles were used for seal hunting at open leads, the dead animals were retrieved with *seal retrievers*, of which there are three in the Kotzebue Sound collection. These implements, which are not present in other collections of Alaskan Eskimo material culture, consist of a wooden shank that widens and is cone-shaped at the distal end. At the point where the shank widens, three large metal hooks are fixed at intervals (pl. 3a). A sealskin line is attached at the proximal end. When a seal has been killed and is floating at some distance from the shore or the edge of the ice, the hunter swings the retriever and line over his head and throws it in the direction of the floating seal. Ideally, it should land just beyond the seal, and as the float is drawn toward the dead animal, it is given a sharp snap to embed the hooks so that the seal can be drawn in. Such retrievers were observed in use at Point Hope in the 1950's (VanStone, 1962, pp. 32-33) and are still part of a seal hunter's equipment.

Four *clubs* for killing wounded seals are constructed of different materials. The most elaborate has a handle of spruce to which a knob of bone, flattened to fit against the side of the handle, is attached by sealskin lashing passing through two holes in the knob (pl. 3b). A somewhat similar club from Cape Espenberg is described and illustrated by Nelson (1899, p. 127, pl. LII, 2), and another is present in the Bruce Port Clarence collection (VanStone, 1976, p. 11, pl. 7b). The second club is made from a roughly worked section of whale rib 51.5 cm. long that narrows toward the proximal end and is scored around the grip; the third is an unworked walrus penis bone 57.5 cm. long. The fourth club, made from a large walrus tusk flattened at the proximal end, is decorated with two pairs of spurred lines that define the area to be gripped (pl. 3d).

Drag handles, of which there are four in the Kotzebue Sound collection, were used primarily for hauling dead seals over snow and ice. Three specimens each consist of a loop of sealskin line with a seal-shaped ivory toggle handle at one end, with inset eyes of baleen.

One has short lines engraved on the back to represent hair (pl. 4h), and a second has circle-dots engraved in the same position (pl. 4j); the third is plain. Similar drag handles are present in the Bruce Port Clarence collection (VanStone, 1976, pp. 11-12, pl. 6b). In addition to these handles, the collection contains a roll of sealskin *drag line* with a bar-shaped toggle handle attached.

A single pair of *ice creepers* has been made from rectangular blocks of ivory cut so as to form a pattern of pointed "cleats" on one surface (pl. 4k); they have laterally drilled holes at one end. These creepers were fastened to the underside of boots to help the wearer walk on smooth ice with little or no snow cover. Similar ice creepers from the Diomed Islands are described and illustrated by Nelson (1899, pp. 215-216, fig. 69, 1-1a).

Snow goggles prevent snow blindness by restricting the amount of light reaching the wearer's eyes. The collection contains eight pairs, all with spruce frames and two holes drilled at each end to receive a two-strand cord of caribou sinew. Four specimens have a pair of eye slits separated by a narrow, concavo-convex section of the frame that fits over the nose (pl. 4d). A single specimen has a projecting visor above the eye slits (pl. 4c), and on another there is a single slit extending across the front of the frame (pl. 4e). The seventh pair of goggles consists of two pieces joined at the bridge of the nose by strands of caribou sinew (pl. 4b). The eighth is unique, having round eye holes with lenses of window glass (pl. 4a). It is difficult to imagine how these would function to restrict light. On the inside of all the goggles the area around the slits is blackened, possibly to suppress glare (Bockstoce, 1977, p. 65); the outsides of all specimens show traces of red paint. In addition to the snow goggles just described, the collection contains two *eyeshades*, each consisting of a semicircular piece of tanned sealskin with a strap of the same material inserted into slits on each side of the shade (pl. 4g).

Although Alaskan Eskimos were noted for their manufacture of excellent sinew-backed *bows*, none of the nine specimens in the Kotzebue Sound collection are of this type. Instead, they consist of a length of flattened spruce exhibiting a single curve, slightly narrowed in the middle where they are grasped in the hand and again toward the tips, where they are notched to receive the string. Only two specimens have strings, both of twisted multistrand caribou sinew. All are approximately 140 cm. to 150 cm. long.

In spite of the absence of sinew-backed bows, the collection contains four *sinew twist*ers that would have been used to adjust the

tension of the sinew backing cables of such bows. They are rectangular bars of ivory with slightly projecting lips at each end on opposite sides and small holes drilled at or near their centers. Two specimens have bands of spurred line decoration at each end (pl. 4i), and one has a shallow incised groove running the length of both sides (pl. 4f).

Seven *arrows* with spruce shafts were presumably used for hunting large game or possibly for war. The heads of two of these specimens are of antler, one is of ivory, and three are of metal. The antler and ivory heads are notched along one side, have round or wedge-shaped tangs that fit into the distal ends of the shafts, and are lashed in place with sinew (pl. 5b). The metal heads are crudely made from spikes or large nails. One is flattened and barbed at the tip (pl. 5f), but the other two are simply flattened and sharpened in this area (pl. 5a). Sinew lashing also holds the metal heads in place. At the proximal end of five of these arrows are three feathers with one side of the plume removed and the butt pointing toward the tip. These feathers, which are in poor condition, are lashed to the shaft at each end with sinew. The feathers are completely missing from two arrows. According to informants, duck and ptarmigan feathers were frequently used for arrows, although almost any kind of feather could be used. Paired bands of red paint on two specimens could be ownership marks. The collection also contains a simple ivory *arrowhead* 10 cm. in length, barbless and with a plain conical tang.

A single *bird arrow* has a blunt head notched around the edges and a split tang that fits over the wedge-shaped distal end of a spruce shaft; it is lashed in place with a strip of sealskin. This specimen has only one remaining feather, which is attached to the shaft in the manner just described (pl. 5c).

There are also five *blunt arrowheads* from which extend short sections of shaft, apparently cut down by the collector to ease packing and transporting. Three are of ivory, notched around the edges; they fit over the ends of the shaft fragments. One of these is decorated with spurred lines (pl. 6d). The fourth is made of antler, slightly notched around the edges, and has a split tang that fits over and is fastened to the shaft fragment in the same manner as the head on the complete bird arrow (pl. 6c).

In addition to the complete arrows just described, the collection

contains 11 *arrow shafts* without heads and with feathers in varying stages of disrepair.

A *lance* with a short, twisted shaft of spruce has a point of gray chert lashed to the short shaft with two-strand braided caribou sinew (pl. 6b). Nelson (1899, pp. 145-146, pl. LVb, 5-6) describes and illustrates similar heads used on Nunivak Island and in the Yukon-Kuskokwim delta. Presumably this specimen was traded into the Kotzebue Sound region. There is also a *lance blade* of gray chert that is larger than the blades of the specimens previously described and may be a knife blade. It has a wide, oval tang (pl. 6j).

Three wooden containers have been identified as *boxes for harpoon or lance blades*. The largest is seal-shaped with a tight-fitting, oval lid (pl. 6a). The other two are shaped somewhat like a whale's head. One has a sliding lid and a groove around the center for a line (pl. 6h). The other has a flat lid with a length of sealskin line running through three holes in both the lid and the body of the box (pl. 6g).

Two *slingshots* are virtually identical, each consisting of a diamond-shaped piece of tanned sealskin, slit horizontally down the center, to each end of which lengths of line of the same material have been attached by braiding. The opposite ends of the lengths of line are attached to a small loop of caribou skin into which the projectile was fitted (pl. 6i).

Three *bolas*, one with seven weights including stones and walrus teeth (pl. 6e) and the other with eight weights made from sections of sawed ivory, were used for killing ducks in spring. The weights are attached to lines of two-strand caribou sinew on two specimens and sealskin line on the third, all approximately 60 cm. long. These in turn are bound together at the proximal end with clusters of duck feathers. According to informants, the number of weights is not significant, but the "tail" of feathers is, because it helps the weights spread out in flight. In addition to the complete bolas, there are 16 unstrung *bolas weights*, two of bone, two of walrus teeth, and the rest fashioned from pieces of ivory.

Birds were also taken with the three-pronged *bird spear*. The collection contains three examples of one form of this type of spear. Each consists of a wooden shaft with a long point barbed along one side. The points on two specimens are bone, and that on the third is ivory. All have wedge-shaped tangs that fit into the split distal end of the shaft and are lashed with caribou sinew. Set in the shaft about one-third to one-half the distance from the tip are three antler

prongs that are lashed equidistantly around the circumference of the shaft with their barbed points extending outward to form a triangle. These spears were thrown with a throwing board. The side prongs functioned to catch the wings of birds. The illustrated specimen is the shortest of the three. Its shaft is painted black for approximately 11 cm. at the proximal end (fig. 6A). The other two bird spears are 153 cm. and 156 cm. long.

In addition to the complete bird spears, the collection contains four *side prongs*, three of antler and one of ivory (pl. 7k), and a *bird spear point* of antler. The spear point is barbed along one side and has a wedge-shaped tang (pl. 7h). There is also a set of three wooden *covers for fish or bird spear prongs* attached to each other with sealskin line (pl. 7q).

Another device for taking birds was the *gorget*, a piece of antler sharpened at each end and with a groove in the center. There are two of these in the collection, each with a length of two-strand braided grass attached (pl. 7i). Such hooks were embedded in a piece of fish or meat that was then swallowed by a bird, the grass line being fastened to an anchor. When the bird attempted to fly away, the gorget turned in its throat, preventing escape.

The collection contains four sets of *bird snares*, three of which are tightly rolled and are too fragile to be examined for detailed description. The fourth consists of a strip of baleen approximately 2 m. long along which are placed at regular intervals a series of nooses made of the same material (pl. 8b). These snares resemble specimens described and illustrated by Nelson (1899, p. 134, pl. LI, 1) as used for catching ducks and other waterfowl near the grassy borders of lakes. The line of snares, fastened to stakes at each end with a sealskin line, was set just above the surface of the water so that the nooses floated on the surface among the grass and weeds. The method of operation of such a set of snares is depicted on a mammoth tusk from Unalakleet in the Royal Ontario Museum engraved in 1899, probably by the Eskimo artist Joe Austin Kakarook (VanStone, 1963; Ray, 1977, p. 236).

Four *ptarmigan nets* consist of a fine mesh of two-strand braided caribou sinew approximately 5 m. long and 20 cm. wide with wooden spreaders at each end and in the center (pl. 8a). Similar nets from the St. Michael area are described and illustrated by Nelson (1899, p. 132, pl. LI, 9). They are used in spring when the male birds defend their territory against intruders. The hunter sets up the net

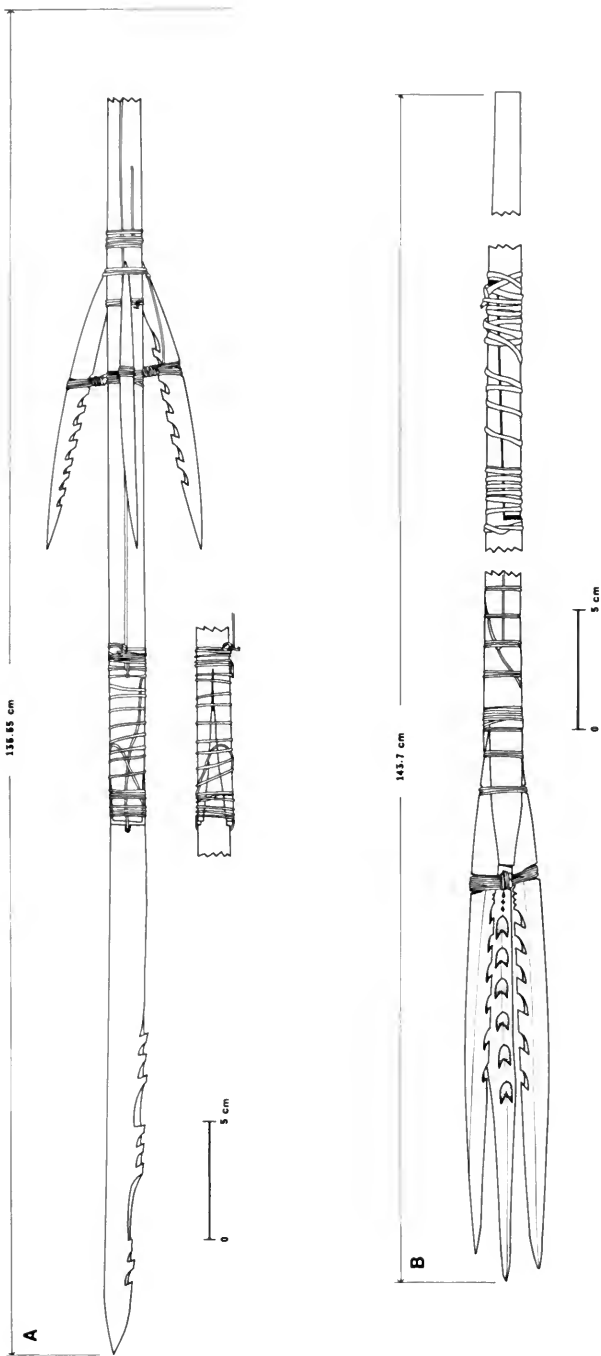


FIG. 6. A, Bird spear (20129); B, Fish spear (20130).

and a decoy consisting of a crudely stuffed ptarmigan skin near an aggressive bird. He then conceals himself and makes a noise like one ptarmigan challenging another. The aggressive bird runs toward the decoy and is caught in the net. The hunter then takes up his net and moves to the vicinity of another bird. The netting of ptarmigan is also shown on the Unalakleet mammoth tusk mentioned on page 30 (VanStone, 1963).

There are about 55 *ground-squirrel snares* of the type described and illustrated by Nelson (1899, p. 124, pl. LI, 4). The number is approximate because some snares are incomplete and badly tangled. The noose, made of baleen or sealskin, passes through a small wooden or bird-bone cylinder (pl. 7g,j). At one end of the cylinder a small block of wood is tied crosswise. This type of snare was fastened to the end of a bent willow or alder stick and hung over a ground squirrel's runway (see VanStone, 1963). The cross stick serves as a trigger, and the animal is caught when the bent stick springs upright.

There are 11 *powder flasks and pouches* in the collection, the five pouches being made of single pieces of tanned sealskin folded and sewn together. All have stoppers made from .44-caliber center-fire cartridge cases secured with strands of caribou sinew (pl. 7f,n). Of the six flasks, three are made from hollowed sections of caribou antler and have wooden bottoms held in place with pegs of the same material. The necks are also of wood, and two specimens have stoppers made from .44-caliber center-fire cartridge cases (pl. 7b,c). Two flasks are made entirely of wood and lack stoppers (pl. 7a), and the sixth has an ivory neck, a brass or copper body and stopper, and a wooden bottom. The ivory portion is decorated with incised, spurred lines (pl. 7e).

Four small boxes, three of wood and one of antler, are tentatively identified as *containers for percussion caps*, although some could have been intended for needles, small trinkets, or even tobacco quids. Two small containers are shaped like miniature powder flasks and have tight-fitting wooden stoppers (pl. 7l,o). A somewhat larger specimen of the same general shape may actually have been a flask. It has a wooden stopper and is fluted on the outer surface (pl. 7d). The only antler container has a top and bottom of wood that are flush with the surface of the antler body (pl. 7m). Similar boxes similarly identified are described and illustrated by Nelson (1899, pp. 163-164, pl. LXIII, 4-6, 17).

A *bullet mold* has wooden handles, and the mold itself, consisting of two halves, is made of schist. Each half has been hollowed out on one surface in the form of half a small musket ball. There is a conical hole at the top through which lead is poured into the mold (pl. 7p). Another mold without its fittings is also made of schist.

Two *reloading tools* consist of two pieces hinged at the top. One piece, which has a third section lashed to it to provide greater depth, has a round hole to receive the cartridge case. Opposite the hole in the other piece is a tamper made from a fragment of a thick nail. The hinged pieces of one specimen are made of antler and bone, and those of the second are of ivory. The third sections on both specimens are made of antler (pl. 7r).

FISHING

The major methods of taking fish, with nets and by hook and line, are represented by specimens in the Kotzebue Sound collection. The single complete *dip net* has a hoop of willow with beveled ends that overlap and are bound together with sinew. The ivory handle is notched to fit over the hoop and is held in place with an ivory peg. The net is approximately 1 m. deep, made of twisted sinew cord, and is fastened to the hoop by a spiral wrapping of sealskin cord. The mesh is approximately 1.5 cm. square (fig. 7). The collection also contains the mesh for a shallower net of the same type. According to informants, such nets were used for whitefish or for any kind of fish running in great numbers in small lakes and sloughs. They were also frequently held at the opening of weirs or traps in winter.

Large-mesh *gill nets for salmon* are represented in the collection by one complete and two incomplete specimens. The complete net is made of single-strand sinew cord, and the mesh is approximately 4 cm. square. There is a row of oval wooden floats attached at intervals along the top and a similar row of crescent-shaped whale-bone sinkers along the bottom. The length and width of this net, together with the exact number of floats and sinkers, cannot be determined with certainty because the specimen is too fragile to be unrolled. The two fragmentary nets are made of braided willow root and lack sinkers and floats. The mesh on both specimens is approximately 4.5 cm. square. Nets of this type were set out perpendicularly from shore or operated as seines in the manner described by Nelson (1899, p. 126).

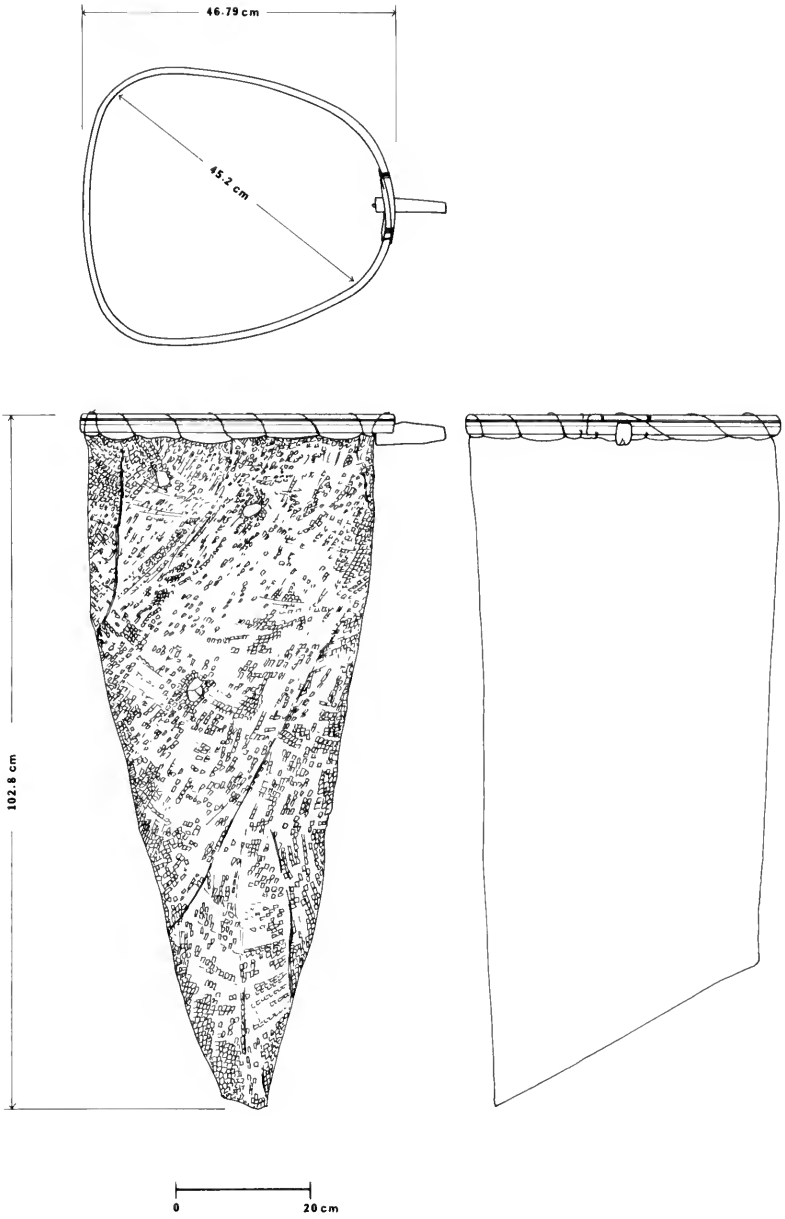


FIG. 7. Dip net (20799).

A complete net that may have been used as a *herring or whitefish seine* is approximately 6 m. long and 60 cm. wide, made of sealskin cord. The mesh is approximately 2.5 cm. square. In use it would have had wooden floats and stone or antler sinkers along its entire length, with wooden stretchers at each end.

There are 20 *net shuttles* in the collection, 16 of wood and four of bone. All have wedge-shaped notches at each end and are grooved their entire length on each side. The illustrated specimens show the range in size, the larger shuttles being used in the manufacture of large-gauge nets (pl. 9a-g). Eight shuttles contain varying amounts of netting material made from braided willow root (pl. 9a,b,g).

Used together with shuttles in the manufacture of nets are *mesh gauges*, of which there are 21 in the collection—four made of antler, two of bone, nine of wood, one of ivory, and four of a combination of wood and ivory. Of the four antler specimens, one is particularly well made, the handle having notches carefully made to fit the fingers (pl. 10k). Another, made from a broken shuttle, is relatively narrow at the distal end and was probably used to construct dip nets (pl. 9i). The two bone gauges are both double-ended and of approximately the same size at each end (pl. 10o). The ivory specimen was probably made from another implement, the original nature of which cannot now be determined; it has spurred line ornamentation (pl. 9j). The gauges made of wood vary somewhat in size and have grooved or notched handles (pls. 9b,l; 10j). The composite specimens vary considerably, and thus all are illustrated. Three have wooden handles and ivory gauges with sinew or spruce root lashing (pls. 9h,k; 10m), and the fourth is all wood except for a small ivory section along the inner edge of the gauge (pl. 10l).

A second type of mesh gauge that is completely different in form from the others is represented by two specimens. One is made of antler, and the gauge projects from the handle at a right angle (pl. 10i). The second is similar in shape and size, but the gauge is of ivory and hafted with sinew to a wooden handle (pl. 10h). A mesh gauge virtually identical to these two is described and illustrated by Nelson (1899, p. 191; pl. LXXII, 1).

The only *fish spear* in the collection has a long, two-piece wooden shaft and is three-pronged at the distal end (fig. 6B). The three antler prongs are barbed on their inner sides, and their proximal ends fit into notches in the shaft, to which they are lashed with sinew. The prongs are also grooved for lashing near their proximal ends and are lashed together just above the distal end of the shaft.

A single arrow is identified as a *fish arrow* on the basis of its resemblance to similar specimens described and illustrated by Nelson (1899, pp. 160-161, fig. 44). It has two barbs of equal length, each with a single barb on its inner edge, set into opposite grooves in the shaft and lashed with sinew. At the proximal end are three feather halves, their ends secured to the shaft with sinew lashing (pl. 5e).

Three ivory implements pointed at one end and with holes near the center are identified as *netting needles* on the basis of their resemblance to specimens described and illustrated by Nelson (1899, p. 192, pl LXXIII, 1-4). They were used to mend the broken meshes of nets (pl. 10n).

Two antler specimens are identified as *tips for tomcod rods*. Both have rectangular gouged holes, are notched at the distal end, and have thin, wedge-shaped tangs (pl. 10e).

Fishing with hook and line is also represented by 35 *lurehooks*, six of which have sinkers attached; the remaining 29 consist of the lurehook alone or with a leader. Of the more or less complete assemblages, four have bone sinkers, one sinker is of stone, and one of ivory. All have holes at each end for attachment of the line and leader. The leaders of two specimens are made from feather quills, three are of braided sinew, and one is of string. All have hooks with bone, antler, or metal shanks and, with one exception, single metal barbs made from sharpened nails. The exception has four barbs extending from the distal end of a straight antler shank (pl. 10g). Two specimens have pieces of red cloth fastened to the barbs to attract fish, and the specimen with multiple barbs has pieces of colored cloth attached to the leader. All six of these hook-and-sinker assemblages are illustrated to show variations (pl. 10a-d,f,g). With one exception, all would have been used to take small fish such as tomcod and sculpin. The single specimen with a larger barb (pl. 10a) may have been intended for grayling or salmon trout.

Of the lurehooks without sinkers, 19 are for larger fish such as salmon trout and grayling. All have shanks (17 of ivory or fossil ivory, two of bone) that are more or less fish-shaped and have metal barbs made from sharpened nails. Fish eyes in the form of metal, fossil ivory, or baleen insets at the distal ends of the shanks are found on all but two. Five specimens have leaders or fragments of leaders attached to the proximal ends of the shanks. All these leaders are made from thin strips of baleen doubled and wrapped

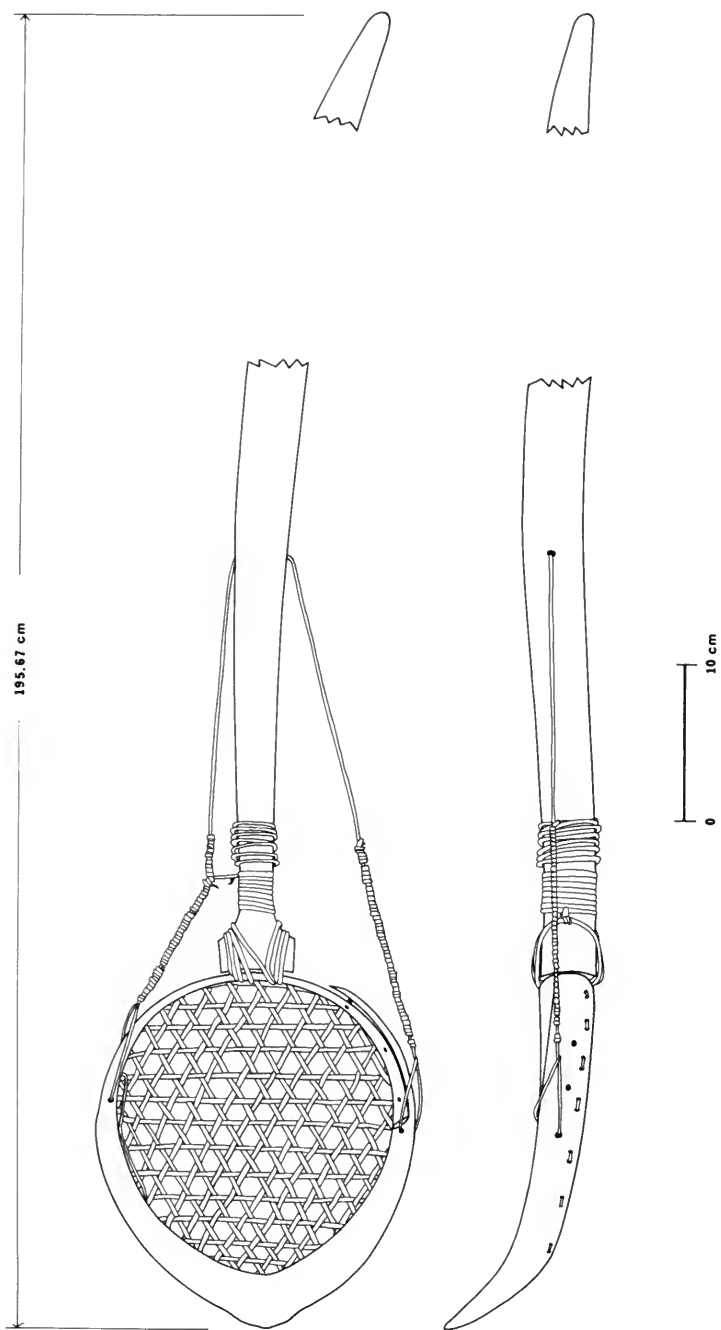


FIG. 8. Ice scoop (20154).

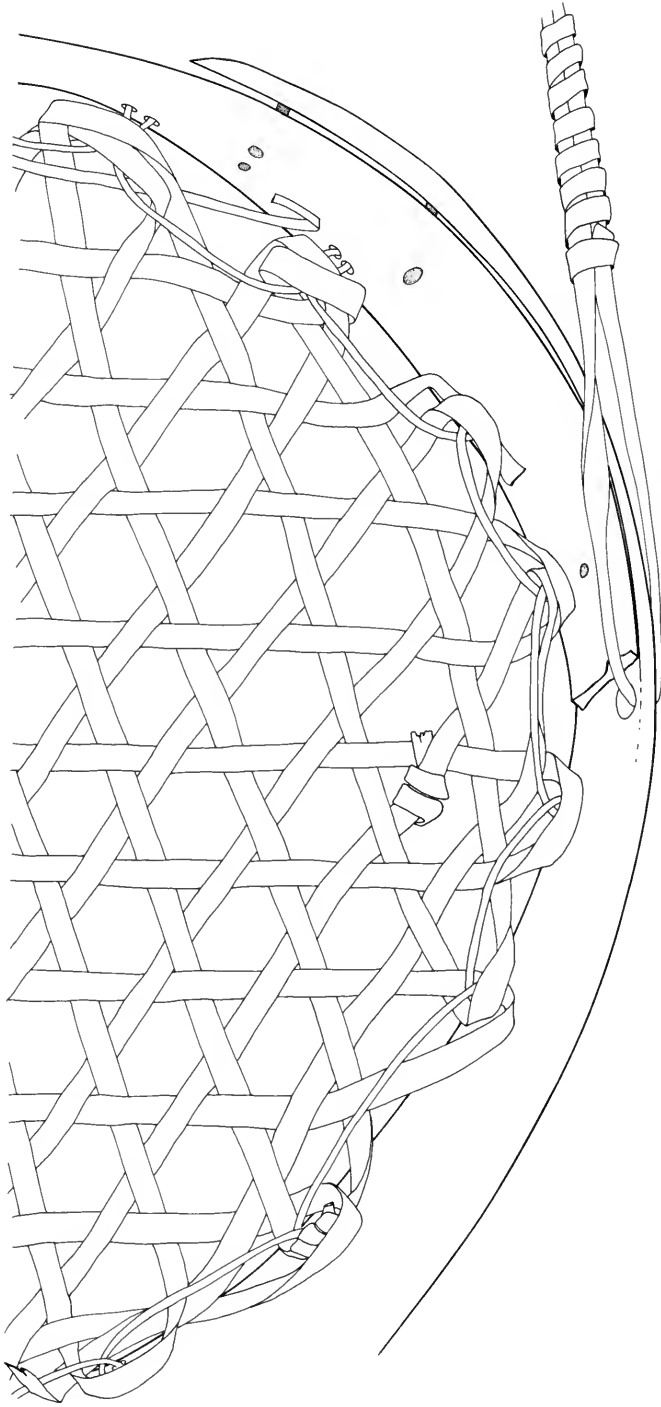


FIG. 9. Ice scoop (20154).

with sinew (pl. 11h-j). Three lurehooks have small pieces of red cloth attached to the barb to attract fish. The illustrated specimens show a range of sizes and shapes (pl. 11g-j,p-t).

Ten small lurehooks were presumably used for taking small fish such as tomcod or sculpin. Like the larger specimens just described, these have fish-shaped shanks and single metal barbs. The shanks of seven specimens are of ivory, two of which have inset metal eyes (pl. 11k,l). The other two have small pieces of lead inserted through slits in the shanks to give added weight and to help hold the hook upright in the water (pl. 11o).

The collection contains 18 *sinkers* that have neither hooks nor leaders attached; three are of bone, five of stone, and 11 of ivory. The three bone specimens, all of which are illustrated, are the largest (pl. 11a,b,d). Four of the stone specimens are of a multicolored serpentine and serve as lures (pl. 11e,m). The fifth, of a soft, reddish stone, has an ivory cap fitted over the proximal end and held in place with a bone rivet (pl. 11u). The ivory sinkers are the most fish-shaped. All have inset eyes of baleen or glass beads, and three are weighted by small pieces of lead that fill drilled holes. The illustrated specimens are typical (pl. 11c,f).

A single *ice scoop* for removing freshly formed ice from holes cut for fishing consists of an antler rim bent into a circle, with the overlapping ends pierced and fastened together with antler pegs and sealskin lashing. The upper edge of the rim comes to a raised point in front. Along the lower edge are pairs of drilled holes through which pass the baleen strips that form the netting across the bottom. The rim is lashed to the spruce shaft with sealskin lashing, and in addition there are two supporting lines of sealskin, one on each side of the shaft, attached to the rim (figs. 8, 9).

TOOLS AND MANUFACTURES

The Kotzebue Sound collection contains one incomplete *adze*. This specimen has an antler handle and had a bone blade lashed to the handle with sealskin lashing (pl. 12j). The blade, which is missing, was lashed to the flat surface of the distal end of the head, which is scored in this area to make hafting easier.

All six *adze blades* in the collection appear to have been made for types of adzes different from the one described above. Four specimens, three made of jade and the fourth of a fine-grained schist, are large and could have been hafted directly to handles (pl.

12a,b). The other two, both made of jade, are smoothly ground only in the vicinity of the working edge and narrow at the proximal end for insertion into a socketed adze head (pl. 12c,d). Jade comes from only one place in western Alaska, near the village of Shungnak on the Kobuk River, not far from Kotzebue Sound. Although traded widely and used extensively for knife and adze blades, it is a difficult material to work.

A small cast-iron fragment with a round, threaded projection at one end has been lashed to a slotted wooden handle with sealskin lashing to serve as a *hammer* (pl. 12e). The threaded projection, which serves as the striking surface, is flattened from use.

A single *root pick* has a flat wooden handle with two projecting knobs near the proximal end to aid in grasping it with the hand. The pick is made from a section of walrus rib that is held in position against the concave surface of the handle by walrus-hide lashings that run through holes (pl. 13a). According to Nelson (1899, p. 75), picks like this one were used by women to dig roots of a species of grass common on the tundra in the coastal areas of western Alaska.

Similar to the root picks are two *mattocks*, both with flat wooden handles to which blades are fixed with walrus-hide lashing. The blade of one specimen appears to have been made from an unfinished section of bone sledge runner (pl. 13b); that of the other is a section of fossil mammoth tusk (pl. 13c). The bones and tusks of mammoths frequently erode from Pleistocene deposits along the coast on the Baldwin Peninsula and south of the Kotzebue Sound area. Mattocks like these may have been used to cut blocks of sod for house construction. In addition to the complete root pick and mattocks, there is one *mattock or root pick handle* similar to those on the illustrated specimens.

The collection contains nine *end-bladed knives*, six of which have angular metal blades and were probably used as scoring or etching tools. Two of the specimens in this category have composite antler handles, and the blades are held in place by metal rivets; one is provided with a sealskin cap that covers the blade (pl. 12i). On three of these etching tools, two with wooden handles and the third with a handle of antler, the blade is secured with sealskin lashing (pl. 12g,l). The sixth specimen has a carefully finished antler handle into which a metal point is firmly wedged (pl. 12f). Of the remaining three end-bladed knives, two have small metal blades and handles made from sections of antler tine (pl. 12k). They may have been used as etching tools or possibly for cutting skins. The third is identified in the

catalog as a "fish scaling knife" and is, in fact, encrusted with fish scales. It has a chert blade that is inserted into a slotted wooden handle and held in place with sealskin lashing (pl. 12h). Similar knives from the Kotzebue Sound area were obtained by Nelson, who noted that they were still in use at the time he collected them (Nelson, 1899, p. 171, pl. XLVII). Knives and scrapers with blades of chipped chert occur in other collections of Eskimo ethnographic specimens from northwestern Alaska (Murdoch, 1892, p. 164, fig. 127; VanStone, 1976, p. 22, pl. 18h), and the material may have remained in use longer in this region than in most other areas of North America. The collection also contains one *end-bladed knife blade* of slate.

The most common form of *side-bladed knife* in the Kotzebue Sound collection is the so-called crooked knife, all nine of which have antler handles riveted to curved metal blades. The illustrated specimens show the range in size (pl. 14a,b,d-f). One knife has a sealskin sheath (pl. 14a), and the handle of another is wrapped with spruce root (pl. 14d). According to Nelson (1899, p. 85), the crooked knife was used for finishing all kinds of woodwork and was the principal tool used in making boxes and other household items as well as items of material culture associated with subsistence and transportation.

Another type of side-bladed knife has a small metal blade set into the side of a section of antler tine (pl. 14c). This implement may have been used for engraving or etching wood, bone, antler, or ivory.

An ivory *arrow-shaft straightener* has one end shaped to represent the head of an animal, probably a caribou. Recessed eye sockets at one time probably contained beads; one surface is decorated with parallel incised, spurred lines (pl. 14h). The identification of an antler specimen is very tentative. It is pointed at one end and has a large oval opening at the other (pl. 6f).

The six sealskin *knife cases* in the Kotzebue Sound collection do not seem to have been made for any of the previously described knives, with the possible exception of the fish scaling knife. They consist of rectangular sections of sealskin, folded and with the sides stitched together with thread made of caribou sinew. At intervals along one side are sewn loops of sealskin. The illustrated specimen is typical (pl. 14j).

The collection contains three *ulus*, or women's knives, each of which is made of a different combination of materials. One specimen

has a rectangular scored bone handle that fits directly over the proximal end of a large, semilunar shale blade (pl. 14i). A much smaller specimen has a curved ivory handle and a metal blade (pl. 14g). The third ulu, heavily encrusted with fish scales, has a wooden handle and a thick chert blade (pl. 15k).

There are also five *ulu blades*, four of which are complete. Two shale specimens are flat across the top and do not exhibit the narrowing at the proximal end that is characteristic of the complete ulu with a blade of shale (pl. 15h). Two blades of jade also have flat tops (pl. 15l). An unusual type of blade is of chert and is extremely thick, with a pronounced rectangular tang; it could have been used unhafted (pl. 15g).

Six bone implements with spatulate working ends have been identified as *chisels* on the basis of descriptions and illustrations in Nelson (1899, pp. 86-87, pl. XXXVIII, 12-15). All appear to have been made from caribou metapodials, and each has a suspension hole and sealskin thong at the proximal end (pl. 15a,b). According to Nelson, such implements were used to incise grooves in wood preparatory to splitting. Informants, however, identified these implements as bark removers, and they do resemble one such specimen illustrated by Nelson (1899, pl. XXXVIII, 17). It is possible that the same implement could have been used for both purposes.

A single *awl or bodkin* is sharply pointed at one end (pl. 15c). Such implements were used to make holes for stitching.

A wooden handle with a long, narrow blade slit is identified in the catalog as a "*saw handle*" (pl. 15j). It is notched at the end intended as a grip and doubtless had a narrow, toothed metal blade. Such an implement would probably have been used for working ivory.

Implements associated with the bow drill are well represented in the Kotzebue Sound collection. There are five wood *drill mouthpieces*, three of which have stone insets (schist or a fine-grained porphyritic material) with holes to receive the proximal end of the shank. The insets on two specimens are of metal. Informants emphasized that there was considerable variation in the shape of mouthpieces, as there is in skin scrapers and throwing boards, because each implement was made to fit the special requirements of its user (pl. 15d-f). In addition to the complete drill mouthpieces, there is a single inset of fine-grained porphyritic material (pl. 15i). It has a larger hole than the complete specimens.

Ten *drill shanks* vary in length from 22 cm. to 42 cm., and the il-

illustrated specimens (pl. 16b,c,e-g) show the range in variation. All but one of the shanks have metal drills made from a nail flattened and sharpened at the point and inserted into a hole in the distal end of the shaft; sealskin lashing has been used on three specimens. One shank has a reinforcement piece made from a rifle cartridge case cut down and fitted over the distal end (pl. 16e). On another the metal point is fitted into a bone socketpiece with a split tang; sealskin lashing holds the socketpiece in place (pl. 16g). The tenth drill shank has a chert point that fits into a slot in the distal end and is lashed in place with caribou sinew (pl. 16c). All specimens have small knobs or taper at the proximal end to aid in seating them in the hole of a drill mouthpiece.

The three *drill bows*, two of wood (pl. 16a) and one of ivory (pl. 16j), are similar in size and construction. Each has a hole at each end for a sealskin line.

By far the largest category of artifacts in the Kotzebue Sound collection is *skin scrapers*. There are 41 specimens, divided into four types on the basis of specific function. They will be discussed in the order in which they were used during the preparation of skins.

Type 1 scrapers, of which there are three, were used for the preliminary removal of fat from animal skins. One consists of a rectangular strip of antler sharply bent, with its opposite ends joined by a wooden strip wrapped in sealskin lashing; one side has been sharpened to form a working edge (pl. 16d). Similar specimens from Sledge Island and Port Clarence have been described and illustrated by Nelson (1899, p. 115, pl. L, 7) and VanStone (1976, p. 22, pl. 18i). The second specimen is a circular section of ivory sharpened along one side (pl. 16h) and is similar to specimens from Port Clarence (VanStone, 1976, pp. 22-23, pl. 18f,g). Identification of the third type 1 specimen must be considered tentative. It is a rectangular section of ivory, spatulate at one end (pl. 16i). Of greater interest than its shape is the fact that it is one of the few decorated specimens in the collection. On the concave surface are two bands of etched designs in the modified engraving style (Ray, 1969, p. 16), depicting a house and an elevated cache, an umiak on a rack, dog teams and drivers, and seal hunters.

After a caribou or seal is skinned and the excess fat removed, the skin is tightly wrapped with the hair on the outside and stored until there is time to work on it. If the hair is to be removed from a sealskin, the type 2 or 3 scraper is generally used, the former being

considered faster and more efficient, according to informants. The Kotzebue Sound collection contains two type 2 scrapers, one of which is made from a caribou metapodial that has been cut in a lateral plane and sharpened along two edges (pl. 17b). This type of scraper has been recovered archaeologically in the Kotzebue Sound area from a site occupied during the fifteenth and sixteenth centuries (Giddings, 1952, p. 68, pl. XL, 9-10; VanStone, 1955, p. 108, pl. 10, 7). Identification of the second type 2 scraper, which is incomplete, is less certain. It consists of a curved wooden handle with a blade slit for a metal or slate blade running the entire length of the concave surface. At each end are lashing grooves (pl. 17a).

If the skin is to be prepared with the hair on, the type 3 or "pipe" scraper is used to remove the inner skin. The collection contains 17 scrapers of this type, all with wooden handles. The handles of 13 specimens are, in varying degrees, shaped to fit the hand (pl. 17d,e,g,i,k), and those of the remaining four are straight (pl. 17c-f). According to informants, the specimens with straight handles were used for very hard, dry bull caribou skins. All these scrapers were fitted with circular, pipe-shaped pieces of metal, although this fitting is missing from four specimens. One of the straight-handled scrapers is fitted with a short section of a 10-gauge, double-barreled shotgun barrel (pl. 17f). The metal blades are held in place either with sealskin lashing or by a tight fit of the blade over its wooden handle.

After the inner skin is removed, the final preparation takes place. The hide is soaked in water and then, to make it soft and pliable, it is scraped with the type 4 skin scraper, which has a chert or slate blade. There are 20 of these scrapers in the Kotzebue Sound collection, 15 with wooden handles and five with handles made of ivory. The handles of all specimens are carefully shaped to fit the hand, with deep grooves for the thumb and fingers; unfortunately, the blades are missing from all but four. The illustrated scrapers show the range in variation, which is considerable because each one must fit the requirements of the user (pls. 17h,j; 18a-d).

Ten objects have been identified as *scraper blades*, although this identification is by no means certain in most cases. Many of these blades, of which four are slate and the rest chert, could have served as adze blades. Of the illustrated specimens, the two of chert (pl. 18e,h) seem rather large to have fitted into the handles of the type 4 scrapers previously described. The slate blades, however, are the proper size for these handles (pl. 18f,g).

There are seven *flint flakers* in the collection, used to make scraper blades and other artifacts of chert. All have curved handles, six of antler and one of wood, grooved to receive a rodlike section of bone that extends slightly from the distal end and is lashed in place with sealskin lashing (pl. 18m) or twine (pl. 18l). The flaking rods are missing from three specimens. Similar flint flakers from the Kotzebue Sound area are described and illustrated by Nelson (1899, p. 91, fig. 26, 2-5).

The collection contains three *berry crushers* of wood that are flattened and grooved at the distal end (pl. 18i). Informants stated that such crushers were used for greens as well as berries and served as stirring spoons to distribute them evenly in a container as the juice was being extracted.

For crimping the sealskin soles of boots, small sharp-edged, flat, pointed *boot-sole creasers* are used. The nine specimens in the Kotzebue Sound collection are made from canid ulnas, most likely from dogs. All have suspension holes in the proximal end to which, on four specimens, sealskin thongs are attached. The illustrated specimens (pl. 18j,k) resemble a creaser from Kotzebue Sound described and illustrated by Nelson (1899, p. 108, pl. XLIV, 51).

An implement with a straight wooden handle to which is lashed an antler point is described in the catalog as a *thong stretcher* (pl. 19i). Such an implement might have been used to loosen the lashings used in sledge construction or to fasten boat covers to their frames.

Also tentatively identified are seven antler combs possibly used in making thread from sinew. Five specimens have widely spaced teeth at one end (pl. 19c,e), and two are round with teeth at each end (pl. 19f). According to informants, the latter form was sometimes used to thin the hair of winter caribou skins. The implements were used like a brush and pulled toward the user. *Sinew shredders* that somewhat resemble these specimens are described and illustrated by Nelson (1899, pp. 110-111, pl. XLVIIIa, 1, 3, 6).

HOUSEHOLD EQUIPMENT

Two-piece wooden *buckets* in the Kotzebue Sound collection are represented by seven specimens, of which two are round and the rest oval. These buckets vary considerably in size and had a variety of domestic uses. Primarily they were containers for urine, water,

seal oil, and berries. They could also be used for cooking with hot rocks. The rocks were heated in a fire and put into a water-filled bucket until the water was too hot to touch. Then pieces of meat were added and more hot rocks put in until the meat was cooked.

The sides of these buckets are made from a single piece of thinly split wood that was softened by soaking in water. It was then bent, and the overlapping ends were fastened together by sewing thin strips of sealskin or willow root through two parallel rows of slits made for the purpose. If sealskin sewing material was used, it was softened first by rubbing it on both sides with a knife.

After the sides were sewn together, the bottom was constructed. It was measured carefully to ensure a good fit. The bottoms, which were inserted from the top, have chamfered edges to fit into a groove around the inner edge of the side. According to informants, men used a crooked knife in manufacturing these containers (pls. 20a,b; 21b).

Three oval *work boxes* were used to store tools and other personal possessions in the house. All have sides fashioned from a single piece of wood with the overlapping ends tied together in the same manner as the buckets previously described. The largest specimen is 15 cm. high and 32 cm. long. The overlapping ends are sewn through rectangular ivory reinforcement pieces. The box has a flat top that has been repaired with sewn strips of sealskin and has a small ivory handle; the bottom is missing. The other two boxes, both of which are illustrated, are much smaller. The larger is ornamented on the lid parallel to the small ivory handle with large-headed brass tacks (pl. 19a). The smaller has a sealskin handle (pl. 19b).

Of the five *box or bucket handles* in the collection, only one is for the type of work box just described. It is a plain, slightly curved section of ivory 15 cm. long with a hole drilled at each end. Three specimens are presumably for large buckets, although none of the buckets in the collection have handles. One handle is a plain, curved section of antler with holes gouged at each end (pl. 19d). The other two are of ivory. One is decorated with carvings of whales in relief and with inset blue beads (pl. 19g). It was presumably a water bucket handle, possibly used in ceremonies connected with whaling. The other has two rows of caribou engraved in the old style (Ray, 1969, pp. 14-15) on one side and a pair of engraved depictions of firearms (rifles?) in the center at one end between the rows of

caribou (pl. 19j). Informants believed that it represented a tally of animals killed by a particular hunter and that the box or bucket to which it was fastened would have contained materials or substances associated with hunting. Identification of the fifth handle, also made of ivory, is tentative. The specimen has two small holes in the center on the reverse side through which a line could have been strung attaching it to the lid of a small box. The outer surface is covered with engraved circle-dots; there is an animal head at one end and a human face at the other. Tattoo lines on the chin of the latter indicate that it is the face of a woman (pl. 19h).

A variety of containers have been identified somewhat tentatively as small *work boxes* or *trinket boxes*. Three boxes, two of antler and one of wood, have close-fitting wooden tops. The antler specimens also have wooden bottoms flush with the sides and held in place with pegs of the same material (pl. 22a,d). According to informants, such boxes were used for hooks, small tools, beads, etc. They noted that it is particularly easy to remove the center of a section of antler with a beaver-tooth tool. Two boxes are rectangular and flat, with tops hinged with sinew. One of these has three round tobacco labels in Spanish pasted on both surfaces (pl. 22b). Such boxes may have contained materials associated with sewing or possibly knife blades; in fact, anything that was flat and might break easily. The remaining four specimens, two of antler and two of ivory, are less easily identified. One antler specimen is decorated with incised cross-hatching (pl. 22g), and the other (pl. 22f) has two rows of caribou engraved in the old style (Ray, 1969, pp. 14-15).

Two small boxes that might otherwise have been placed in the previous category can be identified as *needle boxes* because they contain steel needles. One is of wood with a tight-fitting sliding lid (pl. 22j), and the other is of antler, also with a sliding lid and with two animal heads, possibly hares, carved in relief at one end (pl. 22i).

There are two *needle cases*, one of which is a plain metal tube made from can metal with a section of sealskin line running through it (pl. 22m). The other is of ivory with a stopper of the same material. This specimen is decorated with a series of engraved, spurred lines that have been darkened with india ink (pl. 22l).

There are six antler *thimble holders* in the collection. One is flat, ornamented with a spurred line, and has a sinew loop attached to the proximal end (pl. 22k). The others are simply hooks made from partially smoothed sections of antler (pl. 22e). Nelson (1899, pp.

110-111, pl. XLIV, 2, 3, 6, 14) describes and illustrates holders of both types.

The collection contains 13 *clothing bags* made from the skins of spotted and ribbon seals. For 12 of these bags the entire skin, including the flippers, has been removed and the nose and eye apertures have been sewn shut. Nine specimens have a narrow slit extending crosswise between the front flippers. The edges of this slit are lined with a strip of sealskin with the hair removed which is pierced at intervals with holes through which is run a sealskin cord for lacing the opening (fig. 10). The remaining four bags are made from the skins of smaller, young seals, and the opening is parallel to the length of the animal; on one of these the flippers have been removed to form a more compact bag (fig. 11). According to Nelson (1899, p. 44), the shape of these bags and their waterproofness made them convenient for use in umiaks or on sledges while traveling. He noted that every family had one to three bags of this type in which spare clothing and valuable furs were stored.

Four additional bags are identified as *utility bags*. Only one is large enough for clothing, but the others would have been useful for storing small personal items. Two specimens, including the largest, are of fish skin strips sewn together vertically. The bottoms are oval in outline and consist of a piece of tanned sealskin with the seam on the inside (pls. 23; 24a). The largest of these bags has strips of tanned sealskin alternating with the fish skin strips and a collar of caribou skin with the hair removed (pl. 23). The third bag is made of a single bird skin. Around the rim is a strip of tanned sealskin, and the oval bottom is made of the same material; there is a loop handle of sealskin (pl. 24d). The fourth specimen is made from swan's feet separated by narrow strips of tanned sealskin. The bag constricts sharply at the neck, where a broad strip of sealskin with the hair inside has been attached (pl. 21a).

A small caribou skin *pouch* with the hair inside has trim of beaver fur and is ornamented with designs sewn with dried grass (pl. 22c). Such a pouch, which does not look Eskimo and could have come from Siberia, was perhaps made primarily for sale or trade to visiting whites.

Two small bags made from the stomachs or bladders of land or sea mammals are identified as *water or seal oil bags* used on hunting trips. One specimen apparently was provided with a wood or ivory stopper, now missing. The other has an ivory nozzle lashed in place

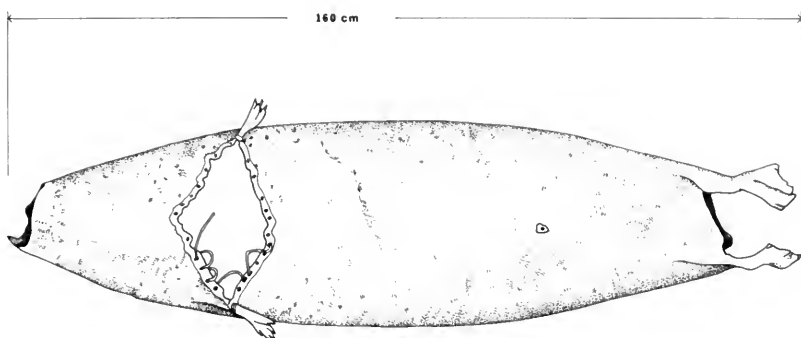


FIG. 10. Clothing bag (20779).

with sinew and having, in addition to the opening, a small suspension hole to which a sealskin line is attached (pl. 24d).

The seven oval *birchbark baskets* vary considerably in size but are similar in construction. Each is made of a single piece of bark folded

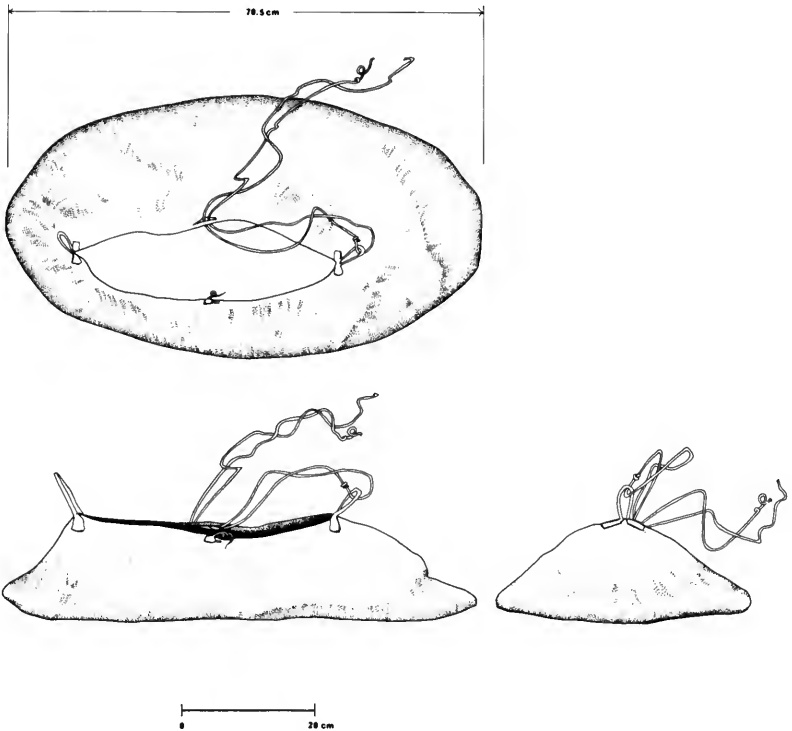


FIG. 11. Clothing bag (20785).

at the ends and stitched with willow root to a split rim fastened to the inner and outer edges of the bark. From 3 cm. to 4 cm. below the rim, a reinforcing strip of willow encircles the basket. Additional small pieces of bark reinforce the outer surfaces on two or more specimens (fig. 12). The largest basket is 29.5 cm. by 22 cm. and is 19 cm. high; the smallest is 21 cm. by 16 cm. and is 9.5 cm. high. Informants agreed that such baskets could be used to store almost anything but were particularly suitable for berries.

There are three coiled *grass baskets* in the Kotzebue Sound collec-

tion, all manufactured by a method described by Nelson (1899, p. 204). The largest basket is oval, and the bottom coil was commenced around an oval open space 17 cm. in length into which a piece of tanned sealskin has been sewn (pl. 25a). An informant noted that she could make a basket like this one in about three days, not working all the time. The grass is collected in the fall and must be kept wet during sewing so that it will not break. The other two baskets in the collection are round. Both narrow at the rim, and one has a short collar (pl. 24c). The larger specimen, according to informants, was used to store personal possessions in the home, and the smaller ones were the type used by women for holding needle cases, sinew, and other sewing materials when working outdoors preparing skins.

Sixteen specimens are identified, somewhat arbitrarily, as *dishes*. Although a wide variety of shapes and sizes are represented, they can be divided into two basic types: those constructed of a single

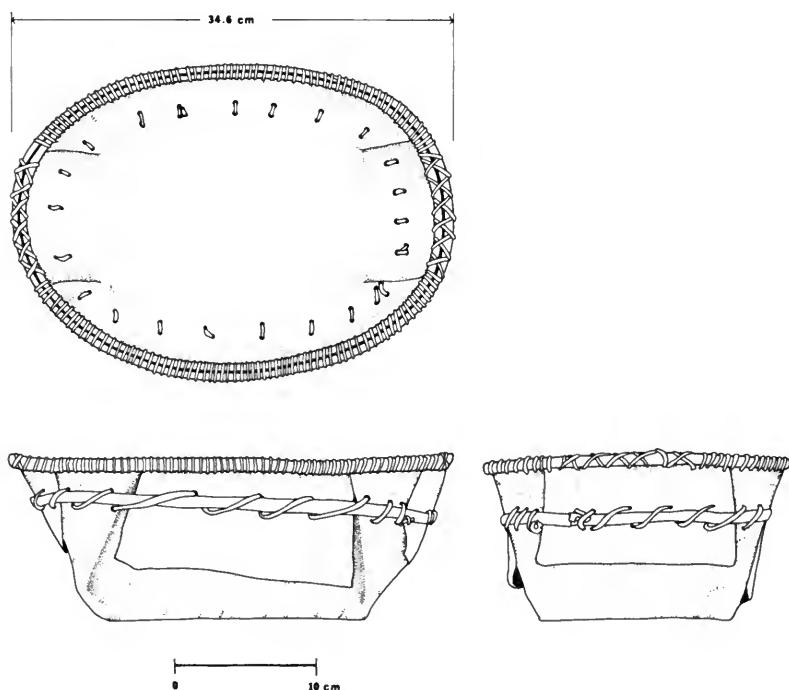


FIG. 12. Birchbark basket (20079).

piece of wood (type 1) and those made in two pieces (type 2). Dishes belonging to type 1 have little in common other than their one-piece construction. Six specimens are of varying dimensions and have slightly everted, grooved rims rather as if they were made in imitation of type 2 dishes (pl. 26c). Two platelike dishes are oval with everted rims and are very shallow (pls. 26d; 28a). Two are deep, long, and narrow, with flat bottoms (pl. 26b). A single oval dish is deep and made from a small burl; it exudes an oily substance (pl. 22h). The largest dish belonging to type 1 is made from a burl and is deep and roughly heart-shaped (pl. 25b). Some of these dishes may have been made by the Ingalik Indians of the lower-middle Yukon River, who traded them to coastal peoples either directly or through middlemen (Osgood, 1958, p. 62; VanStone, 1978, p. 46; 1979, pp. 3, 68).

The three dishes belonging to type 2 are oval and have flat bottoms with outward sloping sides chamfered to fit in grooves on the inside of the rims. The rims are made of thick strips of wood, softened by steam and then bent until the beveled ends overlap (Nelson, 1899, p. 71); these are stitched with spruce root. The edges of the rims slope inward. All three specimens are approximately the same size (pl. 26a). Marks indicating that a crooked knife was used in their manufacture are visible on specimens of both types. According to informants, both types of containers had multiple uses. The deep one-piece specimens were particularly suitable for liquids or soft foods, while shallower dishes and those belonging to type 2 were useful as containers for meat, greens, or caribou fat and berries mixed to make *agutuk*.

The collection contains three long, narrow one-piece containers that are identified as *trays*. They are comparatively shallow and would have been used for cooked meat or fish. According to informants, people sat on the floor around these large trays and helped themselves to the contents with their hands. Two trays are oval, approximately 44 cm. by 32 cm. The third is longer and narrower and has a distinct curve in the center (pl. 27).

A wooden *scoop* has a deep rectangular bowl (pl. 28h) and may have been used for berries or flour. The marks of a crooked knife are clearly visible over the entire surface of this specimen.

There are 15 specimens in the Kotzebue Sound collection that have been identified as *ladles or dippers*, although some of the smaller ones may simply be large spoons. Each is made from a single piece of wood and has a flat or rounded handle projecting on

the inner side. The bowls are oval or round, and the larger specimens hold about a quart (pl. 29a,c). Marks made by a crooked knife are visible on some specimens. According to informants, the smaller specimens (pls. 28b,g; 30a-c) were used to remove grease while cooking, for other cooking purposes such as stirring greens, or for ladling into an eating dish. The bowl of one of these has been repaired with a round wooden patch sewn in place with baleen (pl. 30a). The large specimens may have been used to dip water. Those illustrated show the range of sizes and shapes.

Of the 14 *spoons* in the collection, two are of wood and resemble the smaller ladles just described (pl. 30d). Two are of ivory, one having a deep oval bowl and a long handle (pl. 30g) while the other has only a very short handle in the form of a suspension ring. This specimen is ornamented around the suspension hole with an engraved, spurred line (pl. 28f). The remaining ten spoons are made of antler. Three have oval bowls (pl. 30e), and the rest have spatulate bowls that narrow at the proximal ends to form handles (pls. 28d,e; 30f). In addition to their use as eating utensils, spoons were used for filling lamps with oil. Similar spoons of wood and antler from western and northwestern Alaska are described and illustrated by Murdoch (1892, pp. 104-105), Nelson (1899, p. 69, pl. XXX), and Bockstoce (1977, pp. 78-79, fig. 57). Archaeologically they have been recovered in the Kotzebue Sound area in sites occupied during the fifteenth and sixteenth centuries (Giddings, 1952, p. 85, pl. XLI, 37-38; VanStone, 1955, p. 116, pl. 12, 1-3).

Two *drinking cups* in the shape of European ceramic cups (pl. 28c) are made from tree roots or burls.

Two *stone lamps* show indications of considerable use; one is oval (pl. 29b) and the other is semilunar (pl. 31e) in shape. These lamps were used for lighting, not cooking, and seal oil was burned in them. A wick of dried sod roughened with an ulu was placed along the edge of the lamp and adjusted or extinguished with a small stick.

Two pieces of wood, one flattened and the other curved at the distal end, loosely tied together with sinew at the proximal end are identified in the catalog as *fire tongs* (pl. 31a). The distal ends of both pieces are blackened from use. Such an implement, unreported in other studies of Alaskan Eskimo material culture, would have been used to lift objects such as clay pots or heated stones from an open fire.

A *clothes beater* was used to beat snow from boots and clothing.

The single example in the Kotzebue Sound collection is made from a long, thin piece of wood flattened over much of its length and narrowed toward the proximal end, where it would be gripped in the hand (pl. 31f). A similarly shaped snow beater of whale bone from Cape Prince of Wales is described and illustrated by Nelson (1899, pp. 77-78, fig. 21, 5).

A *back scratcher* consists of a short wooden shaft, probably part of an old arrow shaft, with a circular antler disk fitted over one end (pl. 31d). Nelson (1899, p. 310, fig. 98) illustrates a similar implement from Sledge Island. He observed "men using long handled scratchers to relieve irritation caused by eruptions on the skin or by parasites." There is also an implement of this type in the Bruce Port Clarence collection (VanStone, 1976, pp. 28-29). In addition to the complete specimen, there are five *disks for back scratchers*, three of antler and two of ivory (pl. 31b).

Woven *grass mats* were used in houses on sleeping platforms, to wrap around bedding, and occasionally to partition off a corner of a room (Nelson, 1899, p. 202). There are two such mats in the Kotzebue Sound collection. One of these is made of two-strand braids of grass sewn together with sinew at the ends and in the center. It is in poor condition and nearly square, measuring approximately 165 cm. by 143 cm. A very similar mat, but with the strands sewn together at more frequent intervals, is in the Bruce Port Clarence collection (VanStone, 1976, p. 27, pl. 24A). The second mat appears, both in shape and in method of construction, to have been made in imitation of a hooked rug. It is oval in shape, 128 cm. long, and 91 cm. wide in the center. The Bruce Port Clarence collection also contains a mat of this type, described as possibly having been made at the suggestion of, or for sale to, a Euro-American visitor (VanStone, 1976, p. 27).

CLOTHING

The bulk of the clothing in the Kotzebue Sound collection consists of mittens and boots, with only a few additional garments represented. Nelson's (1899, pp. 30-43) extensive collection of clothing from western Alaska should be consulted for examples of those types of garments missing from the assemblage described here.

The skins of domesticated reindeer were used extensively in the

manufacture of winter garments throughout coastal western and southwestern Alaska. Most of these skins were obtained from the Chukchi of northeastern Siberia through an elaborate trade network that was flourishing at the time the Russians established a trading post at the present town of St. Michael in 1833 (Zagoskin, 1967, pp. 100-101). The Eskimos of Norton Sound, Seward Peninsula, and the Kotzebue Sound region also hunted caribou, which were plentiful inland from the coast in the late nineteenth century but were depleted shortly thereafter, in part as a result of the introduction of breech-loading firearms. Some of the garments in the Kotzebue Sound collection, therefore, may be made of caribou skin rather than the hides of domestic reindeer.

The only adult hooded garment in the collection other than rainwear is an exceptionally fine *woman's summer parka* made of ground squirrel skins. The hood has a trim of wolf fur around the top and wolverine fur under the chin. Just inside the hood opening is a narrow strip of trimmed caribou or reindeer skin. Extending vertically on either side of the hood in front are narrow strips of trimmed white reindeer skin. Short horizontal bands of the same material decorated with sewn-in strips of red yarn occur at the shoulders and at the lower ends of the vertical strips. The lower end of the garment narrows to a rounded flap in both front and back. Strips of trimmed white caribou or reindeer skin with sewn-in strips of red yarn extend all around the bottom of the garment, and there is a fringe of wolf fur (pl. 32).

There is a rectangular strip of muskrat fur extending vertically down the center of the back of the hood surrounded by strips of trimmed white caribou or reindeer skin that extend down the back of the garment to just below the level of the armpits. At the ends of these strips are horizontal strips of the same material, similar to those on the front of the parka (pl. 33). According to Nelson (1899, p. 35), women's parkas north of the mouth of the Yukon were more elaborately decorated than those south of this area because of the availability of white reindeer skin, an excellent material for decoration.

The collection also contains a single *child's winter parka* of sealskin. This specimen, which is in extremely poor condition, is of three-piece construction. There are strips of wolf fur around the hood opening, the sleeve openings, and the bottom of the garment.

Ten waterproof *raincoats*, seven for men and three for women, are

made from the intestines of seals sewn in strips. The strips, all of which are between 8 cm. and 9 cm. wide, are sewn vertically in nine specimens (pls. 34-36) and horizontally in one (pl. 37). All have drawstrings around the border of the hood, but not at the wrists. Eight raincoats have narrow borders of sealskin around the bottom; the border on one specimen is of polar bear skin. Two women's raincoats have narrow strips of tanned sealskin sewn on at the shoulders (pl. 34). One man's raincoat is also decorated with such strips (pl. 36).

In addition to these raincoats, there is also a *woman's long raincoat* made of horizontally sewn strips of walrus intestine with tufts of brown fur sewn into the seams at intervals. There are strips of seal intestine around the lower ends of the sleeves and tanned sealskin around the bottom of the garment. Both the sleeves and the lower edges of this raincoat have borders of wolverine fur (pls. 38, 39).

The collection contains a single pair of men's sealskin *trousers*. According to Nelson (1899, p. 31), trousers were usually fastened around the waist with a drawstring run through a loop of skin sewed along the border. It could be that this pair, which has a long slit running from the border to the crotch in front, is unfinished. The pattern consists of a single piece for each leg, a separate crotch piece, and three vertical strips at the back that serve to widen the waist (pl. 40).

Of the four *belts* in the collection, two are made from wolverine claws sewn to a backing of tanned sealskin. One of these has a rectangular sealskin pouch, closed with a single glass button, attached at one end (pl. 41c). There are sealskin thongs at each end for tying the belt in place. The third belt is simply a narrow strip of sealskin to which is attached a small rectangular pouch (pl. 41a). The fourth specimen consists of a narrow strip of sealskin with an attached knife sheath made from wolverine fur (pl. 31c).

Twelve objects made from pieces of ivory, antler, and bears' teeth are identified as *belt fasteners* on the basis of their resemblance to specimens illustrated by Nelson (1899, pl. XXVII, 1-2) (pl. 41d, e).

Sealskin *mittens*, of which there are 19 pairs, are constructed in three ways: with the hair on the outside or on the inside, or of tanned sealskin with the hair removed. There are seven pairs of mittens with the hair outside. These are of simple three-piece construction, the thumb being a separate piece (pl. 42e). One pair has a strip

of bleached sealskin around the wrist, and another has a strip of caribou or reindeer skin in the same position. There is one pair of mittens with the hair inside. It has a narrow fringe of sealskin around the wrist (pl. 42f).

The largest number of sealskin mittens, 11 pairs, are made of hairless tanned sealskin, usually with a strip of bleached skin around the wrist (pl. 42c). One pair is decorated with tufts of seal hair sewn into the bleached strip (pl. 41b). A child's pair is decorated with three horizontal bleached strips, two of which are cut into a diamond pattern (pl. 41f). Five pairs are of the gauntlet type that flare slightly at the proximal end and reach to the elbows. All have drawstrings at the proximal end so that the opening can be drawn tight around the arm (pl. 43c). Two pairs are ornamented with tufts of seal hair sewn into the seam (pl. 43a). Mittens of tanned sealskin are waterproof, and most specimens are made in a three-piece pattern.

Two pairs of mittens are made of tanned caribou or reindeer hide with the hair inside. One is ornamented with bands of green and red cloth and has a strip of brown fur around the wrist (pl. 42d), and the other is of the gauntlet type, ornamented with two strips of muskrat fur (pl. 42a).

There is one pair of four-fingered sealskin *gloves* with the hair inside. They are of three-piece construction with a band of bleached sealskin around the wrist (pl. 42b). This type of glove was designed for hunters using firearms.

The collection contains two pairs of caribou or reindeer skin *socks* with the hair inside, to be worn inside boots in winter (pl. 43e). A pair of grass *insoles* consists of flat coils bound together (pl. 43b). These presumably would have been worn inside summer or rain boots.

The five pairs of sealskin *winter boots* in the collection have soles made of tanned bearded sealskin crimped about the heel and toe. The upper sections reach to just below the knee. All these boots have the hair on the outside and a band of sealskin around the top (pl. 44b). In addition to the complete specimens, there is a pair of uppers for boots of this type.

Two pairs of caribou or reindeer skin winter boots also have the hair on the outside. They have a narrow band of cloth around the top (pl. 45o). A poorly preserved pair of such boots for an infant is made

of white reindeer skin with a band of bleached sealskin around the top.

Summer boots are made entirely of tanned sealskin and are low, reaching just above the ankle. The collection contains one child's pair with straps and a border of bleached sealskin (pl. 43d).

Rainboots are knee-length and made entirely of dark tanned sealskin with the hair removed. There are five pairs in the Kotzebue Sound collection, four of which have straps of bleached sealskin and a strip of the same material around the top (pl. 44a). The fifth is a child's pair with sealskin thong straps and no border.

TRAVEL AND TRANSPORTATION

Snowshoes in the Kotzebue Sound collection are of two types. Type 1 shoes, of which there are four pairs, were for traveling on land and, in the Kotzebue Sound region, would have been used by Eskimos inhabiting the banks of the Noatak, Kobuk, and Selawik rivers. These shoes are made of two pieces of wood, spliced in the front where they curve upward and held together by two crossbars near the middle. One pair has a third short crossbar just in front of the tapered rear end of the shoes (fig. 13B). The netting in front of and behind the crossbars is hexagonal and made of caribou sinew (fig. 14). The area behind the centrally located crossbars where the foot is placed is filled with widely spaced netting of heavy sealskin line (fig. 15). Bindings are present on two pairs and consist of loops of sealskin line that fit over the instep and around the heel.

There are four pairs of type 2 snowshoes, intended for use on the sea ice. They are much shorter and more crudely made than the type 1 shoes and are coarsely netted with heavy strands of sealskin line (figs. 13A; 16), but their basic construction is similar. Nelson (1899, pp. 212-214, figs. 63-66) describes and illustrates snowshoes of both types.

Although the collection once contained a number of *dog harnesses*, only two remain. They are made of two strips of sealskin that join at one end and are separated at the other by two short crosspieces of sealskin (fig. 17B). The dog's head fits between the crosspieces. A sealskin line at the rear of the harness leads to the trace. Also associated with the harnessing of dogs is a small ivory *harness block or fastener* with holes passing through it in two directions (pl. 45h). It is possible that some of the specimens previously

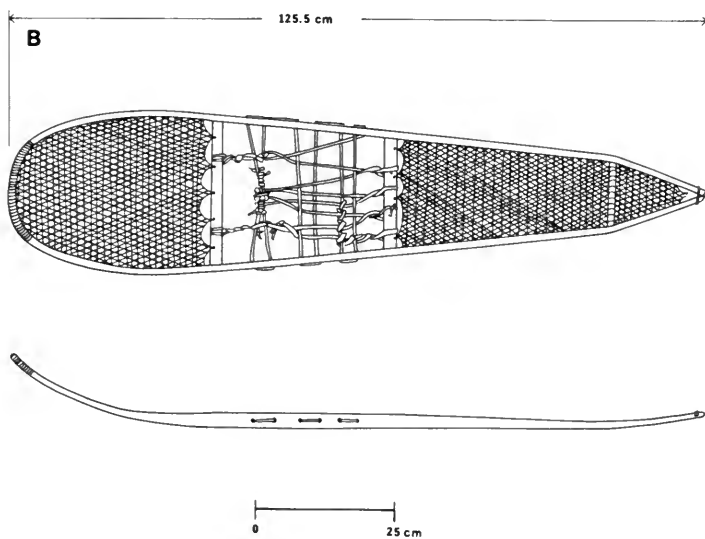
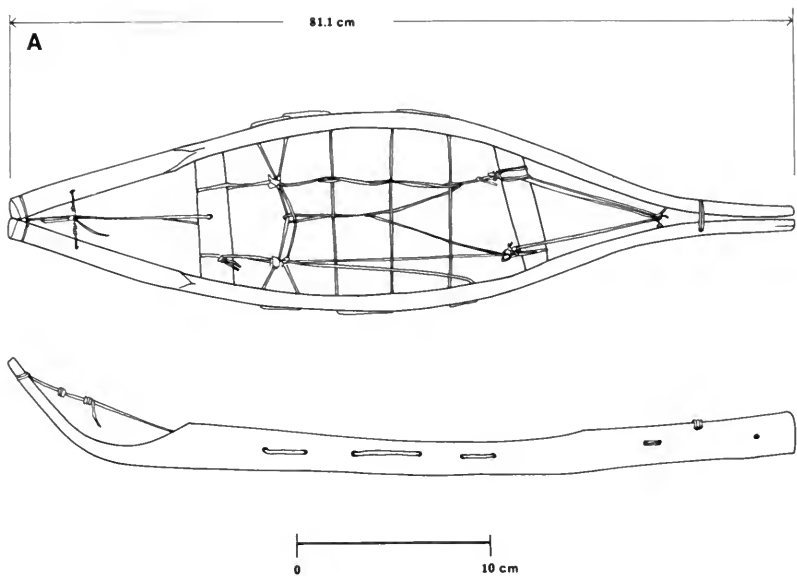


FIG. 13. A, Snowshoe, type 2 (20187); B, Snowshoe, type 1 (20181).

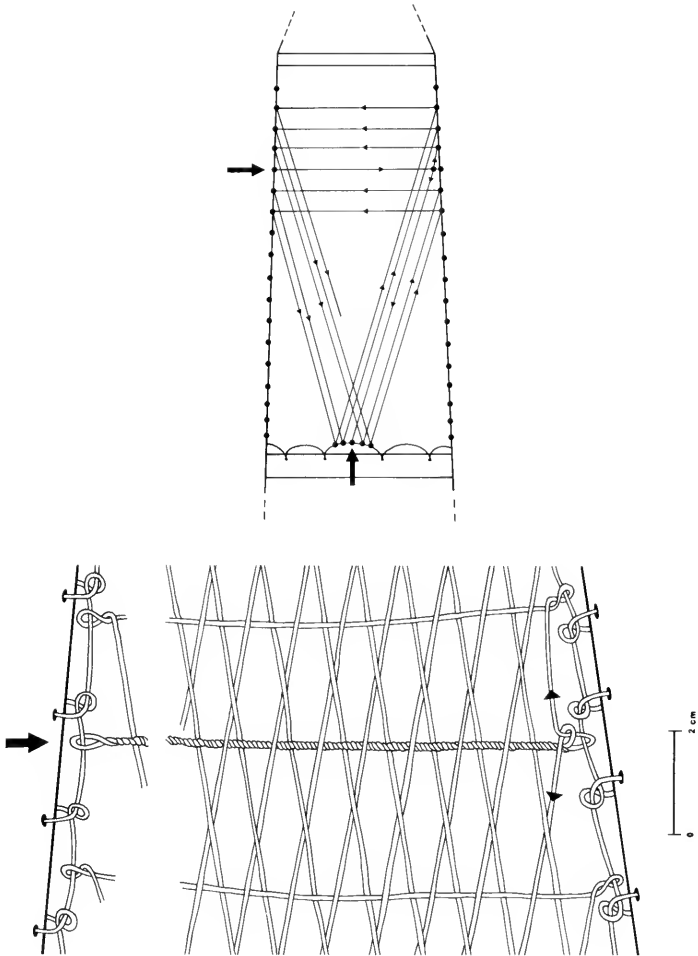


FIG. 14. Snowshoe netting, type 1 (20181).

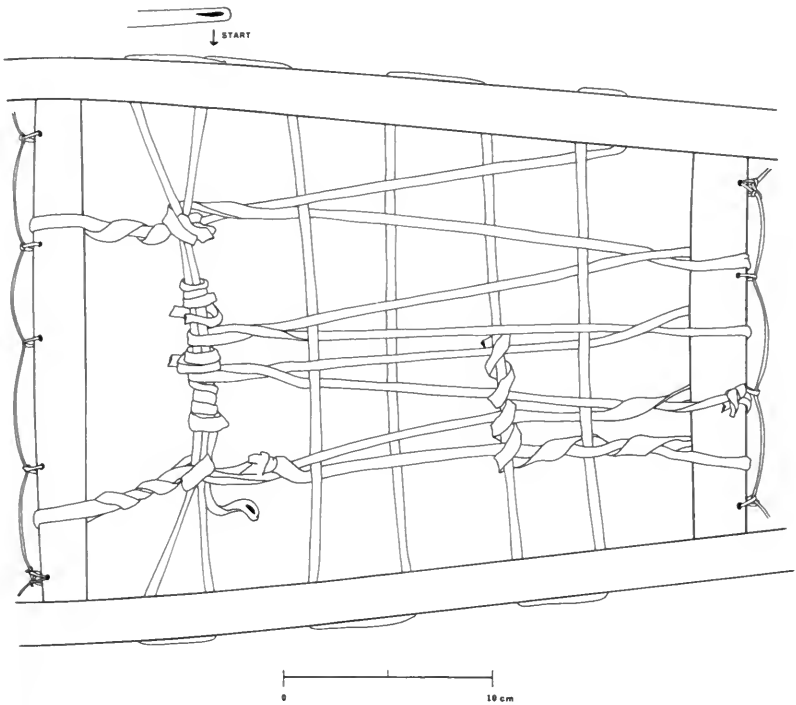


FIG. 15. Snowshoe netting, type 1 (20181).

described as cord attachers may have been associated with dog harnesses.

Three *swivels* made of antler consist of a round, deeply notched rod with a hole pierced through the head formed by the notch. Through this hole is inserted another rod with a large head. In the opposite ends of both sections are holes to which fragments of sealskin line are fastened (pl. 45f). Such swivels, which closely resemble specimens described and illustrated by Nelson (1899, p. 210, pl. LXXVI, 2, 13), were fastened to the lines by which dogs were tethered to stakes and prevented the lines from becoming twisted by the dogs' movements.

Another type of swivel was frequently used on harness traces to prevent the line from becoming twisted. This type is made by inserting a rod with a large head through a square or rectangular block with a hole in the center. In each corner of the block is a hole for

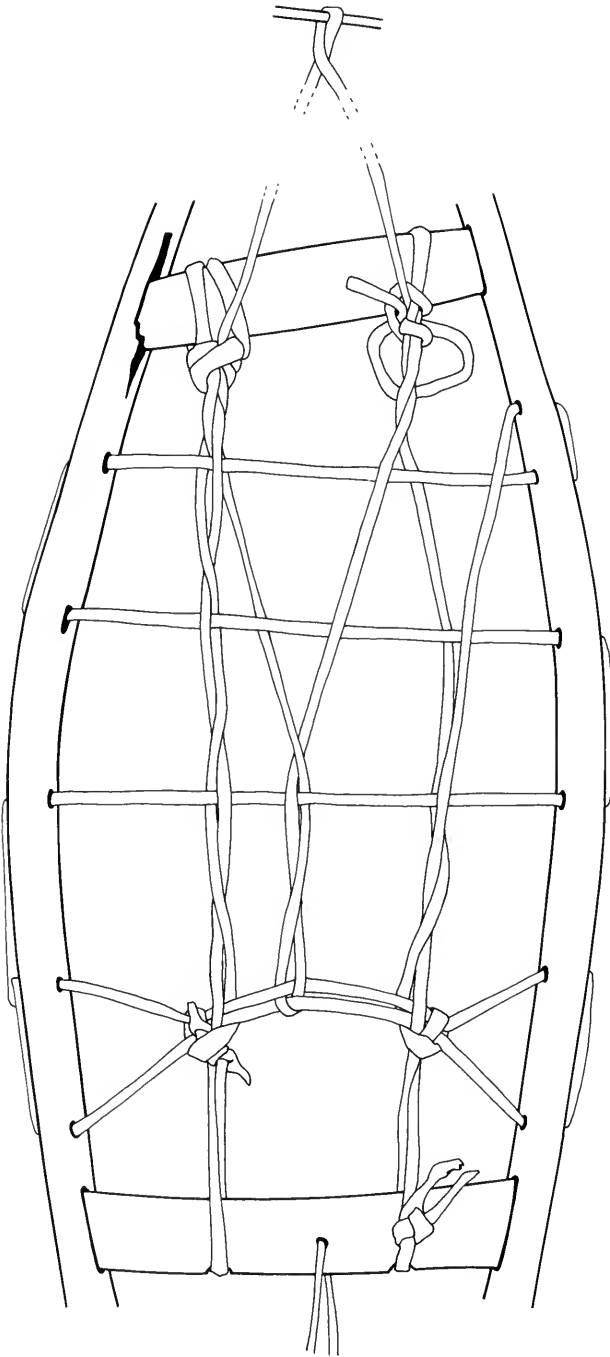


FIG. 16. Snowshoe netting, type 2 (20187).

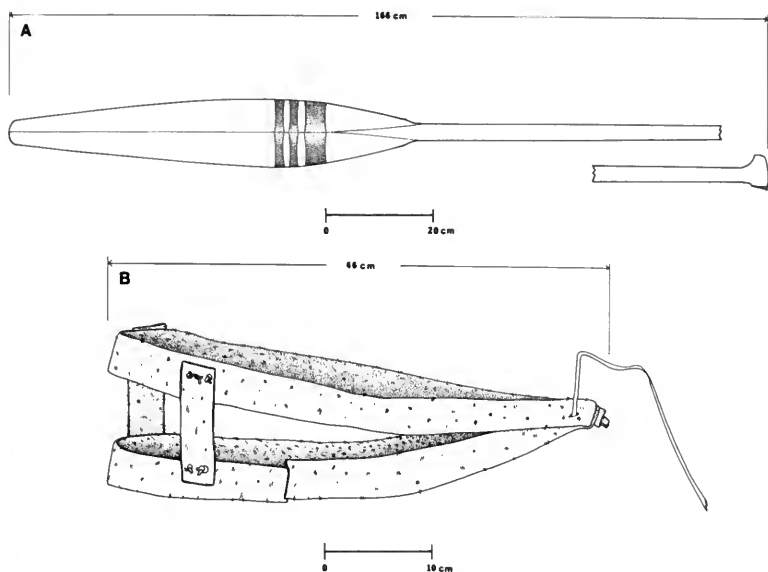


FIG. 17. A, Kayak paddle (20095); B, Dog harness (20847).

fastening the swivel to a line attached to the sledge. The collection contains three of the square or rectangular blocks—two of antler (pl. 45l) and one of ivory—and one complete swivel of antler (pl. 45i).

There are five *ferules* that fitted over the ends of whip handles. All are of ivory and slightly shoe-shaped with a projecting spur on one side (pl. 45n). A short section of handle is attached to one specimen (pl. 45a). Nelson (1899, pp. 209–210, pl. LXXVI, 7, 15) describes and illustrates *ferules* from St. Lawrence Island that resemble those in the Kotzebue Sound collection.

To prevent harpoons and paddles from sliding off the sloping decks of kayaks when not in use, *harpoon or paddle rests* were fastened to the crossline of the kayak at the gunwale. Seven ivory specimens are light and presumably were intended to retain harpoons or spears. They are grooved on the bottom, have a line hole near the base, and are decorated on the sides with engraved spurred lines (pl. 45m). Two somewhat broader antler rests with more pronounced curves (pl. 45e) and a large specimen of bone (pl. 45j) were presumably for paddles. All three have line holes and are grooved on the bottom.

Heavy hooked and pierced sections of bone, antler, and ivory are identified as *blocks used for the rigging of umiaks* on the basis of their similarity to specimens described and illustrated by Nelson. Two rectangular bone specimens each have a hole in one end and a large, heavy hook at the other (pl. 45b). They resemble a block from Sledge Island illustrated by Nelson (1899, p. 218, pl. LXXVIII, 19). The remaining eight specimens, three of antler and five of ivory, are rectangular, with holes at each end. Two specimens have incised parallel lines between the holes (pl. 45c,d,g). Nelson (1899, p. 218, pl. LXXVIII, 20) describes and illustrates a similar block, also from Sledge Island.

There are two *kayak paddles* in the collection. Both are of the single-blade type with the handle terminating in a crossbar cut from the same piece of wood. The blades, which narrow slightly toward the distal end, have a central ridge on both sides. The handle and upper part of the blade of both specimens show traces of red paint. Immediately below this painted area are three parallel bands of black paint. On one paddle a wide band is followed by two narrower bands (fig. 17A), and on the other the wide band is in the middle. Both are approximately the same length.

A narrow section of antler with a hook at one end is identified as the *tip for a boat hook*. At the proximal end are a hole and slots for lashing to a shaft (pl. 45k). Such hooks are useful to hunters in kayaks during landings on the ice or on rocky shores.

PERSONAL ADORNMENT

Eleven specimens have been identified as *hair combs*. They are similar to the previously described sinew shredders except that the teeth are closer together. Four antler specimens are rectangular with teeth at each end. Two of these have deep notches in the center on each side (pl. 46k), and another is decorated with incised spurred lines (pl. 46a). Six antler combs and one wooden comb have teeth at one end only. Three are rectangular and flat across the top (pl. 46e,j), and the rest are notched in varying degrees at the proximal end (pl. 46f,g).

The collection contains two *labrets*, one of which is hat-shaped and appears to have been made from a fragment of bottle glass (pl. 46h). The other is made of serpentine and has a flaring base with the outer part shaped like a whale's tail (pl. 46d). An almost identical

specimen made of serpentine but with an ivory base was obtained by Nelson (1899, p. 47, pl. XXII, 9) on King Island.

A *necklace* consisting of many seal incisors and canines is strung on a length of sealskin line. With the teeth are strung a miniature closed socketed harpoon head of ivory and a stylized carving of a bird made from ivory (pl. 46c). There are also 26 complete and fragmentary pierced crab claws that have been restrung on a shoestring; at one time they were probably also part of a necklace (pl. 46b).

SMOKING COMPLEX

To make snuff, the Eskimos of Kotzebue Sound and elsewhere along the Alaskan coast dried and shredded tobacco and then pounded it in a small wooden mortar with a wooden pestle until it was reduced to powder (Nelson, 1899, p. 272). The collection contains ten of these *mortars*, eight of which have handles, two with the pestles attached. The illustrated specimens are typical in both size and shape (pls. 46i,l; 47a-c).

There are two neatly made *snuff boxes*, oval with carefully fitted lids and bird-bone snuff tubes attached. One has incised cross-hatchings on the sides and is inset at intervals with circular pieces of copper or brass (pl. 47j). The other is grooved on the sides and narrows toward the top (pl. 47k). According to Nelson (1899, p. 273), snuff was used by placing one end of the tube in each nostril successively and inhaling from the box, into which the other end of the tube was placed.

In addition to the tubes attached to the boxes just described, the collection also contains six *snuff tubes* made from the hollow wing bones of large waterfowl. Two are decorated with bands of incised, spurred lines filled with red paint (pl. 47e), and the rest are unworked except for having been cut at each end (pl. 47d). The plain tubes are considerably longer than those attached to the boxes.

According to Nelson (1899, p. 271), tobacco to be prepared for chewing was cut into small pieces and then mixed with fungus ash to improve the taste and make the tobacco last longer. Informants stated that in the Kotzebue Sound area cottonwood bark was sometimes used for this. The collection contains one wooden *fungus ash box* that is round with straight sides and has a tight-fitting lid to which a length of sealskin line is attached. The sides are

decorated with incised bands painted black and bands of incised crosshatching (pl. 47g).

To make chewing tobacco, the chopped tobacco leaf and fungus were mixed, kneaded, and rolled into "round pellets or quids, often being chewed a little by the women in order to incorporate the ashes more thoroughly" (Nelson, 1899, p. 271). These pellets were kept in small wooden *quid boxes*, of which there are three in the Kotzebue Sound collection. One is diamond-shaped with a small square opening in the top (pl. 47f). The other two are rectangular. One has a sliding lid, and the interior is divided into two compartments (pl. 47h). The other has a small rectangular lid flush with and in the center of the top (pl. 47i).

Tobacco pipes in the Kotzebue Sound collection are sufficiently varied in size and shape so that virtually all specimens must be described individually. Three pipes conform to the most common style of Eskimo pipes in that each has a small, cylindrical bowl with a flaring top set at the end of a wooden stem and held in place by sinew or willow root lashing. One of these has a brass or copper bowl, and the sinew lashing holding it to the stem also holds the two halves of the stem together (pl. 48h). According to Nelson (1899, p. 280), stems were made in two sections so that they could be opened to retrieve nicotine, which was then mixed with chewing tobacco. The mouthpiece is missing from this specimen.

The other two pipes of this style have one-piece curved wooden stems, one having a copper bowl and the other a bowl made of lead. Lead bowls were made by the Eskimos in molds constructed specifically for the purpose. Such a mold is described and illustrated by Nelson (1899, p. 281, pl. LXXXVIII, 13). Both pipes have .44-caliber, center-fire cartridge cases inserted in the distal ends of the stems and narrow covered openings in the lower parts of the stems through which deposits of nicotine could be removed. One of these pipes has an ivory mouthpiece (pl. 48g), but the mouthpiece is missing from the other.

The four remaining complete or nearly complete pipes in the collection are quite different from those just described. One has a brass or copper bowl with a ring at one end that fits over the end of a thin metal rod constituting the stem; there is no mouthpiece. This pipe is provided with a metal cleaner and tamper attached to the bowl by a short length of sinew (pl. 48e). A second specimen has a straight, thin wooden stem, a brass or copper sleeve at the distal end, and a

bowl made from a cartridge case; the mouthpiece is missing (pl. 48c). The third pipe has a short, straight wooden stem, no mouthpiece, and a lead bowl with an opening at the bottom that fits over a center-fire brass shotgun shell. This specimen is equipped with a cleaner-tamper attached to the stem with a length of tanned sealskin line (pl. 48a). The fourth pipe has a short stem of rolled lead, over the distal end of which is fitted a bowl made from a brass cartridge case. The mouthpiece, if there was one, is missing (pl. 48b).

In addition to the complete pipes just described, the collection contains two wooden *pipe stems*, one of which is wrapped with sealskin line, has a copper or brass mouthpiece, and probably had a bowl made from a cartridge case (pl. 49b).

There are six *pipe bowls* in the collection. Two are of antler: one is lined with copper or brass and has a human face carved on the outer surface (pl. 49j); the other is also lined and has a copper or brass ring at the point where the stem would be fitted (pl. 49g). Two bowls are made of ivory. One is lined and is plugged at the bottom with the lead screw cap of a gunpowder can (pl. 48i). The other is plain and most closely resembles the style of pipe smoked by Euro-Americans (pl. 48j). A fifth bowl is made from a center-fire cartridge drilled on one side to receive the stem (pl. 49d), and the other, a more traditional shape, is fashioned from a fine-grained stone (pl. 48d). There is also a block of ivory in the shape of an *unfinished pipe bowl* and a *pipe mouthpiece* of ivory.

A *case for a pipe stem* is made from three narrow strips of tanned sealskin sewn together lengthwise. There is a fringe at one end, and at the other end a wooden plug is attached to the case by a short length of sealskin line (pl. 48f).

A rectangular sealskin case contains some tinder and a section of a steel file used as *pipe lighting equipment*. A length of sealskin line attached to the case may have been fastened to the owner's belt.

TOYS AND MODELS

There are only five specimens in this category, although at one time the collection also contained a number of dressed dolls. There are two *tops*, both made of ivory decorated with spurred lines and with wooden spindles (pl. 49c,f). The upper part of the spindle of the larger specimen is broken. Informants and Nelson (1899, p. 341, fig. 122) both report that children amused themselves by spinning such

tops on the wooden floor of the house. The spindles were spun between the hands; after starting the top, a child would go outside and try to run around the house before the toy stopped spinning.

Another child's toy is a *popgun* consisting of a wooden plunger inserted in a long bone from the leg of a swan or crow (pl. 49a). According to informants, a pellet of sealskin or some other material was placed in the bird bone. Then the wooden plunger was inserted and the user aimed the gun and pushed the plunger in rapidly to fire the pellet.

The collection also contains an ivory *carving of a bear*, the rear end of which has been partly sawed away (pl. 49e), and a *model umiak* carved with a crooked knife from a single piece of wood (pl. 49h).

RAW MATERIALS AND MISCELLANEOUS

Raw materials in the Kotzebue Sound collection include three rolls of walrus-skin line and seven rolls of sealskin line. All have loops bound with caribou sinew at one end; the walrus-skin line is particularly thick and heavy, being as much as 1.5 cm. in diameter. It was probably used with whaling harpoons and floats. There is also one prepared sealskin with the hair on. Holes at intervals around the edges indicate that the skin was staked to the ground as part of the stretching and drying process.

The collection contains three bundles of short baleen strips cut from near the tip and three bundles of a narrow, translucent fiber identified in the catalog as whale sinew. There are also two narrow strips of unworked ivory approximately 26 cm. long, possibly prepared to be made into spear points or side prongs, a fragment of jadeite, and six pieces of limonite showing smooth, worn surfaces. Limonite provided a reddish pigment used in the manufacture of paint.

A rectangular section of ivory is decorated on the outer, concave surface with two bands of etched designs in the modified engraving style (Ray, 1969, p. 16). Along the upper band are depicted houses, umiaks and racks, and a ball game, while the lower band shows a house, an umiak on a rack, and whaling scenes. Also on the lower band, but upside down as the specimen is illustrated, is a scene showing men hunting seals from kayaks (pl. 49i). This specimen

resembles, in size and shape, a previously described skin scraper that is similarly decorated with etched designs (pl. 16i), but there is no working edge.

III CONCLUSIONS

The ethnographic material that Bruce collected while serving as superintendent of the Teller Reindeer Station in 1892-1893 and sold to Field Museum in 1894 has been described as "reasonably complete in many categories" (VanStone, 1976, p. 47) and is comparable to other collections of Eskimo material culture made during the nineteenth century, particularly those of Edmonds (Ray, 1966), Murdoch (1892), and Nelson (1899). Because of the lack of supporting ethnographic information, however, Bruce's first collection must be ranked considerably below those of his contemporaries in value to present-day students of Eskimo material culture.

In 1892-1893 Bruce apparently collected without having any clear idea of the eventual deposition of his collection, although he presumably expected to dispose of it to some museum. Before returning to Alaska in the summer of 1894, however, we have seen that he not only had negotiated successfully with Field Museum to purchase the new collection he intended to make, but had received specific instructions on the type of material that was desired. We know that Bruce failed to fulfill his instructions to the satisfaction of Holmes. A comparison of the Kotzebue Sound collection with that made in the Port Clarence area indicates, moreover, that these instructions appear to have had relatively little effect on the way Bruce gathered Eskimo artifacts. Nevertheless, with the exception of the Siberian material that Bruce never was able to obtain, Holmes seems to have been able to realize, at least in outline, the type of Alaskan exhibits he had visualized when he drew up the contract with Bruce.

The Kotzebue Sound collection is somewhat less than twice as large as the Port Clarence assemblage, but the number of separate types of artifacts represented is very nearly the same. The difference in size appears to be primarily the result of duplicates in the assemblage from Kotzebue Sound. The collection contains, for example, large numbers of skin scrapers, lurehooks, wooden dishes,

spoons, ladles, etc. Only the category of sea and land hunting equipment contains a significantly larger number of types than are found under the similar heading in the collection from Port Clarence. It appears that Bruce had a relatively set manner of dealing with the Eskimos for what he presumably considered "curios" and that he had little concept of what might be required to provide a rounded picture of Eskimo material possessions for a museum display. Nevertheless, it will be recalled that Bruce's collection was generally satisfactory to both Holmes and Dorsey.

MATERIAL CULTURE CLUSTERS

Like the Port Clarence collection, the assemblage from Kotzebue Sound provides an opportunity to focus on changing Eskimo technology under the influence of the growing number of Euro-Americans in Alaska at the close of the nineteenth century and the exotic materials they made available to the native inhabitants. Oswalt (1972) has defined four categories, or clusters, of material objects that reflect the presence or absence of historical introductions in collections of Eskimo material culture and thus serve as a rough measure of technological change. They are as follows:

Eskimo continuities—traditional Eskimo material culture.

Western imports—objects of Western European culture imported directly and accepted into the inventory of Eskimo material culture.

Eskimo-derived forms—objects manufactured locally by Eskimos and modeled after aboriginal types, but made with imported materials foreign to the Eskimo environment.

Western-derived forms—locally manufactured items modeled after foreign forms and using local or imported material or a combination of the two.

Oswalt applies these categories to the contemporary Eskimo culture of southwestern Alaska, but he also notes that similar examples of technological change can be found in the nineteenth-century collections of Nelson and others. The Bruce Port Clarence collection was seen to contain examples belonging to each of Oswalt's clusters, suggesting the extent to which it too was subject

to external influences (VanStone, 1976, pp. 49–50), and, similarly, these clusters can be isolated in the Kotzebue Sound assemblage.

Eskimo continuities—items of traditional Eskimo material culture.

Western imports—although the collector could be expected to ignore the presence of Western imports, the following either are present in the Kotzebue Sound collection or can be inferred:

- muzzle-loading firearms (inferred)
- tobacco (inferred)
- glass beads

Eskimo-derived forms

- metal harpoon blade
- metal harpoon blade rivet
- metal arrowhead
- brass tacks as decoration on box lid
- metal fishhook shank
- metal barb in fishhook
- string used for fishhook leader
- metal for eyes in lurehook
- strip of copper on lurehook shank to attract fish
- cloth as border on winter boots
- cloth used as decorative trim on mittens
- needle case of can metal
- cartridge case used as reinforcement piece on drill shank
- hammerhead made from iron fragment
- metal ulu blade
- metal saw blade (inferred)
- metal inset for drill mouthpiece
- drill made from nail
- “pipe” scraper blade
- beads as inset decoration on bucket handle and for eyes of lurehook
- labret of bottle glass
- metal ice scoop rim rivet

Western-derived forms

- snow goggles in imitation of eyeglasses
- powder flasks and pouches of antler, wood, ivory, and sealskin
- bullet mold of wood and stone
- reloading tool of antler, bone, and ivory

wooden drinking cup in shape of European ceramic cup
grass mat in imitation of hooked rug
four-fingered glove for use with firearms
snuff box and tube of wood and bird bone
quid box of wood
mortar and pestle of wood
tobacco pipes of wood, ivory, and metal

An interesting characteristic of the Western-derived forms in the Kotzebue Sound collection, aside from the fact that there are fewer than in the Port Clarence assemblage, is the virtual absence of artifacts that clearly were manufactured for sale rather than for local use. Only the grass mat in imitation of a hooked rug appears to belong to that category. As was surmised for the Port Clarence collection, at Kotzebue Sound Bruce may have consciously avoided acquiring examples of market art on the theory that a museum would be interested only in examples of "pure" traditional Eskimo material culture. Also, Kotzebue Sound was outside the whaling grounds and received fewer visits from whaling and trading ships than did Port Clarence.

Oswalt (1972, p. 89) believes that the vitality of Eskimo material culture is most clearly revealed in the category of Eskimo-derived forms, since integrating new materials into aboriginal forms assures their continuity. The Kotzebue Sound collection contains more than twice as many Eskimo-derived forms as the Port Clarence assemblage, most of which are associated with weapons and tools. Since the collector might be expected to have avoided selecting such objects when possible, this emphasis suggests that the Eskimos living or trading in Kotzebue Sound were fully aware of the advantages of using exotic materials in the manufacture of traditional artifact types. In particular they recognized the superiority of metal as a blade material, and this, as Oswalt has noted, accounts for the longevity of harpoons, adzes, knives, and scrapers based on aboriginal models.

It is clear from an examination of both the Port Clarence and the Kotzebue Sound collections as well as those of other late nineteenth century collectors that the process of material culture change was already well advanced 50 years after the first sustained contact in western and northwestern Alaska. Given the extent of early contact trade involving peoples of the Bering Strait area and those on the coast of Asia, it is doubtful if a collection of "pure" traditional

Eskimo material culture could have been made even by the earliest European explorers in the area.

TECHNOLOGICAL COMPLEXITY

In addition to his interest in Eskimo technological change, Oswalt has also written two books (1973, 1976) in which he gives careful and detailed attention to the problem of measuring technological complexity among a variety of other hunting and gathering peoples. His procedures emphasize the importance of artifacts used to procure food and the necessity of identifying "the discrete structural units from which artifacts are made" (1976, p. 36). He has coined the term "subsistant" to isolate the technology of food procurement, a subsistant being defined as "an extrasomatic form that is removed from a natural context or manufactured and is applied directly to obtain food" (Oswalt, 1976, p. 46).

Once identified, the subsistants used by Eskimos and other hunters and gatherers are assigned to one of four categories: instruments, weapons, and tended or untended facilities. Instruments are employed against creatures incapable of significant motion, such as wounded seals, whereas weapons are used to kill creatures capable of motion. A tended facility, such as a fishhook, requires the presence of one or more persons to function, whereas an untended facility, such as a salmon gill net, operates without direct human involvement (Oswalt, 1976, pp. 64, 79, 107, 131).

As a measure of the complexity of a subsistant, Oswalt has coined another term, "technounit." This is defined as "an integrated, physically distinct, and unique structural configuration that contributes to the form of a finished artifact" (Oswalt, 1976, p. 38). The total number of technounits in a subsistant assemblage divided by the number of subsistants provides a measure of technological complexity.

In applying this methodology to the study of Eskimo material culture, Oswalt analyzed the subsistence technology of six groups with the following results (Oswalt, 1976, pp. 278-279, 287-294):

<i>People</i>	<i>Subsistants</i>	<i>Technounits</i>	<i>Index of Complexity</i>
Angmagsalik	33	202	6.1
Taremiut	35	205	5.9
Iglulik	42	225	5.4
Copper Eskimo	27	122	4.5
Caribou Eskimo	34	118	3.5

He notes that Eskimos, primarily for reasons associated with the environment, made the most complicated subsistants of any hunters and gatherers. Since plant food, meat from relatively immobile animals, and domesticated crops were either absent from the environment or so scarce as to be unimportant for subsistence, instruments do not form a significant part of Eskimo technology (Oswalt, 1976, p. 182).

This method of measuring technological complexity has, potentially at least, interesting implications for the study of ethnographic collections in museums, although definite limitations have been noted (VanStone, 1976, pp. 52-53). Most of these relate to gaps in the subsistant inventory, incomplete subsistants, and the poor documentation that is characteristic of so many such collections. Nevertheless, the method was applied to the Bruce Port Clarence collection, which proved to have a total of 25 subsistants consisting of 115 technounits, for an index of complexity of 4.6, higher than the index for the Caribou Eskimo but lower than those for the other four groups in Oswalt's sample (VanStone, 1976, pp. 53-55).

The same limitations that characterize the Port Clarence collection also apply to the assemblage from Kotzebue Sound and should be kept in mind with reference to the list of subsistants broken down into technounits (tus) given below.

Instruments

1 tu

seal club of bone or ivory (pl. 3d)

3 tus

seal club (pl. 3b): wooden handle + bone head + thong head-handle binder

3 tus

seal retriever (pl. 3a): wooden body + metal hooks + thong line

Weapons

2 tus

single-curve bow: wooden bow + sinew bowstring

2 tus

throwing board used with sealing harpoon (pl. 2a,e,f): wooden body + ivory peg to hold end of spear

3 tus

lance (pl. 5d): chert head + thong head-shaft binder + wooden shaft

3 tus

slingshot (pl. 6i): sealskin holder + sealskin line + caribou-skin sling

4 tus

bird bolas (pl. 6e): bone weights + sinew weight suspension cords + feather grip + sinew weight-cord-feather binder

5 tus

arrow for large game or war (pl. 5a,b,f): antler, ivory, or metal head + sinew head-shaft binder + wooden shaft + feathers + sinew feathers-shaft binder

5 tus

bird arrow (pl. 5c): antler head + thong head-shaft binder + wooden shaft + feathers + feathers-shaft binder

5 tus

fish arrow (pl. 5e): antler barbs + sinew barbs-shaft binder + wooden shaft + feathers + feathers-shaft binder

5 tus

fish spear (fig. 6B): antler end prongs + sinew prong binder + sinew prong-shaft binder + two-piece wooden shaft + sinew shaft binder

7 tus

bird spear (fig. 6A): ivory or bone point + sinew point-shaft binder + wooden shaft + antler side prongs + sinew side prong-shaft binder + sinew point-shaft-side prong retaining line + sinew retaining line fastenings

8 tus

sealing harpoon dart used with throwing board: antler harpoon dart head + wooden socketpiece plug (missing) + thong dart head line + bone socketpiece + sinew shaft-socketpiece binder + wooden shaft + feathers + sinew feathers-shaft binder

8 tus

sealing harpoon dart used without throwing board (fig. 3): antler dart head + wooden socketpiece plug + thong dart head line + bone socketpiece + sinew shaft-socketpiece binder + wooden shaft + antler finger rest + sinew finger rest-shaft binder

17 tus

ice-hunting harpoon (composite description, figs. 3 and 4): metal blade + antler or metal rivet + blade-head binder + antler head + thong harpoon line + sinew thong-harpoon line binder + antler foreshaft + bone socketpiece + thong foreshaft-shaft binder + thong socketpiece-shaft binder + wooden shaft + ivory finger rest + thong finger rest-shaft binder + thong socketpiece-shaft-ice pick retaining line + thong shaft-retaining line fastenings + antler or ivory ice pick + thong ice pick-shaft binder

Tended facilities

3 tus

seal scratcher (pl. 1a): wooden body + seal claws + sinew seal claw-body binder

3 tus

tomcod rod: wooden rod (assumed) + antler tip + sinew line (assumed)

6 tus

lurehook (pl. 10a-d,f,g): sinew line (assumed) + bone, stone, ivory, or antler sinker + quill, sinew, baleen, or string leader + bone, antler, or metal shank + metal barb + cloth or metal on barb or shank to attract fish

7 tus

dip net (fig. 7): ivory handle + wooden hoop + sinew hoop binder + ivory handle + ivory peg handle-hoop binder + sinew netting + sealskin net-hoop binder

9 tus

herring or whitefish seine (composite description; specimen in collection and description by Nelson, 1899, p. 186, fig. 49): sealskin netting + wooden floats + float-net binders + stone sinkers + sinker-net binders + wooden spreaders + spreader-net binders + lines for pulling + poles for prodding net from shore

Untended facilities

2 tus

gorget (pl. 7i): bone hook + sinew line

2 tus

ptarmigan net (pl. 8a): sinew netting + wooden spreaders

3 tus

ground-squirrel snare (pl. 7g,j): baleen or sealskin noose + wooden or bird-bone cylinder + wooden block

5 tus

bird snare (pl. 8b): baleen line + baleen loop + baleen loop-line binder + wooden stakes (assumed) + line-stake binder (assumed)

6 tus

gill net for fish or seals: sealskin netting + wooden floats + net-float binders + net sinkers + net-sinker binders + anchor line (assumed)

The above listing indicates a total of 26 subsistants consisting of 127 technounits, for an index of complexity of 4.8, virtually the same as that of the Port Clarence collection. The inventories of both Bruce collections are, however, far from complete, and the significance of these indexes is therefore questionable. To arrive at a more meaningful comparison with the indexes of complexity of Oswald's sample, it is necessary to restrict consideration to the weapons category alone. The inventories of weapons in both collections are comparable to similar inventories in Oswald's sample. The inventory of weapons for the Port Clarence collection was expanded slightly by including two subsistants from the area described by Nelson (1899). With the addition of these weapons, the subsistant total for this category becomes 15 consisting of 85 technounits, for an index of complexity of 5.6 (VanStone, 1976, p. 56).

Neither Nelson (1899) nor Bockstoe (1977) provides additional weapons that can be added to the inventory from Kotzebue Sound. In a way this is encouraging, since it suggests that the weapons inventory Bruce obtained is probably fairly complete. In any event, the subsistant total for this category is 13 consisting of 74 technounits, for an index of complexity of 5.6, again virtually the same as that of the Port Clarence collection. Similar indexes of complexity for *weapons only* for the Eskimo sample used by Oswald are as follows:

Iglulik	9.1
Angmagsalik	7.4
Taremiut	7.4
Copper Eskimo	6.6
Caribou Eskimo	4.3

The low index for the Caribou Eskimo presumably reflects a highly specialized inland hunting technology. The indexes for both Bruce collections, lower than but comparable to indexes for the other groups (excluding the Caribou Eskimo), may reflect both the inadequacies of the collections and a greater dependence on nonweapons for taking fish and game.

For the Port Clarence collection it seemed worthwhile to utilize a comparison involving the ice-hunting harpoon, the most complex weapon used for sea mammal hunting (VanStone, 1976, pp. 56-57). This weapon is also the most complex item in the Kotzebue Sound assemblage (17 tus). The totals for ice-hunting harpoons and related forms for the groups in Oswalt's sample are as follows:

Iglulik—ice-hunting harpoon, seals	tus 17
Iglulik—ice-hunting harpoon, walrus	13
Angmagsalik—peep-sealing harpoon	14
Taremiut—ice-hunting harpoon for seals at breathing holes	12
Taremiut—ice-hunting harpoon for seals at edge of ice	16
Copper Eskimo—generalized sealing harpoon	15

Toggle-headed harpoons are technologically the most complex subsistant used by the peoples sampled in Oswalt's study (1976, p. 95), and one would expect that the most complex ice-hunting harpoons would be found among those people most heavily dependent on seals. The relatively narrow spread indicated by these technounit counts suggests that seal hunting was of primary importance to all the groups sampled as well as to Eskimos represented by the Kotzebue Sound collection. The ice-hunting harpoon, an essential implement used to harvest an important natural resource, is clearly significant for any analysis that attempts to relate technological complexity to culture and environment. Comparisons like this one, when geared to the specific strengths of a museum collection, may provide greater insights into such relationships than do broad comparisons utilizing an index of complexity for an entire collection.

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APPENDIX

The Bruce Kotzebue Sound Eskimo Collection (Accession 259)

Following is a list of the Bruce Kotzebue Sound Eskimo specimens described in this study. It is not a complete list of the collection as it appears in the catalog of the Department of Anthropology, Field Museum of Natural History. Specimens that could not be located or that have been sold, traded, or otherwise disposed of are not included. Where museum catalog numbers are preceded by an asterisk (*), the specimens are illustrated here. Identifications given here do not invariably correspond to those in the catalog.

Sea and Land Hunting

- | | |
|----------|--|
| *20140 | ice-hunting harpoon |
| 20143 | ice-hunting harpoon (incomplete) |
| *20144 | ice-hunting harpoon |
| 20145-47 | ice-hunting harpoon (incomplete) |
| 20150-52 | ice-hunting harpoon (incomplete) |
| 20402 | sealing harpoon head |
| 20405 | sealing harpoon head |
| 20407 | sealing harpoon head |
| 20409 | sealing harpoon head (2) |
| *20413 | sealing harpoon head |
| 20414-15 | sealing harpoon head |
| *20416 | sealing harpoon head |
| 20417 | sealing harpoon head |
| *20418 | sealing harpoon head |
| 20419-23 | sealing harpoon head |
| *20406 | harpoon head cover |
| 20408 | harpoon head cover |
| 20410 | harpoon head cover |
| 20412 | harpoon head cover |
| *20726 | socketpiece for ice-hunting harpoon |
| *20348 | socketpiece and foreshaft for ice-hunting or whaling harpoon |

- *20711 harpoon foreshaft
- *20729 harpoon foreshaft
 - 20134 sealing harpoon dart used with throwing board
 - 20136 sealing harpoon dart used with throwing board
 - 20139 sealing harpoon dart used with throwing board
- *20135 sealing harpoon dart used without throwing board
- 20141-42 sealing harpoon dart used without throwing board
- 20683 harpoon dart head
- 20727 harpoon dart head
 - 20155-58 throwing board
 - 20161 throwing board
- *20162-64 throwing board
- 20165 throwing board
- *20726 socketpiece for sealing harpoon (2)
- *20711 finger rest
- *20727 whaling harpoon head (2)
- *20715 float nozzle (4)
- *20715 float toggle
- *20711 cord attacher (11)
 - 20827-30 seal net (incomplete)
 - 20622 net shuttle for seal nets
 - 20540 mesh gauge for seal nets
- *20254 seal scratcher
- 20255 seal scratcher
 - 20195 seal retriever
- *20196 seal retriever
- 20197 seal retriever
 - 20171 seal club
- *20172 seal club (2)
- 20246 seal club
- *20200 drag handle
- 20201 drag handle
- *20202 drag handle
 - no number drag line with handle attached
- *20232 ice creepers (2)
- *20286 snow goggles
- *20287 snow goggles
 - 20289-90 snow goggles
- *20293 snow goggles
- 20294 snow goggles
- *20295-96 snow goggles
 - 20803 eyeshade
- *20804 eyeshade

20096-97	bow
20099	bow
20100-05	bow
20523-24	sinew twister
*20526-27	sinew twister
20107	arrow for large game or war
*20108	arrow for large game or war
20109	arrow for large game or war
20111	arrow for large game or war
*20113	arrow for large game or war
*20115	arrow for large game or war
20116	arrow for large game or war
20724	arrowhead
*20114	bird arrow
*20723	blunt arrowhead (5)
20106	arrow shaft
20117-26	arrow shaft
*20351	lance
*20544	detachable lance head
*20345	lance blade (?)
*20051-53	box for harpoon or lance blades
20252	slingshot
*20253	slingshot
20662	bolas
*20665	bolas
20666	bolas
20710	bolas weights (16)
*20129	bird spear
20131-32	bird spear
20676	bird spear side prong
20680	bird spear side prong
*20681	bird spear side prong
20682	bird spear side prong
*20679	bird spear point
*no number	cover for fish or bird spear prongs
20338	gorget
*20431	gorget
20806-08	bird snare
*no number	bird snare
20867	ptarmigan net
*20868	ptarmigan net
20869-70	ptarmigan net

- *20822 ground-squirrel snare (approx. 12)
- 20823-24 ground-squirrel snare (approx. 21)
- *20825 ground-squirrel snare (approx. 22)
- *20257 powder pouch
- 20258-60 powder pouch
- *20261 powder pouch
- 20049 powder flask
- *20504 powder flask
- 20505 powder flask
- *20506-08 powder flask
- *20048 container for percussion caps (?)
- *20218-19 container for percussion caps (?)
- *20703 container for percussion caps (?)
- *20684 bullet mold
- 20685 bullet mold (incomplete)
- *20241 reloading tool
- 20242 reloading tool

Fishing

- *20799 dip net
- 20800 mesh for dip net
- 20526 gill net for salmon
- 20865 gill net for salmon (incomplete)
- 20887 gill net for salmon (incomplete)
- no number herring or whitefish seine (?)
- *20602 net shuttle
- 20605 net shuttle
- *20608 net shuttle
- 20609-11 net shuttle
- 20614-15 net shuttle
- *20616 net shuttle
- 20617 net shuttle
- *20620 net shuttle
- 20621 net shuttle
- 20884 net shuttle
- 20872 net shuttle with willow-root netting material
- 20874 net shuttle with willow-root netting material
- *20876 net shuttle with willow-root netting material
- 20877 net shuttle with willow-root netting material
- *20879 net shuttle with willow-root netting material
- 20880 net shuttle with willow-root netting material and mesh gauge
- *20882 net shuttle with willow-root netting material and mesh gauge
- *20509 mesh gauge (type 1)
- *20511-13 mesh gauge (type 1)
- 20515-16 mesh gauge (type 1)

- *20517 mesh gauge (type 1)
- 20518-19 mesh gauge (type 1)
- *20520 mesh gauge (type 1)
- 20536 mesh gauge (type 1)
- 20538-39 mesh gauge (type 1)
- *20541-43 mesh gauge (type 1)
- *20720 mesh gauge (type 1)
- 20881 mesh gauge (type 1)
- *20883 mesh gauge (type 1)
- *20210-11 mesh gauge (type 2)
- *20130 fish spear
- *20110 fish arrow
- 20521 netting needle (?)
- *20522 netting needle (?)
- 20525 netting needle (?)
- *20720 tips for tomcod rods (2)
- *20426 lurehook assemblage with sinker
- *20438 lurehook assemblage with sinker
- *20449 lurehook assemblage with sinker
- *20452 lurehook assemblage with sinker
- *20454 lurehook assemblage with sinker
- *20457 lurehook assemblage with sinker
- *20424 lurehook for large fish
- *20425? lurehook for large fish
- 20427 lurehook for large fish
- *20428 lurehook for large fish
- 20429 lurehook for large fish
- 20432-33 lurehook for large fish
- *20434 lurehook for large fish
- 20435-36 lurehook for large fish
- 20439 lurehook for large fish
- *20440 lurehook for large fish
- *20446-47 lurehook for large fish
- 20453 lurehook for large fish
- *20455-56 lurehook for large fish
- 20480 lurehook for large fish
- 20729 lurehook for large fish

- 20442 lurehook for small fish
- *20444-45 lurehook for small fish
- 20448 lurehook for small fish
- 20460-61 lurehook for small fish
- *20462-63 lurehook for small fish
- 20583 lurehook for small fish
- 20588 lurehook for small fish

- *20451 sinker
- *20458 sinker
- *20568 sinker

*20570-71	sinker
20572-78	sinker
20580	sinker
20585	sinker
*20586-87	sinker
*20589	sinker
20717	sinker
*20154	ice scoop

Tools and Manufactures

*20166	adze (incomplete)
20353	adze blade
*20354-55	adze blade
*20357	adze blade
20358	adze blade
*20372	adze blade
*20280	hammer
*20168	root pick
*20169-70	mattock
20167	mattock or root pick handle
*20377	end-bladed knife
*20644	end-bladed knife
20645	end-bladed knife
*20649-50	end-bladed knife
20653	end-bladed knife
*20654-55	end-bladed knife
20657	end-bladed knife
20375	end-bladed knife blade (incomplete)
*20625	side-bladed knife
20627-29	side-bladed knife
*20631	side-bladed knife
*20634	side-bladed knife
*20639	side-bladed knife
20640	side-bladed knife
*20643	side-bladed knife
*20651	side-bladed knife
*20277	arrow-shaft straightener (?)
*20714	arrow-shaft straightener
20813	knife case
*20814	knife case
20815	knife case
20817	knife case
20818-1,2	knife case
*12055	ulu
*20378-79	ulu

*20342	ulu blade
*20356	ulu blade
20361	ulu blade
*20374	ulu blade
20376	ulu blade (incomplete)
20263	chisel (?)
20267	chisel (?)
*20270-71	chisel (?)
20274-75	chisel (?)
*20721	awl or bodkin
*20659	saw handle
20558	drill mouthpiece
*20559	drill mouthpiece
20560	drill mouthpiece
*20561	drill mouthpiece
*20563	drill mouthpiece
*20566	inset for drill mouthpiece
*20545	drill shank
20591	drill shank
*20592	drill shank
20595	drill shank
20597	drill shank
*20598-99	drill shank
20600	drill shank
*20601	drill shank
no number	drill shank
*20533-34	drill bow
20535	drill bow
*20238-39	skin scraper (type 1)
*20528	skin scraper (?) (type 1)
*20262	skin scraper (?) (type 2)
*20660	skin scraper (type 2)
20318	skin scraper (type 3)
20302-03	skin scraper (type 3)
20306	skin scraper (type 3)
20307	skin scraper (type 3)
20310	skin scraper (type 3)
*20318	skin scraper (type 3)
20320	skin scraper (type 3)
*20323-24	skin scraper (type 3)
20325	skin scraper (type 3)
*20326-27	skin scraper (type 3)
20328	skin scraper (type 3)
*20329	skin scraper (type 3)
20330	skin scraper (type 3)
*20331	skin scraper (type 3)
12002	skin scraper (type 4) (Acc. 96)

- * 20297-98 skin scraper (type 4)
- 20299-301 skin scraper (type 4)
- 20305 skin scraper (type 4)
- 20308 skin scraper (type 4)
- 20311-12 skin scraper (type 4)
- *20313 skin scraper (type 4)
- 20314-16 skin scraper (type 4)
- 20332 skin scraper (type 4)
- *20333 skin scraper (type 4)
- 20334 skin scraper (type 4)
- *20335 skin scraper (type 4)
- 20336 skin scraper (type 4)
- *20337 skin scraper (type 4)
- *20343-44 skin scraper blade
- 20347 skin scraper blade
- 20352 skin scraper blade
- 20360 skin scraper blade
- 20362 skin scraper blade
- 20364 skin scraper blade
- 20370 skin scraper blade
- *20371 skin scraper blade
- *20373 skin scraper blade
- *20204 flint flaker
- 20205-06 flint flaker
- *20208 flint flaker
- 20209 flint flaker
- 20212 flint flaker
- 20318-2 flint flaker
- *20174 berry crusher
- 20175-76 berry crusher
- 20231 boot-sole creaser
- 20251 boot-sole creaser
- 20264 boot-sole creaser
- *20265 boot-sole creaser
- 20268-69 boot-sole creaser
- 20272 boot-sole creaser
- *20273 boot-sole creaser
- 20279 boot-sole creaser
- *20173 thong stretcher (?)
- 20266 sinew shredder (?)
- 20380-81 sinew shredder (?)
- *20382-83 sinew shredder (?)
- 20384 sinew shredder (?)
- *20385 sinew shredder (?)

Household Equipment

- 20001 bucket
- 20002 bucket

- *20003 bucket
- 20004-05 bucket
- *20006-07 bucket
- *20056 work box
- *20060 work box
- 20061 work box
- *20235 box or bucket handle
- 20236 box or bucket handle
- *20237 box or bucket handle
- *20546 box or bucket handle
- *20579 box or bucket handle (?)
- *20046 small work box or trinket box
- 20058 small work box or trinket box
- *20059 small work box or trinket box
- *20213-14 small work box or trinket box
- 20216-17 small work box or trinket box
- *20704 small work box or trinket box
- 20706 small work box or trinket box
- *20702 needle box
- *20705 needle box
- *20247-48 needle case
- *20276 thimble holder
- *20713 thimble holder (5)
- 20772 clothing bag
- 20774-78 clothing bag
- *20779 clothing bag
- 20780-81 clothing bag
- 20783-84 clothing bag
- *20785 clothing bag
- 20786 clothing bag
- *20732 utility bag
- *20734 utility bag
- *20738 utility bag
- *20858 utility bag
- *20861 pouch
- *20811 water or oil bag
- 20812 water or oil bag
- 20077-78 birchbark basket
- *20079 birchbark basket
- 20081-84 birchbark basket
- *20087-88 grass basket
- 20089 grass basket
- *20008 dish (type 1)
- 20009 dish (type 1)
- *20010 dish (type 1)
- *20013 dish (type 1)

20016-17	dish (type 1)
*20018	dish (type 1)
20019-20	dish (type 1)
*20021	dish (type 1)
20024	dish (type 1)
*20025	dish (type 1)
20045	dish (type 1)
20011-12	dish (type 2)
*20014	dish (type 2)
20015	tray
20022	tray
*20026	tray
*20037	scoop
20028	ladle or dipper
*20029	ladle or dipper
20030-31	ladle or dipper
*20032-33	ladle or dipper
20034-35	ladle or dipper
*20036	ladle or dipper
*20038	ladle or dipper
20039-40	ladle or dipper
*20041-42	ladle or dipper
20043	ladle or dipper
*20027	spoon
20044	spoon
20388	spoon
*20389-91	spoon
20392-94	spoon
*20396-98	spoon
20399	spoon
20401	spoon
20062	drinking cup
*20063	drinking cup
*20198-99	lamp
*20090	fire tongs
*20178	clothes beater
*20281	back scratcher
*20283	disk for back scratcher
20284-85	disk for back scratcher
20711	disk for back scratcher (2)
20892-93	grass mat

Clothing

*20756	woman's summer parka
20794	child's winter parka

- *20758 men's and women's raincoats (10)
- *20757 woman's long raincoat
- *20792 man's trousers
- 20849 belt
- *20851 belt with pouch
- *20852 belt with knife sheath
- *20853 belt with pouch
- *20711 belt fasteners (12)
- *20735 mittens (4 pr.)
- *20739 pair of mittens
- *20746-47 mittens (9 pr.)
- *20751 pair of mittens
- *20755 mittens (6 pr.)
- *20752 pair of gloves
- *20741 pair of socks
- 20749 pair of socks
- *20500 pair of insoles
- *20745 winter boots (5 pr.)
- 20771 uppers for pair of winter boots
- *20742 pair of winter boots
- 20743 pair of winter boots
- 20748 pair of infant's winter boots
- *20801 pair of child's summer boots
- *20744 rain boots (4 pr.)
- 20802 pair of child's rain boots

Travel and Transportation

- 20179-80 snowshoe (type 1)
- *20181 snowshoe (type 1)
- 20182-86 snowshoe (type 1)
- *20187 snowshoe (type 2)
- 20188-94 snowshoe (type 2)
- *20847 dog harness
- 20848 dog harness
- *20711 harness block or fastener
- *20244 swivel (type 1) (3)
- *20719 swivel (type 2)
- *20245 swivel part (type 2) (3)
- *20712 whip ferule (4)
- *20282 whip ferule with section of handle attached

- *20243 harpoon rest (7)
- *20718 paddle rest
- *20722 paddle rest (2)
- *20245 block for umiak rigging (type 1) (2)
- *20245 block for umiak rigging (type 2) (8)
- 20094 kayak paddle
- *20095 kayak paddle
- *20278 tip for boat hook

Personal Adornment

- 20220-21 hair comb
- *20222 hair comb
- 20223 hair comb
- *20225-27 hair comb
- 20229-30 hair comb
- *20386-87 hair comb
- *20502-03 labret
- *20690 necklace of seal incisors
- *20730 pierced and restrung crab claws

Tobacco Complex

- *20067 mortar with pestle
- 20068 mortar with pestle
- *20069 mortar
- 20070 mortar
- *20071 mortar
- 20072-73 mortar
- *20074-75 mortar
- 20076 mortar
- *20064-65 snuff box with tube
- 20547 snuff tube
- *20548 snuff tube
- 20549-50 snuff tube
- *20551 snuff tube
- no number snuff tube
- *20066 fungus ash box
- *20054 quid box
- *20057 quid box
- *20726 quid box
- *20465 tobacco pipe
- 20466 tobacco pipe
- *20468 tobacco pipe
- *20470 tobacco pipe
- *20475 tobacco pipe

- *20479 tobacco pipe
- *20482 tobacco pipe
- *20494 pipe stem
- 20495 pipe stem
- *20483-86 pipe bowl
- *20489 pipe bowl
- *20731 pipe bowl
- 20493 unfinished pipe bowl
- 20498 pipe mouthpiece
- *20499 case for pipe stem
- 20686 pipe lighting equipment

Toys and Models

- *20233-34 top
- *20661 popgun
- *20711 carving of a bear
- *20023 model umiak

Raw Materials and Miscellaneous

- 20835 roll of walrus-skin line
- 20839 roll of walrus-skin line
- 20845 roll of walrus-skin line
- 20836 roll of sealskin line
- 20837-38 roll of sealskin line
- 20841-44 roll of sealskin line
- 20842 roll of sealskin line
- 20843 roll of sealskin line
- 20754 prepared sealskin
- 20620 bundle of short baleen strips
- 20670-71 bundle of short baleen strips
- 20831-33 bundle of whale sinew (?)
- 20729 narrow strip of unworked ivory (2)
- 20369 fragment of jadeite
- 20687 fragment of limonite (6)
- *20529 section of ivory with etched designs

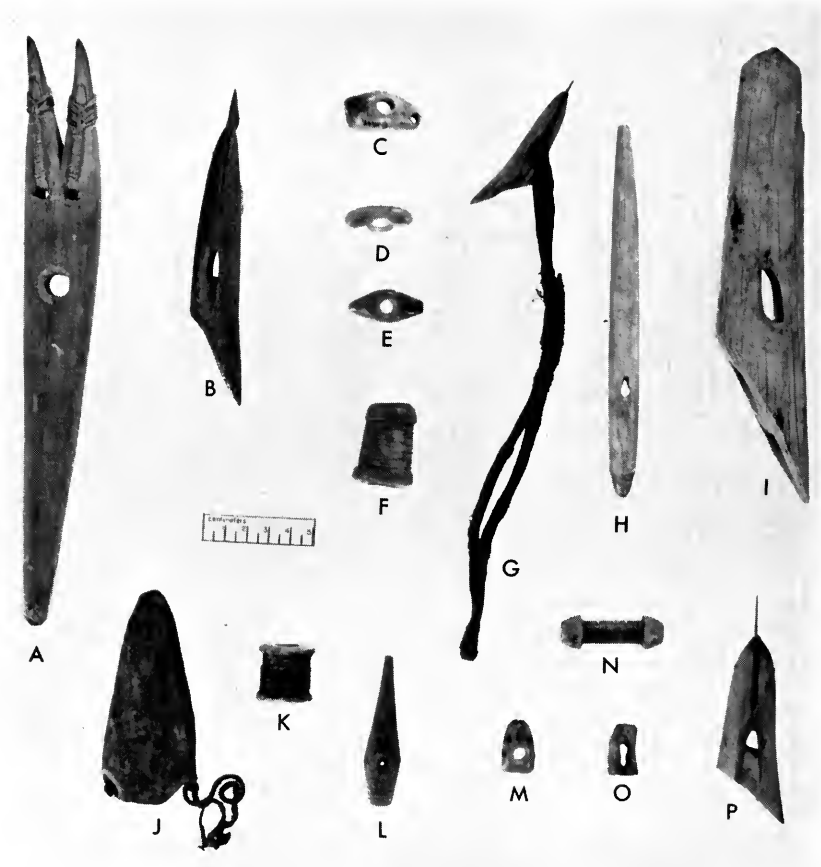


PLATE 1. a, seal scratcher (20254); b, sealing harpoon head (20416); c, cord attacher (20711); d, cord attacher (20711); e, cord attacher (20711); f, float nozzle (20715); g, sealing harpoon head (20418); h, harpoon foreshaft (20729); i, whaling harpoon head (20727); j, harpoon head cover (20406); k, float nozzle (20715); l, harpoon foreshaft (20711); m, cord attacher (20711); n, float toggle (20715); o, finger rest (20711); p, sealing harpoon head (20413).



PLATE 2. a, throwing board (20162); b, socketpiece for sealing harpoon (20726); c, socketpiece for ice-hunting harpoon (20726); d, socketpiece for sealing harpoon (20726); e, throwing board (20163); f, throwing board (20164).

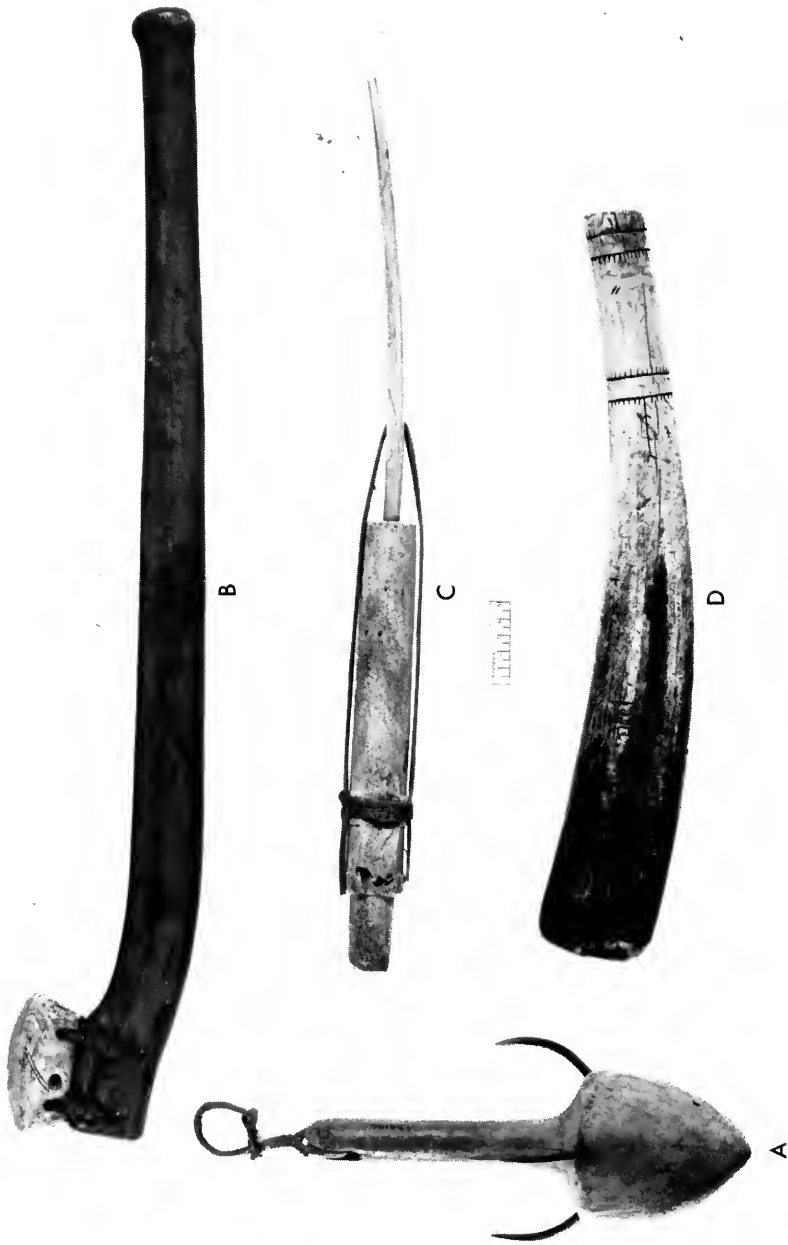


PLATE 3. a, seal retriever (20196); b, seal club (20172); c, socketpiece and foreshaft for ice-hunting or whaling harpoon (20348); d, seal club (20172).

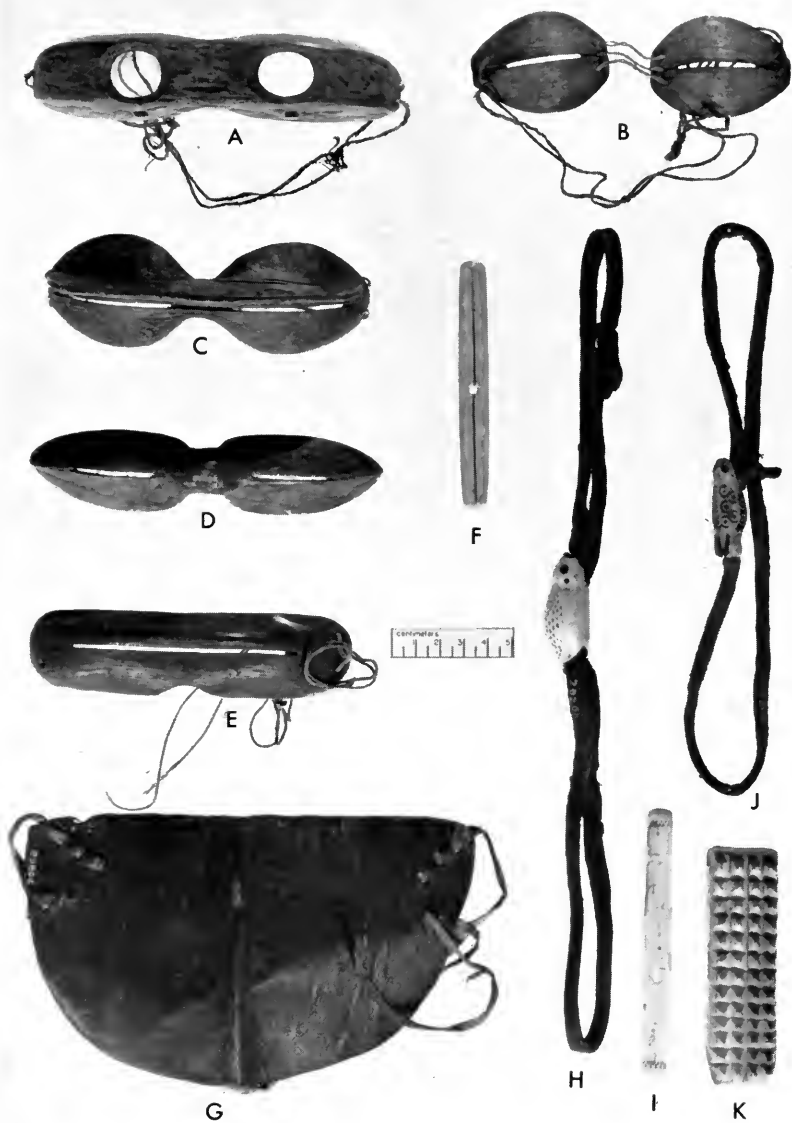


PLATE 4. a, snow goggles (20287); b, snow goggles (20296); c, snow goggles (20286); d, snow goggles (20295); e, snow goggles (20293); f, sinew twister (20527); g, eyeshade (20804); h, drag handle (20200); i, sinew twister (20526); j, drag handle (20202); k, ice creeper (20232).

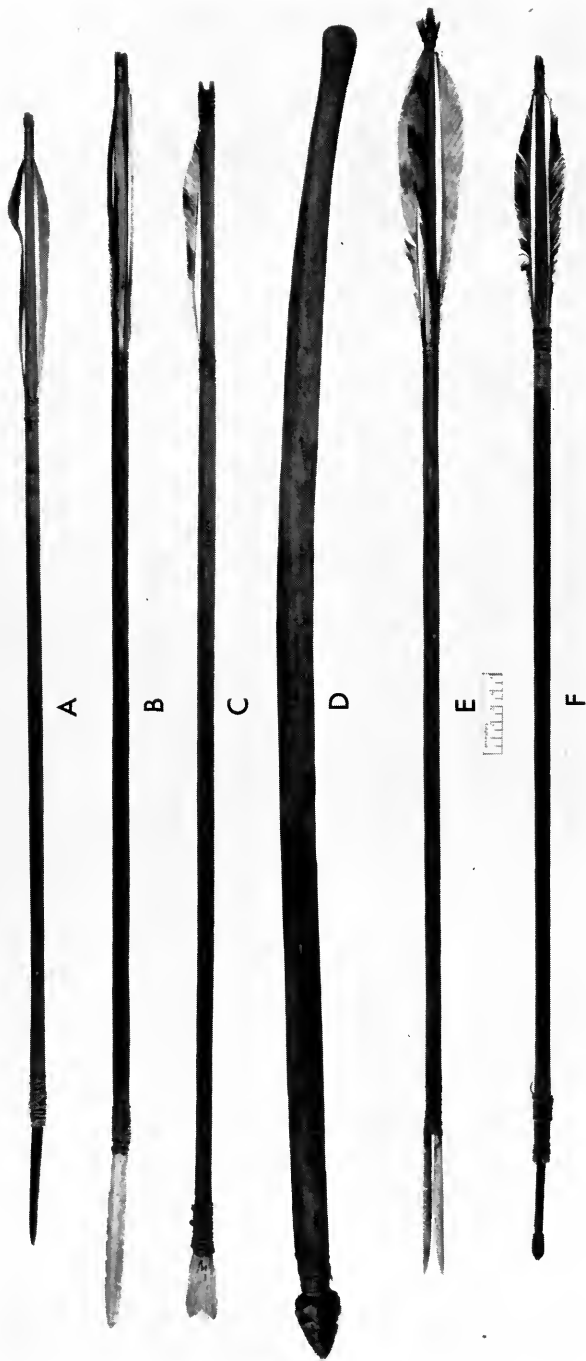


PLATE 5. a, arrow for large game or war (20115); b, arrow for large game or war (20108); c, bird arrow (20114); d, lance (20351); e, fish arrow (20110); f, arrow for large game or war (20113).

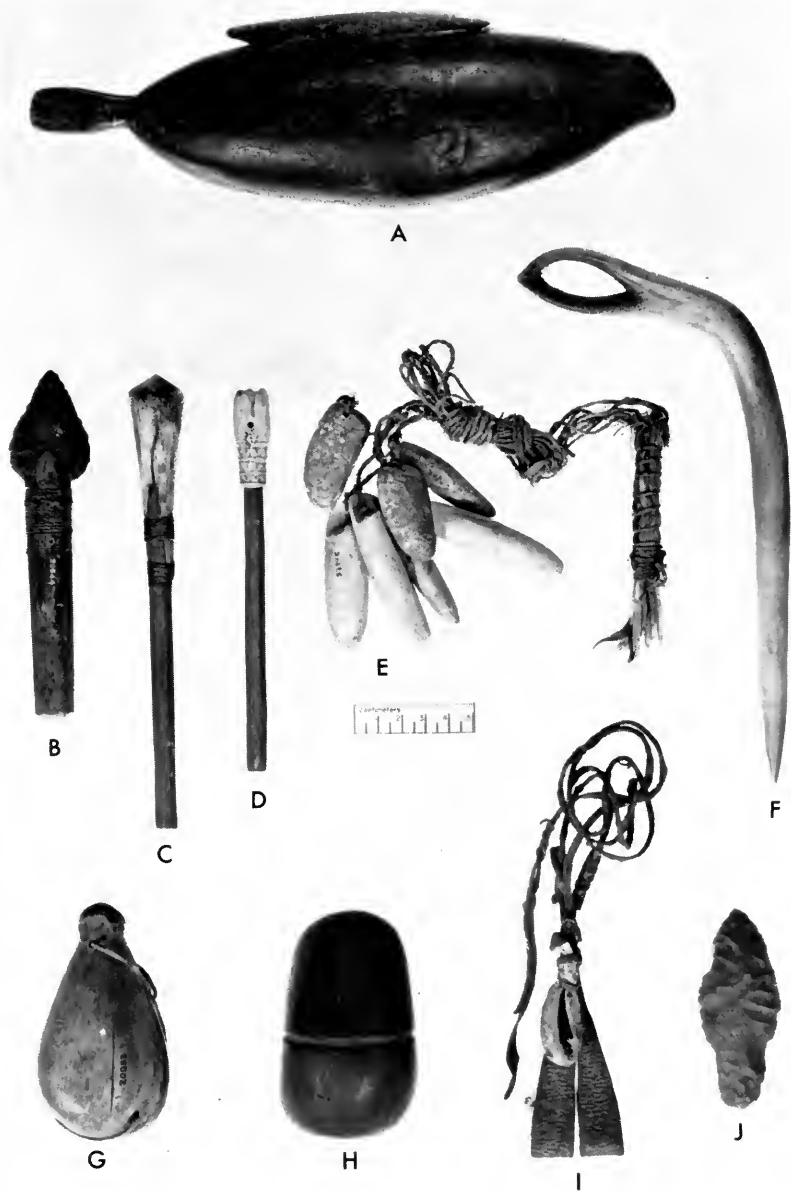


PLATE 6. a, box for harpoon or lance blades (20051); b, detachable lance head (20544); c, blunt arrowhead (20723); d, blunt arrowhead (20723); e, bolas (20665); f, arrow-shaft straightener (?) (20277); g, box for harpoon or lance blades (20053); h, box for harpoon or lance blades (20052); i, slingshot (20253); j, lance blade (?) (20345).

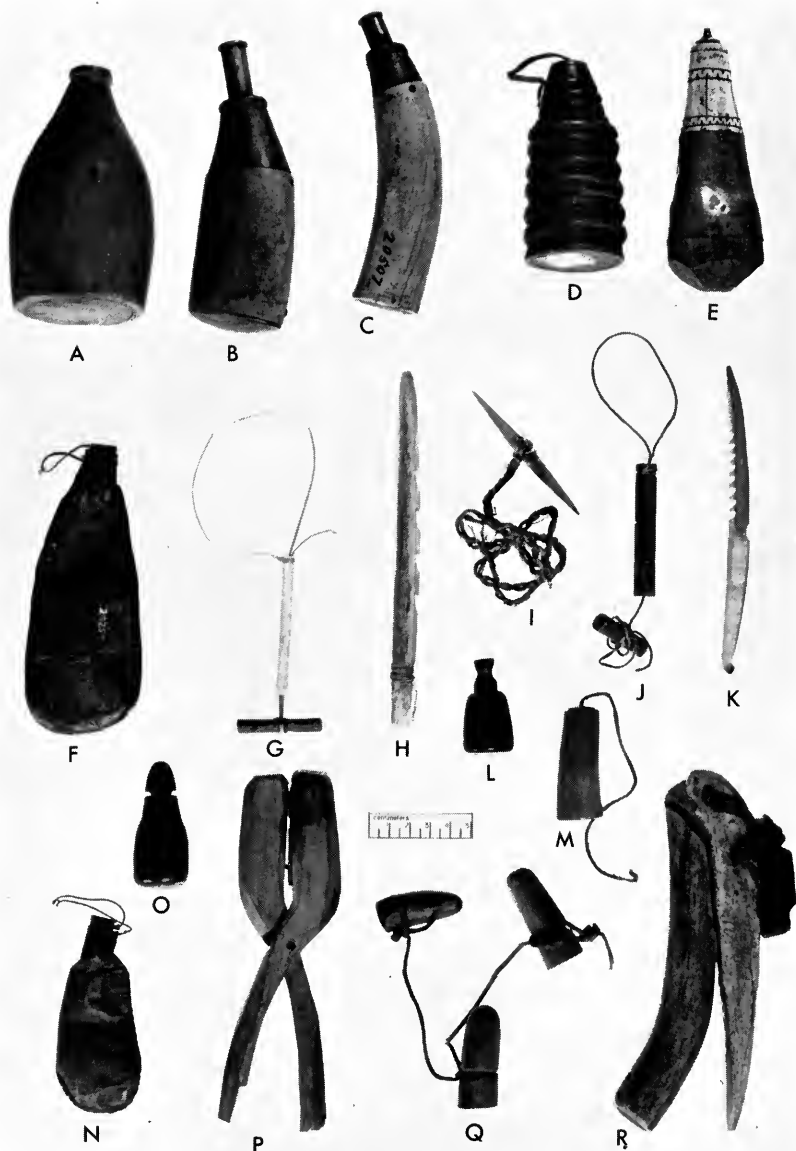


PLATE 7. a, powder flask (20508); b, powder flask (20504); c, powder flask (20507); d, container for percussion caps (?) (20048); e, powder flask (20506); f, powder pouch (20257); g, ground-squirrel snare (20825); h, bird spear point (20679); i, gorget (20341); j, ground-squirrel snare (20822); k, bird spear side prong (20681); l, container for percussion caps (?) (20219); m, container for percussion caps (?) (20703); n, powder pouch (20261); o, container for percussion caps (?) (20218); p, bullet mold (20684); q, cover for fish or bird spear prongs (no number); r, reloading tool (20241).

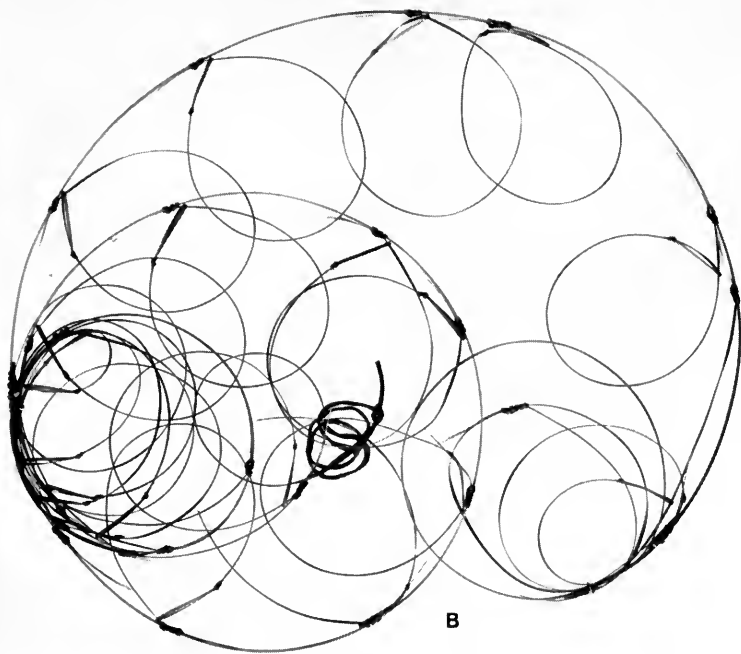
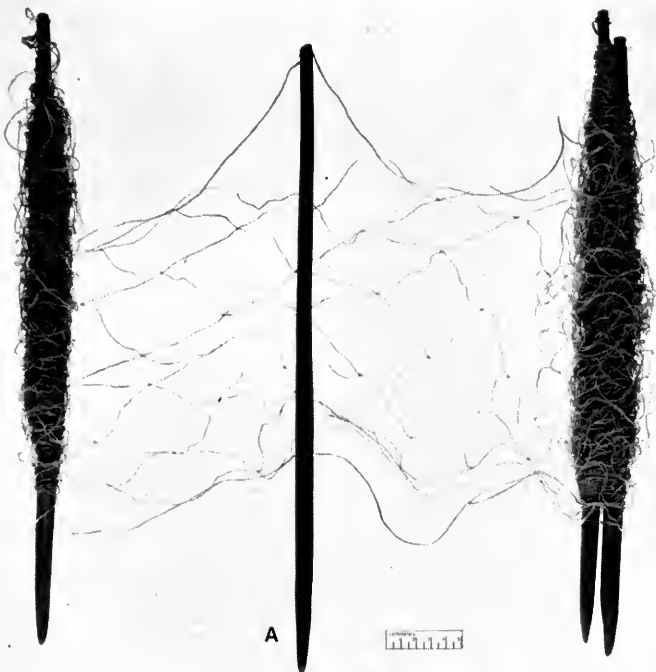


PLATE 8. a, ptarmigan net (20868); b, bird snare (no number).

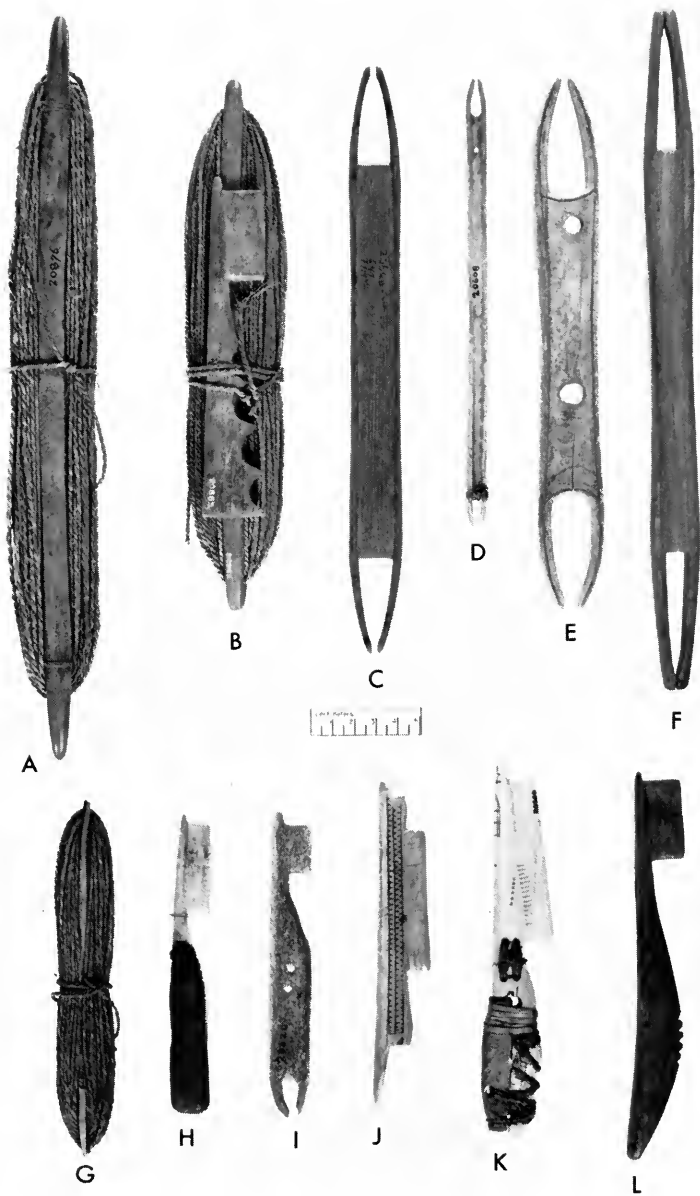


PLATE 9. a, net shuttle with willow-root netting material (20876); b, net shuttle with willow-root netting material and mesh gauge (20882, 20883); c, net shuttle (20620); d, net shuttle (20608); e, net shuttle (20602); f, net shuttle (20616); g, net shuttle with willow-root netting material (20879); h, mesh gauge, type 1 (20511); i, mesh gauge, type 1 (20520); j, mesh gauge, type 1 (20513); k, mesh gauge, type 1 (20509); l, mesh gauge, type 1 (20542).

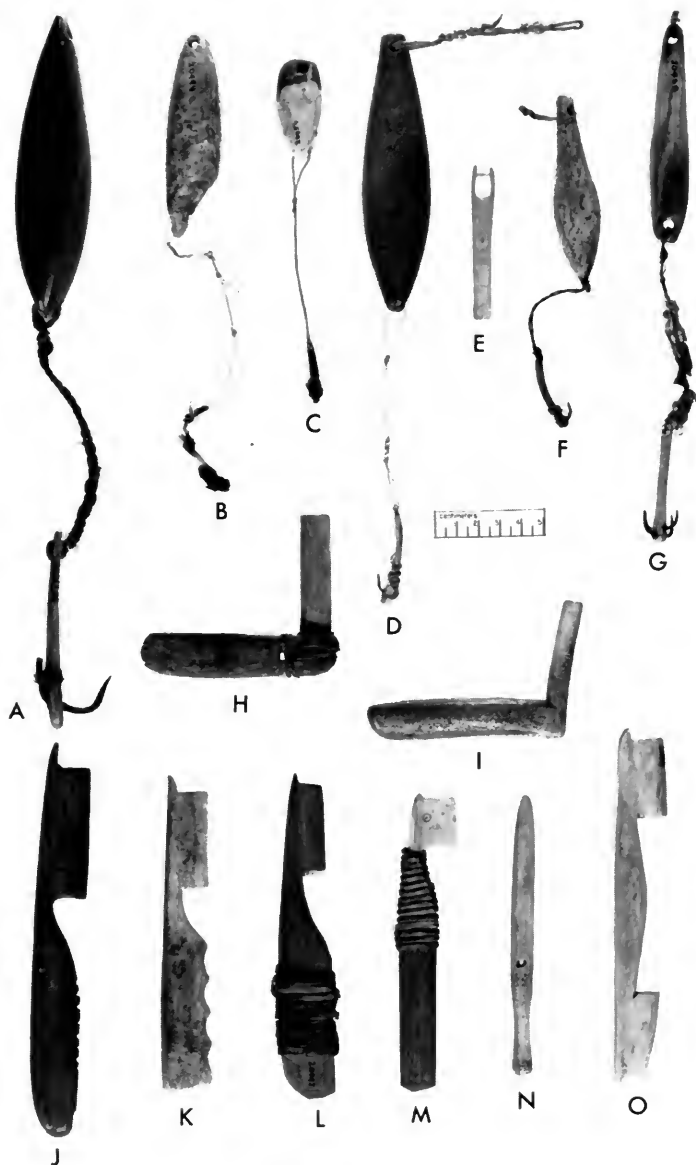


PLATE 10. a, lurehook assemblage with sinker (20457); b, lurehook assemblage with sinker (20449); c, lurehook assemblage with sinker (20454); d, lurehook assemblage with sinker (20452); e, tip for tomcod rod (20720); f, lurehook assemblage with sinker (20426); g, lurehook assemblage with sinker (20438); h, mesh gauge, type 2 (20211); i, mesh gauge, type 2 (20210); j, mesh gauge, type 1 (20541); k, mesh gauge, type 1 (20720); l, mesh gauge, type 1 (20543); m, mesh gauge, type 1 (20512); n, netting needle (20522); o, mesh gauge, type 1 (20517).



PLATE 11. a, sinker (20568); b, sinker (20451); c, sinker (20571); d, sinker (20458); e, sinker (20587); f, sinker (20570); g, lurehook for large fish (20424); h, lurehook for large fish (20446); i, lurehook for large fish (20447); j, lurehook for large fish (20428); k, lurehook for small fish (20445); l, lurehook for small fish (20444); m, sinker (20589); n, lurehook for small fish (20463); o, lurehook for small fish (20462); p, lurehook for large fish (20434); q, lurehook for large fish (20456); r, lurehook for large fish (20440); s, lurehook for large fish (20425?); t, lurehook for large fish (20455); u, sinker (20586).



PLATE 12. a, adze blade (20355); b, adze blade (20372); c, adze blade (20357); d, adze blade (20354); e, hammer (20280); f, end-bladed knife (20649); g, end-bladed knife (20650); h, end-bladed knife (20377); i, end-bladed knife (20644); j, adze (20166); k, end-bladed knife (20654); l, end-bladed knife (20655).



PLATE 13. a, root pick (20168); b, mattock (20169); c, mattock (20170).

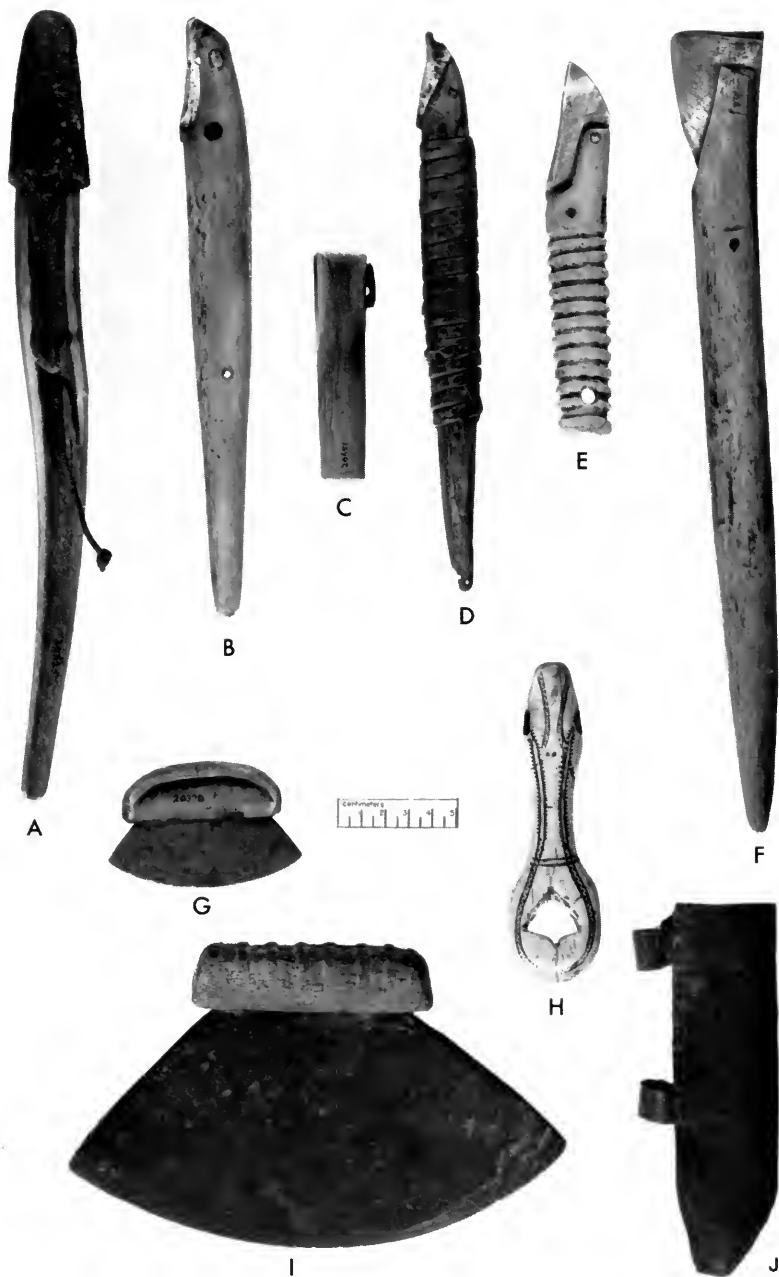


PLATE 14. a, side-bladed knife (20625); b, side-bladed knife (20634); c, side-bladed knife (20651); d, side-bladed knife (20643); e, side-bladed knife (20631); f, side-bladed knife (20639); g, ulu (20379); h, arrow-shaft straightener (20714); i, ulu (12055); j, knife case (20814).

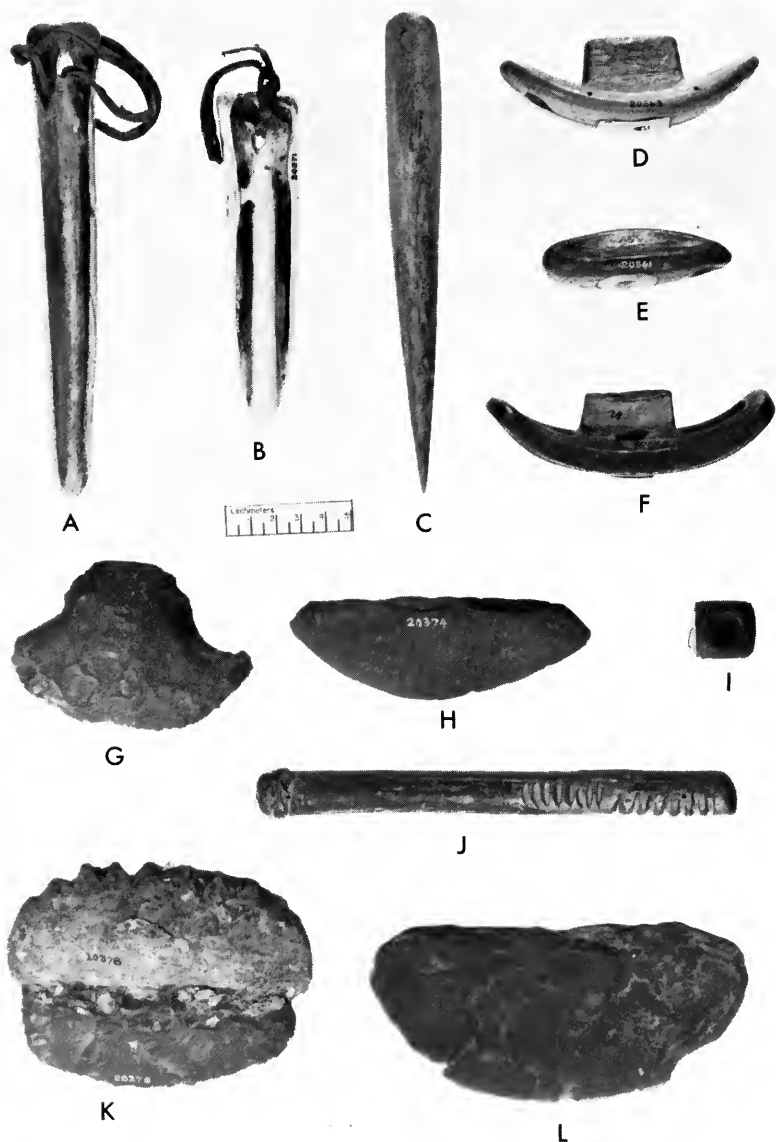


PLATE 15. a, chisel (?) (20270); b, chisel (?) (20271); c, awl or bodkin (20721); d, drill mouthpiece (20563); e, drill mouthpiece (20561); f, drill mouthpiece (20559); g, ulu blade (20342); h, ulu blade (20374); i, inset for drill mouthpiece (20566); j, saw handle (20659); k, ulu (20378); l, ulu blade (20356).

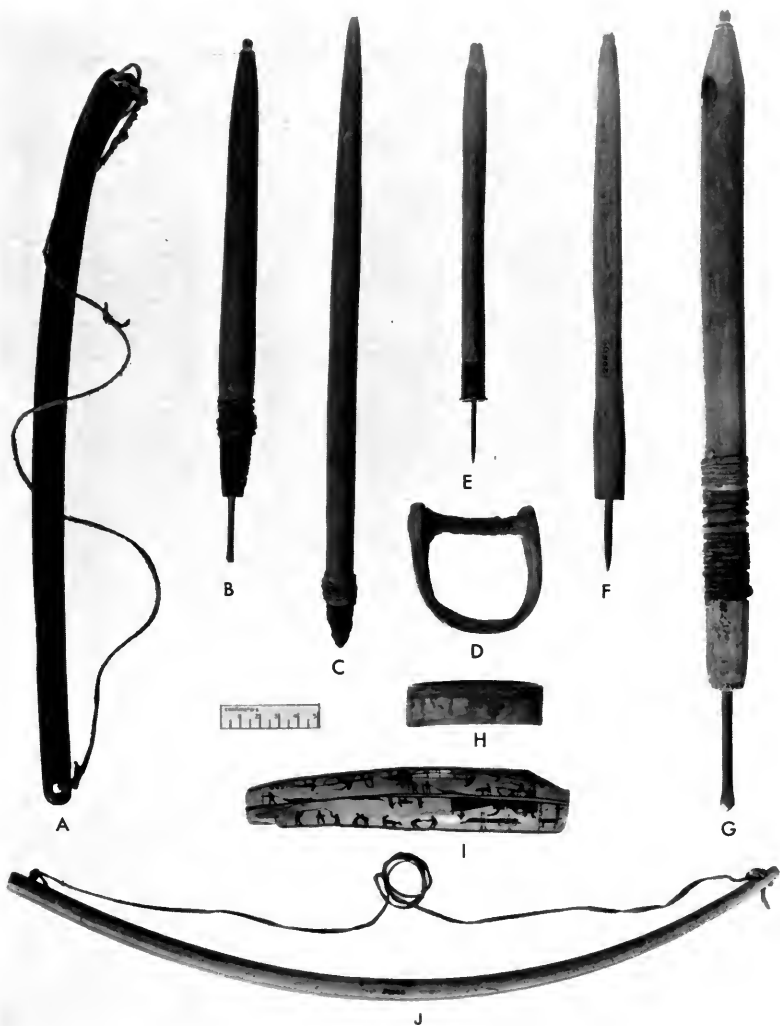


PLATE 16. a, drill bow (20534); b, drill shank (20598); c, drill shank (20545); d, skin scraper, type 1 (20239); e, drill shank (20601); f, drill shank (20599); g, drill shank (20592); h, skin scraper, type 1 (20238); i, skin scraper, type 1 (?) (20528); j, drill bow (20533).

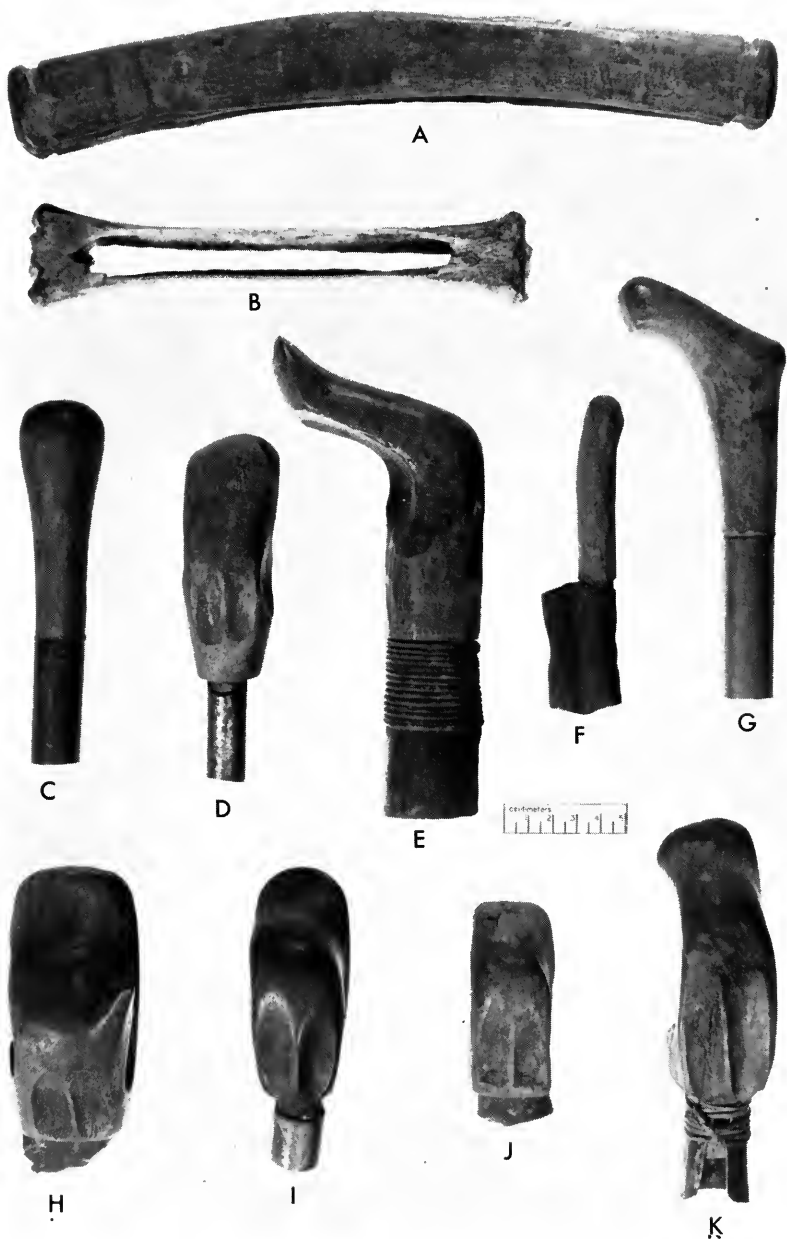


PLATE 17. a, skin scraper, type 2 (?) (20262); b, skin scraper, type 2 (20660); c, skin scraper, type 3 (20329); d, skin scraper, type 3 (20323); e, skin scraper, type 3 (20326); f, skin scraper, type 3 (20331); g, skin scraper, type 3 (20324); h, skin scraper, type 4 (20298); i, skin scraper, type 3 (20327); j, skin scraper, type 4 (20313); k, skin scraper, type 3 (20318).

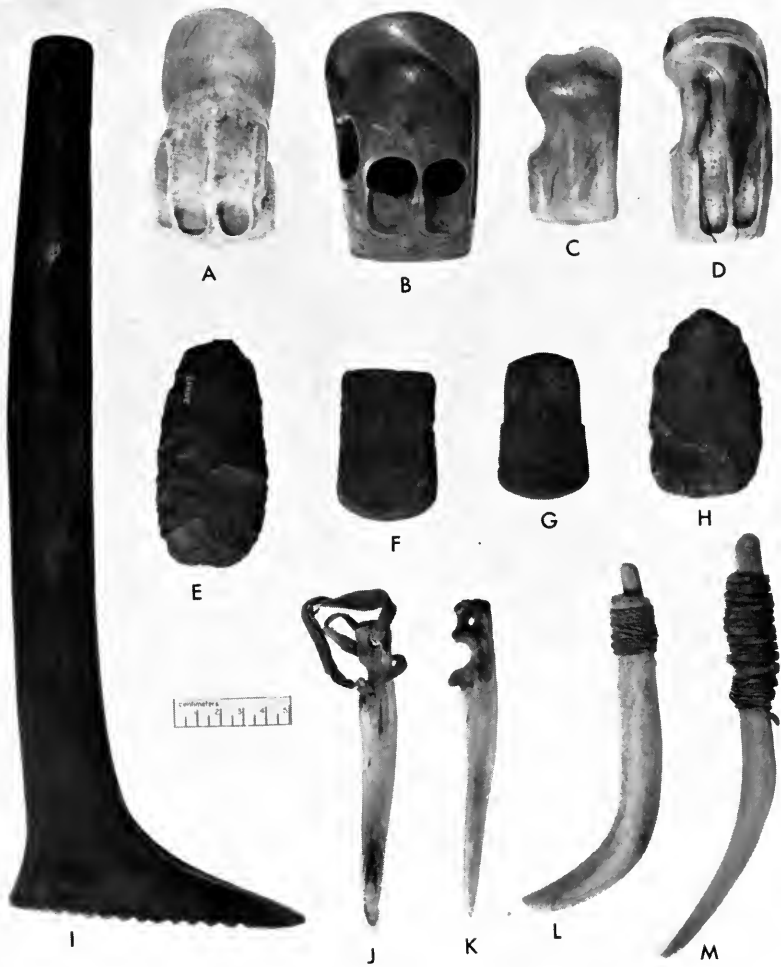


PLATE 18. a, skin scraper, type 4 (20333); b, skin scraper, type 4 (20297); c, skin scraper, type 4 (20337); d, skin scraper, type 4 (20335); e, scraper blade (20343); f, scraper blade (20371); g, scraper blade (20373); h, scraper blade (20344); i, berry crusher (20174); j, boot-sole creaser (20265); k, boot-sole creaser (20273); l, flint flaker (20204); m, flint flaker (20208).



PLATE 19. a, work box (20060); b, work box (20056); c, sinew shredder (?) (20385); d, box or bucket handle (20235); e, sinew shredder (?) (20382); f, sinew shredder (?) (20383); g, box or bucket handle (20237); h, box or bucket handle (?) (20579); i, thong stretcher (?) (20173); j, box or bucket handle (20546).



PLATE 20. a, bucket (20006); b, bucket (20007).



PLATE 21. a, utility bag (20734); b, bucket (20003).



PLATE 22. a, work box or trinket box (20046); b, work box or trinket box (20059); c, pouch (20861); d, work box or trinket box (20213); e, thimble holder (20713); f, work box or trinket box (20214); g, work box or trinket box (20704); h, dish, type 1 (20021); i, needle box (20705); j, needle box (20702); k, thimble holder (20276); l, needle case (20248); m, needle case (20247).



PLATE 23. Utility bag (20732).



PLATE 24. a, utility bag (20738); b, water or oil bag (20811); c, grass basket (20088); d, utility bag (20858).



PLATE 25. a, grass basket (20087); b, dish, type 1 (20010).

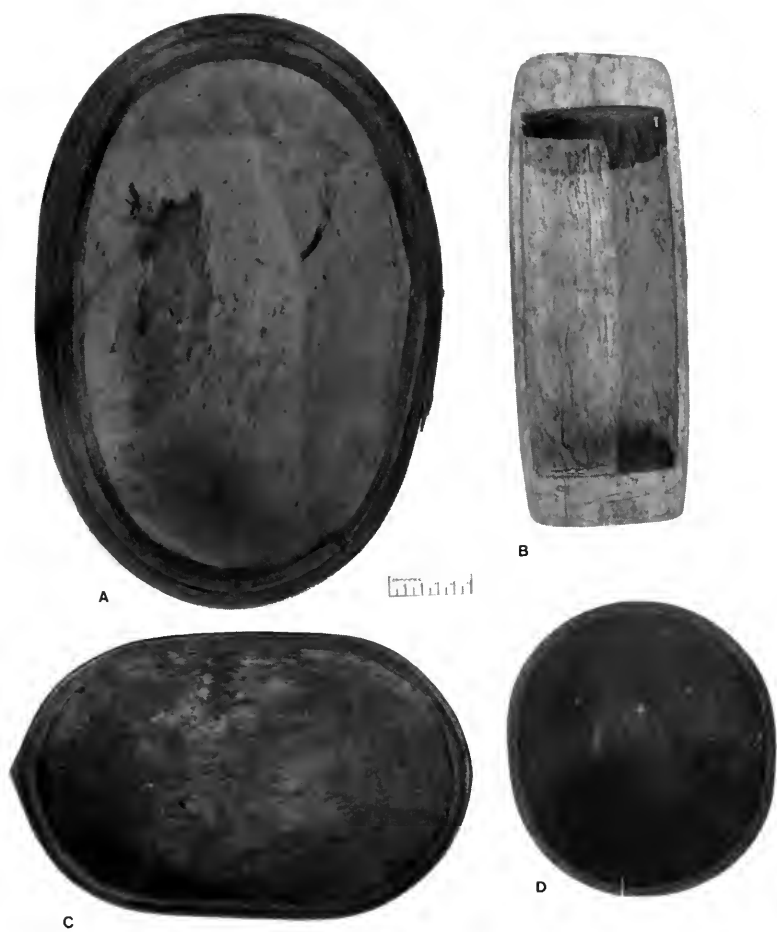


PLATE 26. a, dish, type 2 (20014); b, dish, type 1 (20025); c, dish, type 1 (20018); d, dish, type 1 (20008).



PLATE 27. Tray (20026).



PLATE 28. a, dish, type 1 (20013); b, ladle or dipper (20032); c, drinking cup (20063); d, spoon (20397); e, spoon (20396); f, spoon (20391); g, ladle or dipper (20036); h, scoop (20037).



PLATE 29. a, ladle or dipper (20029); b, lamp (20199); c, ladle or dipper (20033).



PLATE 30. a, ladle or dipper (20041); b, ladle or dipper (20042); c, ladle or dipper (20038); d, spoon (20027); e, spoon (20398); f, spoon (20389); g, spoon (20390).



PLATE 31. a, fire tongs (20090); b, disk for back scratcher (20283); c, belt with knife sheath (20852); d, back scratcher (20281); e, lamp (20198); f, clothes beater (20178).



PLATE 32. Woman's summer parka, front (20756).



PLATE 33. Woman's summer parka, back (20756).



PLATE 34. Raincoat (20758).



PLATE 35. Raincoat (20758).



PLATE 36. Raincoat (20758).



PLATE 37. Raincoat (20758).



PLATE 38. Woman's long raincoat, front (20757).



PLATE 39. Woman's long raincoat, back (20757).



PLATE 40. Man's trousers (20792).



PLATE 41. a, belt with pouch (20853); b, mitten (20746); c, belt with pouch (20851); d, belt fastener (20711); e, belt fastener (20711); f, mitten (20746).



PLATE 42. a, mitten (20739); b, glove (20752); c, mitten (20746); d, mitten (20751); e, mitten (20755); f, mitten (20755).



PLATE 43. a, mitten (20735); b, insole (20500); c, mitten (20747); d, child's summer boot (20801); e, sock (20741).



PLATE 44. a, rain boot (20744); b, winter boot (20745).



PLATE 45. a, whip ferule with section of handle attached (20282); b, block for umiak rigging, type 1 (20245); c, block for umiak rigging, type 2 (20245); d, block for umiak rigging, type 2 (20245); e, paddle rest (20782); f, swivel, type 1 (20244); g, block for umiak rigging, type 2 (20245); h, harness block or fastener (20711); i, swivel, type 2 (20719); j, paddle rest (20718); k, tip for boat hook (20278); l, swivel part, type 2 (20245); m, harpoon rest (20243); n, whip ferule (20712); o, winter boot (20742).

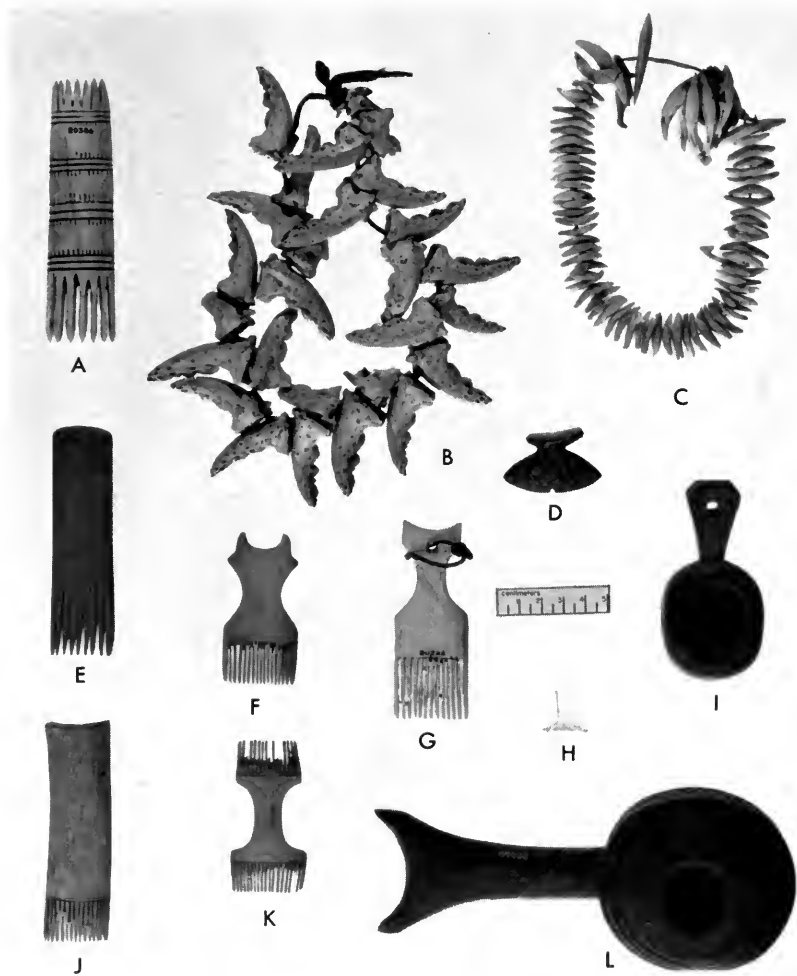


PLATE 46. a, hair comb (20386); b, pierced and restrung crab claws (20730); c, necklace of seal incisors (20690); d, labret (20503); e, hair comb (20387); f, hair comb (20227); g, hair comb (20222); h, labret (20502); i, mortar (20074); j, hair comb (20225); k, hair comb (20226); l, mortar (20069).

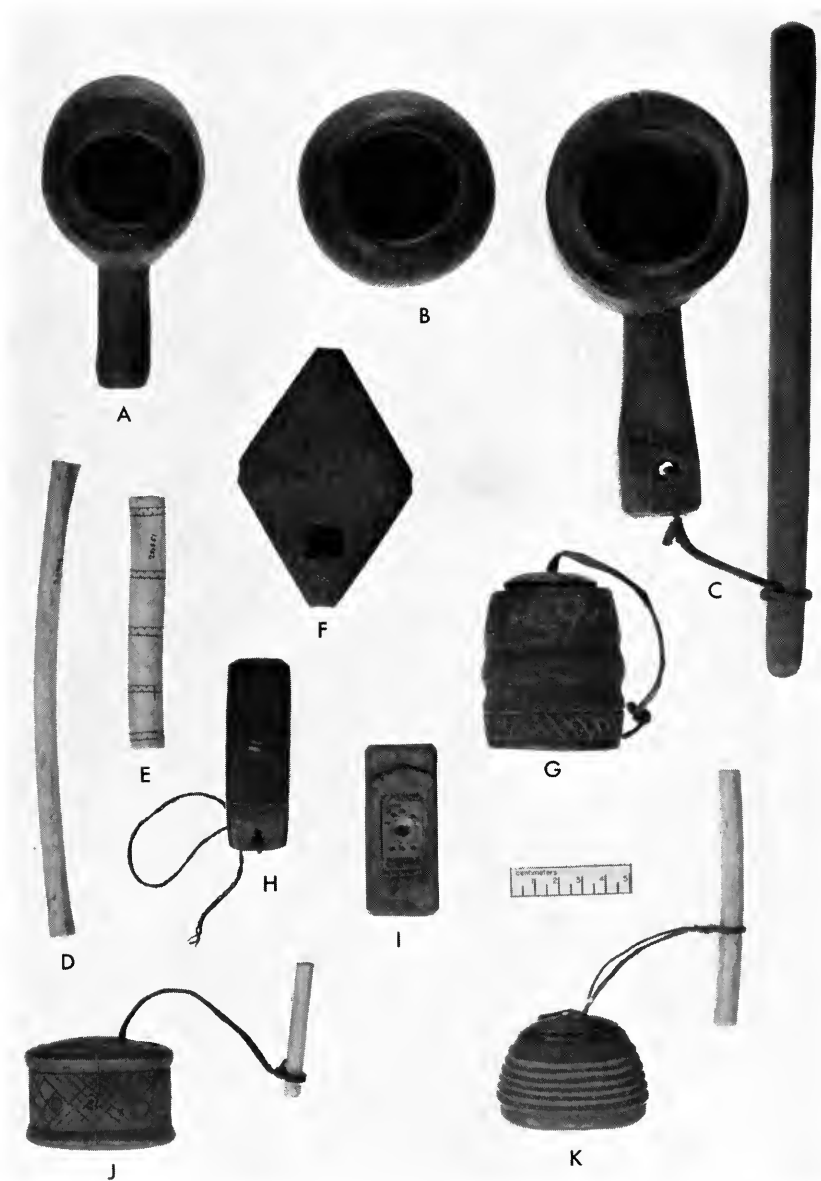


PLATE 47. a, mortar (20071); b, mortar (20075); c, mortar with pestle (20067); d, snuff tube (20548); e, snuff tube (20551); f, quid box (20057); g, fungus ash box (20066); h, quid box (20054); i, quid box (20726); j, snuff box with tube (20064); k, snuff box with tube (20065).



PLATE 48. a, tobacco pipe (20468); b, tobacco pipe (20482); c, tobacco pipe (20470); d, pipe bowl (20489); e, tobacco pipe (20479); f, case for pipe stem (20499); g, tobacco pipe (20475); h, tobacco pipe (20465); i, pipe bowl (20485); j, pipe bowl (20484).

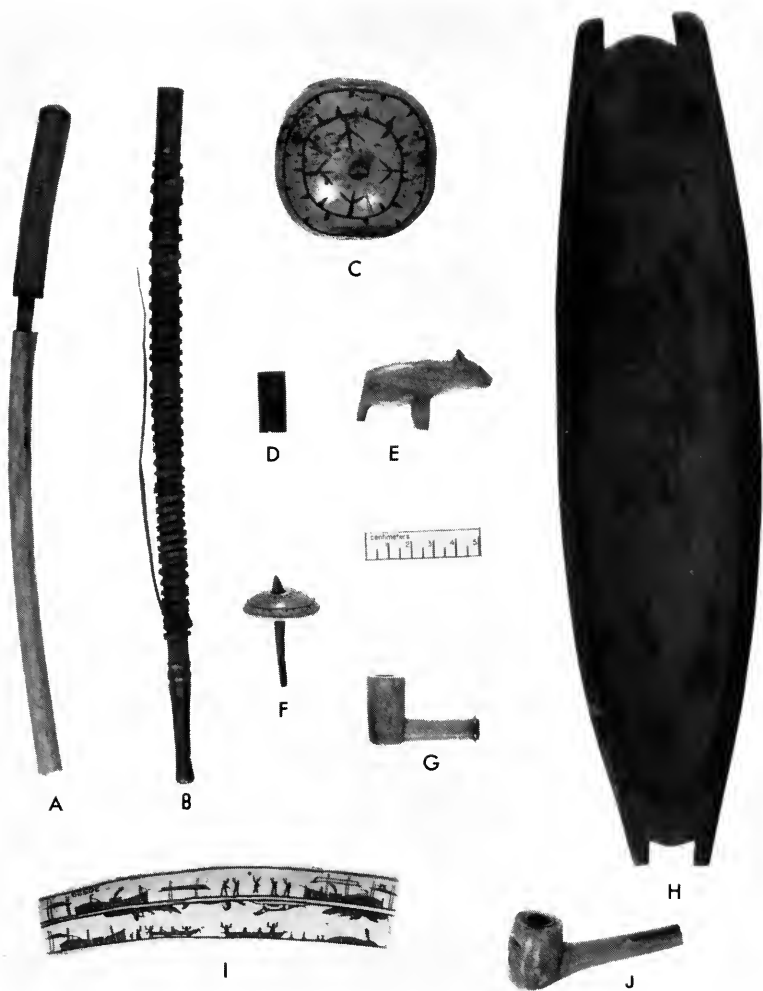


PLATE 49. a, popgun (20661); b, pipe stem (20494); c, top (20233); d, pipe bowl (20731); e, carving of a bear (20711); f, top (20234); g, pipe bowl (20486); h, model umiak (20023); i, section of ivory with etched designs (20529); j, pipe bowl (20483).

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