

THE CHUKCHI-IMURUK REPORT

Archeological Investigations in the Bering Land
Bridge National Preserve, Seward Peninsula, Alaska
1974 and 1975



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FOREWORD

This volume began as three separate reports on archeological work completed for the National Park Service in 1974 and 1975: 1) 1974 Chukchi-Imuruk Archeological Survey: Final Report (USNPS contract no. CX-9000-3-0136) by William Roger Powers, David C. Plaskett, and Alicia Godfrey; 2) Archaeological Investigations on the Seward Peninsula 1975, part I: the Chukchi-Imuruk Archaeological Survey (USNPS contract no. CX-9000-5-0080) by William Roger Powers, James A. Ketz, and G. Richard Scott; and 3) Archaeological Investigations on the Seward Peninsula 1975, part II: Archaeological Investigations at Cloud Lake Village (USNPS contract no. CX-9000-5-0080) by Jo Anne Adams. We have combined the original reports into a single paper, but have not tried to update them with the results of more recent anthropological work on Seward Peninsula. Although these projects were completed some time ago, we feel that the data are still of sufficient importance to warrant publication.

K. L. Arndt
Editor

ACKNOWLEDGMENTS

The authors thank the National Park Service for funding the research upon which this report is based. In particular we wish to thank Zorro Bradley of the National Park Service for his support of the research effort and of the eventual publication of the results. We also extend our thanks to Martha Johnson and Rick Blacklaws for their assistance on the 1974 survey; to Brian Stocklin for his assistance and photography on the 1975 survey; to Kevin Short and Susan Steinacher for drafting the maps which accompany the report; and to Larry Kaplan of the Alaska Native Language Center, University of Alaska-Fairbanks, for assistance with the spelling of Native place names. Finally, we sincerely thank the many people we met during the surveys who shared with us their knowledge of local history.

The successful completion of the field season at Cloud Lake depended on the assistance of many people. The author of this section of the report (chapter 6) wishes especially to thank W. Roger Powers, principal investigator of the Chukchi-Imuruk archeological survey project, under which the excavations were conducted. Dr. Powers offered valuable advice and continuous support during the project. She would also like to thank Dr. Anne Shinkwin of the University of Alaska for her support, encouragement and advice during the planning stages of the project. Mr. Zorro Bradley of the National Park Service provided equipment from the Park Service supplies and was extremely generous with his time and efforts on our behalf. Finally, the assistance of Mr. Thomas Emerson of the University of Wisconsin during the analysis and writing of the report is gratefully acknowledged. Mr. Emerson did the analysis of the ceramics, drafted the majority of the illustrations, and provided much helpful advice during the analysis of the faunal remains. The members of the crew--Kathy Arndt, Bob Besse, Jim Ketz, and Diann Wortman--all worked well and cheerfully under difficult field conditions and contributed freely of their own time during preparations for the field season. No small amount of thanks is

due to the many people of Deering who contributed their time and efforts to make our stay comfortable. The author would particularly like to express appreciation on behalf of the entire crew to Mr. and Mrs. Alfred Karmun and Mr. Harry Karmun for their many kindnesses and expressions of concern for our well-being while in the field. Mr. Art Fields and the people at Utica deserve special thanks for coming to our assistance with fresh supplies and equipment after an accident with the cookstove left the crew faced with the prospect of a cheerless final two weeks in the field.

THE CHUKCHI-IMURUK REPORT

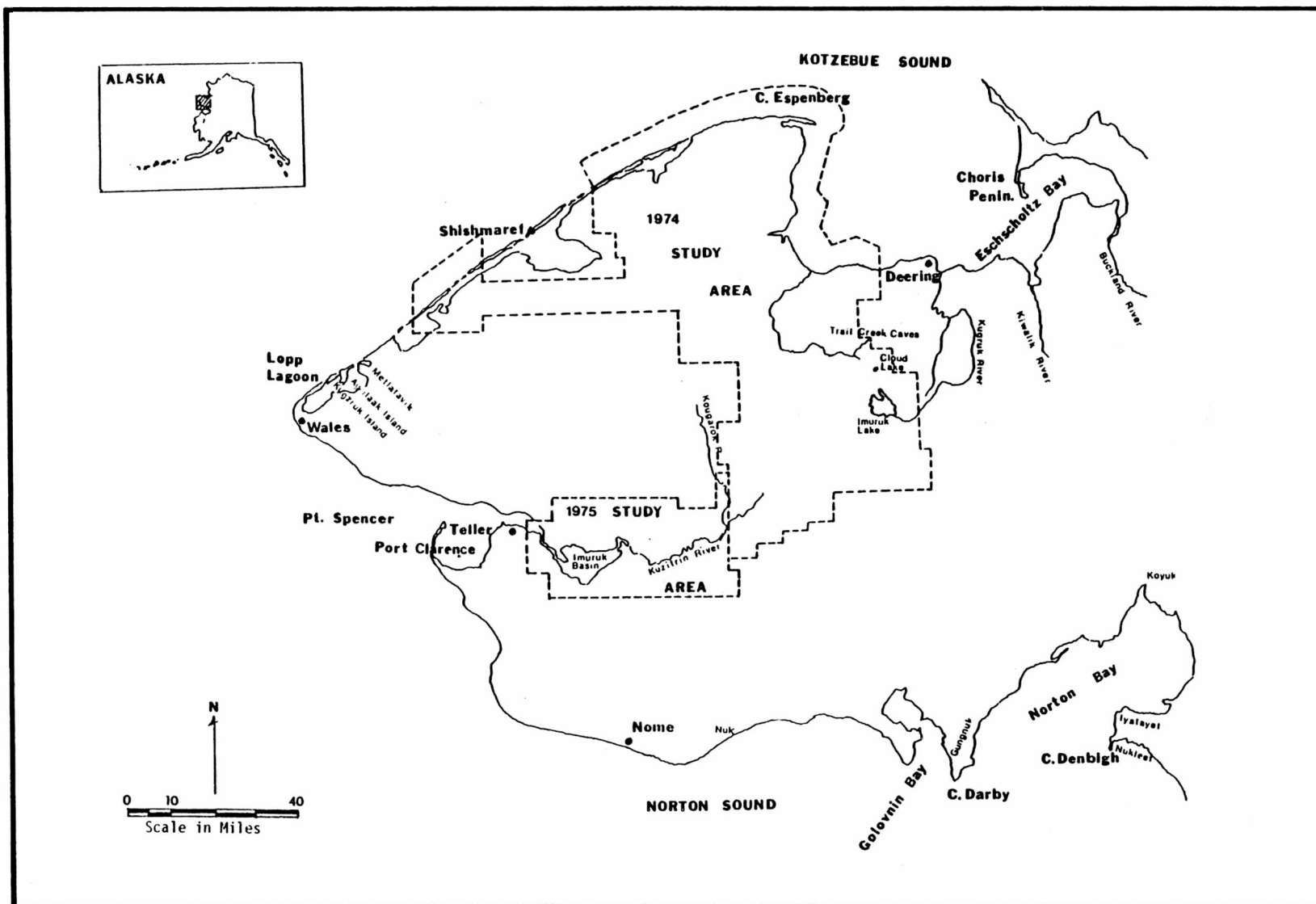


Figure 1. Seward Peninsula study area.

1

INTRODUCTION

The archeological studies described here were undertaken in conjunction with a broad assessment of the environmental and ecological values of the proposed Chukchi-Imuruk National Reserve, an area of approximately 2.7 million acres on the northern Seward Peninsula of Alaska. The reserve, one of a number of areas in Alaska which the federal government considered for withdrawal under Section 17(d)(2) of the Alaska Native Claims Settlement Act, is now known as the Bering Land Bridge National Preserve. In the early 1970s the National Park Service, which was to administer the preserve, funded studies to gather the data needed for an environmental statement and management plan. In 1974 these studies were expanded to include an archeological survey of the inland portion of the preserve. The following year the National Park Service supported a second archeological survey as well as excavations at Cloud Lake Village, a late prehistoric or early historic site recorded by the 1974 survey team. These three projects yielded new data on the inland distribution of archeological sites on the Seward Peninsula, supplemented our knowledge of archeological sites in the Imuruk Basin-Kuzitrin River region, and added an archeological dimension to the ethnographic reconstructions of late prehistoric hunting economies of the peninsula's interior. The data gathered in the course of the Chukchi-Imuruk archeological studies are the subject of this report.

The 1974 Survey

Our survey team, consisting of Dr. William Roger Powers of the University of Alaska-Fairbanks and four students, conducted a six-week archeological survey of portions of the proposed Chukchi-Imuruk National Reserve in the summer of 1974. The objectives of the survey were to

identify and describe archeological sites located within or near the reserve and to conduct limited test excavations at the larger sites to determine their probable significance. Our major focus was the interior portion of the proposal area, which had received little previous archeological attention, but some coastal areas lying just outside the proposed reserve were also examined. Areas covered included the Inmachuk River valley, the coast of Kotzebue Sound between Cape Deceit and the mouth of the Kugruk River, the Cloud Lake area, the north side of Imuruk Lake, the area between Imuruk and Kuzitrin lakes, Kuzitrin Lake itself, and the Serpentine Hot Springs area (figure 2). The survey team also conducted an aerial reconnaissance of Lava Lake.

Itinerary

While in Deering at the beginning of the season, the crew carried out a short survey of the coastal area and the valley of the Inmachuk River. At this time, we visited the following sites: a historic site on Cape Deceit known locally as Kipalut; the site of an Ipiutak ceremonial house at Deering excavated by Helge Larsen in 1950; the old village site known as Imnatchiaġmiut located approximately 3 km south of Deering; and possible house pits on the north side of the Inmachuk River opposite Imnatchiaġmiut. We also succeeded in locating several new sites: one on the east side of the mouth of the Inmachuk River which appears to be historic in age; a large village site with numerous house pits on Kugruk Lagoon; and three other smaller sites in the same area. In addition, we examined a possible grave site 2 km west of Cape Deceit and five platform burials with skeletal remains 1 km south of Deering, but did not open the graves. We were informed of the existence of two "caves" in the upper Inmachuk drainage, but were unable to locate them. It seems that any rock overhang large enough to provide shelter is called a "cave" by the local inhabitants.

After initial staging and survey work on and near the coast, the survey team moved into the interior of the Seward Peninsula. Our first stop was in the Cloud Lake area. While surveying in this area, we discovered a collapsed rock shelter at Asses Ears, two stone-lined pits at the south-

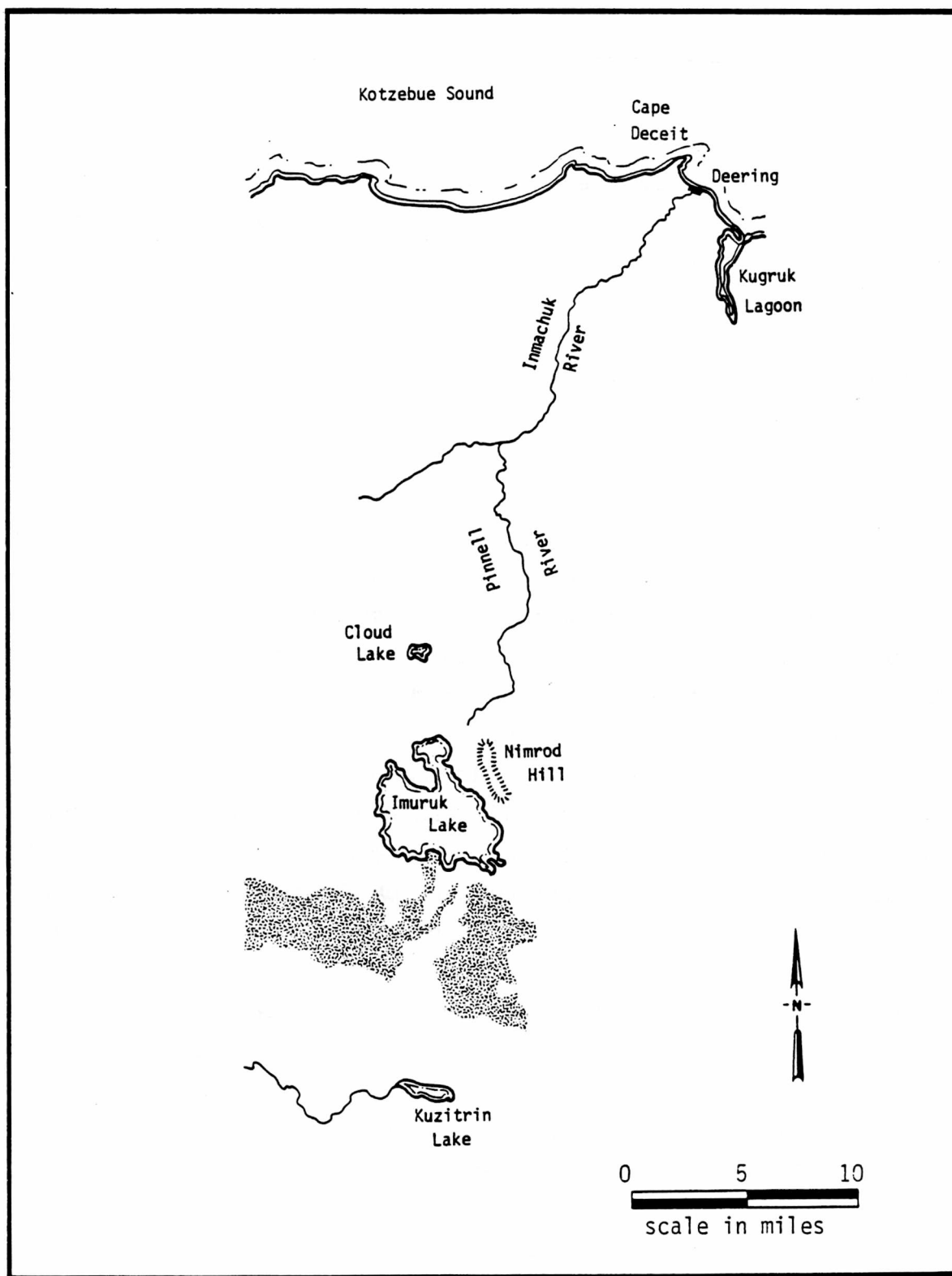


Figure 2. Detail of 1974 survey area.

east corner of Cloud Lake, cairns on Virginia Butte, and several other sites with stone structures as well as the previously known village sites on Cloud Lake and Skeleton Butte. The latter was truly impressive, with large cairns at the south end of the bluff and a village area at the north end composed of 25 house pits, 37 caches, and an incredible number of caribou bones. At the south end of the settlement area we studied two exceptional walled structures. These features are circular with walls which reach 2.5 m in height on the east side. We dubbed these "forts." In a house depression near the "forts" we conducted one small test excavation in which we isolated a centrally located hearth with charcoal and bone and wood fragments. No artifacts were recovered, however.

Having examined the Cloud Lake region, we moved our camp to the north side of Imuruk Lake at Salix Bay. We spent little time on Salix Bay as we used the lake to bring in a float plane to move us to the Kuzitrin Lake area. During preparation for this move, however, we discovered numerous artifacts on the beach near our camp. These included chips, pottery fragments, a polished slate knife, a sled or kayak part, broken caribou bones, and pieces of worked antler. Unfortunately, we were unable to locate any undisturbed site away from the beach.

After finishing our brief survey in this region, the crew split into two parties. One moved directly to Kuzitrin Lake and the other flew to the southeast side of Imuruk Lake. The latter group surveyed the Hoodoo Hill area and moved overland to Kuzitrin Lake. We were particularly interested in locating the historic village of Mitlakmiut which, unfortunately, we were unable to find. There are, however, several small hunting blinds, cairns, and stone rings in this area. Just to the southeast of Hoodoo Hill there is a "delta" which formed when the Lost Jim Lava Flow spilled into Imuruk Lake. We discovered a well and two hunting blinds here.

The overland survey to Kuzitrin Lake was very profitable as six sites were located. There is a large cairn and stone rings on Cassiope Cone, a cairn and a stone structure on Hill 1360 ($65^{\circ}32.7' \text{ N}$, $163^{\circ}26' \text{ W}$), and a large cairn on Rhododendron Cone. A large site was found at Gosling Cone, where we observed stone-lined house depressions, cairns, stone (tent?) rings, depressions, and caches. On Cyngus Cone, the survey

party found a cairn, a tent ring, and a hunting blind. Twin Calderas is an especially interesting feature. There are about 25 cairns on this cone which are visible for some distance. Quite conspicuous are large cairns up to 4 m in height with one or two connecting walls. One such set of cairns with walls definitely gives the impression of being a house structure. Another cone at 65°26' N, 163°06' W, was found to have two small, badly weathered and lichen-covered cairns. These seem older than most examined during the survey.

In the Kuzitrin Lake area we located a relatively large village site at the west end of the lake and two isolated house pits adjacent to one another several hundred meters east of the village site. One of these was a series of deep lobate depressions, all connected at a mid-point. The other was examined in more detail as it was rectangular with a smaller rectangular pit at its east end and still another on its north side. This was the only rectangular house found in our survey of the interior of the peninsula. We put in a small test trench and revealed a stone-paved floor, a centrally located slab-lined hearth with charcoal, pottery fragments, chips, and chipped-stone implements. Sturgeon Ridge was explored thoroughly but we could only locate a single hunting blind at the west end.

At this point, inclement weather forced most work to a halt. We took one short aerial reconnaissance trip to Lava Lake, but as nothing of significance could be detected from the air, we decided to return to the coast at Deering. The last area to be examined during the 1974 season was Serpentine Hot Springs. We lost several days at Deering while trying to secure aircraft to move into this area. Once this was accomplished, only a couple of days of the survey remained and we could conduct only a short survey of the area. Unfortunately, we discovered nothing of significance.

Results

The 1974 survey was very productive. We visited 37 archeological sites in all. Some of these were previously known, but we recorded others for the first time. Many sites in the survey area do not have observable surface material of a cultural nature which could be collected

directly. The great extent of the survey area and time limitations in many instances also precluded extensive archeological testing of the sites. Nevertheless, 51 artifacts as well as faunal material and chipping detritus were recovered in surface collections and test excavations. The sites and collections are described in chapter 5.

Excavations at Cloud Lake, 1975

Cloud Lake Village, in the heart of the proposed Chukchi-Imuruk National Reserve, was visited by the 1974 survey team. The team considered this site and a similar site at Skeleton Butte to be of special importance not only because of their large size and inland location, but also because stone houses such as were found there were previously unknown on the western Arctic mainland. When an opportunity arose for excavations within the Chukchi-Imuruk area, Cloud Lake Village was chosen as a site which would be likely to yield valuable data on the economy of the prehistoric hunters of the interior of Seward Peninsula.

Jo Anne Adams, then of the University of Alaska-Fairbanks, and a crew of four student excavators spent six weeks at the site in July and August of 1975. Field equipment was flown from Fairbanks to Deering and then hauled overland to Cloud Lake with a caterpillar tractor driven by Alfred and Harry Karmun of Deering. Dr. William Roger Powers and Dr. G. Richard Scott spent several days helping to set up camp and to prepare the site for excavation before leaving to lead the 1975 Chukchi-Imuruk archeological survey. Due to difficulties of logistics, the survey and excavation crews could not maintain contact during the field season and the Cloud Lake research effort was carried out in considerable isolation. A full report of the work at this site and of the subsequent analysis of material recovered is presented in chapter 6.

The 1975 Survey

In July and August of 1975 our crew, consisting of Dr. William Roger Powers, Dr. G. Richard Scott, and two students from the University of

Alaska-Fairbanks, conducted a six-week archeological survey in an area of ecological concern just west of the proposed Chukchi-Imuruk National Reserve. Our objectives were to locate, describe, establish limits, and attempt to determine the chronology of the known and newly discovered sites of this region. While many sites in this area had been known for a long time, the exact nature of many was somewhat vague. The survey team was to gain additional information which would provide a fuller understanding of the prehistoric occupation of the region. The survey covered the north coast of Grantley Harbor, the shores of Tuksuk Channel and Imuruk Basin, the delta and lower course of the Kuzitrin River, and the lower Pilgrim River (figure 3). We conducted aerial reconnaissance by fixed-wing aircraft over the Kuzitrin, Noxapaga, and Fish rivers, the western edge of Imuruk Lake, and the north side of the Kigluaik Mountains. Additional survey of the adjacent hinterlands via helicopter had been planned, but the untimely demise of the only two helicopters in Nome made this impossible.

Itinerary

After helping the excavation crew at Cloud Lake to set up camp and an excavation grid two of us, Dr. Powers and Dr. Scott, flew to Nome where we were joined by the other two members of the survey party. From Nome our survey team moved to Teller, where arrangements were made with Mr. Paul Ablowaluk to transport us in his motorboat to the Imuruk Basin via Grantley Harbor and Tuksuk Channel. Mr. Ablowaluk acted as our guide and informant throughout the research season.

The survey began at the eastern end of Grantley Harbor, where we examined Ualit and the huge village site of Qasilinaq. At the entrance to Tuksuk Channel we examined Singauraq. This name apparently refers to sites on both sides of the channel entrance as well as to another group of house pits on top of a low cliff nearby.

Along Tuksuk Channel we examined a number of village sites which are presently occupied by modern fish camps. It is clear that every spot suitable for human occupation was utilized just as it is today, and probably for the same purposes. Listed in order of occurrence while traveling

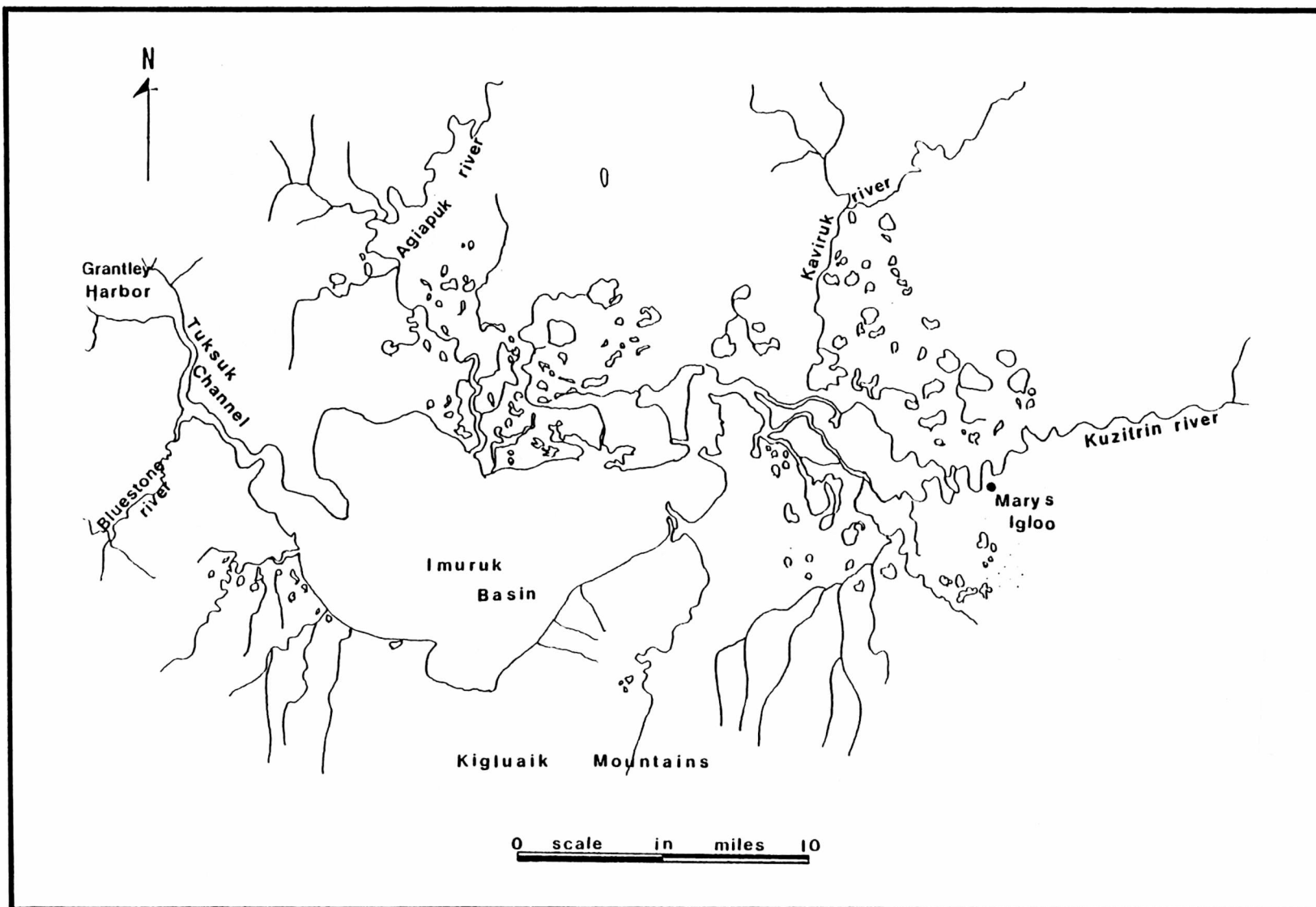


Figure 3. Detail of 1975 survey area.

from Grantley Harbor toward the Imuruk Basin these sites are: Masu, Kopolokturuk, Qargun, Akulesak, Titqiaq, Itak, Kingnugat, Kruprolok or Asagorak, Alianok, Puibluk, Kangaruk, Qaḡriuḡvik, and Tapqaq. Of these, three deserve additional mention: Itak, Puibluk and Kangaruk. Itak is the only known site with pictographs on the Seward Peninsula and is in great danger of being destroyed. Kangaruk was a very important local village in the nineteenth century and perhaps even earlier. Puibluk is quite a sizable village, stretching across a low-lying point and back up onto a hill behind it. It is quite possible that the greatest time depth may be attained by excavations at the latter site.

There are surprisingly few sites on Imuruk Basin proper. All the sites we located were associated with the mouths of the three major rivers which flow into the basin, the Agiapuk, the Cobblestone, and the Kuzitrin.

At the mouth of the Agiapuk we examined a series of fish pits at a site called Tunu. Further upstream we located the old village of Metuktuk, associated with a cemetery, and another small village site composed of two house depressions. It is surprising that there are not more localities along this stream, as the people of Teller use these waters for late summer salmon fishing. At the head of navigation on the Agiapuk the survey crew examined several long exposures of Pleistocene muck. It is difficult to tell the age of these deposits from the available geological maps, but they may date to the Illinoian glaciation. We found only fragmentary mammalian bones in a very poor state of preservation.

After leaving the Agiapuk River, we traversed the north side of Imuruk Basin. The entire shore as well as the immediate hinterlands are extremely low in elevation and constitute little more than a huge swamp-land. Extremely shallow water prevented us from approaching the shore in the boat. Murky waters and numerous holes in the lake bottom prevented us even from wading ashore in most instances.

From this area we moved to the Kuzitrin River where we established a camp. On the lower Kuzitrin and its tributary channels we located a number of village sites, including Qikiqtaḡruk, Kauwerak, Iglaurak, Isuqtuq, and Shungiyorut. Of these Kauwerak stands out with special prominence. This large mound constitutes a substantial settlement which is

second only to the prehistoric settlement at Cape Prince of Wales in size and importance. After examining these areas we moved our operation to Marys Igloo and from that locality we studied Aviunak (Marys Igloo), Kektoashliuk and Atnaq. As river navigation is impossible above Kektoashliuk by July, our search for ancient sites shifted from Marys Igloo back to Imuruk Basin at the mouth of the Cobblestone River. Here we studied one small village composed of several house pits.

We conducted aerial surveys on both the Kuzitrin and Fish rivers, but learned very little from the effort. It is quite difficult to see the types of subtle vegetation changes which mark the presence of house pits from a fast-moving aircraft. It was, however, possible to fix the location of the village site at the mouth of the Noxapaga where it empties into the Kuzitrin, and we could detect the three sites which fall collectively under the name of Soiyuk. We also located the elusive "caves" at the west end of the interior lava flows, at least to our satisfaction. The flows are heavily pitted with collapsed blisters and pressure ridges. Each of these could constitute a small "cave" or shelter of some sort. We examined two into which a human or group of humans could step and find some shelter. Many of these holes contained the bones of animals which fell in and could not escape. With the exception of the two caves mentioned above, all others were extremely cold and uncomfortable and not particularly suited to anything but emergency shelter. Our traverses over the Fish River as well as attempts to find the historic site of Mitlakmiut at the west end of Imuruk Lake yielded no new archeological information.

While moving out of the field in August, our route took us along the southern shore of the Imuruk Basin. This strip was particularly barren of evidence of human use. At the west side of Windy Cove we examined more fish pits at a site called Igluk. From here we moved back to Teller.

We continued aerial reconnaissance in the Kigluaik Mountains and especially on the north side of this range, but found only a small tent ring on an ice contact feature at the point where the Cobblestone River breaks away from the front of the Kigluaik Mountains. On a return trip from this area to Nome, we stopped briefly at Glacial Lake where David

Hopkins had previously reported finds of microblades on a breached end moraine. We confirmed the existence of a shallow surface site here.

Results

We visited or mapped the location of 49 sites and localities. These are described in chapter 5. Test excavations were conducted very rarely during the survey. Permafrost is nearly continuous throughout this region and time limitations did not permit us to wait for newly opened test pits to thaw. In addition, all habitation sites except Isuqtum kanja, Kektoashliuk, and Atnaq had been seriously disturbed. We attempted limited testing at the undisturbed sites and at Kauwerak but were forced to halt because of frozen ground and time limitations.

2

PREVIOUS WORK

When Diamond Jenness led an expedition to Bering Strait for the National Museum of Canada in 1926, his instructions were:

- (a) to investigate the archaeological remains in the vicinity... keep[ing] in mind two problems:
 - (1) the origin of Eskimo culture..., and
 - (2) the possibility that tribes have migrated since Pleistocene times from Asia and America across Bering Strait;
- (b) to investigate the Eskimo dialects spoken in the same region (Jenness 1928a:71).

If the latter category may be broadened to include ethnographic description in general, these instructions summarize the major themes of anthropological research in the Bering Strait region from the 1880s through the 1950s. And, though the ethnohistory of the region has become a major focus of research in recent decades, these themes persist even to the present.

Bering Strait Archeology and the Origin of Eskimo Culture

Early theoreticians based their reconstructions of Eskimo origins almost exclusively upon contemporary ethnographic descriptions and the geographic distributions of various cultural traits. The weaknesses of such an approach became apparent, however, with a series of archeological discoveries of Eskimo cultures--Thule (Mathiassen 1927) and Dorset (Jenness 1925) in the Canadian Arctic, Birnirk at Point Barrow (Stefánssen 1914; Wissler 1916), and what was later to be called Old Bering Sea on Bering Strait (Jenness 1928a, 1929)--which were quite unlike their contemporary representatives. By the late 1920s it was generally recognized that "the surest means of ascertaining the origin of Eskimo culture is that of archaeological investigation" (Rasmussen 1928:179). Pioneering work in the

Bering Strait area, conducted independently by Jenness (1928a), Hrdlička (1930:88, 173-176, 363), and Geist (Geist and Rainey 1936:23-27) in the summer of 1926, yielded small archeological collections which demonstrated the region's research potential in regard to questions of Eskimo origins. The following decades witnessed steady, methodical, and highly productive archeological investigations in and about Bering Strait which culminated in the construction of a regional cultural chronology spanning five millenia.

The first major excavations in the region, conducted on St. Lawrence Island in the late 1920s and early 1930s by Henry B. Collins and Otto Geist, outlined all but the earliest phases of Eskimo occupation (Collins 1929a, 1929b, 1930, 1931, 1932, 1935, 1937b, 1937c; Geist and Rainey 1936). The latter were clarified by Rainey (1941a), who subsequently defined the Okvik phase of the Old Bering Sea culture. The St. Lawrence sequence was essentially duplicated on the Asiatic mainland (Rudenko 1961; Arutiunov and Sergeev 1968), although problems later emerged in dating the relationship between the Okvik and Old Bering Sea cultural phases (Giddings 1960a; Arutiunov, Levin and Sergeev 1964).

Investigations on the Alaskan mainland revealed a series of even earlier archeological cultures, beginning with the discovery and excavation of the Ipiutak remains at Pt. Hope (Larsen 1940, 1952; Rainey 1941b, 1941c, 1941d, 1942; Larsen and Rainey 1948; Giddings 1967:102-127). With the approach of the 1950s came the definition of the Norton culture and the Denbigh Flint Complex at Cape Denbigh on Norton Sound (Giddings 1949, 1950a, 1950b, 1950c, 1951, 1964, 1967:246-276). The study of beach ridge archeology later in the decade resulted in the definition of the Choris culture in Kotzebue Sound (Giddings 1957, 1967:200-222) and ultimately in the discovery of the sequence of 114 beach ridges at Cape Krusenstern in 1958 (Giddings 1959, 1960a, 1960b, 1967). This string of important discoveries culminated in the re-examination of the Onion Portage site on the Kobuk River in 1961 and the discovery of its deep cultural stratification (Giddings 1962, 1967:340-367).

As ever earlier archeological assemblages were discovered, investigations of Eskimo origins began to converge with studies of the peopling of the New World. Western Alaska had long been the focus of speculation about floral, faunal, and cultural relationships between Asia and North

America. Even before the region had been charted by eighteenth-century explorers, scholars had proposed that American aboriginal populations had originated in Asia and entered the New World from the north (Willey and Sabloff 1975:24-26). The geography and ethnography of the region, once described, seemed to support such a theory and the Seward Peninsula became, for Americanists, the most logical place to look for vestiges of the ancient hunters who first crossed the strait. As the theory of the existence, in the Pleistocene, of a broad land bridge between Asia and North America gained credence, the search for early man spread to the entire western Alaskan coast. The discoveries of the lowest levels of the Onion Portage site (Anderson 1968) and of possible evidence of a terminal Pleistocene occupation at Trail Creek Caves in the northern interior of the Seward Peninsula (Larsen 1951, 1953, 1962, 1968), however, continue to spark hope that the oldest North American cultures are yet to be found in the immediate vicinity of Bering Strait.

With the notable exception of Trail Creek Caves, this review of the discoveries which outlined northwest Alaskan cultural history suggests that the major sites generally triangulate around the Seward Peninsula, from Norton Sound to St. Lawrence Island and northeastward to Kotzebue Sound. This may be largely fortuitous, but the following review of archeological work on Seward Peninsula does suggest that the archeological potential of the peninsula cannot match that of 1) the tell-like middens of St. Lawrence Island and Tigara, 2) the beach ridges of Cape Krusenstern with their succession of shore-side houses and camping places, or 3) deeply stratified sites such as Onion Portage.

Archeological Research on the Seward Peninsula

Archeological reconnaissance and actual excavations on the Seward Peninsula have been sporadic, but closely tied to work in the Bering Strait region as a whole. Fieldwork has been restricted primarily to the coast because the cost and availability of inland transportation make more feasible the survey and excavation of sites accessible by boat. Major exceptions to this have been the work at Trail Creek Caves and portions of the present survey.

Archeology on the peninsula began in 1926 with Jenness' excavation at Wales, where a number of structures were examined at the Upper Village and Kurigitavik sites. Jenness concluded, primarily on the basis of changes in harpoon styles, that two and probably three periods were represented at Wales: an historical period, preceded by a "transitional" phase, which followed a "Thule-like" manifestation (Jenness 1928a:72-78). At the end of the season inclement weather forced Jenness, enroute to Nome, to take refuge at Teller. Taking advantage of the delay, he ventured inland to examine locally reported pictographs on the Tuksuk Channel (Jenness 1928a:78-79).

A day earlier, Hrdlička had also entered the Tuksuk Channel, but continued across the Imuruk Basin and stopped near the mouth of the Kuzitrin River (Hrdlička 1930:118-120, 1943:137-141). He was searching for the battlesite where, according to legend, local Eskimos defended themselves successfully against invading Siberians. Unfortunately, he had only enough time to note the presence of several house pits and to collect a single calvarium, and was unable to locate the supposed wealth of skeletal material which marked the battlesite. Earlier in the field season, Hrdlička's survey and search for osteological material had taken him to the abandoned village site of Nuk (Nuuk) near Cape Nome, the village of Shishmaref, and various sites on Golovnin Bay (Hrdlička 1930:88-90, 97-98, and 115-116, 1943:87, 105-108, 133-135).

In 1928, after a season of excavation on St. Lawrence Island and the Punuk Islands, Henry Collins surveyed the coast between Wales and Shishmaref to look for reported ancient sites. The result was a brief excavation at the abandoned village site of Metlatavik, 22 miles north of Wales. On the basis of a rich collection of artifacts from the midden and well-preserved remains of houses, Collins concluded that this site was only a few hundred years old (Collins 1929a:147-149, 1937b:261-264).

The following summer, Collins resumed his work in northwest Alaska, continuing excavations on St. Lawrence Island and conducting a reconnaissance of the coast from Norton Bay to Point Hope (Collins 1930). At that time he visited the Henry Creek district of the upper Kougarok River, in the western interior of Seward Peninsula, to examine the location at which hydraulic mining of Pleistocene gravels had exposed large perforated and

notched stones weighing between 10 and 70 pounds. No additional evidence was found in situ and Collins could draw no conclusions on the basis of earlier reports (Collins 1930:153). Later in the same season, Collins examined the midden and collected skeletal material from the large village site of Kauwerak. He did not think that the midden deposits were as old or as significant as those on St. Lawrence Island and considered the burials to be approximately 100 years old (Collins 1930:153; Ray 1964b:77). Additional skeletal material was collected at a site near Teller and, later, at Koyuk on Norton Bay. Collins also excavated at a village site on Cape Denbigh which he considered to be the oldest site then known on Norton Sound but younger than those on St. Lawrence Island and a few others on the Seward Peninsula (Collins 1930:154). Concluding his work on the Seward Peninsula in 1936, Collins returned to Wales to re-examine the midden and excavate additional structures at the same sites which Jenness had worked a decade earlier. Collins interpreted the evidence from these sites as showing a "Thule-Punuk" phase transitional between an earlier Birnirk period and a later, recent occupation (Collins 1937a, 1939, 1940: 545, 561-562).

With a shift of attention to the archeology of Point Hope and the Kobuk and the intervention of World War II, no new work was initiated on the Seward Peninsula for over a decade. By 1949, however, two important developments had occurred which would result in the first systematic survey of the peninsula, the Bering Strait Expedition of 1950. In 1948, Giddings had begun excavations at Nukleet and Iyatayet on Cape Denbigh, and in 1949 Larsen had examined the potential of a large house depression at Deering and several limestone caves on Trail Creek, 30 miles to the southeast. With the promise of early and important information from these sites, funding was secured which permitted a joint enterprise by Larsen, Rainey, and Giddings, whose close cooperation in Arctic archeology dated back a decade to the discoveries at Point Hope. The division of labor among the three principals allowed Giddings to continue excavations at Cape Denbigh, Larsen to resume excavations at Deering and Trail Creek Caves, and Rainey to conduct an extensive survey on the western peninsula. Larsen's work demonstrated that the depression at Deering was a large ceremonial house related to Ipiutak of Point Hope. Additionally, he

found that the Trail Creek Caves site documented a long, but not always stratigraphically clear-cut, record of utilization of inland resources, possibly dating back to 13,000-15,000 years B.P. (Larsen 1953, 1968). As previously noted, the work at Cape Denbigh resulted in the definition of the Norton culture and the Denbigh Flint Complex (Giddings 1964). Rainey's contributions were never published and only passing references to his survey could be located in the literature (Oswalt 1953:9n; Bockstoe n.d.:87).

This flurry of activity also produced less well publicized results of particular interest to the present survey. Before moving to Deering later in the 1949 season, Larsen excavated two small sites at Point Spencer, one of which he considered a local variant of Ipiutak. While at Port Clarence, he made a brief reconnaissance of Grantley Harbor, Tuksuk Channel and the Kauwerak area, and located sites related to Neo-Eskimo culture (Larsen 1953:70). In 1950, Giddings surveyed sites on the southeastern shore of the peninsula and excavated at Gungnuk on Cape Darby, a "pure" Norton site which provided important crossties with the oftentimes obscure stratigraphy of the Norton levels at Iyatayet (Giddings 1964:9).

During the late 1950s, the northern and western shores of the Seward Peninsula were again examined, this time in conjunction with Giddings' work on beach ridge archeology. In 1956, the year of Giddings' excavations on the Choris Peninsula, a reconnaissance of Eschscholtz Bay and the Buckland River was undertaken. Sites discovered included those at the mouth of the Kugruk River, which Giddings (1962:36) considered to be recent, and the ones excavated by Charles Lucier at the mouth of the Kiwalik and Buckland rivers. The latter were thought to be of Western Thule and recent age, respectively (Giddings 1962:36). These recent sites could not, however, deflect interest away from the large oval houses on the Choris Peninsula, the excavation of which brought to light another cultural phase in northwest Alaska, the Choris culture (Giddings 1957, 1962:37-38, 1967:200-222). In 1958, an extensive survey of the coast between Deering and Shishmaref by Giddings complemented continued excavations on the Choris Peninsula. At Cape Espenberg, no substantial village sites were discovered, but on a series of successive beach ridges there, Giddings noted a sequence of recent and Ipiutak-, Choris-, and

Denbigh-related materials (Giddings 1962:34, 1967:20-26). At Shishmaref, Giddings examined an old village site which he thought to be the same one visited by von Kotzebue in 1816 (Giddings 1967:27). Prior to a productive season of excavation at Cape Krusenstern in 1959, Giddings examined the series of beach ridges at Point Spencer and later moved up the coast to the Lopp Lagoon area north of Cape Prince of Wales. Here, a number of sites were discovered on isolated beach ridges, particularly on Kugzruk and Agulaak islands. The remains recovered were older than anything noted by Jenness and Collins at Wales and were thought by Giddings (1962:31, 1967:177-190) to be Norton and Norton/Choris-related. Isolated Denbigh collections were made on nearby beach ridges more than a mile from the present shoreline.

By the 1960s, an important phase of northwest Alaskan archeology was coming to a close. The culture history of the region had been broadly outlined and temporally confirmed by the "horizontal" stratigraphy of Cape Krusenstern and the vertical sequence at Onion Portage. At first, attempts had been made to evaluate the archeology of the Seward Peninsula in terms of relationships which could be discerned with the intricate cultural sequence of St. Lawrence Island. Later, more obvious connections were seen to exist between Seward Peninsula sites and discoveries to the north and south on Kotzebue and Norton sounds. By 1960, it can be said that virtually the entire coast between Eschscholtz Bay and Norton Sound had been sampled for its archeological potential. On the other hand, the interior of the Seward Peninsula remained terra incognita from an archeological perspective, a generalization which held true until the present survey attempted to correct this deficit.

Because of a preoccupation with the problems of culture history, little attention has been directed toward understanding the causes of culture change on the Seward Peninsula. Some of the more recent excavations do, however, have this type of problem orientation. As a result of work at Cape Nome during the 1969 through 1971 field seasons, John Bockstoce has attempted to explain on environmental grounds the succession of Norton and Birnirk cultures there (Bockstoce n.d., 1973). Briefly, a postulated colder climatic episode with detrimental effects on fishing stocks, combined with a cyclical reduction in caribou resources, made Norton occupation

extremely tenuous. Birnirk people were able to supplant Norton culture in that area and under the same ecological constraints because a superior hunting technology, notably a more sophisticated harpoon type and the drag float, enabled them to rely upon sea mammal resources.

The village site itself at Cape Nome was surveyed by Hrdlička in 1926 and apparently by Rainey in 1950. The excavation of several houses was initiated by Hadleigh-West in 1960 (Bockstoe n.d.:87). In 1970, in conjunction with work at Cape Nome, Bockstoe completed a site survey north along the coast, then inland at Port Clarence into the present study area, across the Kigluaik Mountains and back to the coast. The substantive results of this survey have not been reported.

Ethnographic Research on the Seward Peninsula

Archeological neglect of the historic and protohistoric periods on the Seward Peninsula has generally been justified by the search for Eskimo origins. Less readily explainable is the equally inadequate ethnographic work which would attempt to document the lifeways of Eskimo societies of the Seward Peninsula prior to European contact. Although there have been notable exceptions such as Nelson's classic The Eskimo about Bering Strait (1899), Thornton's Among the Eskimos of Wales, Alaska (1931), Heinrich's work on Bering Strait kinship (1960, 1963, 1972), and studies by Burch and Correll of northwest Alaskan social relationships (Burch and Correll 1972; Burch 1975), the study of traditional Eskimo societies of the Seward Peninsula was relatively limited before 1960. The work of Dorothy Jean Ray, whose research on the art and culture of Bering Strait Eskimos spans the past two decades, therefore makes a most significant contribution to a sorely neglected time period and subject matter. Her seminal article, "Nineteenth Century Settlement and Subsistence Patterns in Bering Strait," which appeared in 1964, was "the first important contribution to an understanding of Eskimo distributions in over fifty years" (Oswalt 1967:6). "Land Tenure and Polity of the Bering Strait Eskimo" and "Eskimo Place-Names in Bering Strait and Vicinity" appeared in 1967 and 1971, respectively, and round out the publications by Ray which are more

purely ethnographic in character. A more recent book, The Eskimos of Bering Strait, 1650-1898 (1975), notable for both its content and method, brings together archival, bibliographic and ethnographic research to produce a most significant history of the developments on the Seward Peninsula which directly contributed to the characteristic culture of Bering Strait Eskimos of the late nineteenth century. Among the results of Ray's work has been the documentation of the settlement and subsistence patterns and political organization of the traditional Eskimo inhabitants of the present study area, documentation which is of such particular relevance to the present report that it must be summarized in more detail in chapter 4.

3

NATURAL SETTING

In the summer of 1973 the interdisciplinary Chukchi-Imuruk biological survey team collected data on many aspects of the natural environment within our study area. We have relied heavily upon the reports of the team members for the environmental data summarized below.

Climate

The climate of the Chukchi-Imuruk survey area ranges from a coastal maritime type near the coast to a more continental type in the interior. Records collected in the summer of 1973 by the Chukchi-Imuruk biological survey team showed a mean daily temperature of 10.6° C (51.4° F) over a 54-day period. During the month of July the team recorded a mean daily temperature of 9.7° C (49.5° F). There were four days in which the minimum temperatures were below 0° C (Racine 1974a:41, 43).

Freeze-up on the coast generally occurs in mid-October and breakup occurs in late May. The Tuksuk Channel is a notable exception to this, as some parts of it remain open while the rest of the region is frozen. This may be due to the tidal movements through the narrow body of water. Whatever its cause, it has been of special economic importance to people living in the region and adjoining areas, allowing them to obtain whitefish as early as April before the rest of the area has broken up.

The total annual precipitation for the study area is approximately 250 mm. More than one-third of it falls during the short summer growing season. A decrease in the rainfall from south to north across the Seward Peninsula was noticed, with the highest amount occurring in the area of the Bendeleben Mountains, where the prevailing summer winds and storm clouds are intercepted. Much of the precipitation recorded fell during

three- to five-day storm periods which corresponded with similar periods of high rainfall in both Nome and Kotzebue (Racine 1974a:45).

Continuous winds occur throughout the Seward Peninsula. Near the Bendeleben Mountains at Kuzitrin Lake wind speeds of up to 80 kmph were recorded. Winds from the south and southwest were most frequently recorded (40 percent) with the strongest winds and storms coming from the south. East winds were seldom recorded (Racine 1974a:46).

The dividing line between the zones of discontinuous and continuous permafrost passes through the southern quarter of the Imuruk Basin, with virtually everywhere north of the Kigluaik Mountains falling into the continuous zone. Frozen layers can be found 20 to 40 cm below the surface. Approximately 15 cm of thawing was recorded during the month of July from a base level of about 20 cm. By early August only 34 cm was unfrozen. This factor, combined with the relatively low temperatures, sparse vegetation, and, in some cases, permanent standing water, allows very little chemical weathering to take place for the formation of soils. Weathering is therefore chiefly of a physical nature, and soil development is generally limited to lithosols and shallow tundra soils. There are strong indications that the depth to perennially frozen ground is shallower now than in the past. This may be due to an increased stabilization and vegetation cover (Racine 1974a:46).

Topography

The Chukchi-Imuruk region is topographically varied. Along the coast of Kotzebue Sound to the north is a low-lying, broad, irregular belt of nearly level terrain that extends west from the Inmachuk River to Shishmaref Inlet and beyond. South of this belt are rolling uplands which are considerably higher, in some places reaching mountainous proportions. Still farther south, between these uplands and the Bendeleben Mountains, is a large plateau of lower elevation and less extreme relief. There are a number of lakes and several extensive, low-lying basins in this area (Holowaychuk and Smeck 1974b:S-4).

The Kotzebue Sound and Inmachuk River regions are classified as upland areas and consist of broadly rolling, dissected highland surfaces. Elevations range from 300 to 600 m, and in a few isolated locations, 100 or 200 m higher. The valleys at the headwaters of the majority of the streams found in this area are V-shaped with long sideslopes. Terraces are formed farther down the stream courses where the valley floors widen. In some areas the valley walls are rimmed with outcrops of lava or other resistant rock, making the slopes shorter and steeper. Vegetation is either sparse or altogether absent. Surface material consists of fragmented rock debris which exhibits some polygonal patterned ground features. Rock monuments or tors may or may not be present. The lower 10 km along the Inmachuk Valley is included as part of the uplands but appears to be a separate geomorphic unit. To the north of the 150-m contour, the terrain becomes lower in elevation with gentle or moderate slopes. The difference may be due to erosional factors, tectonic factors, or both (Holowaychuk and Smeck 1974a:31-33).

The Cloud Lake and Imuruk Lake areas are classified as lava plateaus. This large plateau area was created in the Late Tertiary when the first of five successive flows of basaltic lava covered the original bedrock. The plateau has a gently undulating surface. Its most obvious relief features are isolated hills with broad, dome-shaped summits and smooth slopes which are rarely steeper than 10° (18 percent). The larger hills are composed of granitic or metamorphic rocks; some of these are ancient volcanic centers while others are fault blocks. The lowlands located between these large hills consist of broad swells and swales in some places and of swampy, lake-dotted basins in others. Scattered over the lowlands are many small cinder cones (Hopkins 1963, cited in Holowaychuk and Smeck 1974a:33-35).

Cloud Lake is located at an elevation of 488 m and is approximately 1.5 km long by 2 km wide. Its depth may vary but is generally extremely shallow. Imuruk Lake, located at an elevation of 310 m, is approximately 12.8 km long, at most, by 8 km wide. Its maximum depth ranges from 2.3 to 3.3 m. The bottoms of both lakes are covered with sediments (Roeder 1974:312).

The Imuruk Lake area is drained by several major streams that head within the lava plateau. The streams that flow north leave the plateau through canyons, and those that flow south toward the Bering Sea leave the area through open valleys with gentle gradients. Drainage divides found within the lava plateau are low and generally consist of marshes that drain in two or more directions. There are no surface streams on the younger flows and the drainage on the older flows is poorly integrated. The topography is generally volcanic, and ponds and lakes, some of which are thaw lakes, are abundant (Hopkins 1963, cited in Holowaychuk and Smeck 1974a:35).

The ridges of the Kuzitrin Lake area have broad, rolling summits which support little vegetation and are littered with rock detritus. Braided streams with steep, rocky banks flow to both the north and south from the central transverse ridges. Kuzitrin Lake itself, approximately 4.8 km long by 1.0 km wide, is located 3 km north of Mount Boyan at an elevation of 430 m. Only 6.5 m deep, its waters are clear when the air is still but become clouded when mixed by the wind. Winds were extremely violent throughout both the archeologists' and biologists' visits and blew most of the time. The sand dunes and vegetation around the lake seem to indicate that such winds are typical of the area (Holowaychuk and Smeck 1974a:34, 37-38; Roeder 1974:313).

Ridges of intrusive granites with numerous tors surround the Serpentine Hot Springs area (plate 22). The area is characterized by warm soil, small vents, and hot water drainages. The major streams are moderately hot, from 61° to 72° C, while the smaller flows are somewhat cooler. A bath house in the upper hot spring area has been built adjacent to one of the largest springs in the valley. An earlier bath house took advantage of a similar flow at the lowest site on the stream. The area between is inactive at this time although warm soil temperatures are still evident. The major hot spring has a flow of approximately 106 ℓ (28 gallons) per minute. In the lower spring area the flow of several springs is combined, creating a total flow of approximately 146 ℓ (38.5 gallons) per minute (Holowaychuk and Smeck 1974a:28; Roeder 1974:316).

The region in which the 1975 survey was undertaken is dominated by the brackish waters of the Tuksuk Channel, the tidal estuary called the

Imuruk Basin, and several major tributary streams which drain the surrounding hills. The rivers which feed the Imuruk Basin are generally of a meandering type and, as they near their mouths, usually spill over to form numerous shallow lakes and backwater sloughs. Topographic relief in the region is not very pronounced except in the southernmost sector where the Kigluaik Mountains rise sharply to peaks of 900 to 1000 m above sea level. Elsewhere, gentle, undulating hills never reach over 300 m and the wetlands at the mouths of the Agiapuk and Kuzitrin rivers are virtually flat.

Vegetation

The vegetation of the Chukchi-Imuruk area is classified as shrub tundra. The exceptions to this are the eastern and southern edges of the area, where spruce forests intrude to within 18 km of Imuruk Lake. Distinctive features of this region are shrubs, sedge tussocks, and extensive shrub thickets of willows, alders, or birches. Although classified as a shrub tundra area, the vegetation of Chukchi-Imuruk shows considerable local variation due to topography and geology. Remnants of the peninsula's past vegetation can be found in lakes, on sea cliffs, and beneath the lava flows (Racine 1974b:239).

Three different types of tundra vegetation can be found within the Imuruk Basin region. The flat areas where the Kuzitrin and Agiapuk empty into the basin are characterized by wet tundra. Vegetation is mainly sedge and cottongrass growing in a mat and interspersed frequently with shallow lakes and bogs. Although relief is inconspicuous, occasional patches of drier ground can be found supporting some woody and herbaceous plants. Of these, Labrador tea and lowbush and bog cranberry were useful to the local inhabitants. The remaining sections of the region, except for the slopes of the Kigluaik Mountains, are characterized by moist tundra vegetation, with tussocked dwarf shrubs and cottongrass predominating. These environments probably provided the inhabitants with an assortment of edible blueberries and cranberries. The slopes of the Kigluaik Mountains sport alpine tundra, characterized by bare rock and frost-shattered debris interspersed with low-growing herbaceous and woody

plants. Both alpine and moist tundra also support an undergrowth of lichen, which makes them ideal grazing lands for caribou.

Fauna

Twenty-three species of terrestrial mammals are thought to live within the Chukchi-Imuruk area. All of these mammals, excepting the tundra hare and possibly the collared lemming, are commonly found in tundra habitats elsewhere in Alaska. The most abundant small mammal species are the red-backed vole, the tundra vole, and the Alaska or singing vole. Other known mammals include the cinereous shrew, arctic shrew, tundra hare, arctic ground squirrel, beaver, collared lemming, brown lemming, muskrat, gray wolf, arctic fox, red fox, grizzly bear, ermine, least weasel, wolverine, river otter, moose, and reindeer. The snowshoe hare, porcupine, mink, and lynx, which are normally associated with forests, may sporadically appear within the Chukchi-Imuruk area. The populations of mammals that exist on the peninsula today may represent a historical link with the past biota of western Alaska and eastern Siberia (Melchior 1974:419, 454-486).

Judging from the reports of explorers who visited Seward Peninsula in the mid-nineteenth century, caribou were once very numerous in the Chukchi-Imuruk area and of major importance in the native subsistence economy. By 1870, however, caribou had all but disappeared from Seward Peninsula, possibly as a result of the introduction of firearms and overhunting. Domestic reindeer were introduced on the peninsula in 1892 in an attempt to fill this gap in the native economy. Herds of reindeer still graze in the Chukchi-Imuruk area, but wild caribou have not returned (Melchior 1974:468-479).

Beluga and spotted seal travel up Tuksuk Channel into the Imuruk Basin. Of more importance to the local residents, however, are the fish resources. Salmon move up the rivers of this drainage by July and the run extends through August. The lower Kuzitrin River was traditionally considered to be an excellent spot for whitefish throughout the entire summer. In the fall, herring and tomcod are caught here (Ray 1964b:75).

The avifauna of the Chukchi-Imuruk area shows many ecotonal characteristics. Birds which inhabit both the tundra biome and the taiga biome are found in this area along with a number of shore birds, gulls, and sea birds which inhabit its extensive marine biome. Almost two-thirds of the birds studied in 1973 by Kessel and Gibson (1974:409) were primarily associated with the tundra, however.

The Seward Peninsula serves as an important migration route between the Old World and North America. Each year numerous species, such as bluethroats, arctic warblers, and white wagtails, cross the Bering Strait from the Old World to breed in Alaska and others, such as snow geese, sandhill cranes and Baird's sandpipers, leave Alaska to breed in northeastern Siberia. Of special importance are the large numbers of whistling swans found here and the fact that this is a major summering area for breeding and nonbreeding populations of Canada geese. All four species of loons were recorded in this area and over a dozen pairs of gyrfalcons nest here during a normal year (Kessel and Gibson 1974:413-414).

4

TRADITIONAL CULTURE AND THE EARLY CONTACT PERIOD

The present study area includes traditional political, or "tribal," units of four Seward Peninsula territorial entities, Kauwerak, Port Clarence, Deering and Tapkak (Ray 1967:372; Burch and Correll 1972:23; Burch 1975:11). "Traditional" signifies the political organization that existed prior to 1850. After this date, steadily accelerating disruptive effects altered much in the aboriginal subsistence and settlement patterns and political organizations and culminated in the massive dislocations precipitated by the Nome Gold Rush of 1898-1900.

Ray (1975:105) defines these tribal units as "people with a common language and culture who lived within well-defined boundaries recognized by themselves and contiguous tribes." By this definition, these territorial groups were but four of twelve similarly constituted political units of the Seward Peninsula and neighboring islands of the Bering Strait. Within a territory, a single important village usually lent its name to all the people inhabiting that territory. Thus, all people residing within Kauwerak boundaries were known generally as Kauweramiut even though smaller groups may have had permanent residences in small villages scattered throughout the territory.

The most important village within the Kauwerak territory was Kauwerak, which had a population of between 75 and 150 people out of a total territorial estimate of 200 people. It boasted a large qargi, or ceremonial house, generally a characteristic of the "capital" village within a territorial unit. In the Port Clarence region, the now-abandoned village of Singaq (Sinramiut) on the north shore of Port Clarence and, secondarily, Nuuk (Nook) on the spit opposite the present town of Teller were analogous in importance to Kauwerak. For the traditional period, Singaq had a population of between 50 and 60 out of an estimated 275 individuals for the entire tribal unit. The main village of the Deering region was Inmachuk,

while that of the Tapkak region was Shishmaref (Kikkiktuk) (Ray 1967: 376).

The settlement patterns of particular territorial units were characterized by one large permanent village, several small villages occupied by only a few families, and the various campsites utilized during different seasons in pursuit of various subsistence needs. But while this pattern characterized territorial units in general, there was intertribal variation in the elements of individual settlement patterns depending upon peculiar local environmental and ecological factors. For the Bering Strait region, Ray (1964b) has classified subsistence techniques into three general categories: 1) whaling pattern, 2) caribou hunting pattern, and 3) small sea mammal pattern. The inlanders along the Kuzitrin River exemplified the caribou hunting pattern while the coastal people of Port Clarence relied heavily upon seal and beluga in the small sea mammal hunting pattern. This does not mean that these groups were restricted essentially to either products of the coast or those of the interior. Specific political and economic mechanisms allowed products to flow freely between those regions where major ecological and political boundaries coincided. Among these mechanisms was a system of intertribal alliances, often very informal, in which the village chief played a crucial role. This not only widened the range of subsistence pursuits available to a particular tribal group but also regulated the more purely political matters such as the recognition of mutual tribal boundaries and the consolidation of pacts of mutual defense against raids and warfare. Port Clarence and Kauwerak, for example, took part in a series of alliances with each other and with other tribes of the western Seward Peninsula and Bering Strait. For the traditional period, Ray has noted important alliances between the following: Wales, Port Clarence, and Little Diomed Island; Kauwerak, Fish River, King Island, Port Clarence, and sometimes Nome; Nome, Fish River, King Island, and sometimes Kauwerak; and Wales and Kauwerak. Additional mechanisms which allowed the exchange of resources between zones within this system of rigidly maintained political boundaries were the institution of the trading partnership and festivities such as the Messenger Feast, through which reciprocal village-wide exchanges were periodically facilitated. Such a system of alliances and informal agreements allowed the people of Kauwerak to hunt

seals on Port Clarence and the people of the latter region to come inland to the Kuzitrin area to hunt caribou. During times of famine, the Port Clarence alliances permitted people from a wide region to converge on the Tuksuk Channel to exploit the smelt and tomcod fisheries there (Ray 1964b, 1967, 1975:103-120; see also Burch 1975:1-42).

After 1850, events in northwest Alaska and on the Seward Peninsula in particular were to have their impacts upon this traditional Eskimo culture and social organization. These events and the way of life that various agents and agencies were to change substantially have been examined in detail by Ray in The Eskimos of Bering Strait, 1650-1898 (1975). Frequently, the accounts of explorers and other individuals in early contact with Seward Peninsula Eskimos are of great importance in that they provide the only observations on a way of life as it must have existed prior to the changes introduced by Euro-American influences. Since a detailed chronology of these episodes cannot be provided here, it must suffice to recommend Ray's history and to outline only a few of the earlier accounts of special relevance to the regions of Port Clarence-Imuruk Basin and the northern Seward Peninsula.

Otto von Kotzebue, leading a Russian expedition in search of the northwest passage, discovered and named Kotzebue Sound in 1816. Kotzebue went ashore near the village of Shishmaref, but its inhabitants had fled. He was more successful in meeting and trading with the Eskimos near Cape Espenberg, Deering, and Cape Deceit. Descriptions of the native inhabitants are preserved in Kotzebue's writings and in the notes and drawings of Ludovik Choris, the artist of the expedition. Several years later, in 1820, a second Russian expedition visited the area and Gleb S. Shishmarev, commander of the Good Intent, traded with Eskimos near Cape Espenberg and Elephant Point before continuing on to the north (Ray 1975:56-76).

Port Clarence and Grantley Harbor were discovered and named by the Englishman Frederick Beechey, who sailed to Bering Strait in 1826 and 1827 to give aid to an earlier expedition of Sir John Franklin. During August of 1827 when the Blossom sailed into Port Clarence and Grantley Harbor, Beechey had the opportunity to visit with the inhabitants of villages located along the shore. These Beechey described in his usual

meticulous style. Besides learning of villages in and around Port Clarence, Beechey heard of the village of Kauwerak, located inland across Imuruk Basin, which he concluded must be of importance (Ray 1975:77-86).

Between 1848 and 1854, nine ships were sent to Bering Strait and the Chukchi Sea in search of Franklin's expedition of 1845. During the winter of 1850-51, the Plover, under Captain T. E. L. Moore, remained in Port Clarence frozen in the ice. Many opportunities presented themselves for interchange with the inhabitants along the shore and nearby interior during that time. Specific information about interior villages was gathered when an overland trip during February of 1851 was organized to reach St. Michael on Norton Sound. The party, which included Thomas Bouchier, set out via an inland route which included the Kuzitrin River and a portage to the coast. After reaching Unalakleet, Bouchier returned by a similar route which included the lower Kuzitrin, Imuruk Basin and Tuksuk Channel. The villages in these areas were mentioned in his subsequent account.

In 1853-54, the Rattlesnake, commanded by Henry Trollope, wintered in Port Clarence. Like the crew of the Plover before them, the Rattlesnake's men traded extensively with nearby Eskimos in order to secure the winter's provisions. Another overland expedition across the interior of the Seward Peninsula was organized in February of 1854, this time to learn of possible news about Franklin from the natives of Kotzebue Sound. The party was headed by William Hobson, who described in his journal many of the villages he visited along his route (Ray 1975:140-156).

Plans for an overland telegraph route between the United States and Europe via Bering Strait brought a large contingent of men to western Alaska between 1865 and 1867 as members of the Western Union Telegraph Expedition. In 1866, 39 men landed at Port Clarence to begin construction of buildings that would provide support for the building of the telegraph line. Twenty-three miles of poles were set between Nuuk and Tuksuk Channel before the project was abandoned in 1867, when a trans-Atlantic cable proved successful. This sustained contact with the Eskimos of the region was recorded in various diaries and publications of individual members of the expedition which included such luminaries in the history of

Alaskan exploration as William H. Dall and Frederick Whymper (Ray 1975: 157-169).

Among the legacy of all these early accounts is the documentation of various Eskimo settlements and place names that were of obvious importance prior to the disruptions to the aboriginal settlement pattern coincidental with the advent of the twentieth century. Though sometimes incomplete, these reports are all that remain of how earlier generations of an intrusive culture saw and described the native inhabitants of the Seward Peninsula. Perhaps one of the more interesting results of Ray's work has been the re-establishment in a spatial context of some of the long-abandoned and nearly forgotten villages of the earlier reports. As an example, Ray was able to reconstruct Hobson's overland route across the Seward Peninsula through work in the field with informants who still remembered the names and locations of the villages and campsites described in Hobson's journal. Through this type of research, Ray identified historical references to at least five of the sites visited during the course of our survey and published local information concerning many more as well. Similarly, Oquilluk (1973) referenced settlements and places of traditional importance in the area, but in general, we found his information to be less useful or else a confirmation of sites reported earlier by Ray. Local informants confirmed the location of many of these previously reported sites while our survey was in the field and provided information on unpublished ones as well. Thus, information about many of the sites presented in the following section is available from informants and published reports, but most of these are described from an archeological perspective for the first time.

5

THE SITES

The 1974 survey of the interior of the Seward Peninsula covered an area which has received little archeological attention in the past. Many of the sites located during the survey are therefore described here for the first time. The area covered by the 1975 survey is much better known, as five or six archeological reconnaissances have been undertaken within the Imuruk Basin since 1926. Although most of the sites visited in 1975 are well known to those versed in the local geography and traditional history of the Imuruk Basin region, some have not been described from an archeological perspective before and others have undergone changes since they were last described. We have relied upon Dorothy Jean Ray's work to add an historical dimension to our descriptions of the physical remains in this region.

We have retained the locally reported Eskimo site names when known, spelled according to the standard orthography provided by the Alaska Native Language Center (ANLC) at the University of Alaska-Fairbanks. Names in standard orthography have been underlined. When proper spellings were not available from ANLC we used those with a published precedent, primarily in Dorothy Jean Ray's more recent publications (Ray 1971, 1975). When Ray's and ANLC's spellings differ, we have used the ANLC version followed in parentheses by Ray's. In instances when no confirmation of spelling could be located in the literature, we hope that our phonetic ear and orthography have not rendered unrecognizable in print places well known to those familiar with the area and that the spellings are not too inconsistent with accepted orthographic practice.

Description of Sites, 1974 Survey

1) Ipiutak Ceremonial House at Deering

This Ipiutak ceremonial house or qargi was excavated by Helge Larsen in 1950 (Larsen 1951:83-87). The pit left from the excavation is still quite visible and is located at the west end of Deering along the south side of the airstrip.

Mr. Alfred Karmun of Deering found a toggle harpoon head while excavating a storage pit behind his house. The harpoon head was found approximately 1 m below ground level in association with a hearth. It has a single line hole, a double-barbed tip, a single spur, and an open socket with lashing grooves on each end of the socket. No decoration could be detected. This harpoon head compares closely with one illustrated by Giddings (1964:plate 6, no. 24). Following Giddings' typology this would be diagnostic of Western Thule, dating A.D. 800-1200. This is very interesting in light of the remains of Ipiutak culture recovered by Larsen from the same location.

2) Kipalut

Hobson (1854) mentions this site, calling it the village of Kip-pel-lik. At that time the site was occupied and had four standing huts, two of which were in good condition and two of which were in poor condition (Ray 1964b:83). In 1973, when the site was visited by Ralph Bennett of the Chukchi-Imuruk biological survey, only two house pits could be detected. By 1974 the condition of the site had further deteriorated due to the eroding bluff on which it is located and to the digging of the site by local collectors. The surface of the site is littered with cultural debris from the original occupation and pockmarked with numerous shovel holes. During our visit in 1974 it was difficult to observe the original house pits that had been recorded for the site. At approximately 50 m northwest of Kipalut we found an undisturbed house pit which may have been associated with the site.

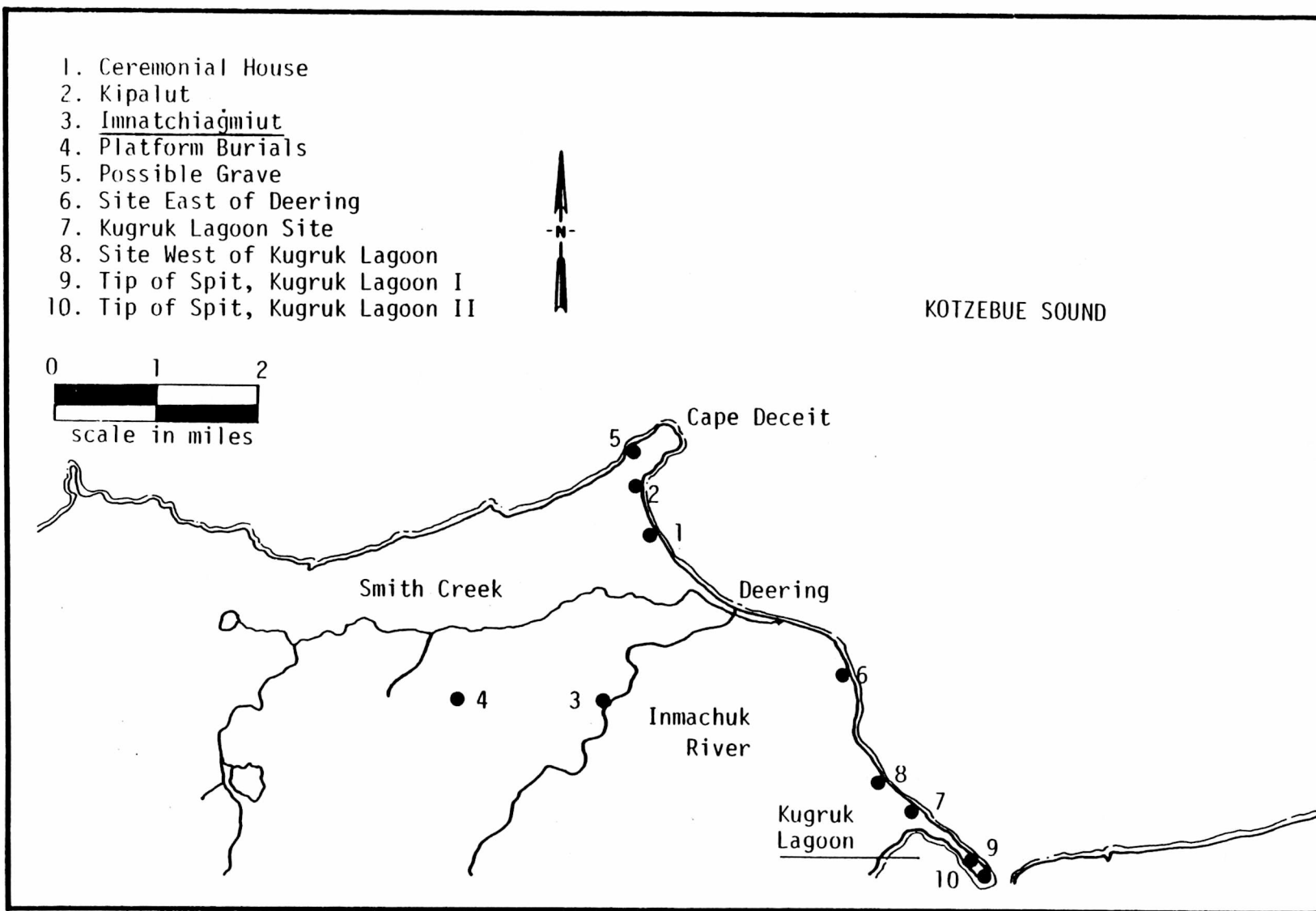


Figure 4. Site location map, Deering and Kugruk Lagoon areas.

Artifacts collected from the surface while surveying the area and checking the condition of the site include one chert end scraper, one antler ice pick, one antler wedge, one worked antler object of unknown function, and eight potsherds.

End Scraper (plate 1)

Description: Bifacially flaked with secondary retouch along the margins. The working edge is steeply beveled and exhibits use wear retouch.

Material: Black chert.

Size: 4.2 cm maximum length, 3.6 cm maximum width, 1.1 cm maximum thickness.

Provenience: Collected from surface in disturbed area of site.

Ice Pick (plate 2a)

Description: Ice pick similar to those used on the end of harpoon shafts.

Material: Antler.

Size: 28 cm maximum length, 3.8 cm maximum width, 1.4 cm maximum thickness.

Provenience: Collected from surface in disturbed area of site.

Worked Antler Object (plate 2b)

Description: Worked antler object of unknown use.

Material: Antler.

Size: 12.2 cm maximum length, 3.2 cm maximum width, 2.9 cm maximum thickness.

Provenience: Collected from surface in disturbed area of site.

Wedge (plate 2c)

Description: Cut to a sharp, wedge-shaped point at one end and battered at the opposite end.

Material: Antler.

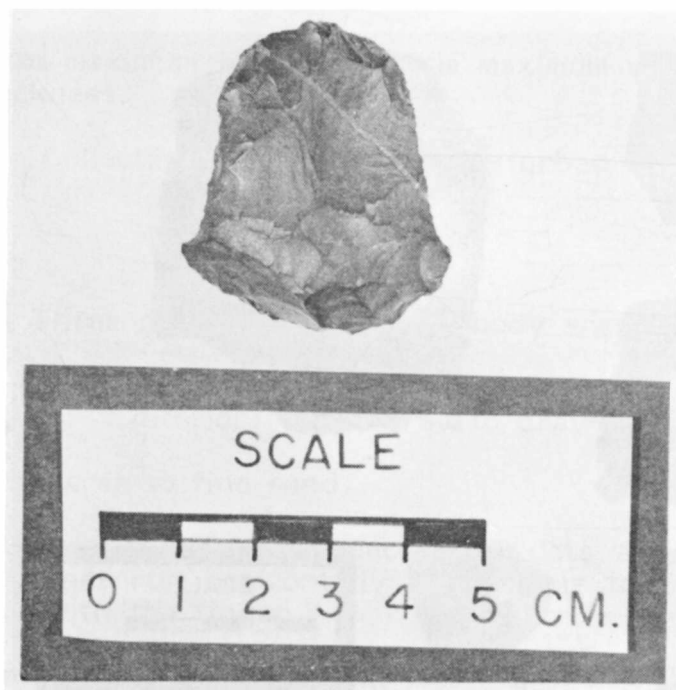


Plate 1. Chert end scaper from the Kipalut site.

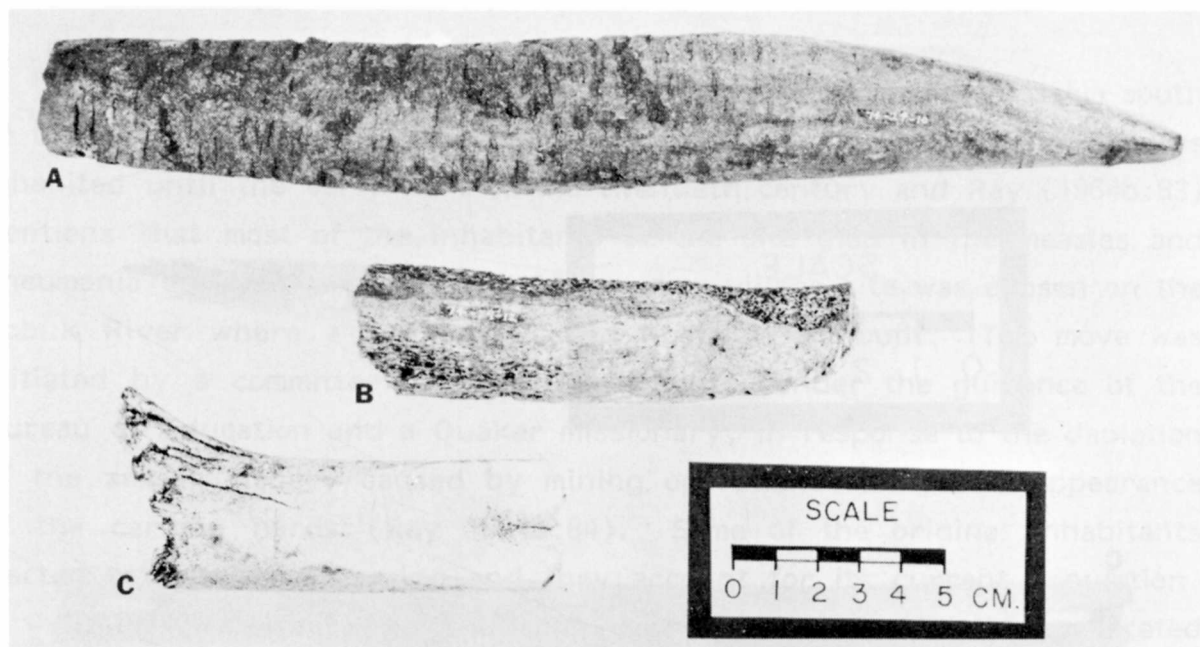


Plate 2. Artifacts from the Kipalut site: a, ice pick, antler; b, worked antler object; c, wedge, antler.

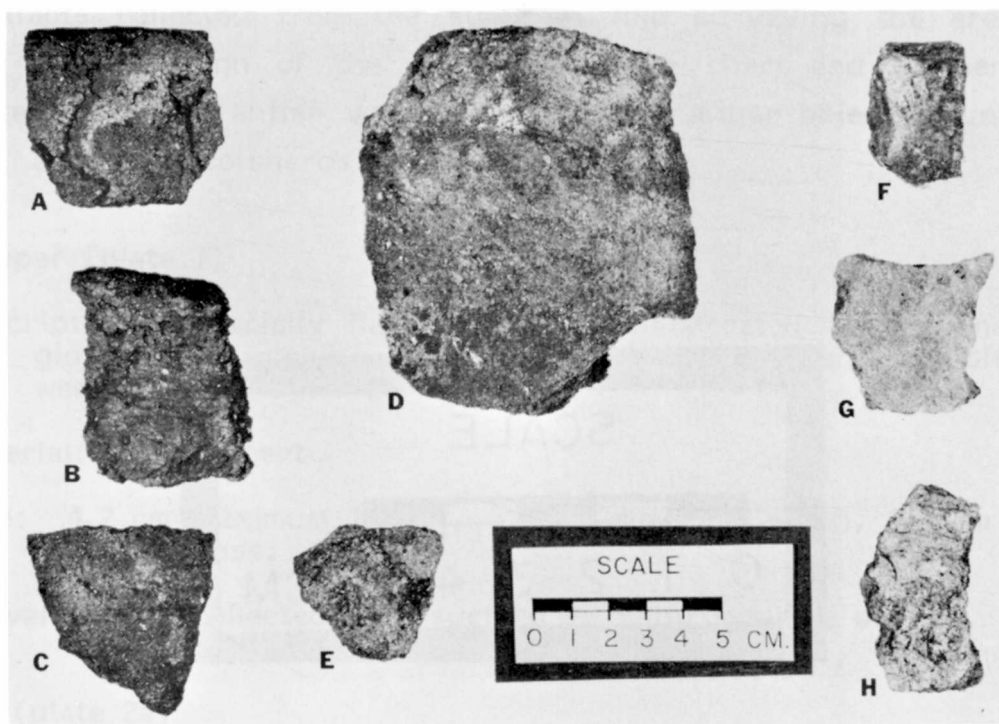


Plate 3. Potsherds from the Kipalut site.

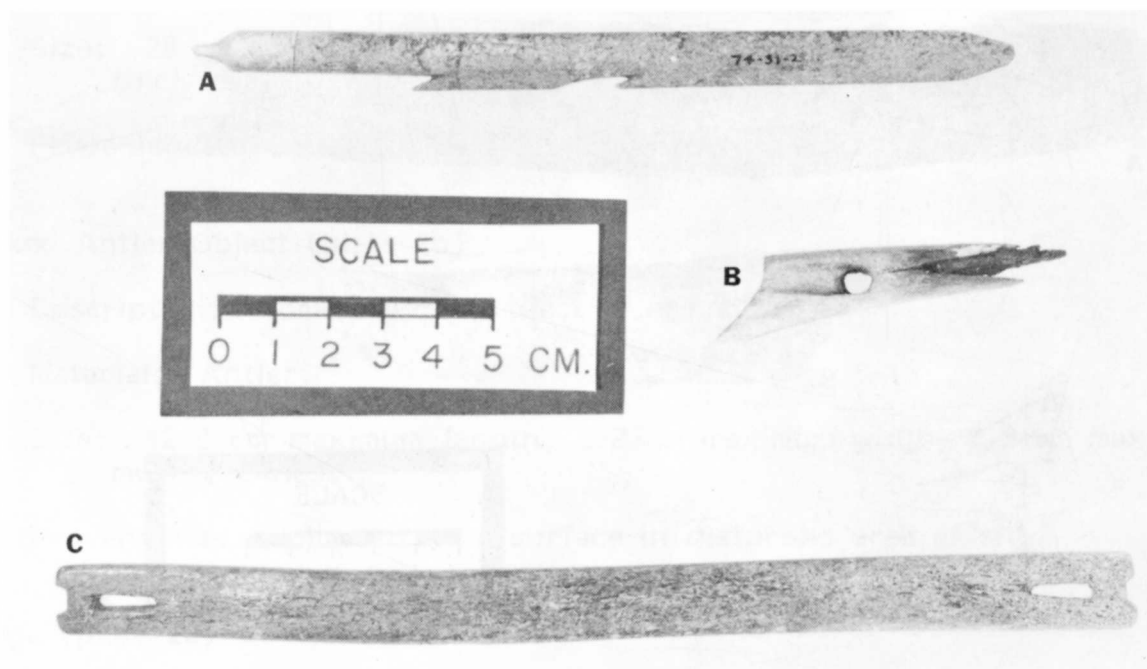


Plate 4. Artifacts from site east of Deering: a, arrowhead, antler; b, toggle harpoon head (antler) with metal end blade; c, handle, antler.

Size: 11.4 cm maximum length, 5.1 cm maximum width, 2.0 cm maximum thickness.

Provenience: Collected from surface in disturbed area of site.

Potsherds (plate 3)

Description: Three rim sherds and five body sherds.

Surface color--exterior: light brown to gray-black;
interior: light gray to gray-black.

Temper--coarse to fine sand.

Surface--two sherds have decorative dots and shallow grooves that run horizontally and appear to have been shaped with the finger.

Range in size: 0.7 to 1.7 cm thick.

Provenience: Collected from surface in disturbed area of site.

3) Imnatchiaġmiut (Inmachukmiut)

This is the old village site which is located approximately 3 km south of the present village of Deering along the Inmachuk River. The site was inhabited until the early part of the twentieth century and Ray (1964b:83) mentions that most of the inhabitants of the site died in the measles and pneumonia epidemic of 1900. In 1914 a new village site was chosen on the Kobuk River where a new town called Noorvik was built. The move was initiated by a committee of Deering residents, under the guidance of the Bureau of Education and a Quaker missionary, in response to the depletion of the salmon fishery caused by mining operations and the disappearance of the caribou herds (Ray 1964b:84). Some of the original inhabitants elected to remain in Deering and they account for its current population.

In 1974 we found that the Imnatchiaġmiut site, which had been located on the west side of the river, had been completely destroyed by the local road crew which uses the site as a gravel source. Several depressions found on the east side of the river across from the old village site may be the remains of houses or caches associated with Imnatchiaġmiut.

4) Platform Burials near Imnatchiaġmiut

The remains of five platform burials, which may be associated with the epidemic at Imnatchiaġmiut in 1900, lie on a low bluff approximately 0.8 km west of the old village site. The five collapsed platforms, constructed with natural driftwood, sawn planks, and nails, all had human skeletal material lying on the ground around them. The skeletal material was fragmentary and very badly weathered and appeared to have been lying there for some time. No other cultural materials were associated with the burials.

5) Possible Grave

During a survey of the coast of Kotzebue Sound to the west of Cape Deceit (66°06' N, 162°45' W) we found a rectangular depression which we thought to be a grave. The depression, located approximately 2 km west of Cape Deceit along the coast on a high bluff overlooking the beach, is an obvious rectangular pit, 1.75 m by 1.5 m, which sinks approximately 15 cm below the surrounding ground's surface. A badly weathered wooden board was sticking vertically out of the ground near one end of the depression on the natural ground's surface.

6) Site East of Deering

While surveying the coast of Kotzebue Sound to the east of Deering, we found a site immediately across the mouth of the Inmachuk River. We observed 18 house pits approximately 20 m from the water's edge, on an old beach ridge which is approximately 0.5 m higher than the active beach. Wave action from Kotzebue Sound and the activity of the modern beach have caused erosion along the front of the ridge occupied by the site, vertically exposing many of the depressions and washing out cultural material. The site appears to be postcontact in age and is probably asso-

ciated with the early settlement of Deering. A local goldminer and lifelong resident of the Deering area, Jack Hoogendorn, said that he could remember an Eskimo family living at this site in the 1920s and 1930s.

No test excavations were undertaken at this site. Artifacts collected from the erosional cut include an antler arrowhead, a toggle harpoon head with a metal end blade, an antler bucket handle, and a bone object attached to a very badly decayed wooden shaft by two iron pegs.

Arrowhead (plate 4a)

Description: Triangular in cross section with two barbs along one side. The point is blunt and has the appearance of being unfinished. The base is cut in and conical in shape. No decoration is present but two incised lines perpendicular to the long axis of the arrowhead can be seen near the base.

Material: Antler.

Size: 15.3 cm maximum length, 0.8 cm maximum width.

Provenience: Collected from erosional surface.

Toggle Harpoon Head (plate 4b)

Description: Has a single line hole, closed socket, single spur, and an end-blade slot that is parallel to the line hole. A metal end-blade fragment is attached.

Material: Antler harpoon head, iron end blade.

Size: Toggle harpoon head--5.8 cm maximum length, 1.3 cm wide at line hole.

Metal end blade--2.5 cm maximum length, 1.7 cm maximum width, 0.3 cm maximum thickness.

Provenience: Collected from erosional surface.

Handle (plate 4c)

Description: For a bucket or other object. The handle has a notch cut into each end and is pierced by a grooved hole near each notch. No decoration is present.

Material: Antler.

Size: 20 cm maximum length, 1.5 cm maximum width, 0.6 cm maximum thickness. Notches at each end are 0.5 cm wide and 0.2 cm deep. Grooved hole at each end is 1.2 cm long and 0.2 cm wide.

Provenience: Collected from erosional surface.

Object with Iron Pegs (plate 5)

Description: Carved bone object hafted to a wooden shaft by means of two iron pegs. A groove is cut perpendicular to the long axis of the object and may have been a lashing point. No decoration. Function unknown.

Material: Bone, iron pegs, wooden shaft.

Size: 16.3 cm maximum length, 3.7 cm maximum diameter.

Provenience: Collected from erosional surface.

7) Kugruk Lagoon Site (figure 5)

The site is located at 66°03.5' N, 162°39' W, on the third beach ridge, of a series of four, inland from Kotzebue Sound. This large site, which contains 38 depressions in an area approximately 100 m long by 30 m wide, is backed by Kugruk Lagoon on the south. At least 20 of the depressions are identifiable as house pits which appear to conform to four patterns: house pits without observable entrances; house pits with entrance tunnels; house pits with a large central room connected by a tunnel with a cold trap; and house pits with several rooms connected by tunnels (see table 1).

No cultural material was exposed on the surface of the site, which is covered by vegetation and wind-deposited sand. Limited test excavations were conducted in house pits 13 and 25. In house pit 13 a test pit 1 m² yielded cultural material, including a piece of cut caribou antler (plate 8) and several pieces of worked antler (plate 7), at approximately 20 cm below surface level. A test excavation 1 m² in house pit 25 yielded cultural material, including a toggle harpoon head (plate 6) and a worked antler object (plate 6), at approximately 30 cm below the surface. The

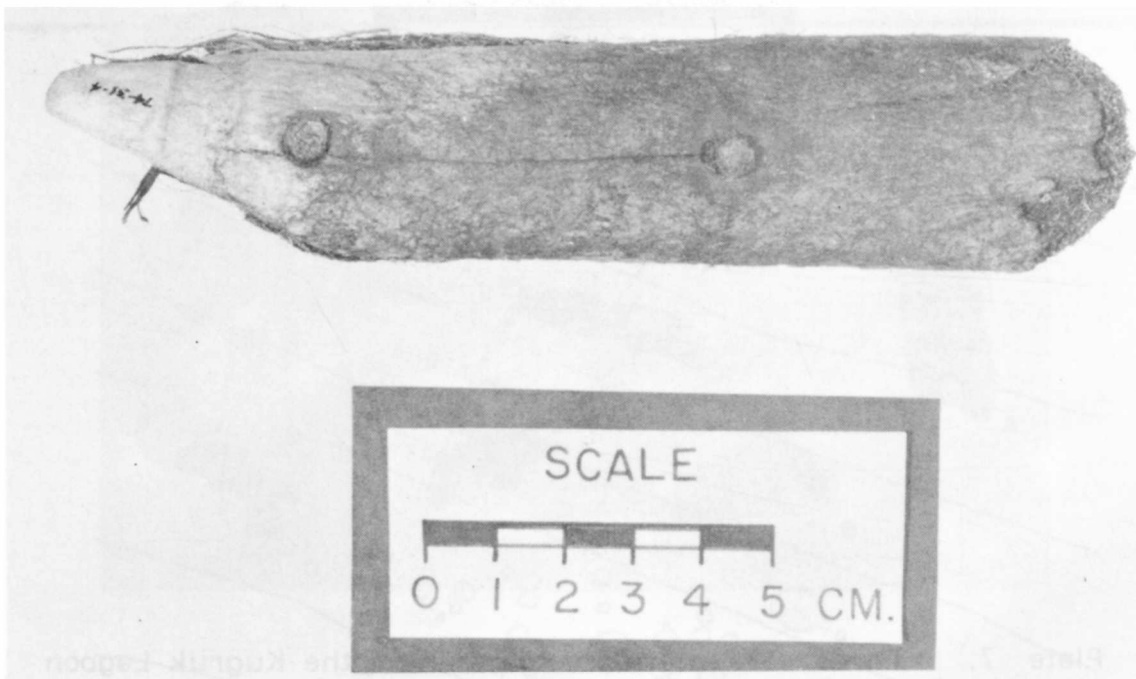


Plate 5. Bone object with iron pegs, from site east of Deering.

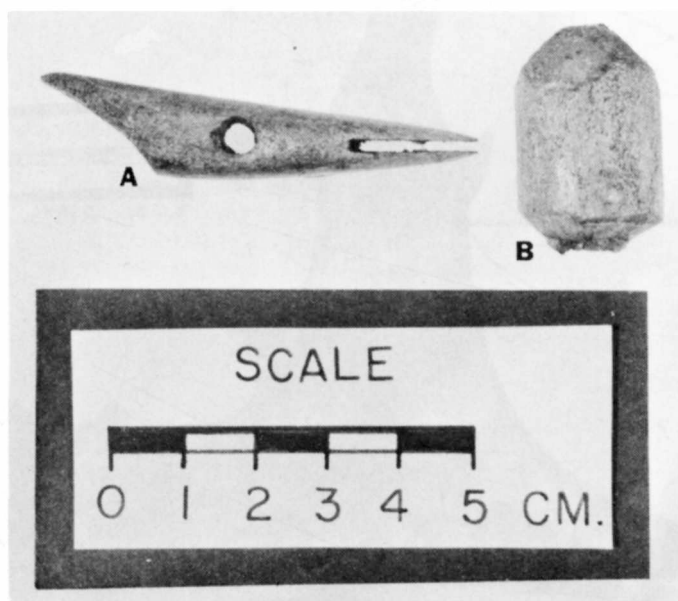


Plate 6. Artifacts from the Kugruk Lagoon site: a, toggle harpoon head, antler; b, carved object, antler.

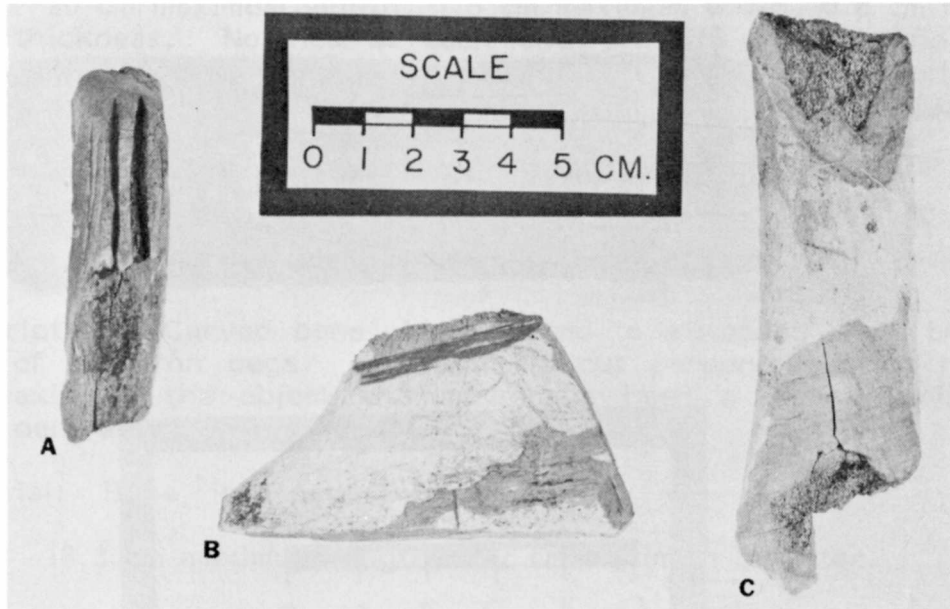


Plate 7. Three worked antler objects from the Kugruk Lagoon site.

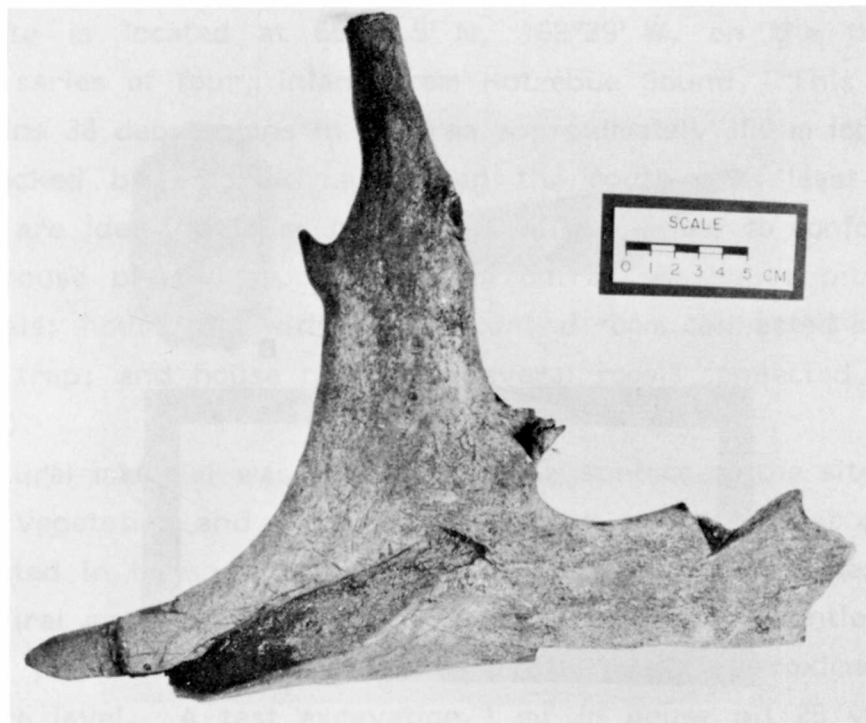


Plate 8. Cut caribou antler from the Kugruk Lagoon site.

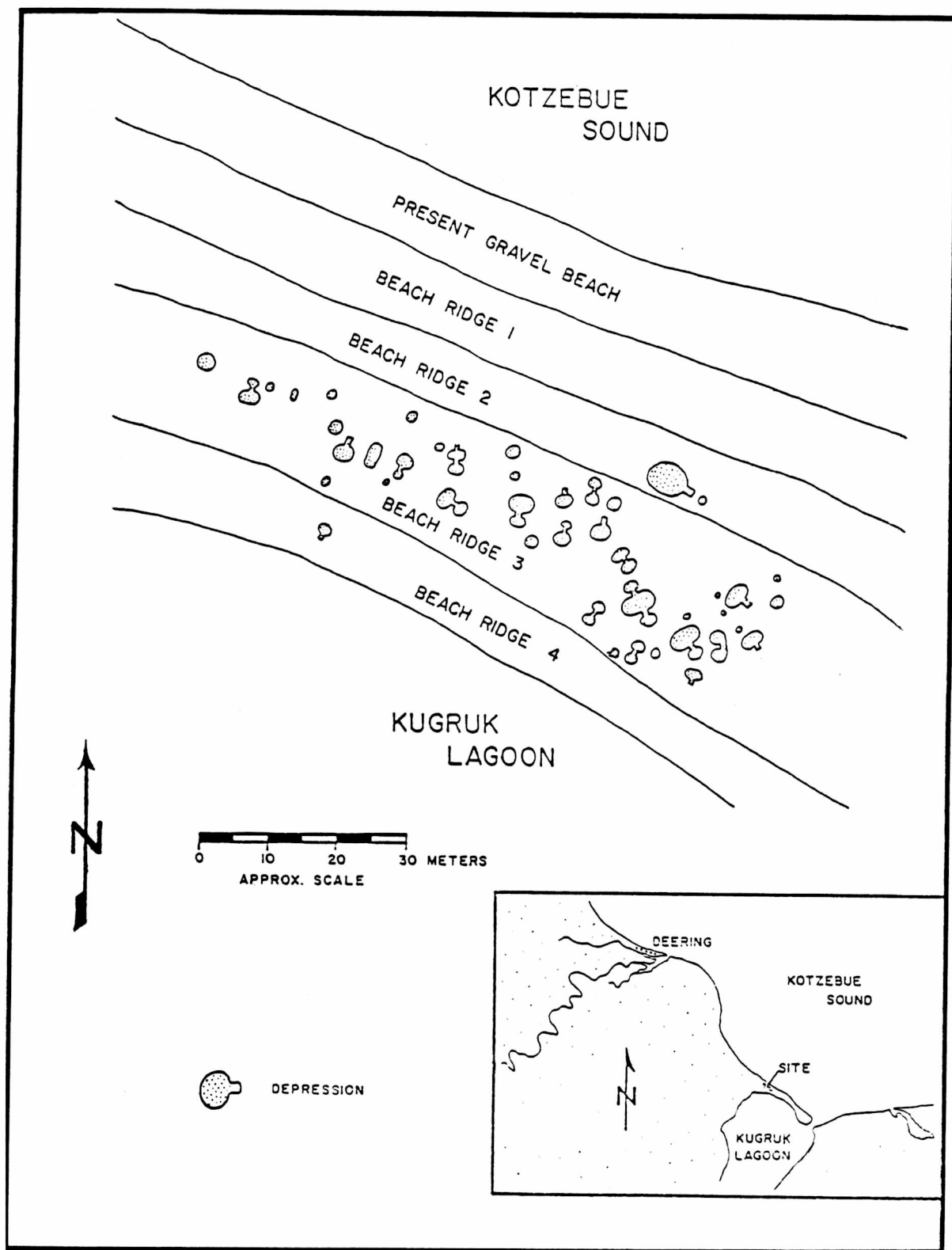


Figure 5. Kugruk Lagoon site.

Table 1. Features at the Kugruk Lagoon site.

Dimensions				Comments
Main Room	Passageway	Entry Room	Depth	
1 m diameter	--	--	0.25 m	rounded depression
3 m x 4 m	--	--	0.25 m	oval depression
3 m x 4 m	--	--	0.25 m	oval depression
3 m x 4 m	present	--	0.5 m	house pit asso. w/ 2 rounded pits of 1 m diam., possibly caches
5 m x 6 m	2 m x 3 m	1 m diameter	1 m 0.6 m 0.4 m	house pit; entry room is rounded
3.5 m x 2 m	2 m wide	2 m x 2 m	0.5 m -- 0.6 m	house pit
3 m x 4 m	4 m x 1.5 m	--	0.5 m 0.4 m --	house pit
4 m x 6 m	1.5 m wide	3.5 m x 2 m	1 m -- --	house pit asso. w/ 1 round depression, 1 m in diam. and 0.35 m deep
2 m diameter	--	--	0.45 m	round; possible house pit
3 m x 3 m	1 m wide	3 m x 3 m	0.65 m 0.4 m 0.8 m	house pit
2 m x 3 m	0.5 m	--	0.5 m 0.4 m --	depression asso. w/ 1 round depression, 1 m in diam. and 0.45 m deep
3.5 m x 2.5 m	1 m wide	2 m x 2 m	0.6 m 0.6 m 1 m	house pit
6 m x 7 m	1 m long	2, each 2 m in diam.	1 m 0.6 m 0.8 m	house pit consisting of large central room with tunnel at each end connecting 2 smaller rooms; test excavations (plates 7 & 8)
3 m x 5 m	1.5 m x 4 m	--	0.75 m 0.75 to 0.85m --	house pit; far end of tunnel is deeper and wider
2 m x 3 m	present?	--	0.6 m --	possible house pit
2 m diameter	--	--	0.5 m	round depression
3 m x 5 m	1 m x 2 m	1.5 m x 2 m	0.8 m 0.5 m 0.65 m	oval house pit
3 m x 4 m	1.5 m wide	1.5 m x 2 m	0.6 m 0.8 m 0.9 m	oval house pit; entry room has possible entrance, 1 m x 1.5 m x 0.4 m deep

Table 1 (cont.)

Dimensions				Comments
Main Room	Passageway	Entry Room	Depth	
2 m x 2.5 m	1 m x 2 m	--	0.6 m 0.6 m --	oval house pit
2.5 m x 2 m	--	--	0.5 m	oval depression
2 rooms, each 3 m diameter	1 m wide	1 m x 1 m	0.6 m and 1 m 0.6 m 0.6 m	house pit
1 m diameter	--	--	0.5 m	small depression
6 m diameter	0.75 m wide	1 m x 1 m	1 m 0.5 m 0.7 m	house pit
1 m x 2 m	--	--	0.5 m	small depression
4 m x 5 m	1 m x 1 m	2 m x 2 m	0.7 m 0.6 m 1 m	house pit; test excavation (plate 6)
4 m x 8 m	--	--	0.6 m	large depression
1 m x 1 m	--	--	--	small depression
2.5 m x 2.5 m	0.75 m x 1.5 m	present	0.5 m 0.6 m --	house pit asso. w/ 1 small depression, 1 m diam. and 0.3 m deep
1 m x 3 m	--	--	0.5 to 1 m	depression, deeper at one end than at the other
6 m x 2 m	--	--	0.45 to 0.6 m	oval depression, deeper at one end than at the other
3 m diameter	1 m x 3 m	--	0.9 m 0.5 m --	house pit
1 m diameter	--	--	0.4 m	small depression
2 m diameter	--	--	0.4 m	depression
2 m diameter	--	--	0.7 m	depression
1 m diameter	--	--	0.4 m	depression
2 m diameter	--	--	0.6 m	depression
2 m x 3 m	1 m x 1.5 m	1.5 m x 2 m	0.65 m 0.5 m 0.6 m	house pit
2 m diameter	--	--	0.6 m	depression

bones of seals and other sea mammals were recovered from both test pits. Pieces of wood and stone, probably structural elements of these houses, were also encountered.

Worked Antler Object (plate 7a)

Description: A portion of antler shaft with cut marks and deep incised grooves on one side. Two deep grooves and four smaller cuts run parallel to the length. Function unknown.

Material: Antler.

Size: 7.9 cm maximum length, 2 cm maximum diameter.

Provenience: From test pit in house pit 13. Found at a depth of 20 cm below surface.

Worked Antler Object (plate 7b)

Description: A portion of antler that has been cut to a preformed shape but has not been worked into a finished object. Rough and uneven cut marks are on three sides. It appears that the antler was grooved on all sides and then snapped in two. No decoration is visible on this object and its intended function is not known.

Material: Antler.

Size: 8.4 cm maximum length, 4.8 cm maximum width, 2.7 cm maximum thickness.

Provenience: From test pit in house pit 13. Found at a depth of 20 cm below surface.

Worked Antler Object (plate 7c)

Description: A portion of an antler shaft that has been cut to a beveled point at one end and then partially broken off. The opposite end does not appear to have been cut but appears to have been broken in two. This object may have served as a wedge at one time and was broken. There is no surface decoration.

Material: Antler.

Size: 12 cm maximum length, 3.5 cm maximum width, 2.1 cm maximum thickness.

Provenience: From test pit in house pit 13. Found at a depth of 20 cm below surface.

Cut Caribou Antler (plate 8)

Description: A large piece of antler from which smaller pieces were removed by incising and grooving. It was probably used as a source of raw material to make other objects.

Material: Caribou antler.

Size: 37 cm maximum length, 20 cm maximum thickness.

Provenience: From test pit in house pit 13. Found at a depth of 20 cm below surface.

Toggle Harpoon Head (plate 6a)

Description: This toggle harpoon head has a single line hole, closed socket, single spur, and an end-blade slot that is parallel to the line hole.

Size: 6.2 cm maximum length, 1 cm wide at line hole.

Provenience: From test pit in house pit 25. Found at a depth of 5 cm.*

Carved Object (plate 6b)

Description: This object is cylindrical and tapered at both ends. One end has a hole bored into it. The object has no decoration and its function is unknown.

Size: 3.2 cm maximum length, 2 cm maximum diameter. Hole is 1.2 cm deep and 0.5 cm in diameter.

Provenience: From test pit in house pit 25. Found at a depth of 18 cm.*

8) Site West of Kugruk Lagoon (figure 6)

We located a small site which includes two house pits on a beach ridge overlooking Kotzebue Sound, approximately 0.8 km west of the Kugruk

*. Note that depth is cited as 30 cm in the site description.--Ed.

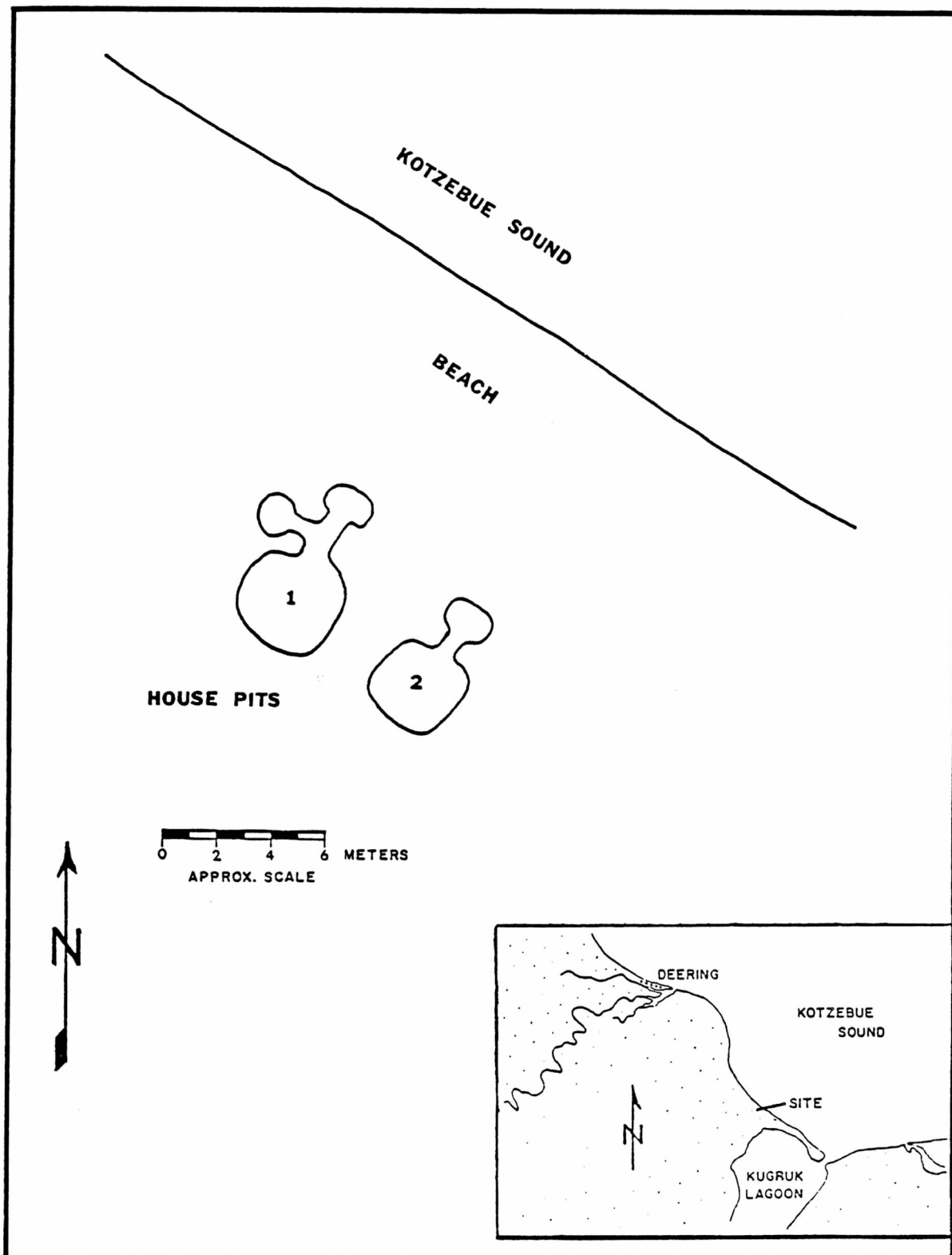


Figure 6. Site west of Kugruk Lagoon.

Lagoon site. Both pits appear to have large central rooms with a tunnel and cold trap at the end. One house pit has a side tunnel which leads from the main tunnel to a small room. The main room is 2 m in diameter in one house and measures 2 m by 3 m in the other.

9) Tip of Spit at Kugruk Lagoon, Site I (figure 7)

Three house pits were found on a beach ridge overlooking Kotzebue Sound at approximately 66°02' N, 162°38' W, near the tip of the spit that divides Kugruk Lagoon from the sound. Each has several rooms that are connected by tunnels. Several small depressions near these house pits appear to be cache pits. An area approximately 15 m to the west has a very irregular surface which seems to indicate some kind of disturbance, possibly more house pits that are obscured by the vegetational cover.

10) Tip of Spit at Kugruk Lagoon, Site II

On the very tip of the spit that divides Kugruk Lagoon from Kotzebue Sound is a second site with three house pits, six square depressions, a larger rectangular depression, and a T-shaped trench. Each house pit has a large central room, measuring 3 m, 5 m, and 6 m in diameter respectively, and an entrance tunnel. Two of the tunnels appear to have cold traps at the end. Recent activity at this location was indicated by the presence of a gasoline engine near one of the depressions. The larger rectangular pit, which measures 2.5 m by 6 m, and the T-shaped trench may be the result of very recent activity.

11) Rock Shelter near Asses Ears

Asses Ears, located at 65°44.5' N, 163°11' W, is a prominent landmark in the northeast portion of the Seward Peninsula. A small, partially collapsed rock shelter measuring 2 m by 2 m by 1.5 m high lies near its

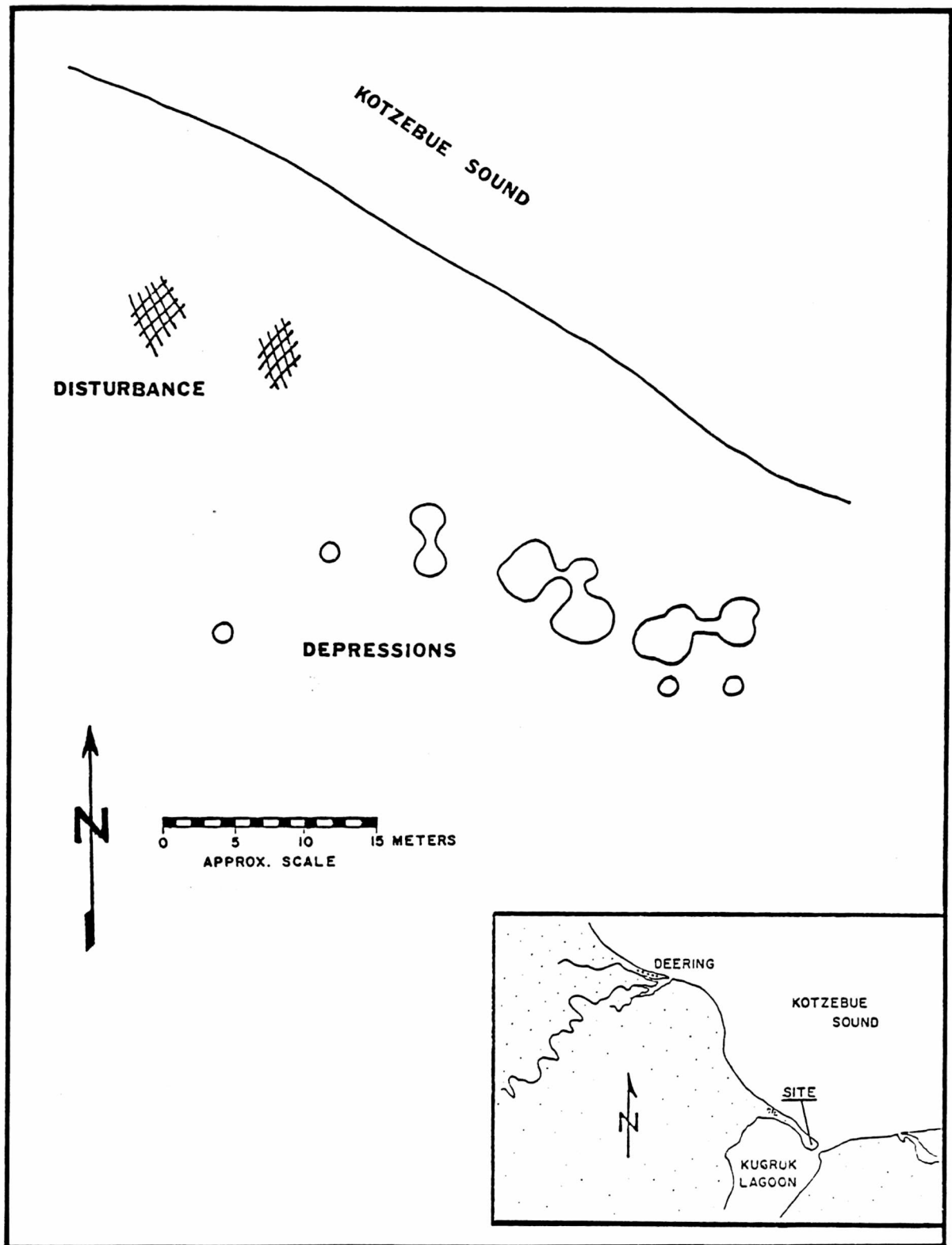


Figure 7. Tip of spit at Kugruk Lagoon site 1.

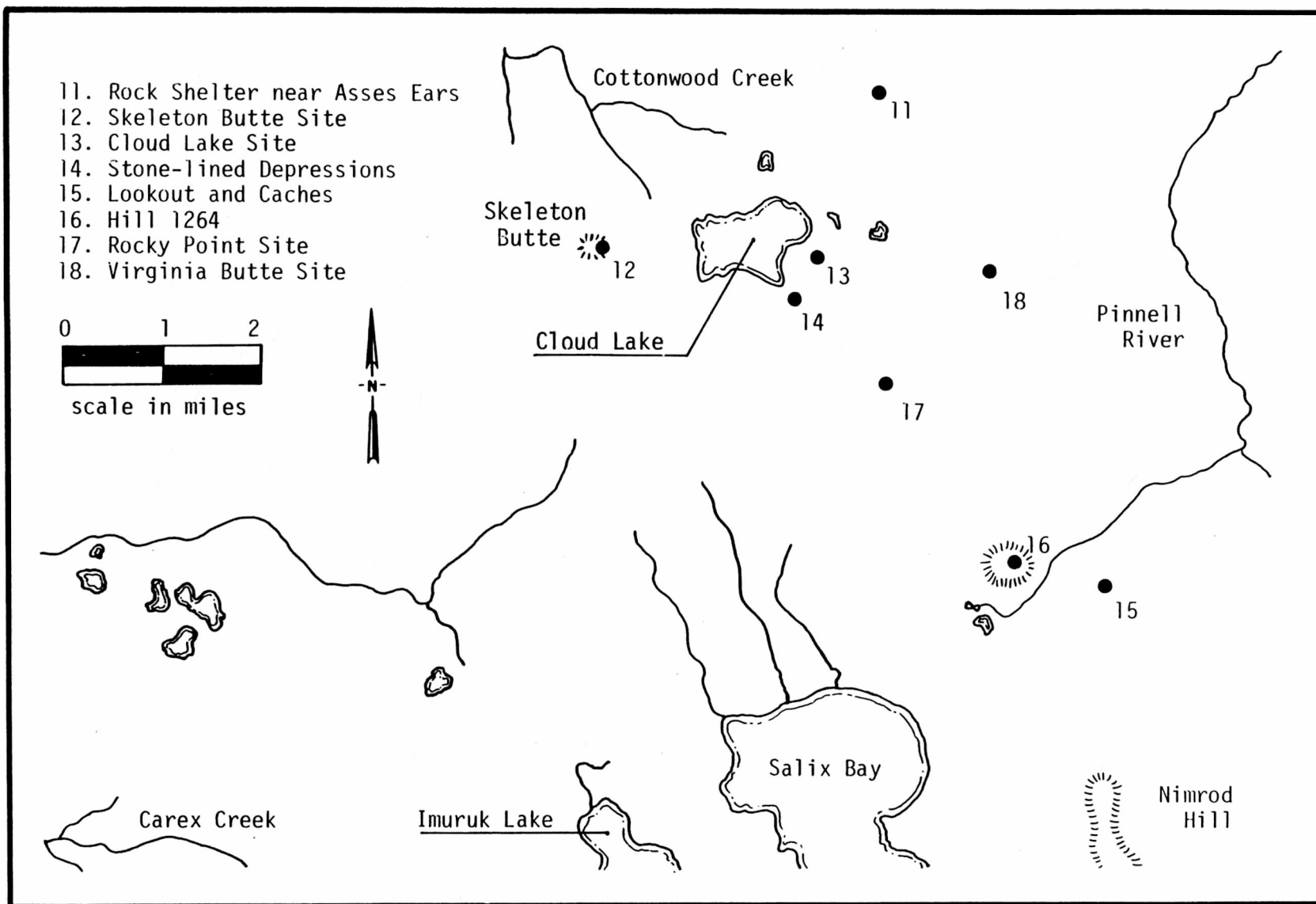


Figure 8. Site location map, Cloud Lake area.

southern margin. The shelter is virtually plugged by roof fall blocks. No test excavation was undertaken at this location, but two halves of a broken arrow shaft were found between the rocks.

Arrow Shaft

Description: The two parts fit together at the break to form a complete arrow shaft except for the missing tip. The basal end of the shaft has a nock and faint lashing stains from attaching the fletching. The shaft is wide and flat at the basal end, but is round in cross section near its midpoint.

Material: Wood.

Size: 46 cm maximum overall length, 1 cm wide at base of nock. Nock is 0.2 cm wide.

Provenience: Found between rocks in rock shelter.

12) Skeleton Butte (figure 9)

Skeleton Butte, located at 65°43' N, 163°17' W, covers an area approximately 120 m by 50 m. On its north end is a large village site which commands an excellent view of the entire Imuruk Lake region, the upper Kugruk River, the upper Pinnell River, Virginia Butte, the upper Goodhope River, upper Cottonwood Creek, Trail Creek, Cloud Lake, Asses Ears, and numerous points in between (plates 9 and 10). According to some residents of the Deering area, the "old people" used to tell stories about the many battles fought and won by the inhabitants of Skeleton Butte. The south end of the butte is covered with large accumulations of lava rock. Here we found some large, intact cairns as well as three cairns that were partially collapsed and three that had collapsed completely (plates 11 and 12).

The site was visited by David M. Hopkins in 1948 and we found the test pits that he dug at the time. Hopkins (n.d.) reported finding caves in the side of Skeleton Butte. Although no real caves were found by our survey team, large chunks of lava rock were situated in such a way that tiny shelters were formed.



Plate 9. View to east from Skeleton Butte. Cloud Lake with Virginia Butte on horizon.



Plate 10. View to south from Skeleton Butte. Imuruk Lake with Salix Bay in foreground, Bendeleben Mountains on horizon.



Plate 11. Large cairn on Skeleton Butte.

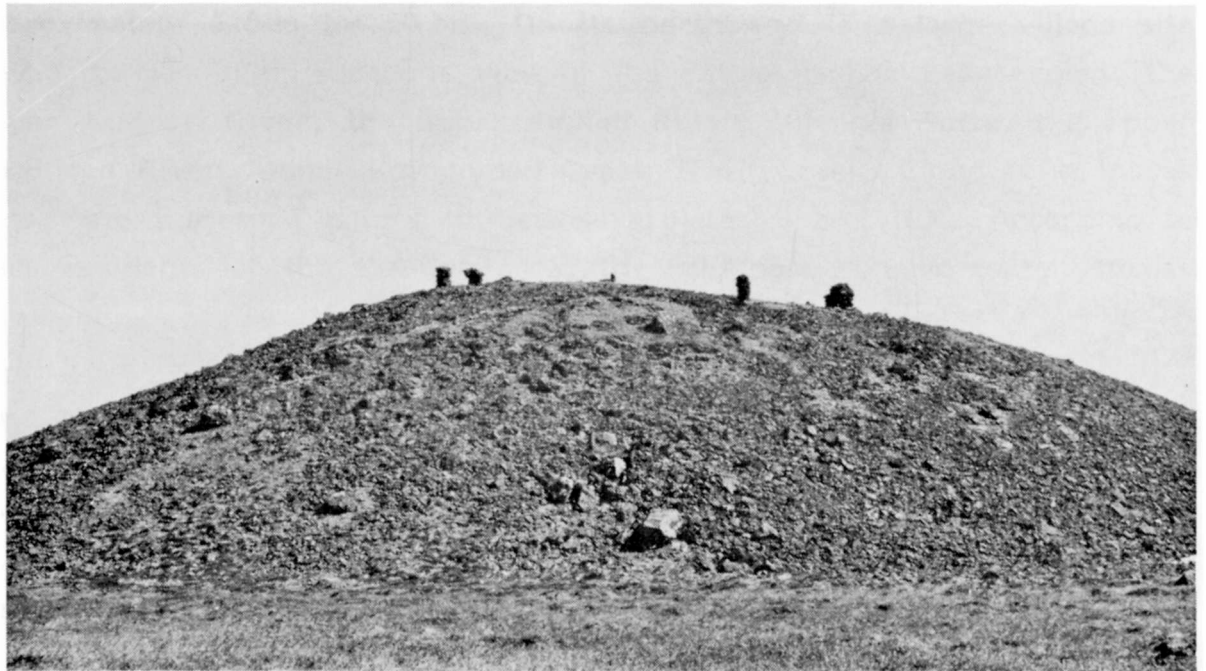


Plate 12. Cairns on south end of Skeleton Butte.

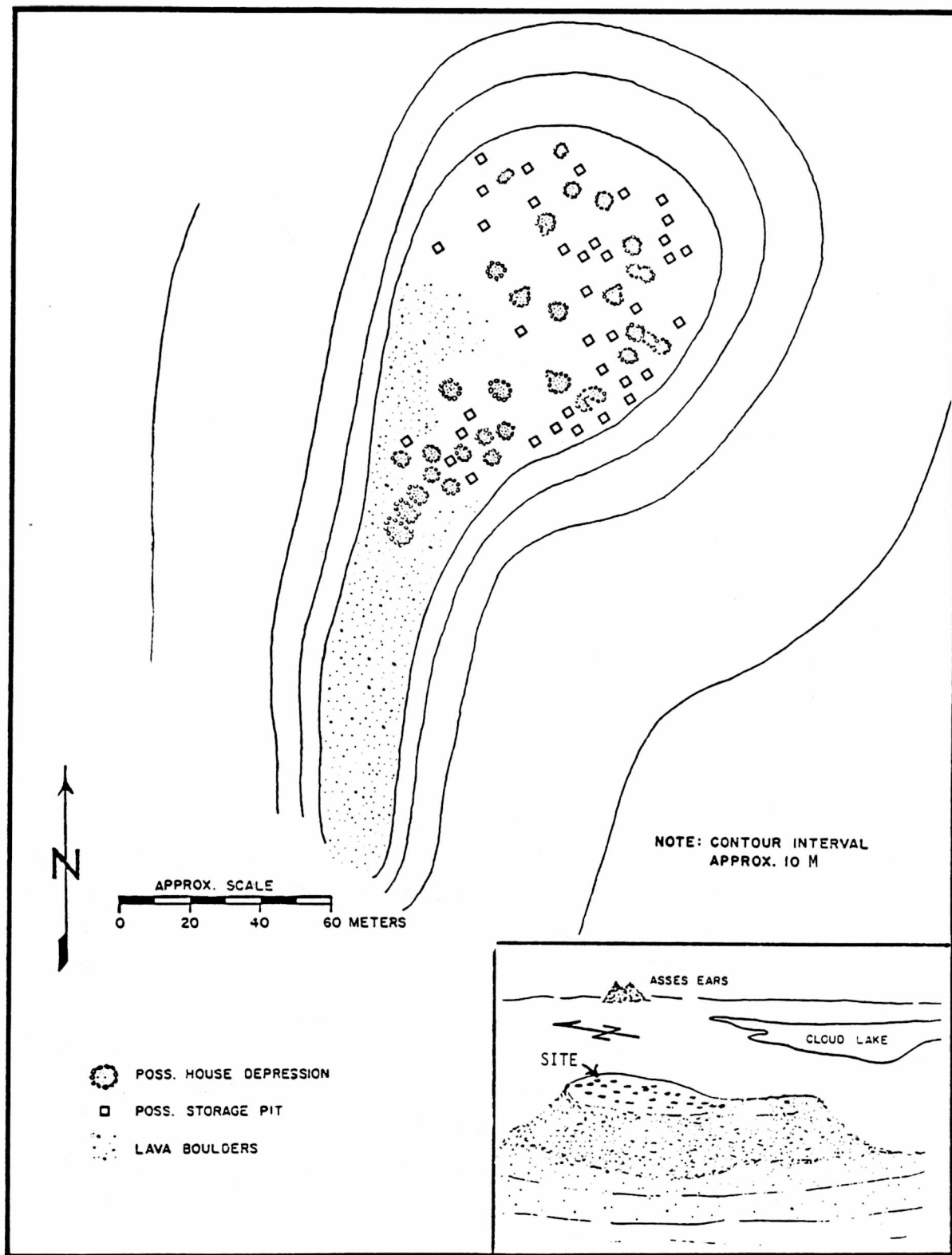


Figure 9. The Skeleton Butte site.

The village site contains 25 house pits, 37 smaller depressions thought to be storage pits, three large and deep rock structures that appear to be analogous to fortifications, and several hunting or concealment blinds sporadically situated along the edge of the butte. The house pits and cache pits are lined with stone, and appear to have been semi-subterranean structures with low walls above ground level (plates 13, 14, 15, and 16).

The storage pits at the site were either square, rectangular, or round. The square storage pits measured approximately 0.5 m, 1 m, or 2 m on a side, though one larger pit measured 2.5 m square. The rectangular storage pits all measured 1 m by 2 m, except for one which measured 2 m by 3 m. The round storage pits had diameters of 0.5 m or 1.5 m. The dimensions of the house pits are summarized in table 2 below.

No artifacts or other cultural materials were observed on the surface, although there were numerous caribou bones, especially in the rocks along the east side of the butte. In one house pit we made a test excavation which revealed a sod layer approximately 5 cm thick underlain by a compact rubble layer thought to be the floor of the house pit. Caribou bone, but no artifacts or other cultural material, was found.

13) Cloud Lake Site

The site is located at 65°43' N, 163°13' W, 0.5 km southeast of Cloud Lake. It contains nine round stone-lined house pits ranging from 3 m to 4 m in diameter. The houses appear to have been semisubterranean with a low stone wall extending above ground level, similar in construction to those seen on Skeleton Butte and Gosling Cone. One well-constructed storage pit was also found at the site. The remains of caribou as well as several chert flakes were found under fallen rocks near one of the structures, but no other artifacts were recovered. Two small test pits, dug by David M. Hopkins (n.d.) in 1948, were found in several of the house pits. This site, excavated in 1975, is described in more detail in chapter 6.



Plate 13. Skeleton Butte.



Plate 14. Stone wall on Skeleton Butte.



Plate 15. Stone rings on Skeleton Butte.



Plate 16. Stone-lined depression on Skeleton Butte.

Table 2. Features at the Skeleton Butte site.

Dimensions		Comments
Main Room	Entry Room	
3 m x 2.5 m	-	oval house pit
3.5 m diameter	-	round house pit
2 m diameter	-	round house pit
3 m diameter	-	round house pit
3 m x 5 m overall	-	house pit consisting of 2 connected round depressions
2 m x 3.5 m	present?	oval house pit
3 m x 1.5 m	-	oval house pit; filled with rocks
3 m x 2.5 m	-	oval house pit
3 m x 4 m	present?	oval house pit
3 m x 4 m	-	oval house pit
3.5 m x 5.5 m	present?	oval house pit
2 rooms, each 3 m x 2 m	-	house pit; the rooms are connected with a stone ring
3 m x 4 m	-	oval house pit
5 m x 5 m	present	oval house pit
2 rooms, each 2 m x 2 m	-	house pit
2 m x 3 m	-	oval house pit
3 m diameter	-	round house pit
3 m x 5 m	-	oval house pit
3 m x 3.5 m	-	oval house pit
2 m x 3 m	-	oval house pit
3 m x 4 m	-	oval house pit
2 m x 3 m	-	oval house pit
3 m x 4 m	-	oval house pit
3.5 m diameter	-	round house pit
4 m diameter	-	round house pit; test excavation

14) Stone-Lined Depressions, East Side of Cloud Lake

Two possible stone-lined depressions are located on the east side of Cloud Lake approximately 0.25 km from the lakeshore. These are small, approximately 2 m in diameter, and may represent no more than storage pits. The recent debris of human activity was also found in the area and included old, rusty tin cans, metal tent stakes, and other miscellaneous items.

15) Lookout and Caches (figure 10)

This site is located on top of a small knoll at 65°40.5' N, 163°07' W, close to where the Pinnell River discharges from a small lake on the north side of Nimrod Hill. The lake lies in a valley between Nimrod Hill to the south and hill no. 1264 (see USGS map, Bendeleben C-3 quadrangle, 1950) and is a natural channel for migrating caribou. The knoll, situated in the center of the pass, is a good vantage point from which to sight game animals. Seven well-defined stone-lined storage pits were found on top of this knoll. These pits ranged from square to rectangular in shape, from 1 m square to 1 m by 1.5 m in size, and from 0.5 m to 1 m in depth. Some of these storage pits had flat stone slabs over the tops as covers and all were sunken below ground level. A few caribou bones were lying on the ground's surface, but no artifacts or other cultural materials were found at this site.

16) Hill 1264 (figure 11)

This hill is located at 65°40.7' N, 163°08' W, on the north side of the Pinnell River, and is approximately 1.5 km north of the lookout and caches site. The crest of the hill is semicircular in shape and has two prominent high points. Large, well-constructed stone cairns stand on both high points and four rounded, stone-lined storage pits lie in the low area between them. These pits were sunken below ground and then built par-

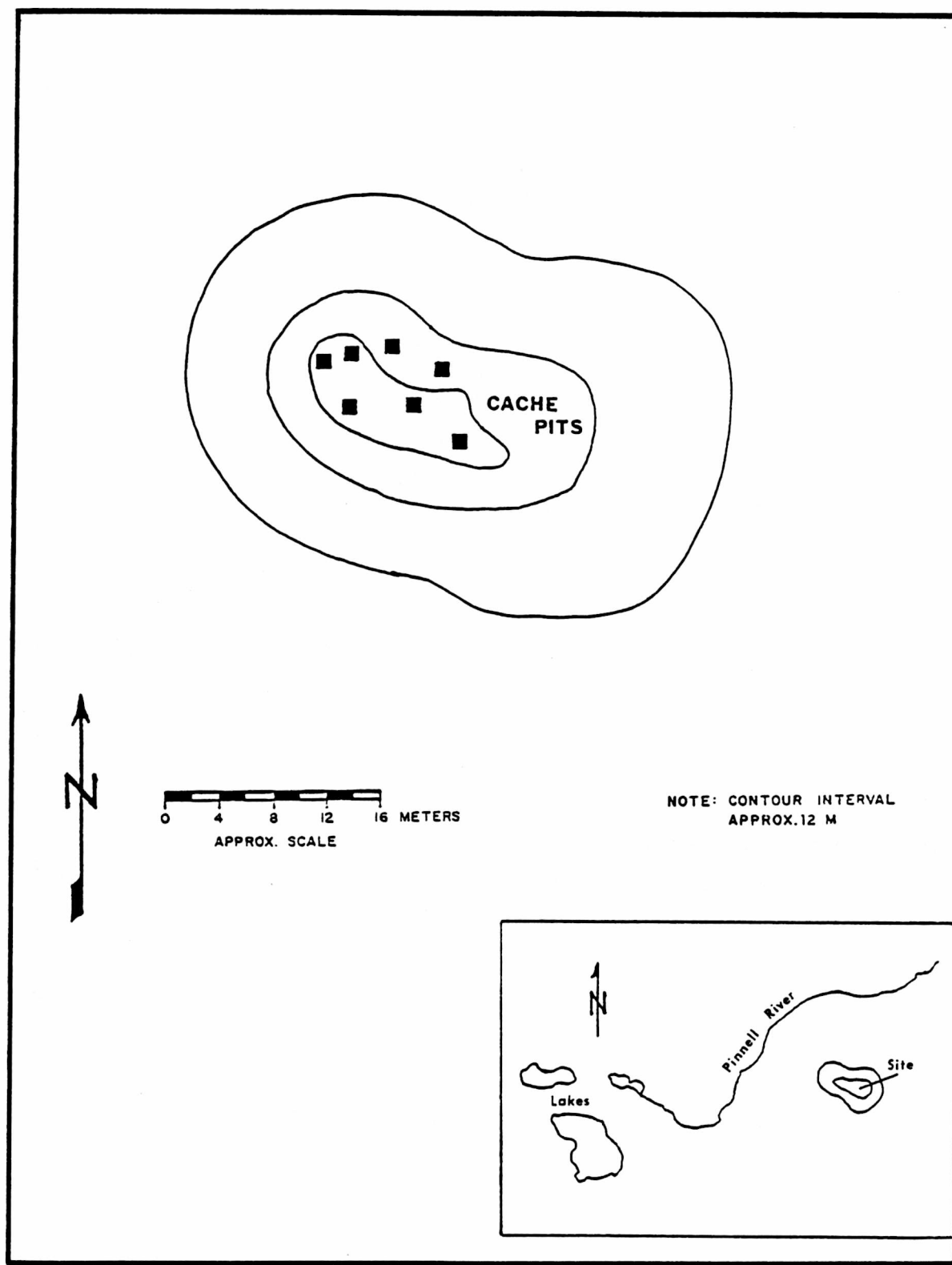


Figure 10. Lookout and Caches site.

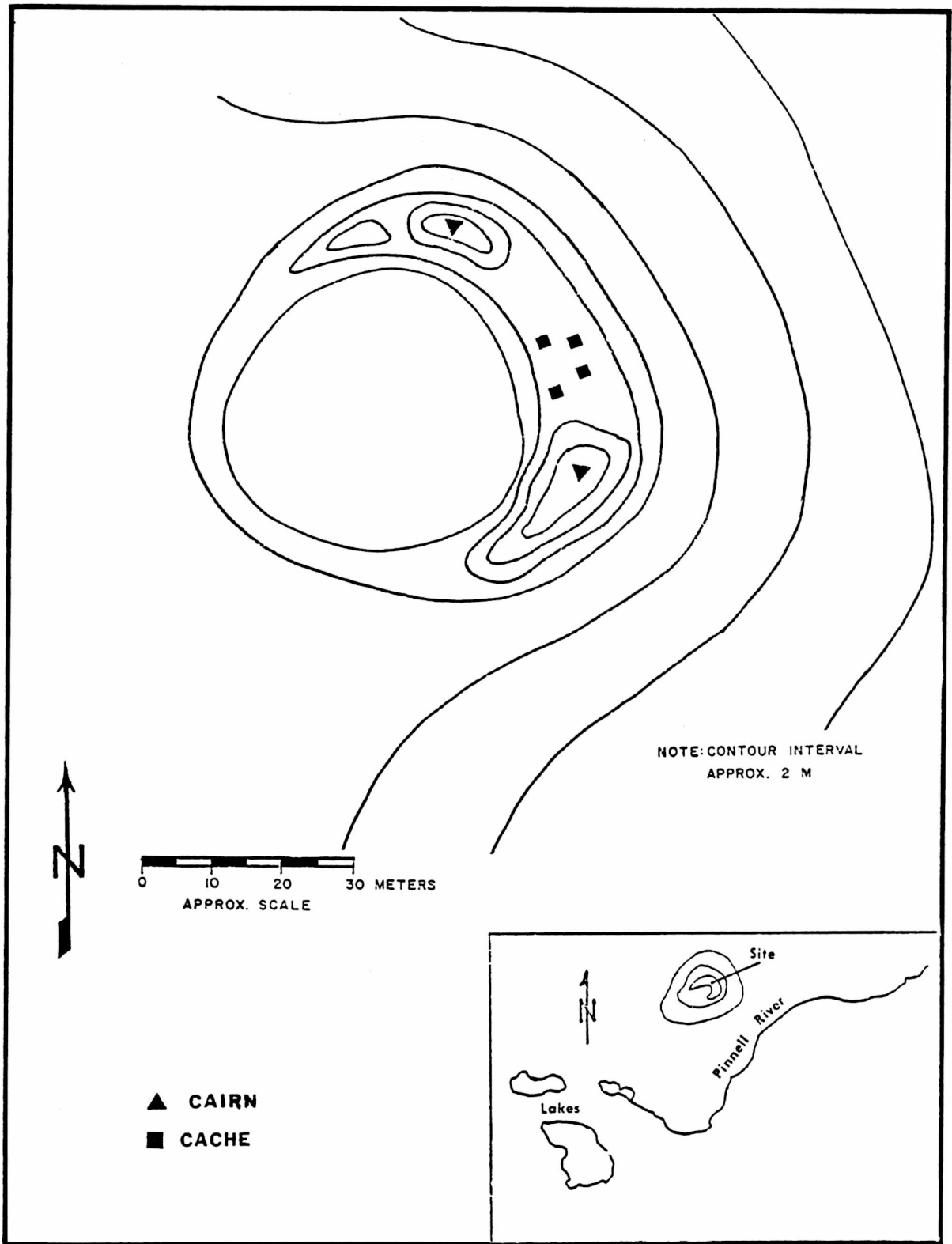


Figure 11. Hill 1264.

tially above ground by piling stones in a circular, honeycomb pattern. A small entrance hole was left in the center at the top. Inside, circular underground chambers are formed, ranging from 1 m to 1.5 m in diameter. The hill offers a good view of the surrounding area, and several miles of the Pinnell River can be observed from its crest.

17) Rocky Point (figure 12)

This rock formation, located at 65°42.5' N, 163°08' W, appears to have been exposed when the less resistant deposits around it weathered away. The point, a prominent feature of the landscape, lies approximately 1.5 km south of Virginia Butte. On top of this feature are a rock cairn; 10 circular stone-lined depressions ranging from 3 m to 4 m in diameter; 12 stone rings, without depressions, each approximately 2.5 m in diameter; and 4 small rectangular storage pits measuring approximately 1 m by 1.5 m. The storage pits range from 0.5 m to 1 m deep. No artifacts or cultural materials were found on the surface.

18) Virginia Butte

Virginia Butte is a prominent landmark located at 65°43' N, 163°09' W. The top of the butte is covered with many large lava rocks, and several large cairns. The largest cairn stands on the northeast end of the butte. A smaller cairn and a collapsed cairn were noted at the southwest end. A ring of stones, 2 m in diameter, and five small, stone-lined depressions measuring approximately 1.5 m in diameter were also found on top of the butte. The smaller depressions may have been storage pits or temporary shelters.

19) Salix Bay Site

This site is located at the northern end of Salix Bay on Imuruk Lake, at the point closest to Cloud Lake. It was detectable only through surface

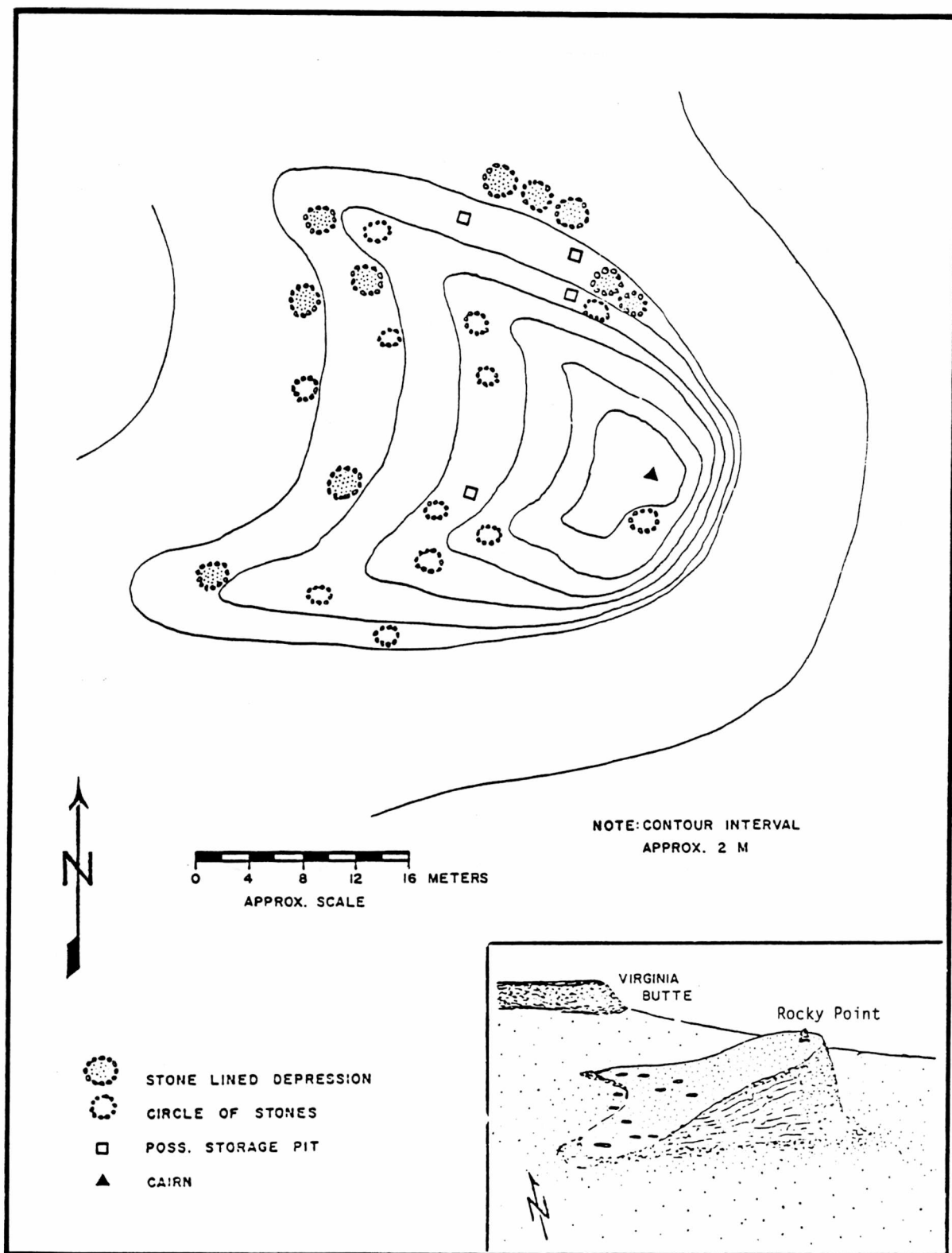


Figure 12. Rocky Point.

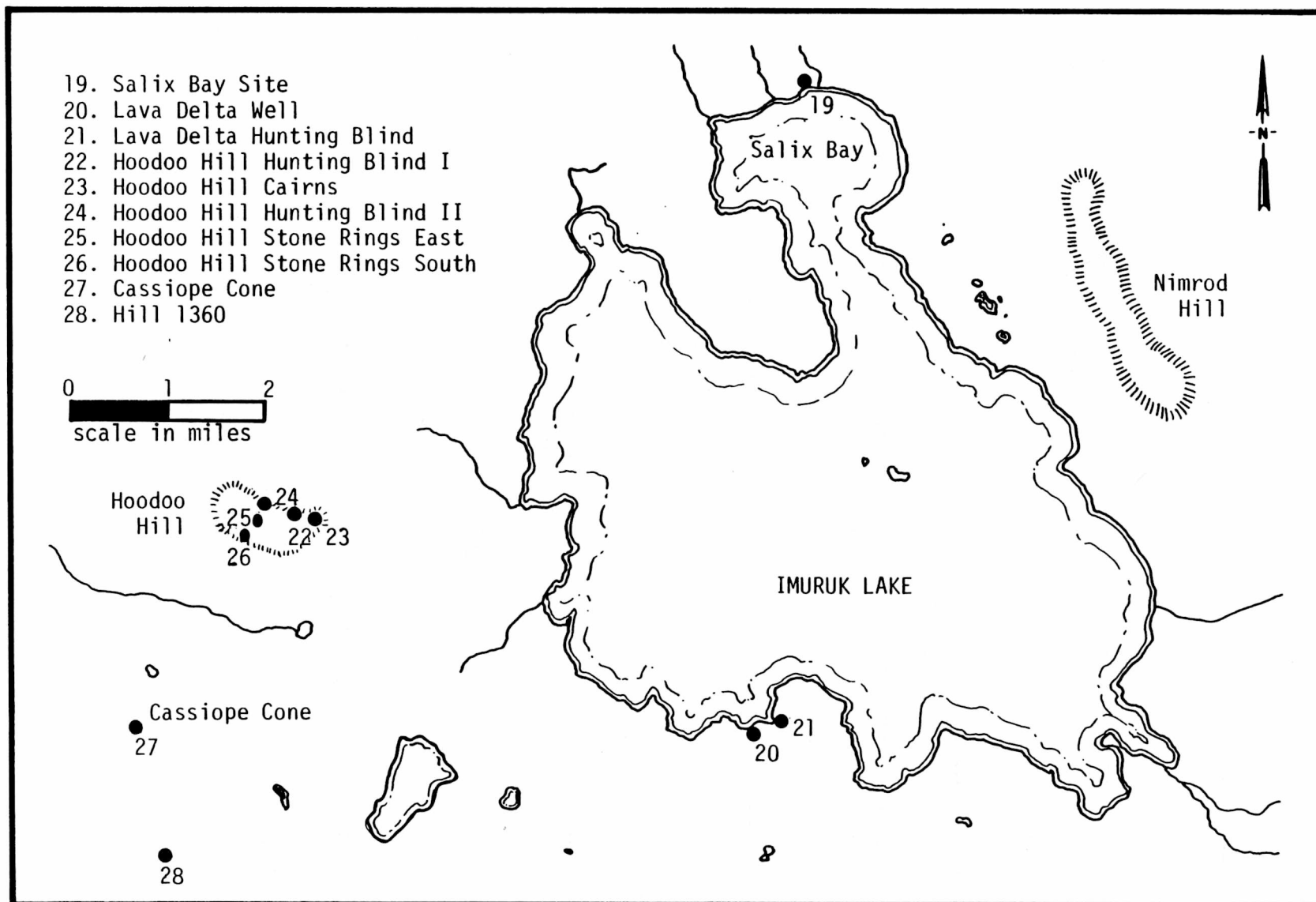


Figure 13. Site location map, Imuruk Lake area.

material collected on a sandy beach near our base camp. During our stay here we were unable to locate any concentrated site area. This was due in part to the tundra cover extending to the beach, but may also reflect the temporary nature of the site or its destruction by the encroachment of Imuruk Lake.

Artifacts found include potsherds, chert flakes, a broken slate ulu or knife blade, and a wooden object with a hole in one end which may be a kayak or sled part. Numerous bone and antler fragments, some of which were worked, were also noted.

Wooden Object with Hole (plate 17)

Description: A curved wooden object with a hole drilled through one end. The wood is in poor condition and cut marks cannot be detected. The object may have been a kayak or sled part.

Material: Wood.

Size: 22 cm maximum length, 4.3 cm maximum width.

Provenience: Collected from surface on beach.

Ulu Blade (plate 18)

Description: A broken fragment of an ulu blade, bifacially ground and polished. The edge of the blade is very finely ground and sharp.

Material: Reddish-brown slate.

Size: 9.2 cm maximum length, 3.6 cm maximum width, 0.7 cm maximum thickness.

Provenience: Collected from surface on beach.

Worked Antler Object (plate 19a)

Description: Object with grooves cut into both ends. No decoration. Function not known, but may have served as some kind of handle.

Material: Antler.

Size: 10.9 cm maximum length, 3.2 cm maximum width, 2 cm maximum thickness.

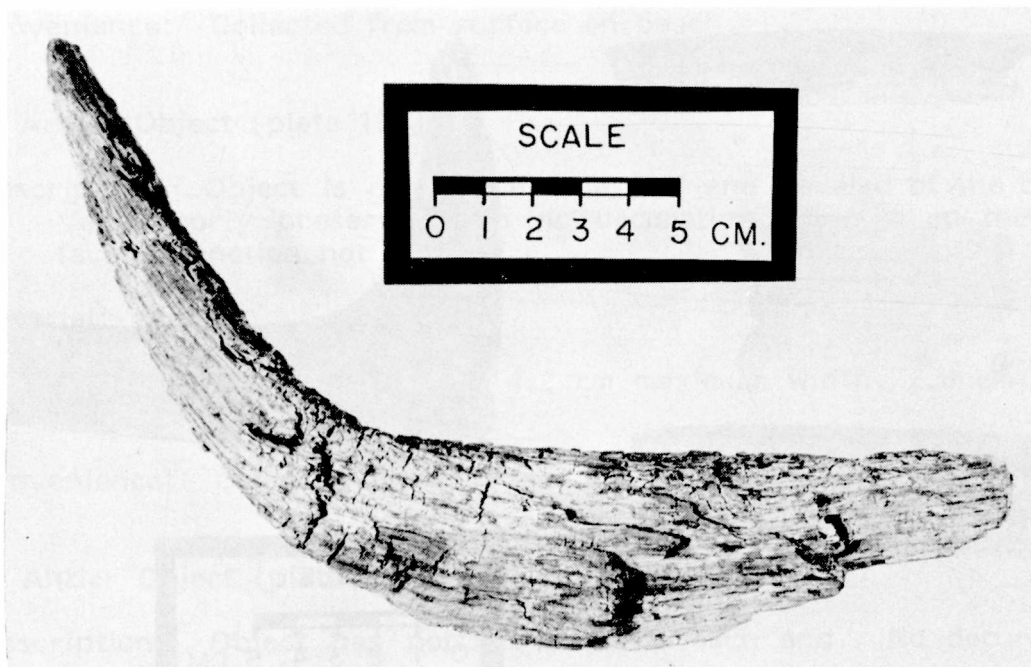


Plate 17. Wooden object with hole from the Salix Bay site.

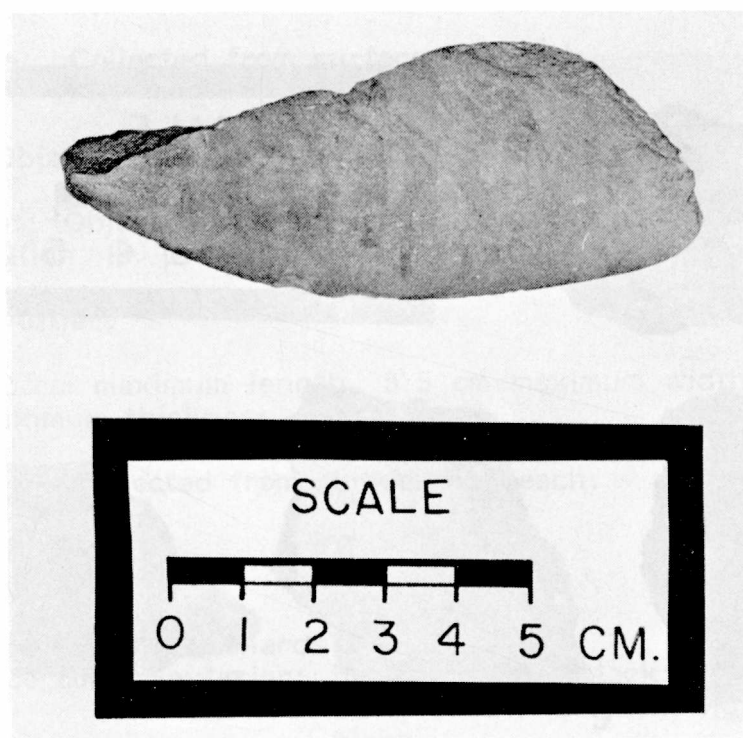


Plate 18. Ulu blade (ground slate) from the Salix Bay site.

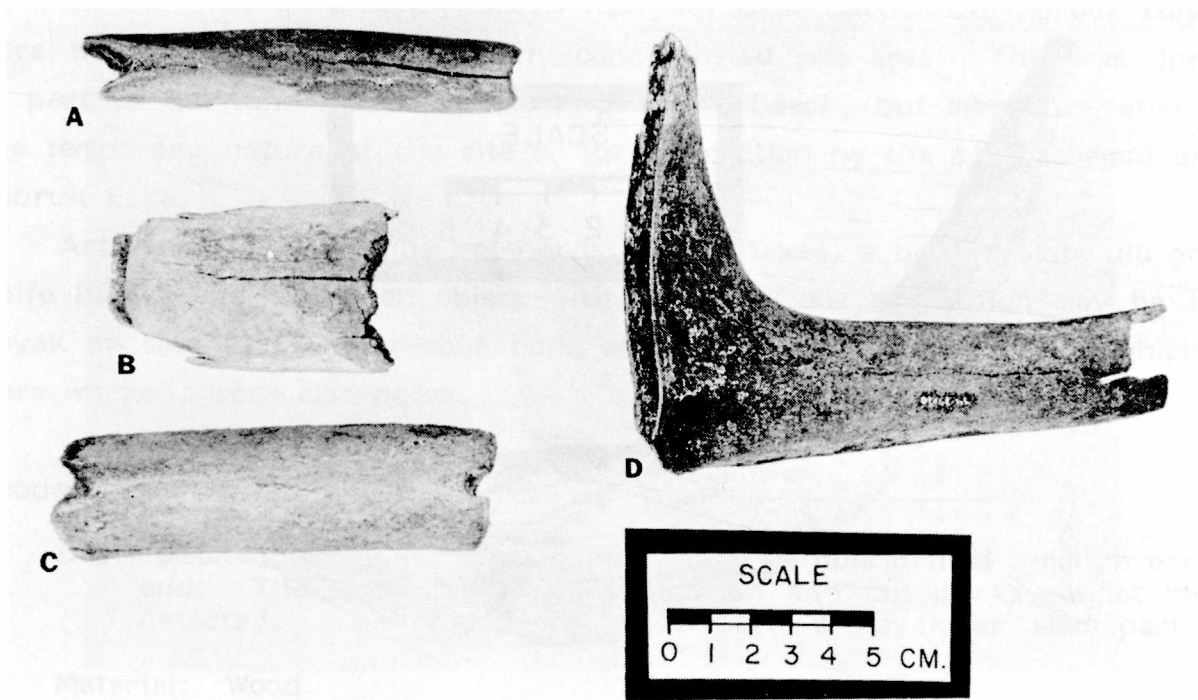


Plate 19. Four worked antler objects from the Salix Bay site.

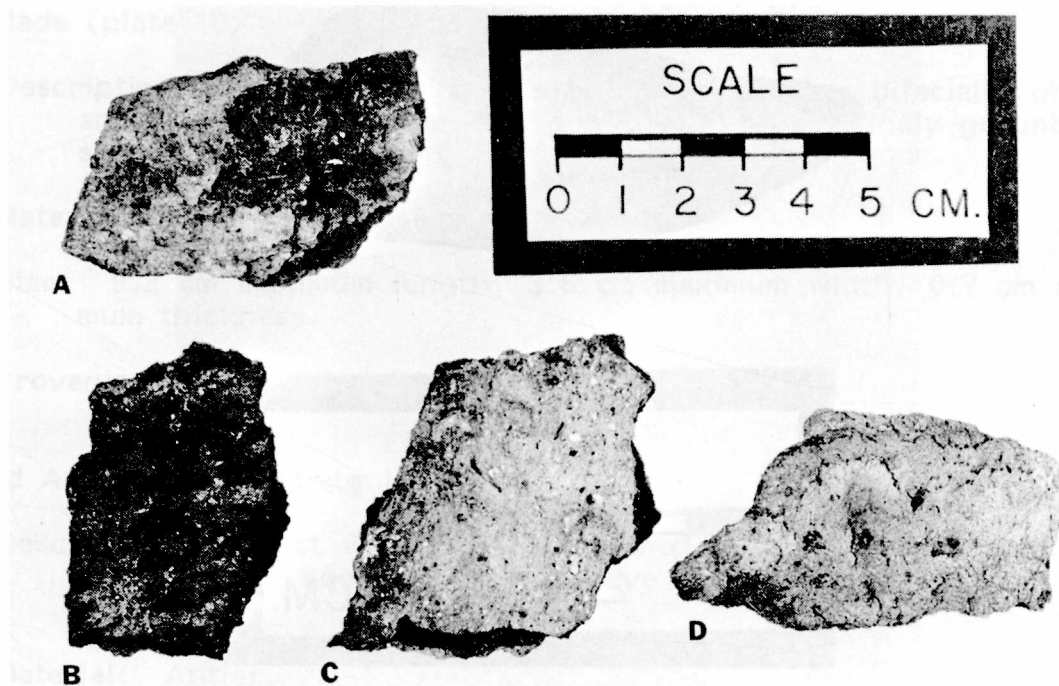


Plate 20. Potsherds from the Salix Bay site.

Provenience: Collected from surface on beach.

Worked Antler Object (plate 19b)

Description: Object is notched at one end and beveled at the other. Very poorly preserved and no decoration detected on the surface. Function not known.

Material: Antler.

Size: 7.3 cm maximum length, 4.2 cm maximum width, 2.6 cm maximum thickness.

Provenience: Collected from surface on beach.

Worked Antler Object (plate 19c)

Description: Object has notches cut into each end. No decoration. Function not known.

Material: Antler.

Size: 11.2 cm maximum length, 5.6 cm maximum width, 3.3 cm maximum thickness.

Provenience: Collected from surface on beach.

Worked Antler Object (plate 19d)

Description: Object is cut on one end and broken on the other. No decoration is present on the surface. Function not known.

Material: Antler.

Size: 14.2 cm maximum length, 3.5 cm maximum width of shaft, 1.9 cm maximum thickness.

Provenience: Collected from surface on beach.

Potsherds (plate 20)

Description: Six body sherds.

Surface color--exterior: brown to gray-black;

interior: buff, brown to black, light gray to black.

Temper--coarse to fine sand, feathers, plant material.

Surface--decoration on two sherds. One has several dots, another has several linear streaks.

Range in size: 0.9 to 1.2 cm thick.

Provenience: Collected from surface on beach.

20) Lava Delta Well

The lava delta, located at 65°34' N, 163°12.5' W, on the southern edge of Imuruk Lake, is a prominent point of land where the lava flow extended out into the lake. During survey along the west edge of this lava flow near the area where it begins to protrude into Imuruk Lake, we found a well in a deep crevasse of the flow. The crevasse had a long pole across it and a rusty metal bucket and some old rope were lying nearby, giving it a fairly recent appearance.

21) Lava Delta Hunting Blinds

Two semilunate hunting blinds (figure 14) lie on the lava delta approximately 100 m north of the well. Both hunting blinds are constructed of lava rock easily obtainable in the immediate area. A low wall was built to a height of approximately 0.5 m. The diameter of each hunting blind is approximately 1 m. Examination of the ground's surface around the blinds revealed numerous caribou bone fragments, but no cultural material.

22) Hoodoo Hill Hunting Blind I

Hoodoo Hill is a rock-strewn bluff that extends southeast to northwest for about 2 km. A semilunate hunting blind lies on the east edge of the bluff, at 65°35.5' N, 163°20' W. It offers a good vantage point for spotting the game animals that pass between Hoodoo Hill and the west shore of Imuruk Lake, approximately 3 km distant. In shape and construction, this

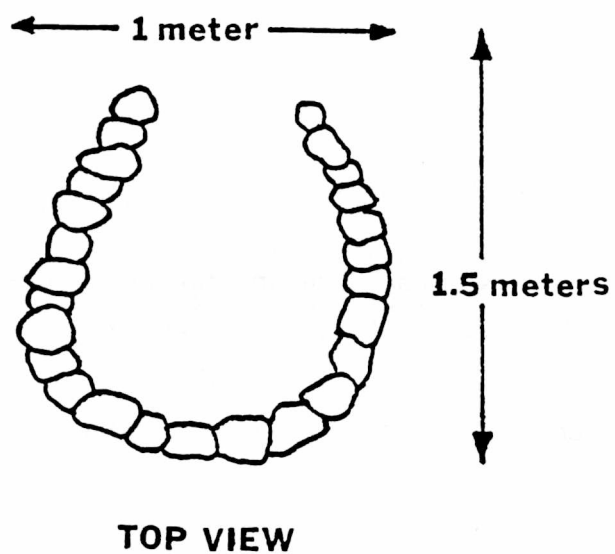
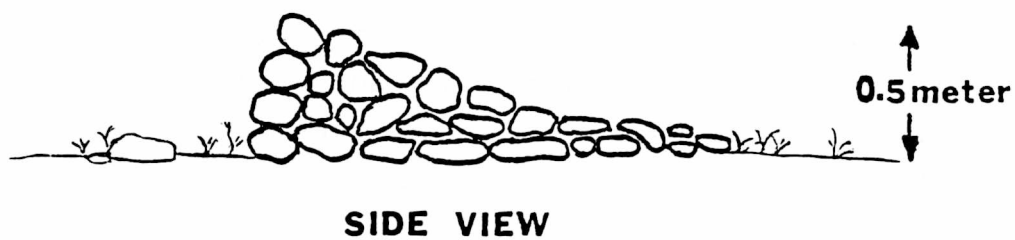


Figure 14. Illustration of semilunate hunting blind from Seward Peninsula.

blind is similar to those found on the lava delta. No cultural material was recovered.

23) Hoodoo Hill Cairns

Three small cairns stand approximately 50 m southeast of the semi-lunate hunting blind. The cairns are less than a meter in height and small bone fragments, found between the rocks of the cairns, indicate that they may have been used for temporary storage.

24) Hoodoo Hill Hunting Blind II

A second semilunate hunting blind was found on Hoodoo Hill at approximately 65°35.5' N, 163°21' W. This blind is located along the same bluff as the first and is identical in shape and construction to the ones found on the lava delta and on Hoodoo Hill. No cultural material was recovered.

25) Hoodoo Hill Stone Rings East

A large ring of stones, 2 m in diameter, lies on the east side of Hoodoo Hill at 65°35.5' N, 163°21.5' W. Two smaller rings of stones, each approximately 1 m in diameter, are located nearby. The larger ring appears to have been a shelter of some sort and the smaller rings storage pits. Three other stone rings were found at this location, all with depressions in the center. It is not certain, however, whether the latter are house pits or natural features.

26) Hoodoo Hill Stone Rings South

High on the south side of Hoodoo Hill, at 65°35.7' N, 163°25' W, and directly opposite Camille Cone to the south, is a long rock bluff which ex-

tends from east-southeast to west-northwest for approximately 3 km. Four stone rings found along the southeast edge of this rock bluff at approximately 65°35.5' N, 163°24' W, are round, 2 m in diameter, and constructed of well-placed stones which form a low wall. The structures are partially collapsed, but appear to be more than simple tent rings. No cultural material was recovered from this site.

27) Cassiope Cone

Cassiope Cone is located at 65°35.5' N, 163°27' W. The cone is flat on the top and offers an excellent view in all directions. Near the center is a large stone cairn, approximately 2 m high and constructed of well-placed lava rock. On the south side of the cone are two distinct circles of stones. Each circle is 3 m in diameter and consists of a single tier of stones placed so that each stone touches the next. They appear to be tent rings.

28) Hill 1360

A hill marked 1360 on the Bendeleben quadrangle map (USGS 1950) and located approximately 2 km southeast of Cassiope Cone was surveyed. The hill is flat on the top and a large, well-constructed cairn stands near its center. On the southeast edge is a large natural rock feature, and near this, on a flat point of rock extending out from the southern edge of the hill, is a low wall constructed of well-placed lava rock in the shape of a half circle. This wall ranges in height from 0.5 to 0.75 m. It appears to have been a windbreak and lookout point affording a good view of the area between the hill and the north edge of the Lost Jim Lava Flows approximately 2 km away.

29) Rhododendron Cone

This cone is located at 65°32.5' N, 163°08.5' W. A large, well-constructed cairn stands on the top. No other features are present.

30) Gosling Cone (figure 16)

Gosling Cone is located at 65°28.5' N, 163°14.6' W. The top is fairly flat and is covered with lava boulders. There we found a large village site containing 9 house pits with low stone walls built around each depression, 7 stone rings, 13 storage pits, and 9 cairns of various sizes.

The stone-lined house pits are similar to those found at Skeleton Butte, Cloud Lake, and Rocky Point and appear to be the remains of semi-subterranean houses that had low stone walls extending above ground level. Two of the house pits have extended rooms and one has a stone lintel above the doorway between two rooms. The seven stone rings are constructed of very large stone slabs, standing on end, which form a low wall. These do not appear to be ordinary tent rings. The stones are tightly fitted and two of the stone rings have extended rooms. All of the house pits and stone rings contain a large amount of antler which may indicate the use of caribou antler as a primary source of roof support. Dimensions of these structures are presented in table 3.

Five very well constructed storage pits at this site have semisubterranean inner chambers which were constructed by placing flat rock slabs vertically in the ground. The inner chambers of the storage pits range in size from 1 m square to 1 m by 1.5 m. Four of the storage pits have a top entrance covered with a flat stone and one has a side entrance. Eight less well constructed storage pits found here are square in shape and dug into the ground. Two small, round depressions, each 1.5 m in diameter, were also observed, but we could not determine their use.

Nine rock cairns, ranging in height from 0.5 to 1.5 m, stand in various places on top of this cone. One small cairn contained a small bundle wrapped in red cloth. Inside the bundle, in a plastic bag, was a field notebook, several small candles, and a small can of marking paint. The

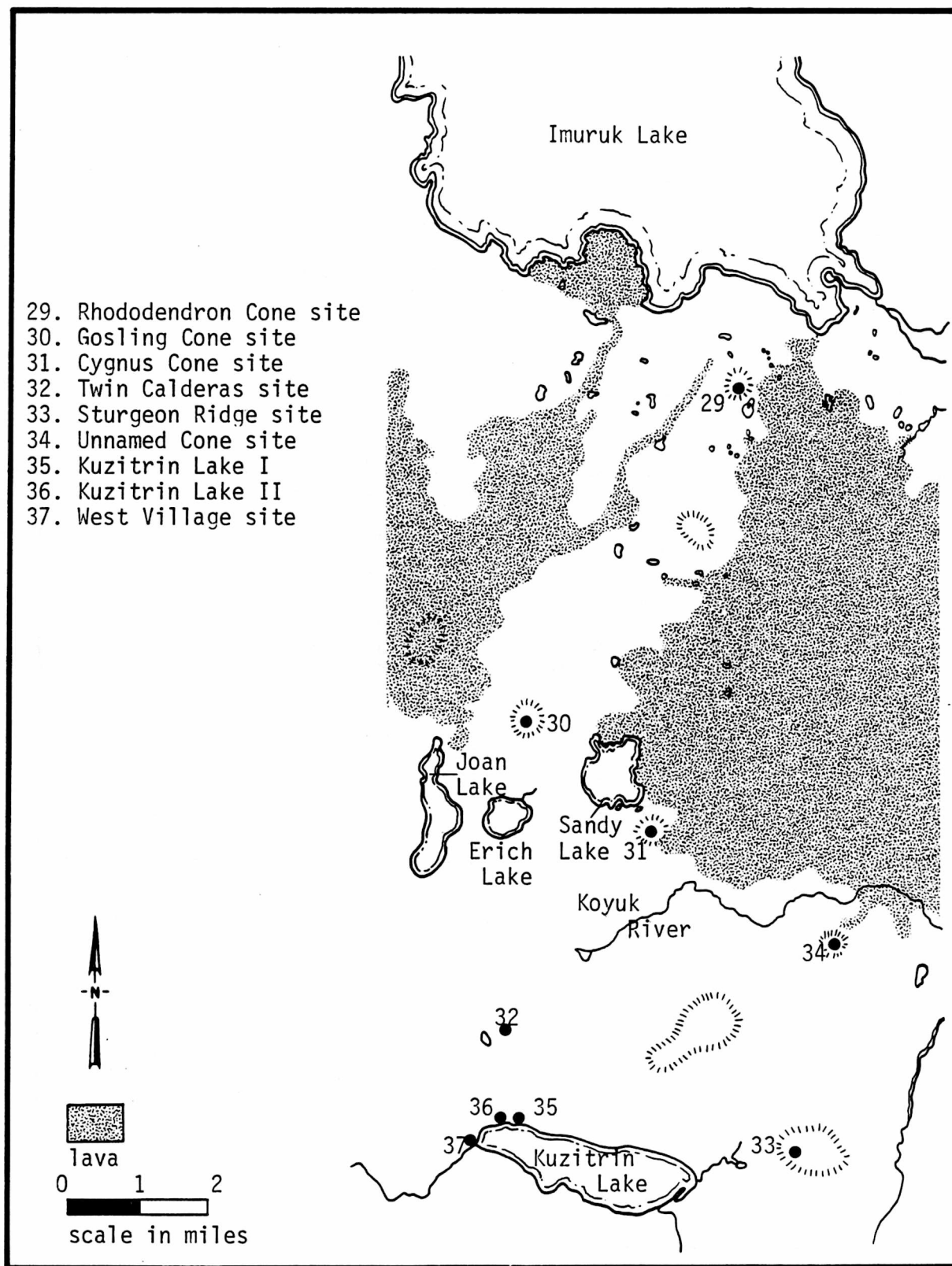


Figure 15. Site location map, volcanic area and Kuzitrin Lake vicinity.

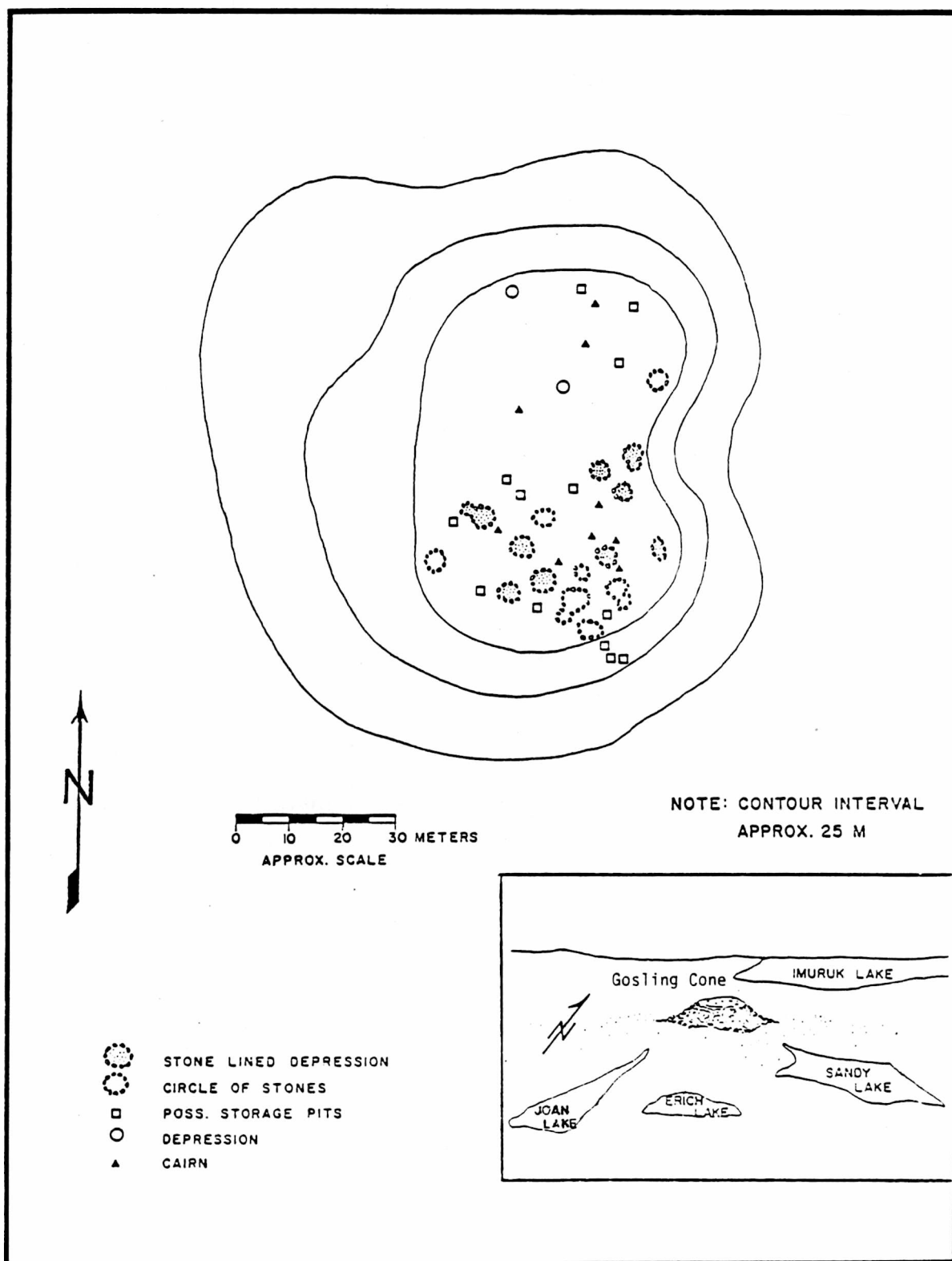


Figure 16. Gosling Cone site.

Table 3. Features at the Gosling Cone site.

Dimensions			Comments
Main Room	Entry Room	Depth	
3 m diameter	-	-	round house pit
2.5 m diameter	2 m diameter	-	house pit, 2 rooms
2 m diameter	-	-	round house pit
4 m diameter	2 m diameter	-	house pit, 2 rooms w/ stone doorway between
3.5 m diameter	-	-	round house pit
6 m x 7 m	-	-	house pit
4 m x 5 m	-	2 m	house pit
2 m x 4 m	-	-	oval house pit
1 m x 3 m	-	-	oval house pit
2 m diameter	-	-	round stone ring
3 m diameter	-	-	round stone ring
2 m diameter	-	-	round stone ring
2 m diameter	-	-	round stone ring
6 m x 8 m	-	-	stone ring with slight depression
3 m diameter	-	-	round stone ring
4 m diameter	-	-	round stone ring

first page of the notebook had written on it: "Guest Book, Imuruk Lava State Park." On the second page was written: "It is thought that perhaps this huge and interesting lava area will one day be a national or state point of interest as a tourist attraction for Alaskans and people from all other states," signed by Wm. L. Kohler, 22 September 1959. Crew members David Plaskett and Rick Blacklaws signed their names in the book, rewrapped the bundle and reconstructed the cairn. There were numerous caribou bone fragments on the ground's surface around the site but no artifacts or other cultural materials were recovered.

31) Cygnus Cone

This cone, located at 65°27.2' N, 163°11' W, is flat on top and elongated in shape. On a prominent high point on the southern end of the cone are a large, well-constructed cairn and the remains of a partially collapsed cairn. Along the east edge of the lower flat area on the top of the cone is a loose ring of stones which appears to be the remains of a tent ring. A semilunate hunting blind lies near the stone ring.

32) Twin Caulderas

Twin Caulderas is located at 65°25' N, 163°15' W, near the northwest end of Kuzitrin Lake. We counted 25 cairns on top of this landmark, ranging from less than 1 m to 4 m in height. These include two sets of double cairns, in which the paired cairns are spaced approximately 2 m apart and connected by a stone wall. At one of the double cairn structures are the remains of a stone circle which had completely enclosed the area between the two larger cairns. Twin Caulderas on the west and hill 2009 (see USGS map, Bendeleben quadrangle, 1950) on the east form a natural barrier with a low pass which could have served as a channel for migrating caribou. This area, along with the west end of Kuzitrin Lake, may have served as a primary caribou-hunting location.

33) Sturgeon Ridge (plate 21)

This feature is located near the northeast end of Kuzitrin Lake at 65°23' N, 163°07' W. A semilunate hunting blind with a low rock wall lies along the west end of the ridge under a natural rock overhang.

34) Unnamed Cone

A small unnamed cone is located at 65°26' N, 163°06' W. We found two partially collapsed cairns here, but no other evidence of human activity.

35) Kuzitrin Lake I (figure 17)

On the north side of Kuzitrin Lake, approximately 2.5 km from the lake's outlet into the Kuzitrin River, are three house pits and two smaller depressions that were probably storage pits. House pit 1 is rectangular in shape and measures 3 m by 6 m by 0.4 m deep. House pit 2 is also rectangular and measures 4.5 m by 2.5 m. The longer side appears to have an entrance in the center which measures 1 m by 1.3 m. The maximum depth of this house pit is 0.3 m. It appears as though house pit 1 was built over house pit 2 with only the east end of house pit 2 remaining visible. House pit 3 measures 3 m by 2 m and is located a few meters north of house pit 1. These house pits are approximately 2 m above the level of Kuzitrin Lake. Four small circular depressions, each 1 m in diameter, lie approximately 30 m west of the three house pits.

Four potsherds were collected from rodent burrows near house pit 1. We excavated a test pit measuring 1 m by 3.16 m and extending from the center to the sides of house pit 1, perpendicular to its long axis. The cultural layer, found beneath 3 cm to 5 cm of soil, yielded 21 potsherds as well as 4 chert flakes, a bifacially worked chert object, and one small ground or abraded rock fragment. We encountered several large, vertical slabs associated with much charcoal in the center of the house. Screening

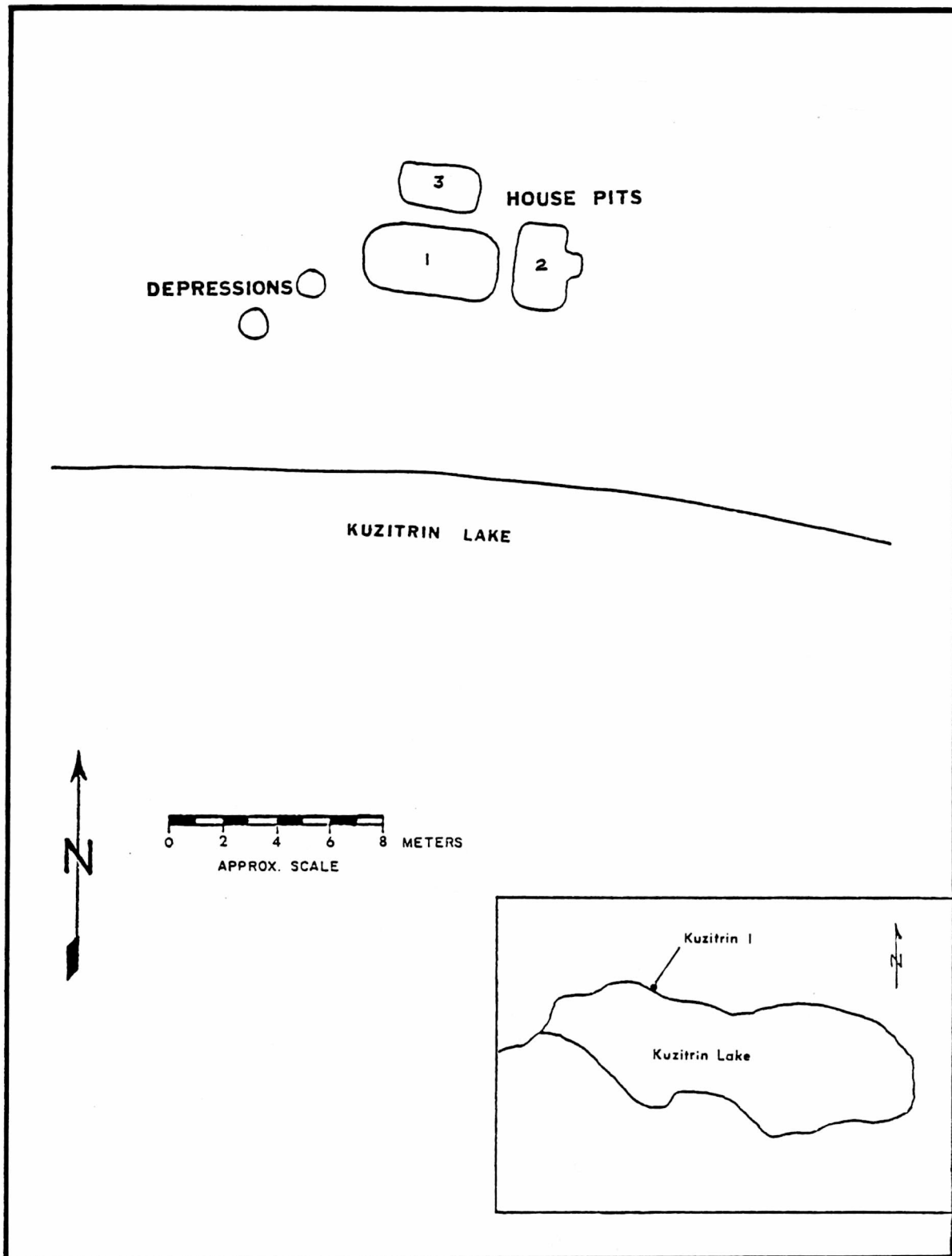


Figure 17. Kuzitrin Lake I.

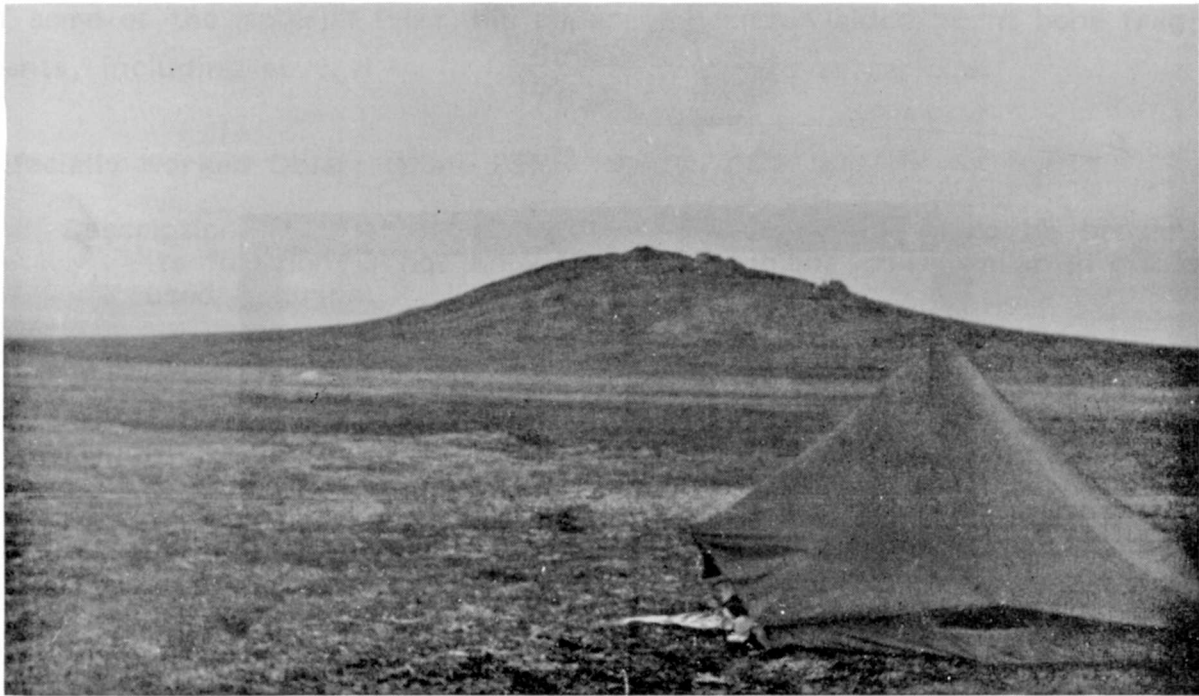


Plate 21. Sturgeon Ridge from base camp at Kuzitrin Lake.



Plate 22. Serpentine Hot Springs area.

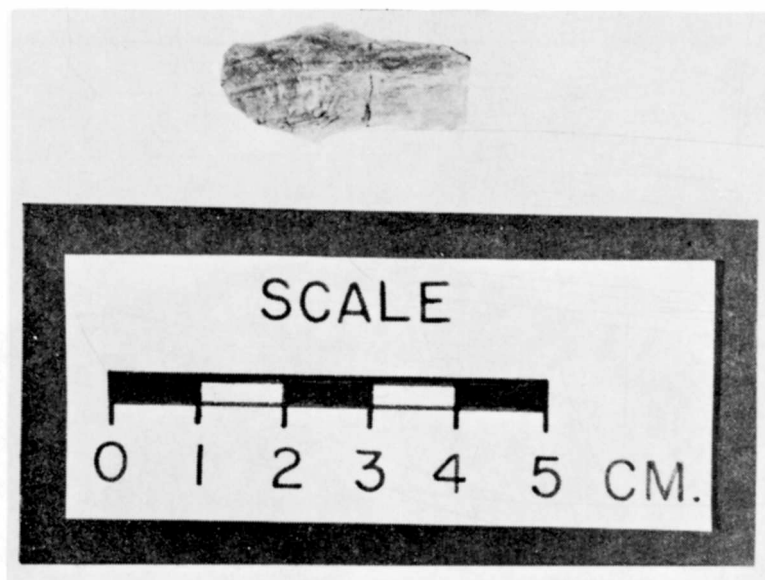


Plate 23. Bifacially worked chert object from the Kuzitrin Lake I site.

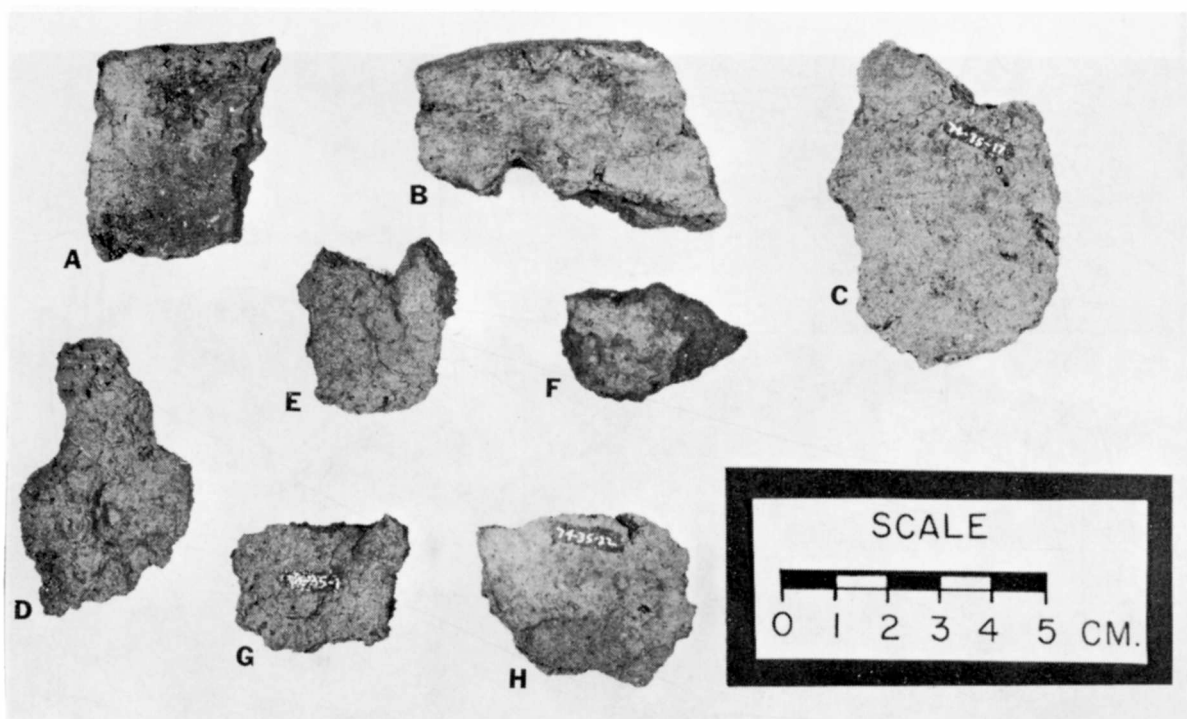


Plate 24. Potsherds from the Kuzitrin Lake I site.

of some of the material from this apparent hearth yielded burnt bone fragments, including several tooth fragments identified as caribou.

Bifacially Worked Object (plate 23)

Description: Object is bifacially flaked and appears to be broken. Its function is not known, but the object looks similar to pieces used as drills.

Material: Chert.

Size: 3 cm maximum length, 1.5 cm maximum width, 0.75 cm maximum thickness.

Provenience: Found in test pit in house pit 1, near the hearth, at a depth of 9 cm.

Ground or Abraded Fragment

Description: A small rock fragment that appears to have been ground or abraded. May have been part of a rock used as a whetstone or abrader.

Material: Fine-grained basalt.

Size: 2 cm by 2.5 cm maximum dimensions, 0.4 cm thick.

Provenience: Found in test pit in house pit 1, near the hearth, at a depth of 15 cm.

Potsherds (plate 24)

Description: Two rim sherds, 23 body sherds. One sherd has a hole through the side which may represent a patching hole.

Surface color--exterior: uniform buff color;
interior: light gray to gray-black.

Temper--coarse and fine sand.

Surface--outer surface is smooth, no decoration is present.

Range in size: 1.75 cm to 0.5 cm thick.

Provenience: Four of the potsherds were found on the surface and all others were found in the test pit in house pit 1.

36) Kuzitrin Lake II (figure 18)

This site is located near the shore of the lake approximately 80 m west of the Kuzitrin Lake I site. It contains several indistinct house depressions which have poorly defined shapes, possibly due to superimposition over other structures. The site appears to have three large house pits and seven smaller depressions that may represent storage pits. One other house pit, oval in shape and measuring 2 m by 3 m, lies approximately 20 m east of these houses.

37) West Village Site (figure 19)

At the west end of Kuzitrin Lake, approximately 0.5 km north of its outlet, is a large village site consisting of 20 round to oval depressions. Several depressions are ringed with stones and range from 4 to 6 m in diameter. We found caribou bone fragments scattered over the surface and collected a few chert flakes. Unfortunately, 60 to 80 kmph winds made test excavations impossible at this site.

Description of Sites, 1975 Survey

1) Ualit

Ualit is a small village site situated on a point just west of the mouth of McKinley Creek on the north shore of Grantley Harbor. The reported Eskimo name means "the next stream up," possibly in reference to the location of the site in relationship to the mouth of the Tuksuk Channel. Ualit is one of the few former villages in this area not confirmed in any of Dorothy Jean Ray's publications, but local information suggests that it was occupied until the early twentieth century. The site serves as a fish camp today.

The remains at Ualit consist of a series of round depressions and associated midden deposits forming two adjacent mounds which together

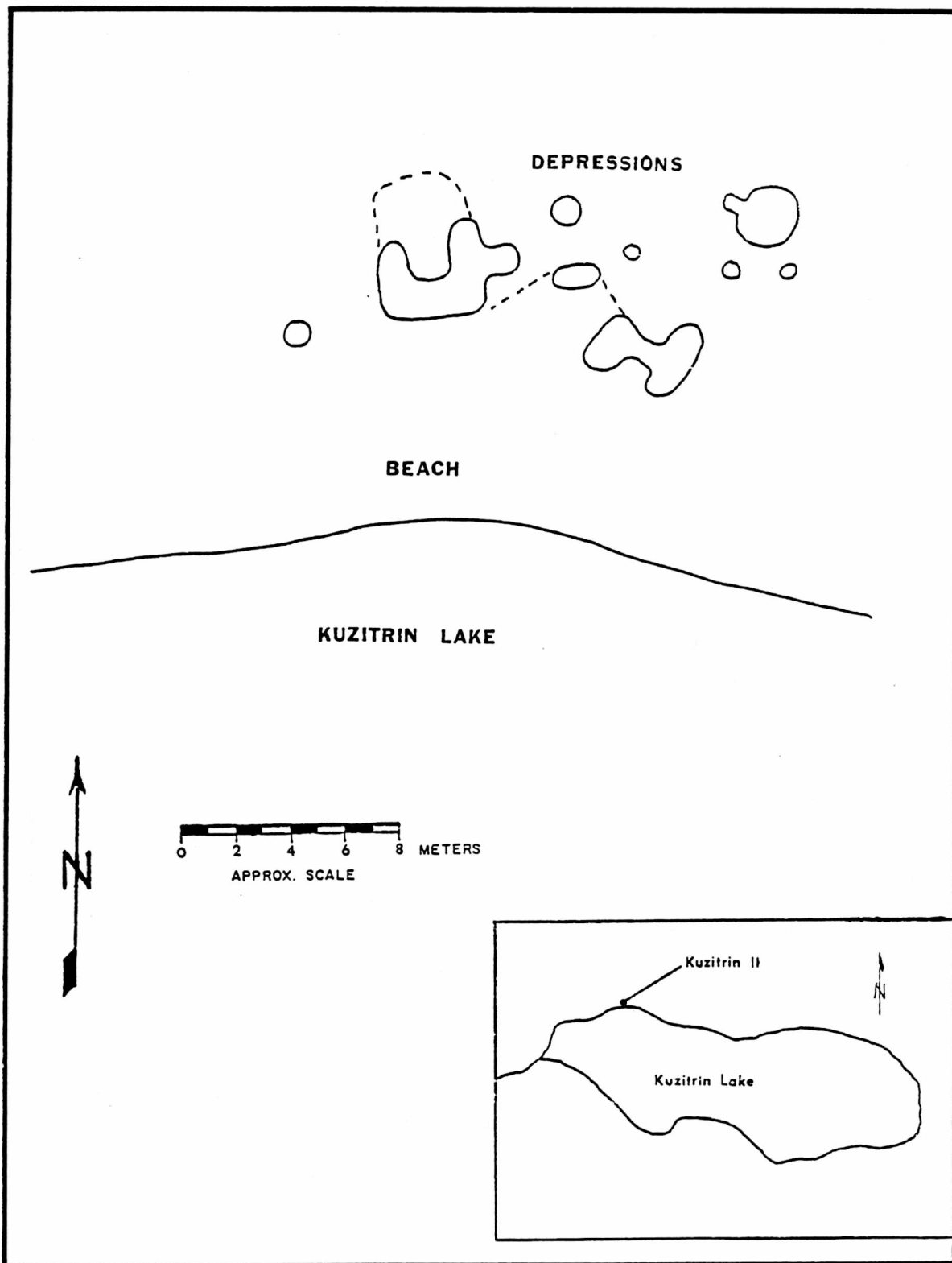


Figure 18. Kuzitrin Lake II.

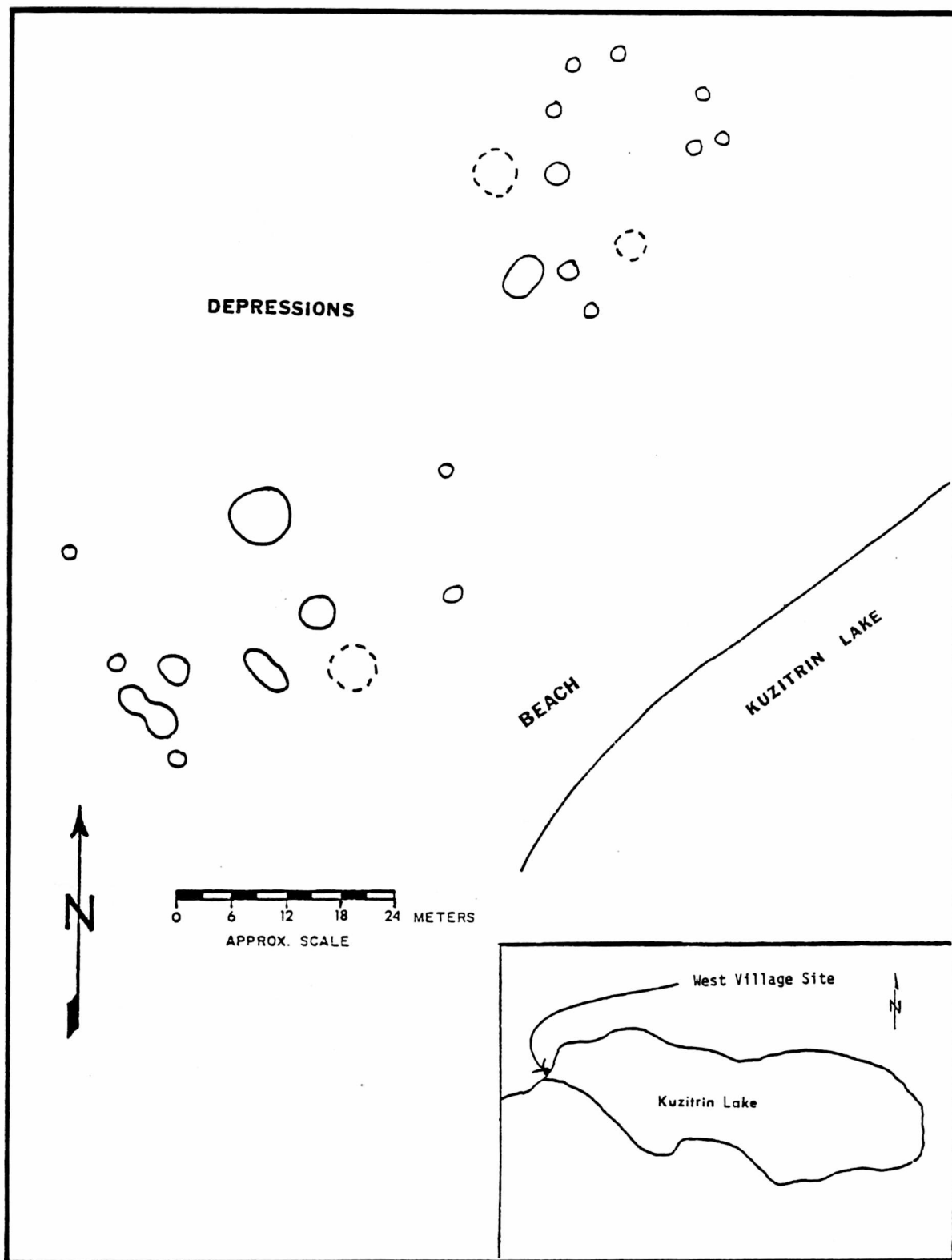


Figure 19. West Village site, Kuzitrin Lake.

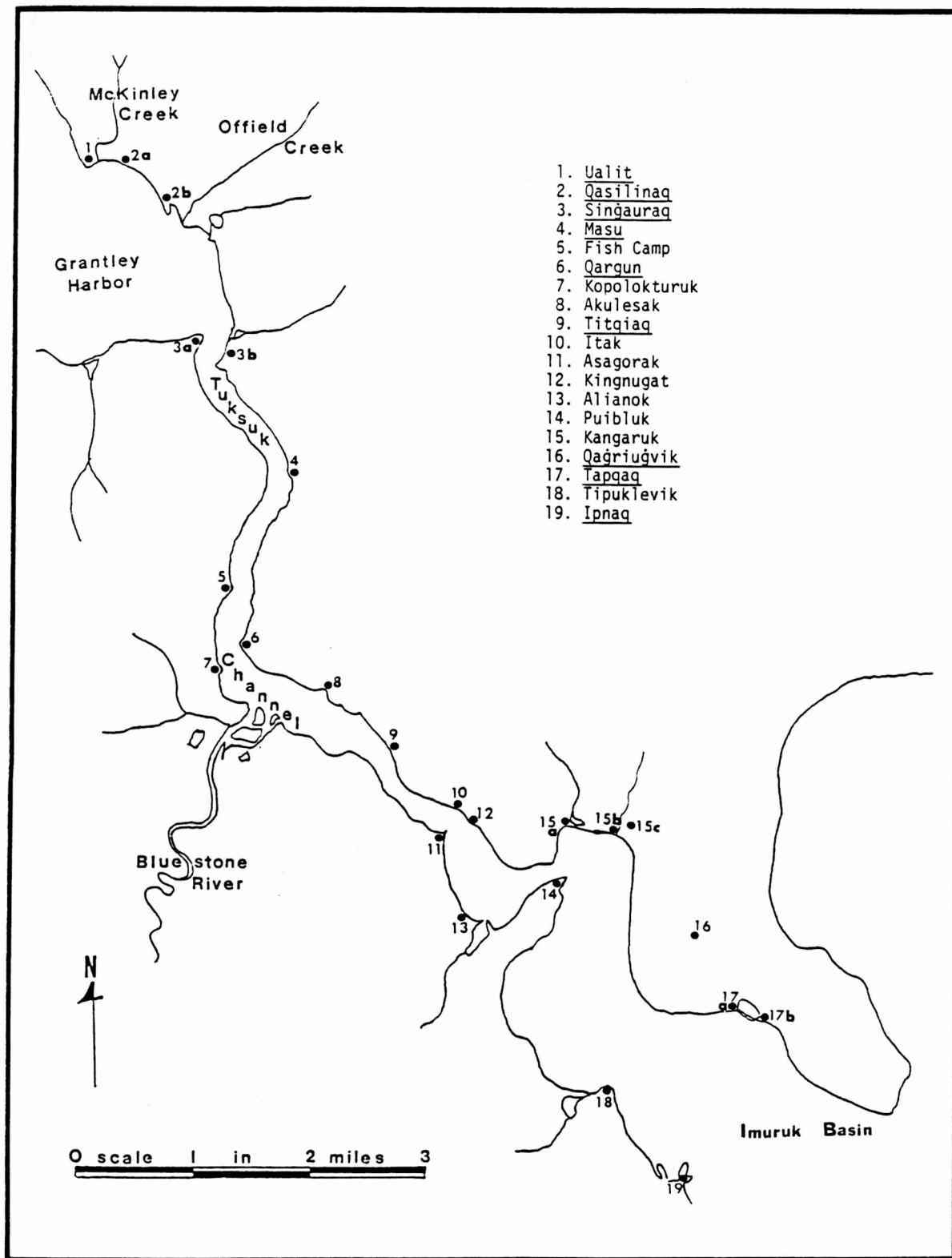


Figure 20. Site location map, eastern Grantley Harbor and Tuksuk Channel.

extend approximately 150 m along a NW-SE axis. The western mound shows little surface indication of house remains, but the eastern mound does exhibit a general house outline. This mound is approximately 3 m high and 10 m in diameter with a depression in the center. This is presumably the ruin of a "sod" house which was occupied, according to local reports, at least until 1906. A human femur was discovered in association with the depression. A lower series of depressions surrounds the prominent mound, and adjacent to the east is a presumed house complex, but extensive disturbance of this area made the identification of individual structures difficult.

Several burials were confirmed in association with the site. Local informants reported that two coffin burials at the western mound complex were those of a mother and daughter who died about 1906 after consuming tainted seal flippers. Another burial was reported to be that of a man who died during a famine and was subsequently interred with all his possessions.

Indications at the site are that local excavations have been extensive. Pottery fragments were scattered over the area and a "jade adz" was reported to have been retrieved from one of the houses. The house remains appear to be of varying ages, suggesting an occupation which extends over a period of time, possibly back to the early nineteenth century.

2) Qasilinaq (Kasilinuk)

Ray (1964b:77, 1971:17) reports that Qasilinaq was a small settlement and campsite often inhabited during both winter and summer. The name means "burns in the mouth," in reference to the bitter, alkaline water of Offield Creek, a small stream on the north shore of Grantley Harbor which marks the eastern boundary of the site. At one time, Qasilinaq may have been the name applied specifically to a series of houses not far west of the mouth of Offield Creek, but according to local information, it was a name which also applied to an area extending over a kilometer between the mouths of Offield and McKinley creeks (figure 21). Within this broader area, a series of 12 isolated mounds (2a), roughly parallel to the shore-

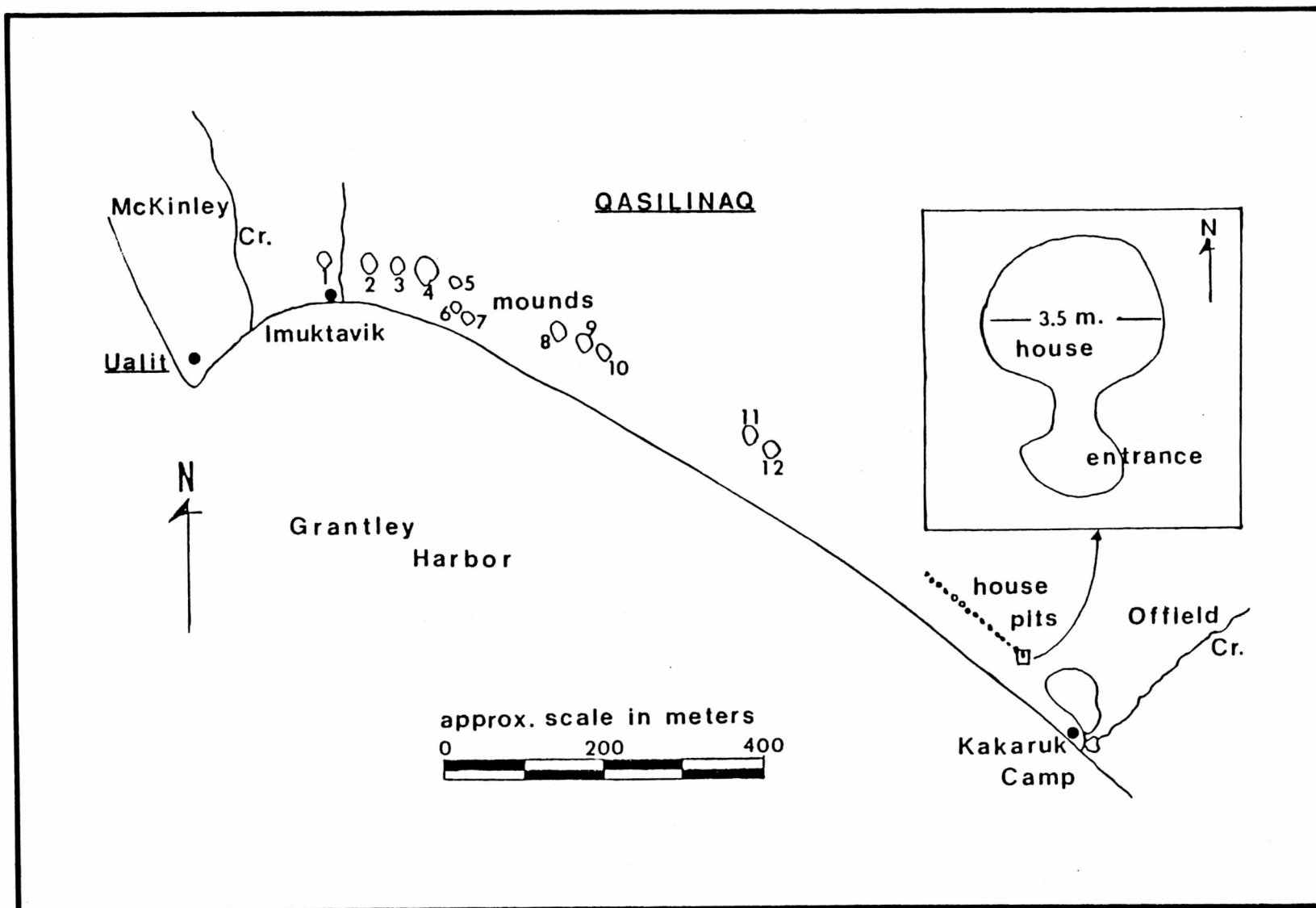


Figure 21. Qasilinaq site map.

line, appears to be the remains of habitations quite distinct from a more closely spaced series of over 20 depressions (2b) just west of Offield Creek. Some of the latter houses may have been inhabited during the early 1900s but abandoned after the influenza epidemic of 1918.

The mounds which mark the western portion of the site (2a) owe their prominence to an accumulated midden deposit, the backdirt from the excavation of semisubterranean houses, and a vegetation cover of dense grasses, all of which contrast distinctly with the surrounding tundra. Most of these mounds are situated at the crest of a terrace or ridge which parallels Grantley Harbor some 50 m from the shoreline. Elevated 9 to 12 m along this ridge, the individual localities command an excellent view of the harbor and the Kigluaik Mountains beyond. From west to east, we have designated the mounds as follows:

Mound 1. The westernmost of the mounds covers an area of nearly 500 m². At its crest are two circular depressions, each approximately 3 m in diameter. In two badly disturbed depressions on the seaward slope of the mound, burned timbers and large stone slabs have been exposed by local excavations. At the base of this particular mound is a spring known locally as Imuktavik.

Mound 2. Thirty meters to the east is a lower mound with three, possibly four, shallow depressions, each approximately 2 m in diameter.

Mound 3. A large depression nearly 5 m in diameter is situated at the crest of a third mound which covers approximately 1000 m². Again, disturbance along the seaward face of the deposit has exposed burned timbers and large stone slabs, presumably used to line a central fireplace. Potsherds and caribou bones were noted in the exposed areas.

Mound 4. Twenty meters northeast of mound 3 is the largest and most prominent mound of this group. It covers nearly 1500 m² and has two distinct depressions at the crest. The smaller, which measures 3 m by 1.8 m, presumably served as an entry room for a larger structure of dimensions 3 m by 2.5 m. Uncontrolled excavations have exposed planks and stone slabs along the face of the mound. In a level area to the north of the mound is another depression which measures 3 m across.

Mound 5. The last mound in this group is located another 30 m to the east and occupies approximately 1200 m². Five depressions were noted

at the top of this mound. Four of them appear to be older, undisturbed depressions while the fifth one, square in outline, contains the partially standing remains of what evidently was a recent fox-hunting camp. Ship-lap and nails found among the ruins of this depression attest to its modern origin.

Mound 6. South of the terrace or ridge, on the storm beach itself, a low mound 40 m in diameter is situated approximately 50 m east of the first group of five mounds. Two large depressions, each 4 m by 4 m, occupy the center. Both have been extensively disturbed.

Mound 7. Also on the storm beach to the east is another small mound with three depressions.

Mounds 8, 9, and 10. Another group of three mounds, situated on the terrace like the first group of five, lies 100 m east of mound 5. Each of these is separated from the other by a distance of about 25 m.

Mound 11. A mound with three round depressions at the top, each measuring 3 m by 2 m, lies 100 m east of mound 10. Two of the depressions have sharp, distinct outlines, while the third is shallower and more subdued.

Mound 12. The last mound noted at the site is a large, prominent one, 200 m east of mound 11 and 20 m in diameter. A large circular depression at the crest measures 5 m by 6 m and bears evidence of old, well-overgrown vandalism. A small rectangular pit, measuring 1 m by 1.5 m and presumably used for storage, lies 6 m to the southeast.

In contrast to the mound-like features which dominate the western portion of the site, a series of approximately 20 depressions (2b) northwest of the mouth of Offield Creek gives the impression of a more circumscribed village site. Here, the houses are excavated into a beach ridge some 50 m from the present shoreline, which they parallel for 200 m. Most of the depressions are simple in outline, but six at the eastern end of the series exhibit an entry room connected by a short passageway to the main room of the dwelling.

3) Sing̃auraq (Singloak)

Sing̃auraq designates the old sites and camping places on either side of the mouth of Tuksuk Channel on Grantley Harbor (figure 22). Ray has spelled this name Singaurak (Ray 1964b:77) and, later, Singloak (Ray 1971:10-11, 1975:84, 152). The spelling used here is that provided by the Alaska Native Language Center (ANLC) at the University of Alaska in Fairbanks. Ray visited the site, evidently in 1964, and noted the "old igloos" on the east side of the channel. During our 1975 survey, we confirmed evidence of former habitations at this locality and on the west side of the channel as well. Fish camps are located at the sites today (plate 25).

References to a village at this location date back to the early 1800s. In the summer of 1827, Beechey noted the village of "Choonowuck" at the mouth of the Tuksuk Channel and briefly described its inhabitants (Ray 1975:84). Ray (1975:152) believes that a village called "Too-cut-atawne," a village of thirty people visited by Hobson on his overland journey to Kotzebue Sound in February of 1854, was also Sing̃auraq. The census of 1890 mentions a small settlement in Port Clarence called "Chainruk," which Ray (1964b:76) also identifies as Sing̃auraq (Singloak).

The western portion of the site is located on a low, grassy peninsula (3a) which projects slightly into the entrance of the Tuksuk Channel. An extensive site of nearly 5000 m² occupies the greater part of this peninsula at approximately 20 m above high tide line. At least two dozen structures were located here at one time, but extensive local excavations have made the recognition of individual houses difficult. Nearly all of these structures had stone-lined entry passages. A better-preserved cluster of depressions on the northeast side of the peninsula (plate 26) includes a "double house" of two main rooms connected by individual entry tunnels to a common entry room which faces Grantley Harbor on the north. We recovered potsherds, worked bone, and wooden artifacts as well as a stone knife from the backdirt of the previous, uncontrolled excavations.

Opposite this peninsula on the eastern bank of Tuksuk Channel to the southeast, we located evidence of other habitations on another small "spit" or peninsula and on a low bluff just to the north (3b). On the north side



Plate 25. The Singauraq sites.



Plate 26. House depression at Singauraq. Left to right: Roger Powers, Richard Scott, Alicia Godfrey, and Paul Ablowaluk.

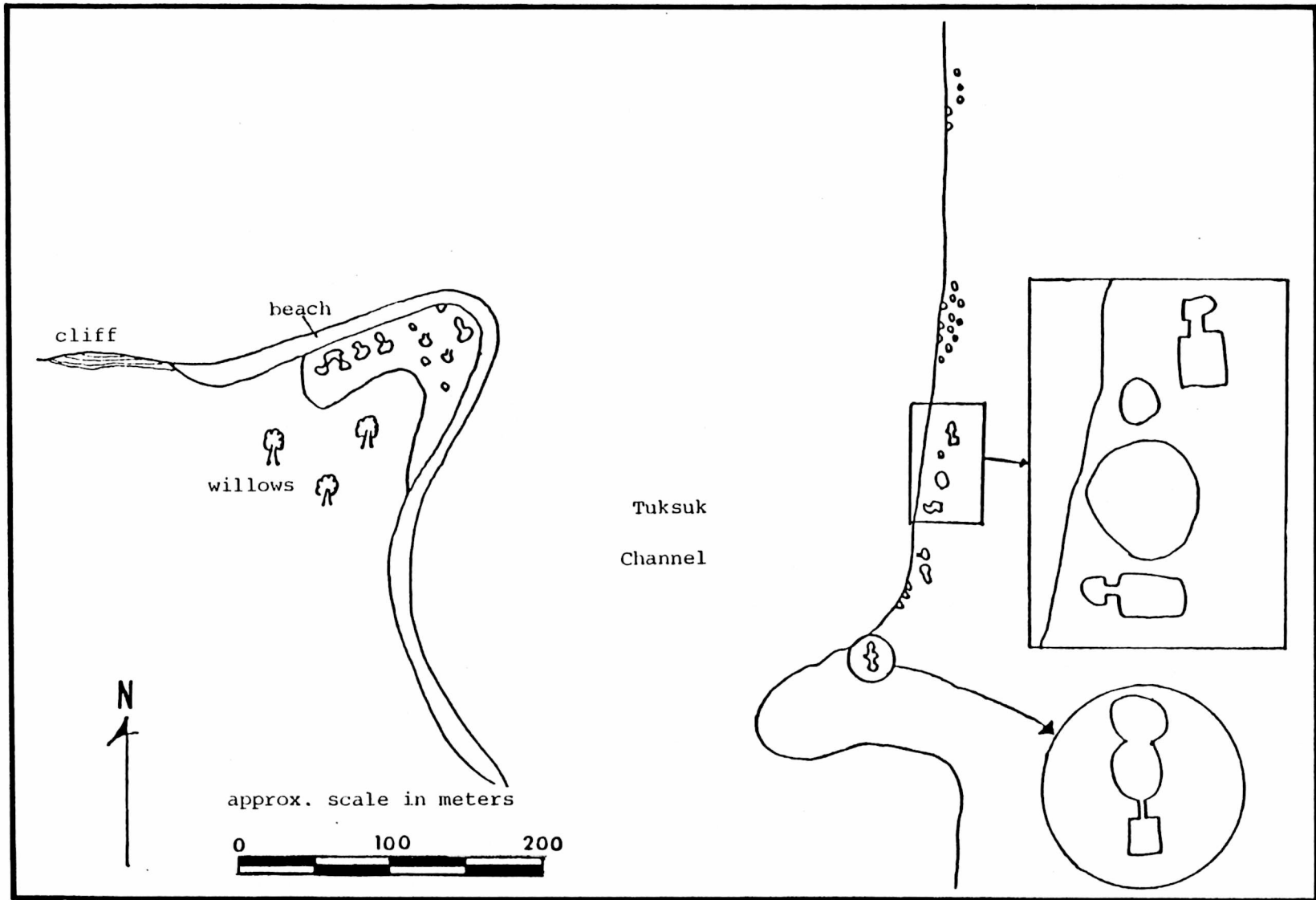


Figure 22. Singauraq site map.

of the spit two large circular depressions are situated adjacent to each other near the beach but 1.5 m above the high-water line. These measure 5 m and 7 m in diameter, respectively. The larger and more southerly of the two also has an entry room and passageway which open to the south. Net sinkers, a whetstone and sled parts were noted in association with the depressions.

On a bluff 6 m high just north of this peninsula, rich, deep grass marks the site of another old settlement. Dominating the center of a series of depressions is a large, circular one, 5.5 m in diameter, which may be the remains of a qargi. Immediately to the south of this structure, a rectangular depression, measuring 4 m by 4 m with a rectangular entry room and connecting passageway, faces Tuksuk channel to the west. Another structure almost identical in outline is situated a few meters north of the presumed qargi, but it faces north. Between the latter structure and the qargi, we examined a badly disturbed depression and noted potsherds, worked wood, and bone pieces in the backdirt. Ten to twelve small storage pits lie near the cliff face north of this cluster of depressions. We discovered evidence of cultural remains on a storm beach 150 m further to the north, but these had been badly eroded by wave action.

- 4) Masu (Musu); 5) Fish Camp; 6) Qargun (Kazgun); 7) Kopolokturuk (Kazgun)

These camping places and fish camps were reported by Ray (1964b: 77, 93, 1971:22, 23) and are located on Tuksuk Channel between Grantley Harbor and the mouth of the Bluestone River. Although the sites were not visited during the present survey, local information about them generally confirms Ray's earlier findings. The first camp above Singauraq on the eastern shore of Tuksuk Channel is known as Masu, the word for Eskimo potato. No name was given for a fish camp further up the channel on the opposite shore. Closer to the mouth of the Bluestone River, opposite each other, are two camps which Ray (1964b:77) says are both known as Qargun (Kazgun), translated as "seine." Informants confirmed the

name of Qargun for the site on the east side of the channel but called the western site Kopolokturuk.

8) Akulesak

Akulesak is a camp on Tuksuk Channel, opposite the mouth of the Bluestone River (Ray 1964b:77, 93, 1971:20), which serves as a fishing site today. A human skull and the possible remains of several house pits were noted behind the modern camp. A small collection of artifacts from the vicinity belongs to a local resident.

9) Titqiaq (Titkaok)

This is a fish camp near the narrowest constriction of Tuksuk Channel (Ray 1964b:77, 1971:27). Ray's information about the site was confirmed by local reports, although the site itself was not investigated.

10) Itak

Itak is the local name for the only reported occurrence of pictographs on the Seward Peninsula. Located on the north shore of Tuksuk Channel, the rock paintings have received moderate attention in the literature (Jenness 1928a:78-79; Ray 1964b:77, 1966, 1971:19). The paintings consist of a number of figures up to 26 cm high, some of which are executed in red ocher (plate 27). Most appear to be stylized human figures, some depicted with outstretched arms holding objects which could be interpreted as tambourine drums. At least two of the figures suggest individuals seated in watercraft, possibly kayaks. The figures are painted on a slab of schist which dips immediately into the water and which is apparently undergoing considerable deterioration. Jenness, who visited the site in 1926, reported approximately 14 figures. Ray, who probably visited the paintings in 1964, reports the same number and an additional three indistinct figures in

another group several yards to the south. We noted a similar number of figures in 1975, but local information suggests that additional figures, possibly representing caribou, have fallen into the channel.

Although Ray advises that precise dating of the paintings is not possible, she does suggest they were executed in the early nineteenth century. This hypothesis is based on her informants' recollections and a similarity in style between the paintings and figures on various objects which originated from the Seward Peninsula area during the early 1800s (Ray 1966:36, 38). For similar reasons Ray rejects Jenness' suggestion that the paintings hint at Indian influence and concludes that they are an example, in a unique medium, of a long-standing tradition of Eskimo art.

11) Asagorak (Kruprolok)

Directly south across the channel from Itak near a small point is a camp called Asagrok or Asagorak by Ray (1964b:77, 1971:21), but also known as Kruprolok, according to local information. All of the features noted here, one large and four small depressions, are located on the hillside behind the point. The remains of the apparent house depression measure 3 m across. Two small depressions, presumably storage pits, are located 1.5 m away, downhill toward the channel, as are two similar ones which are 1 m and 2 m further down, respectively.

12) Kingnugat

On the north shore of Tuksuk Channel, 400 m east of Itak, is another site considered to be a fish camp by Ray (1964b:77, 93, 1971:22). Kingnugat, which means "caches in the ground," is called Kingnik by local individuals who also translated the meaning of this name as "caches." The modern camp and cabin are situated on an old site which covers nearly 3800 m². Dogs staked over much of this area have helped to obscure the individual structures. We did not examine this site intensively. Ray (1964b:93) places the location of this site more than a kilometer further

east along the north shore of Tuksuk Channel than the location reported here.

Seventy-five meters uphill behind the cabin is a small rock shelter, approximately 4 m by 4 m. A small test trench has been excavated into the floor of the shelter by some unknown individual. We saw no cultural material in the small pile of backdirt from the trench.

13) Alianok

There is some ambiguity as to the precise location of this site as reported by Ray (1964b:93) and as known to local informants. Ray places the site on the southern shore of Tuksuk Channel at the western base of the peninsula on which the village site of Puibluk is located. Local information places the site across an inlet from that location, 600 m west at the head of an embayment. We saw no evidence of older habitations at either location and only at the latter were signs of recent camping activity clearly evident.

14) Puibluk

Ray (1971:26) mentions Puibluk as an old camp on the Tuksuk Channel and cites a report by Sheldon Jackson which suggests that the village may have been inhabited as late as 1903. Local information places this site on the south shore of Tuksuk Channel on the tip of the large peninsula opposite Kangaruk (figure 23). The evidence here suggests that Puibluk was at one time much more than a camp site and that it could have rivaled in size any of the former villages on the Tuksuk Channel, the remains of which are still visible today.

The house depressions at Puibluk are concentrated in two distinct localities. The first of these is a series of 20 house-sized depressions along 300 m of beach on the eastern side of the peninsula (plate 28). These occupy a low, grassy "spit" a few meters in elevation above Tuksuk Channel. Another series of 18 houses is located on the hillside behind the

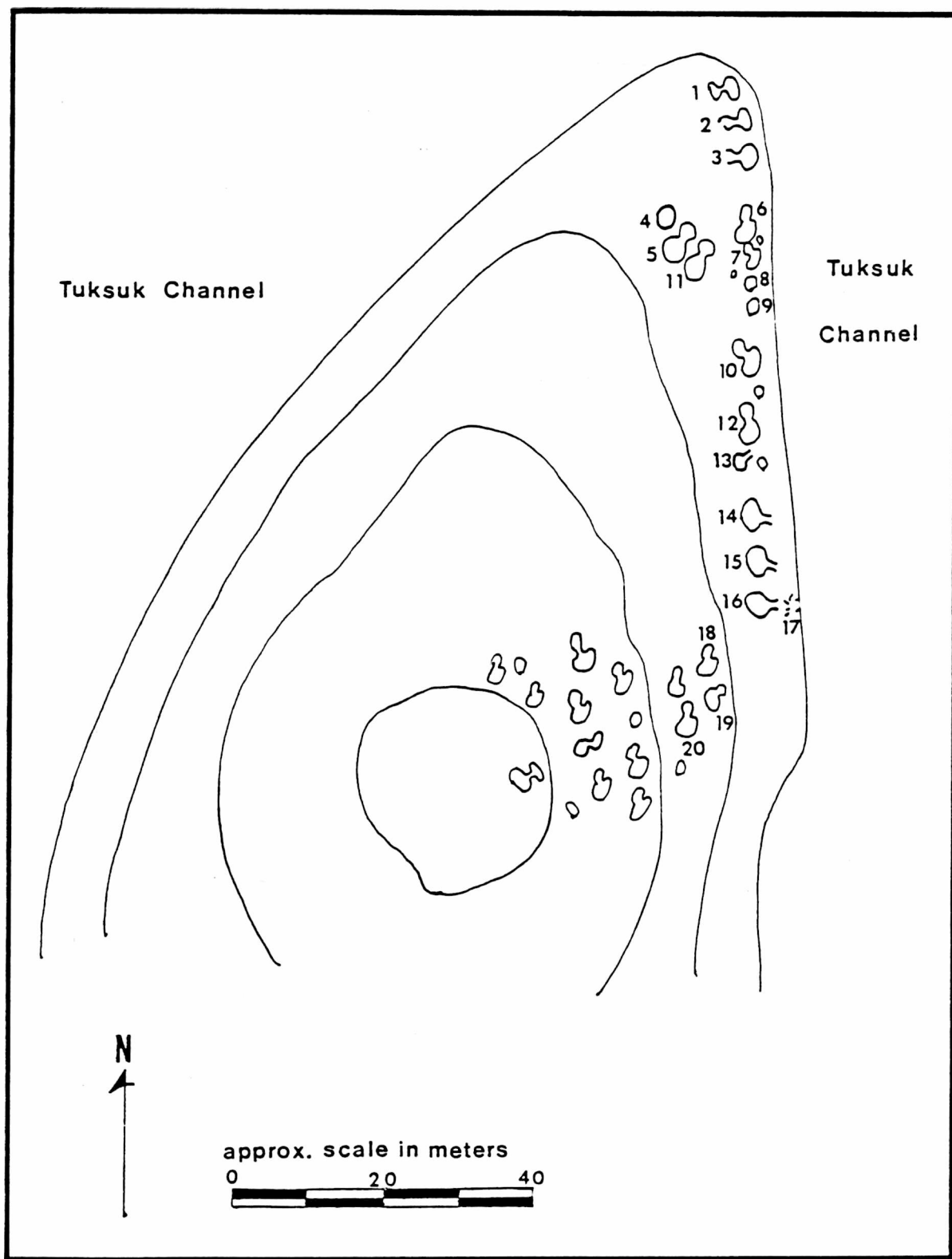


Figure 23. Puibluk site map.



Plate 27. Anthropologists Richard Scott and Roger Powers examine pictographs at Itak.



Plate 28. Two sites on the Tuksuk Channel. Puibluk in the foreground, and Kangaruk midden on the far shore.

first series (figure 23). Nearly all of the houses in both localities follow a similar ground plan: a large circular depression is connected by a short passageway to a smaller depression, presumably an entry room. A few of the clusters of depressions may be the remains of more complex, multiroom houses. Data pertinent to individual structural remains at the beachside locality of Puibluk are summarized in table 4.

15) Kangaruk (spelled Kungahruhk by Oquilluk)

The remains found along the shore of a small embayment on the north shore of Tuksuk Channel across from Puibluk substantiate previously published references to an old, permanent village site located here (Ray 1964b:77 and 93, 1971:15; Oquilluk 1973:89 and 239). We saw house ruins at three localities along the kilometer of beach at the head of this bay (figure 24).

At the western side of the bay near the mouth of a small stream are a modern fish camp and the remains of seven old houses (15a). It is at this location that Ray (1964b:93) has placed the site of Kingnugat, the name which informants gave for another camp site over a kilometer further west along Tuksuk Channel. The house depressions seen here are grouped in two clusters. The three depressions of the western cluster all measure 3.5 m in diameter. Fifteen meters to the east, the second group of closely spaced house remains consists of larger depressions, each 5 m in diameter. All of the houses are circular in outline and have entryways oriented south toward the channel. One-half kilometer east of this site, eight poorly defined house depressions are situated behind the present storm beach (15b).

At the eastern side of the head of the bay, a series of house depressions near the beach and three large mounds on the hillside above mark the site of what is specifically referred to as Kangaruk (15c). Although the depressions close to the beach have been disturbed, we could recognize 10 to 12 houses. When discernible, the entryways did not show a consistent pattern in their orientation. Due to extensive uncontrolled excavations, no estimation could be made of the number of former depres-

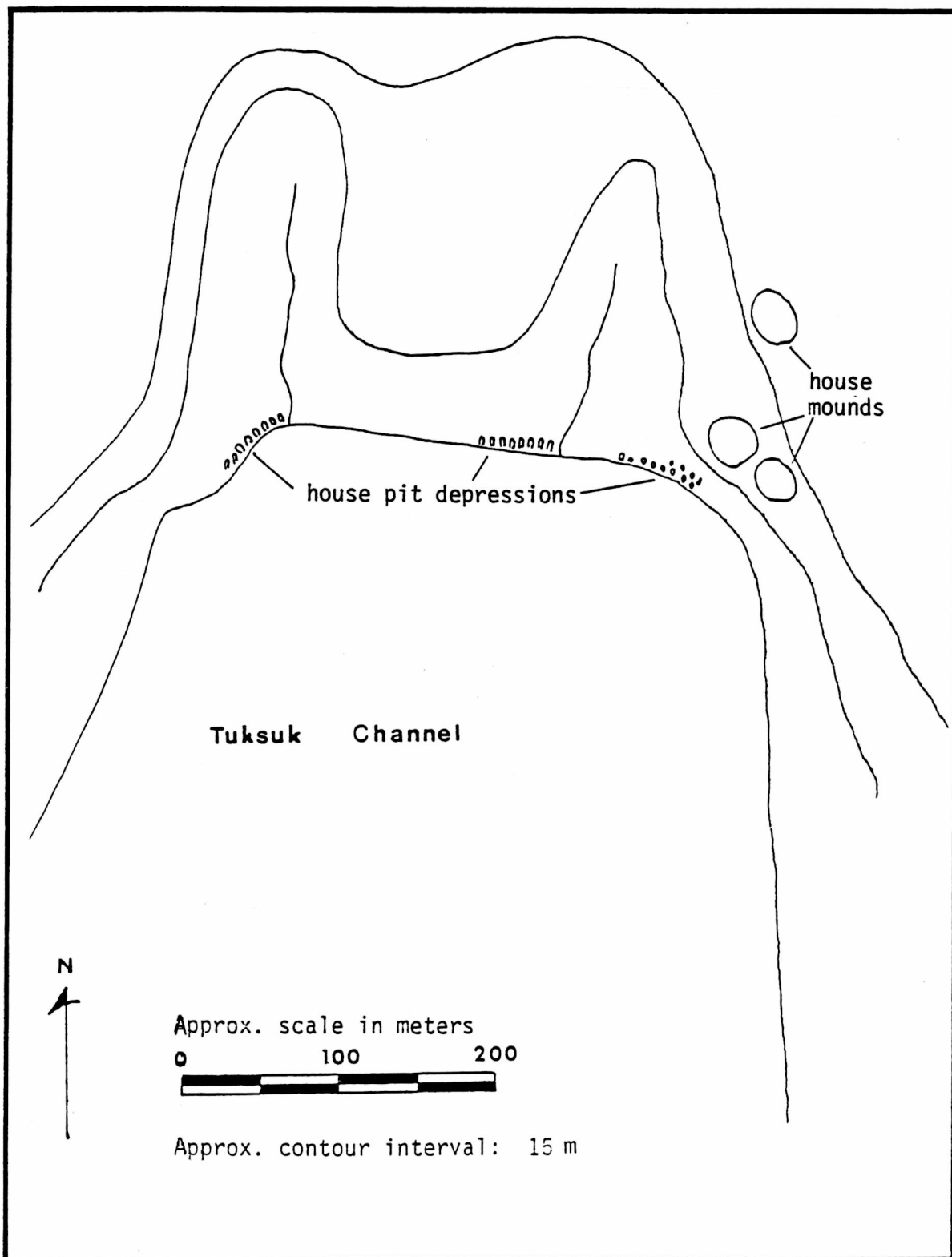


Figure 24. Kangaruk site map.

Table 4. Depressions at Puibluk.

Depression Designation	Dimensions			Orientation	Comments
	Main Room	Passageway	Entry Room		
1.	4 m x 4 m	present	--	SE	cache pits in assoc. w/ 1, 2, & 3; house 2 is disturbed
2.	4 m x 4 m	present	--	W	
3.	4 m x 4 m	2 m	2 m x 2 m	W	
4.	4 m x 4 m	present	--	N	
5.	4 m x 4 m	present	--	N	
6.	6 m x 6 m	present	present	E	
7.	5 m x 6 m	present	--	W	disturbed
8.	obscured	--	--	--	8 & 9 are adjacent & in possible assoc.
9.	obscured	present	--	W	
10.	3 m x 3 m	present	--	NW	caches in assoc.
11.	5 m x 6 m	--	2 m x 2 m	SW	
12.	4.5 m x 4.5 m	present	present	W	
13.	3 m x 3 m	--	--	--	possibly adjoins 12
14.	3.5 m x 3.5 m	--	--	E	disturbed
15.	3 m x 3 m	--	present?	W	
16.	present	present	--	N?	disturbed
17.	present	--	--	--	more recent? mound
18.	--	present	--	W	
19.	--	present	--	W	
20.	obscure	present	--	W	disturbed

sions in the two mounds located 30 m from the shoreline. The larger, western mound occupies nearly 1800 m². The second mound, 10 m to the east, is almost 600 m in extent. Numerous adzed beams had been exposed. We recovered a potsherd, worked bone, and wooden artifacts from the back-dirt. A third mound, located a short distance up the stream which marks the western boundary of the site, contains an extremely large depression, 9 m across. A feature of such size would suggest that the structure may have functioned as a qargi rather than as a house.

16) Qaḡriuḡvik (Kakriogvik)

Qaḡriuḡvik (plate 29) is a prominent hill which dominates the north shore of Tuksuk Channel near its eastern entrance at Imuruk Basin. Although no village sites are associated with this locality, it figures importantly in local traditional accounts concerning Siberian invasions prior to the arrival of white men in the region (Ray 1964b:76; Oquilluk 1973:215-216; personal communications: Paul Ablowaluk, Sam Ailak, David Kakaruk and Peter Kakaruk). Arrow points were supposedly fashioned here while lookouts watched for skin boats coming up Tuksuk Channel. The name means "making arrows," and it is true that there is an unobstructed view of the eastern end of Tuksuk Channel and all of the Imuruk Basin from the top of the hill (plate 30). Sixteen cairns, or inuksuk, some fallen but others well constructed and still standing, are situated on individual hill-ocks at the crest of the ridge, but we noted no other cultural or skeletal materials in the immediate vicinity.

17) Tapqaq (Tupkauk)

On the north shore of Tuksuk Channel, between Qaḡriuḡvik and the peninsula, called Ingikut or Ptarmigan Point, which marks the eastern entrance to the channel, are the remains of a possibly old village site (17a). Activity connected with the operation of a former fox farm at this location has disturbed most of the area, but just east of the modern cabin



Plate 29. Cairns at Qaḡriuḡvik.



Plate 30. Eastern end of Tuksuk Channel.

site on a beach ridge is the clear outline of at least one house depression, measuring 4 m by 4 m with a possible east entrance. Across a small inlet 500 m to the east, lush vegetation suggests the location of another site (17b). An obscure rectangular depression measuring 3.5 m by 4 m was noted here, but this could be interpreted as a natural, rather than man-made, feature.

18) Tipuklevik; 19) Ipnaq (Ipnuuk)

Opposite Qaḡriugvik and Ingikut on the south shore of Tuksuk Channel are two additional camps of local interest. Nearly a kilometer northwest of the mouth of Canyon Creek is a reindeer-corralling camp visited by Ray (1975:ix) in 1964. This site was not visited by the survey team. Another camp, Tipuklevik, 2 km to the northwest was examined, but there was no evidence of older occupation.

20) Tunu (Tuno?)

Ray (1971:17) mentions Tuno as an unlocated river associated with the Agiapuk, a major stream which empties into the Imuruk Basin along the north slope. At the mouth of a western distributary of the Agiapuk, a site called Tunu by informants has reportedly been used since the nineteenth century as a herring- and tomcod-fishing station. No evidence of house-like depressions was noted, but we located 16 pits, reported to be used for the storage of herring. These pits are 1 to 2 m in diameter and 0.5 to 1.5 m deep.

21) Metuktuk (Agiapuk; Migyoktuk)

Oquilluk (1973:205-206, 234) mentions a small village about 5 miles above the mouth of the Agiapuk River which was called Agiapuk. A site visited during the present survey, 6 km above the mouth of the Agiapuk,

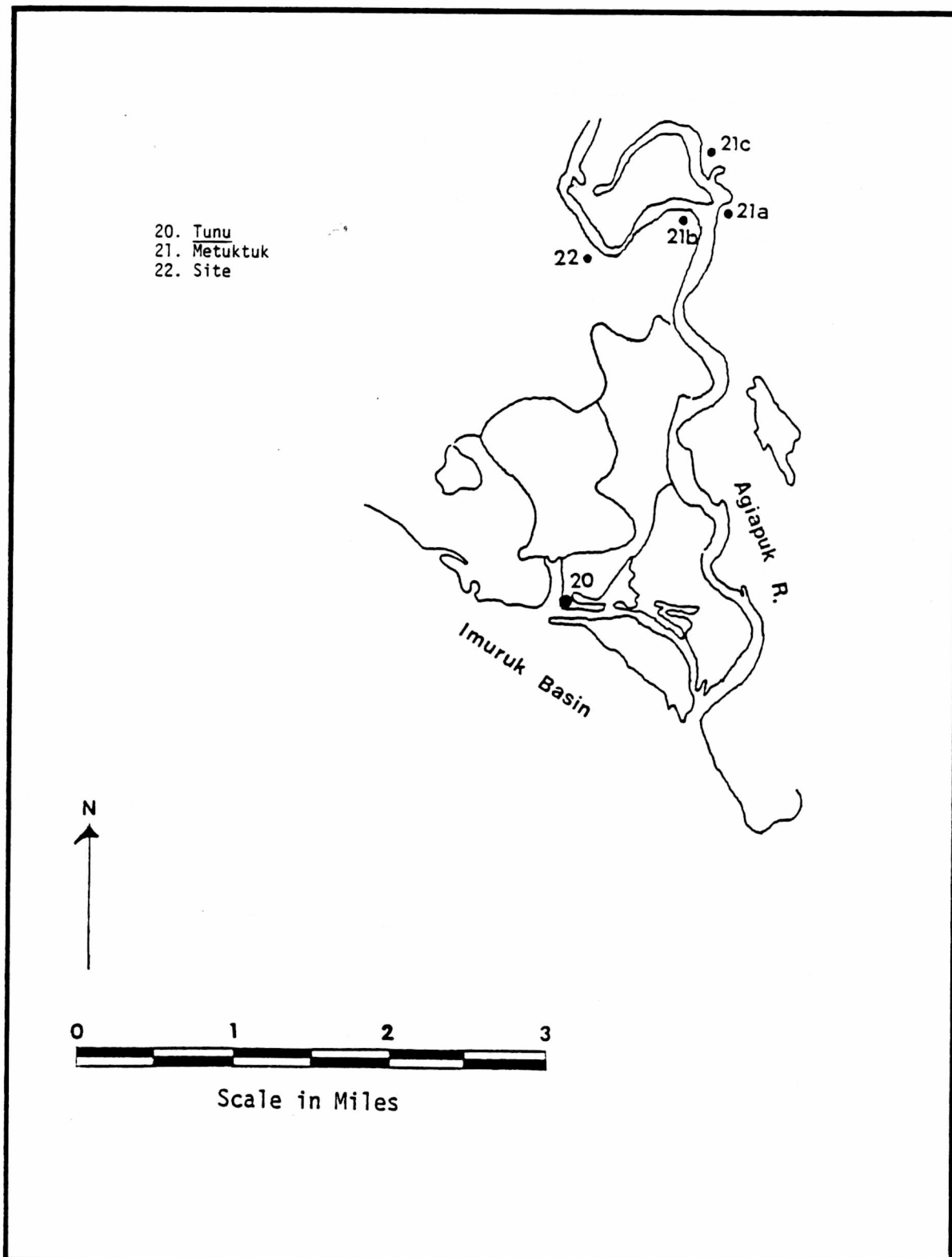


Figure 25. Site location map, Agiapuk River, north shore of Imuruk Basin.

appears to be the remains of this village, but informants called it Migyok-tuk which means "thick willows." Local information confirms Oquilluk's report that the village was abandoned after all the inhabitants died during the influenza epidemic of 1918.

We counted nine houses, one with sod walls still standing (21a). Milled lumber and wire nails used in construction are evidence of their recent origin. Most of these structures are rectangular in outline, but one circular house was noted as were three smaller cache pits. A series of fish racks still in use today is located 50 m to the north of the site. On the west side of the river on the Agiapuk's main channel, we collected rim sherds and bone artifacts along a gravel bar (21b), but a deposit from which these could have eroded was not located. Nearly a kilometer north of the village site, on the east bank of a slough tributary, is a recent cemetery (21c) containing 15 burials.

22) Site

One and one-half kilometers upstream from Agiapuk on the river's west bank are two house depressions on a low bluff overlooking the river. One of the depressions is rectangular and measures 3 m by 3.5 m. The other is circular in outline and 3 m in diameter. No name was given for this site.

23) Qikiqtaġruk (Kikiktaruk)

Qikiqtaġruk is the name of a small island in the northeastern extremity of Imuruk Basin opposite the mouth of the Kuzitrin River. Ray (1971: 14) mentions that this name, which she spells Kikiktaruk, designates an island in the Kuzitrin and means "small island." Oquilluk (1973:238) says that this island, spelled Keekicktoric, was used as a stopping place during stormy weather and that bird eggs were collected here. He relates a traditional story about Siberian warriors kidnapping a woman who then escaped from her captors by leaving her infant behind on the island and swimming ashore (Oquilluk 1973:199-200).

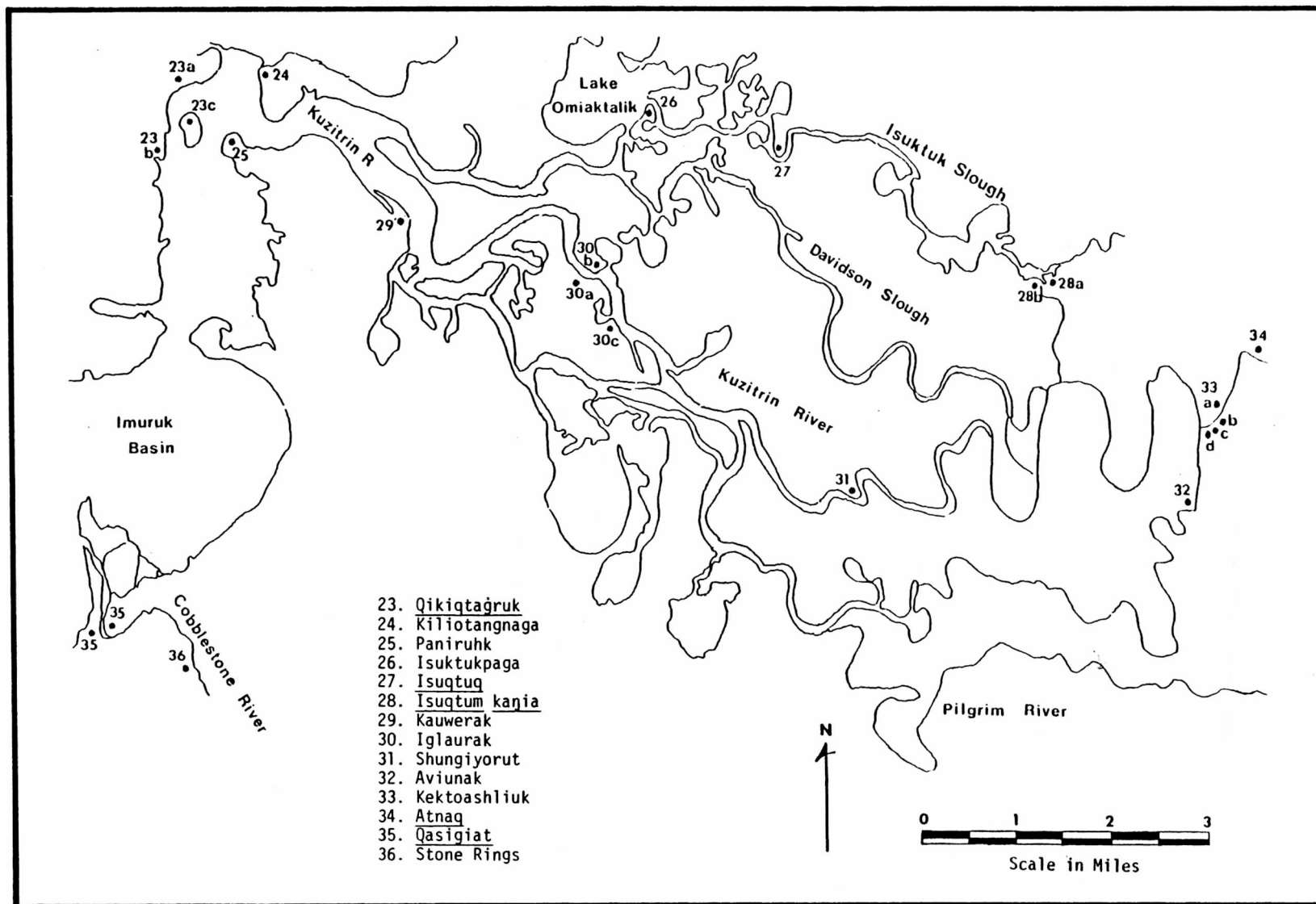


Figure 26. Site location map, eastern Imuruk Basin and delta and tributaries of the Kuzitrin River.

According to local information, two nearby sites on the western shore as well as the island itself are known by this name. Directly to the north (23a) and to the southwest of this island, house pits were recorded at two localities on the mainland. The south site (23b) is marked by a rectangular house depression, measuring 3 m by 5 m, with an east-facing entrance and an associated cache pit. The entrance is being eroded away. On the north side of the island itself, one possible house depression 3 m in diameter was noted along with nine circular pits used for herring storage (23c). These are from 0.5 to 1.5 m in diameter and up to 1 m deep; additional storage pits may have eroded away at the water's edge.

24) Kiliotangnaga

A small site is located on the south side of a slough where it empties into the northeastern extremity of Imuruk Basin 1 km north of the mouth of the Kuzitrin River. The name of this place is given as Kiliotangnaga in reference to its location at the mouth of this slough.

25) Paniruhk

At a point of land that marks the mouth of the Kuzitrin River is a small site of several house depressions and associated cache pits which Oquilluk (1973:145) calls Paniruhk. Judging from his map and descriptions, this is probably the same site visited by Ales Hrdlicka in 1926. In describing his landing at the eastern shore of Imuruk Basin, Hrdlicka writes:

As we approach our spot, a shoal water, with grass, preventing us from going straight to the most likely place, and no other way was tried. It is 11 a.m. and already I hear an intimation that we shall not have time for anything except to make a lunch.... So we end by landing on the extremity of a spit there to make lunch, and I have only the time it takes to prepare the latter. I find, in hurry, remains of five old semisubterranean dwellings on the northern side of the point, and about as many low mounds with remnants about of rotten driftwood--undoubt-

edly old burials. Probably the skeletons have been assimilated by the tundra vegetation and blown material. A single native skull, a female, without face, is lying about. Collected.... I saw nothing that looked like a battle field. Its determination and survey must be left for some future explorer (Hrdlicka 1930: 118).

The remains noted during the present survey include a cluster of three house depressions situated side by side at the very tip of the spit. All of these are 4 m in diameter with entrances facing northwest. The westernmost has the clear outline of an entry room as well as a connecting tunnel, while tunnels alone indicate the entrances for the other two structures. A fourth, shallower depression, similar in size and shape to the previous three, was discovered 120 m away. Whale bone exposed in this house had evidently been utilized in its construction. We noted 12 additional depressions in the area, but their smaller size suggests that they functioned as cache pits.

26) Isuktukpaga

Three sites were encountered along a slough which enters Lake Omiaktalik at its eastern shore. The local name for this stretch of backwater is Isuqtug Slough which means "brown water" or "strong tea." All three of the site names stem from this place name.

The first of these sites is located at the mouth of the slough and is named Isuktukpaga. We located five house depressions along the southern bank. Four of these are situated immediately at the slough edge and are square to rectangular in outline with entrances directed southeast, overlooking the slough. The largest of these measures 4 m by 5 m and has a square storm entrance measuring 2 m by 2 m. The remainder range from 3 to 4 m square. Inasmuch as remnants of the walls of these structures are still standing, they leave the impression of more recent origin. The method of sod construction is clearly evident in at least one of the walls. A fifth, circular, depression was found situated at the north end of the first four dwellings, somewhat further back from the slough. Its entrance also faces southeast and the depression measures 2.5 m in diameter. Ex-

cept for fox burrows in the mound with the circular depression, little disturbance was evident at this site.

27) Isuqtuq (Isuktuk)

A second site on Isuqtuq Slough, Isuqtuq, is located 2.5 km above the mouth on the north bank. A total of 11 collapsed houses grouped into two clusters was noted. All but three are being washed out at the slough edge. Six depressions in a southern group are all circular in outline with entrances facing east. A wall of one structure is still standing over 1 m in height. Fifty meters to the north, a second group of five houses is situated in much the same circumstances and, again, all but one have east-facing entrances. We found milled lumber and a rusty tin in one depression of this northern group, suggesting a more recent occupancy. None of the houses from either group is greater than 3 m in diameter.

28) Isuqtum kanja (Isuktukangnia)

Five kilometers above Isuqtuq on the south shore of a small lake near the head of Isuqtuq Slough, several houses are situated opposite each other across a small inlet. This is the third and final site encountered on Isuqtuq Slough and is called Isuqtum kanja in reference to its location near the head of this waterway. The eastern locality (28a) is the site of one larger depression measuring 4 m square. A smaller auxiliary depression measuring 3 m by 2 m was possibly used for storage. A milled piece of lumber which had been burned was found in the larger depression and suggests more recent utilization of this site. The entrance to this structure points west. Across the small inlet we also found two circular depressions (28b), each 3 m in diameter. The entrances to these structures face east.

29) Kauwerak (Qawiaraq)

More has been written about Kauwerak than any other abandoned village in this region of the Seward Peninsula, largely through the efforts of Dorothy Jean Ray who has published extensively about it (Ray 1964a, 1964b:77-78, 1967:381-382 and passim, 1971:22, 1975:passim, 1976). Clearly, during the recent history of this part of the Seward Peninsula, Kauwerak was the most important village within a socio-political/territorial entity which encompassed the 1975 study area and adjacent portions of the western interior of the Seward Peninsula (Ray 1967:372; Burch and Correll 1972:23; Burch 1975:11). As might be anticipated, local oral history and traditions reflect the importance of the former village (personal communication: Paul Ablowaluk, Sam Ailak, David Kakaruk and Peter Kakaruk; Oquilluk 1973; and in many of Ray's works). Lending additional interest to the site has been the incorporation of the village's history into the resurrected debate pertaining to the question of the establishment of a seventeenth-century Russian settlement on the Seward Peninsula, nearly a century before the official discovery of Alaska by Bering in 1741. Because the points of argument between the current protagonists (Ray 1964a, 1975, 1976; and Fedorova 1973) are rather intricate, we will not examine them in detail here.

Collins tested at the eroded face of the Kauwerak midden in 1929 and concluded that the site indicated an eighteenth- or nineteenth-century Eskimo settlement, even though the lower portions of the deposit were not examined (Collins 1930:152-153; Ray 1964b:77). He also collected a number of skeletons which he thought were at least 100 years old. All but one of the burials he excavated were extended (Collins 1930:figure 135); some were interred with pottery lamps at the feet. During the course of the present survey, the site was mapped and photographed and test excavations were initiated, but permafrost, encountered at a shallow depth, effectively prohibited an extensive exposure of the deposit.

Judging from Ray's ethnohistorical and historical reconstructions, Kauwerak was an important village at least as early as the latter half of the 1700s when it, along with three other northwest Alaskan villages which Ray identifies as Wales, King Island and Point Hope, was reported by

Nikolai Daurkin from information he gathered from the Chukchi concerning the inhabitants of mainland Alaska. During the closing decades of the eighteenth century, second-hand information continued to accumulate about this important inland village which, Ray believes, became transformed in Russian sources into the legendary Russian settlement of Kheuveren.

When Beechey discovered Port Clarence in 1827, he had an opportunity to investigate the inhabitants of Grantley Harbor from whom he learned of the significance of Kauwerak. He did not visit the village itself. William Hobson's overland trip from the Rattlesnake, which was overwintering in Port Clarence, to Kotzebue Sound in 1854 resulted in the first written description of Kauwerak, even though the village had been visited repeatedly by men from the Plover during the winter of 1850-51. Hobson reported that the village consisted of seven large houses and a qargi and that the villagers were away hunting caribou when he passed through in February and March. More than 20 years later, men from Kauwerak assisted the Port Clarence contingent of the Western Union Telegraph Expedition of 1865 through 1867 which visited the village often. Even though important written data concerning traditional life from the area resulted from this extended contact, apparently no description of the village itself was recorded. In 1882, Kauwerak boasted five houses and a men's house (Ray 1975:174), but by the 1870s and 1880s the village's population was decreasing in size. This decline was due to several factors upsetting the aboriginal settlement pattern, including the demise of the caribou herds which once had proliferated on the Seward Peninsula.

Located 2.4 km above the mouth of the main channel of the Kuzitrin, the Kauwerak midden is situated along 74 m of the southwest bank of the river and extends away from the water some 31 m for a total area of approximately 2300 m². We mapped a total of 29 complete and partly eroded large depressions at the site (figure 27). Although Collins counted 16 house pits in 1929 (Ray 1964b:77), there is no discrepancy if it can be assumed that Collins exercised caution and considered as house pits only those depression with outlines largely intact. By ignoring the partly eroded depressions at the northeast corner of the site and those depressions which could be interpreted as cache pits, a total of 17 complete and nearly complete house depressions remains, a number more in agreement with Collins' estimate.

There can be little doubt that some of the midden has been lost through erosion by the Kuzitrin. Collins noted the fact in 1929 and informants report that a sizable portion of the former village has slumped off into the river. This erosional process has exposed a vertical section of the midden along the river edge of the site that is 4 m thick. But the midden also extends below the water level to an indeterminable depth. A test sunk into the beach deposit showed that sand is currently being deposited against the edge of the midden. It would appear that this rise in water level relative to the Kauwerak midden is the result of an aggradation process occurring along the lower reaches of the Kuzitrin River. This hypothesis is supported by the fact that steamers, which were once able to navigate the river channel as far as Marys Igloo, would have difficulty negotiating the river even as far as New Igloo today.

Numerous artifacts, caribou antler and caribou bone, walrus skulls, potsherds, innumerable stone net sinkers and wood and stone elements of former structures were noted in this exposure as well as in the water below. These are an open invitation to curio seekers whose uncontrolled excavations have added to the damage of the houses adjacent to the exposure edge which have been partly destroyed by natural slumping. An attempt to clean up the face of the exposure to show in vertical cross section any existing stratigraphy was frustrated by permafrost, which was only a few centimeters back from the surface of the cut, and work of previous uncontrolled excavations, which had disturbed the entire face of the exposed deposit.

In general, the depressions at Kauwerak are oriented in two lines which parallel the river. The houses adjacent to and partly eroded by the river appear to have had entrances overlooking the water. A second line of depressions is separated from the first by some 10 to 12 m at the north end of the village and 5 to 7 m at the south end. These appear to have their entrances for the most part facing the opposite direction. Two large depressions, numbered 23 and 24 on the site map and in table 5, were pointed out as the remains of the former qargi. Interestingly, these details corroborate the story related by Oquilluk (1973:137-144) regarding the construction of Kauwerak by the legendary Toolik (or Tudlik):

Two sets of working parties started to build the houses. One group of men began working from the dance hall toward the Kigluaik Mountains. The other party began building from the kazghi in the other direction.

The houses were built one right after another. Soon the men finished the front row of the houses facing the channel next to the bank. Then the men started on the back row of houses. They worked just like they did on the front row. These houses faced the other way, back toward Tuksuk. ...When everything was done, there was a path on the top of the mound so people could walk from one end of the village to the other without bothering anyone's house....without walking around or over the buildings (Oquilluk 1973: 142-143).

A probable cemetery located 100 m southwest of the midden has four graves marked by vertical stone slabs. Additional small depressions indicate other possible burials. Some previous digging had exposed a few potsherds. A flat area west of the village is reported as the legendary site of a battle with Siberian warriors. A low eminence a kilometer away is the location where the bodies of slain Siberians were reportedly taken after the battle. This is possibly the site at which Oquilluk (1973:216) saw "a lot of men's skulls all piled up" around 1902. Paul Ablowaluk also reported having seen bones here when he was young. An explanation for the absence of skeletal remains here today is that "two white men came to Kauwerak a long time ago and carried some bodies away in a gunnysack," a probable memory of Collins' collecting activity in 1929. A third cemetery 75 m east-southeast of this latter low hill is marked by a single vertical black stone slab. We saw a human skull fragment nearby (plate 31).

Actual testing was initiated in feature 5 (figure 27) where north-south and east-west baselines were established and a test trench lain out. Unfortunately, permafrost was encountered at an extremely shallow depth (25 cm), just at the level where cultural material was being uncovered. We recovered a wooden dish fragment, other pieces of worked wood, ivory, and mammal bones and noted the presence of a stone-lined hearth at the center of the main room of the depression before we had to abandon the project.

The remains at Kauwerak point to a settlement of some importance. Although circumstances prevented examination of the lower portions of the deposit, all surface evidence suggests a village comparable in age and general characteristics to other abandoned settlements of the region.

Table 5. Depressions at Kauwerak.

Depression Designation	Dimensions			Orientation	Comments
	Main Room	Passageway	Entry Room		
1.	3 m x 5 m	present	--	W	
2.	6 m x 5 m	3 m x 0.5 m	5 m x 6 m	S	
3.	6 m x 4.2 m	3 m x 0.5 m	5 m x 3.8 m	W	
4.	6.5 m x 6 m	2 m x 0.5 m	4.5 m x 6 m	W	
5.	6.5 m x 6.5 m	1.8 m x 0.5 m	5 m x 5 m	W	tested
6.	4 m x 4 m	present	eroded	E	partly eroded
7.	6 m x 7 m	1.5 m x 2 m	eroded	E	partly eroded
8.	5 m x 4 m	2 m x 1.5 m	eroded	E	partly eroded
9.	5 m x 7.5 m	2 m x 0.5 m	eroded	E	partly eroded
10.	5 m x 5 m	present	?	W	
11.	6 m x 7 m	1.5 m x 0.5 m	eroded	E	partly eroded
12.	5 m x 4 m	1 m x 0.5 m	4 m x 4 m	W	2x2 room adj. to entry
13.	5 m x 7 m	present	eroded	E	partly eroded; contiguous to #14
14.	--	--	--	E	partly eroded
15.	7 m x 5 m	1 m x 0.5 m	5 m x 6.5 m	W	
16.	5 m x 5.5 m	present	eroded	E	partly eroded
17.	6 m x 6 m	present	eroded	E	partly eroded
18.	5 m x 4 m	--	--	?	
19.	3 m x 3 m	--	--	?	cache?
20.	8 m x 6 m	2 m x 1 m	6 m x 5 m	W	
21.	5 m x 5 m	present	obscure	W	
22.	8 m x 6 m	present	eroded	E	partly eroded
23.	7 m x 8 m	present	eroded	E	<u>qargi</u> ?

Table 5 (cont.)

Depression Designation	Dimensions			Orientation	Comments
	Main Room	Passageway	Entry Room		
24.	12 m x 7 m	present	eroded	E	<u>qargi?</u>
25.	8 m x 5 m	present	7 m x 6 m	W	
26.	5 m x 4 m	1 m x 0.5 m	4 m x 4 m	E	
27.	6 m x 6 m	1.5 m x 0.5 m	6 m x 5 m	N	
28.	5 m x 5 m	1.5 m x 1 m	4 m x 4 m	W	
29.	6.5 m x 6.5 m	--	--	-	

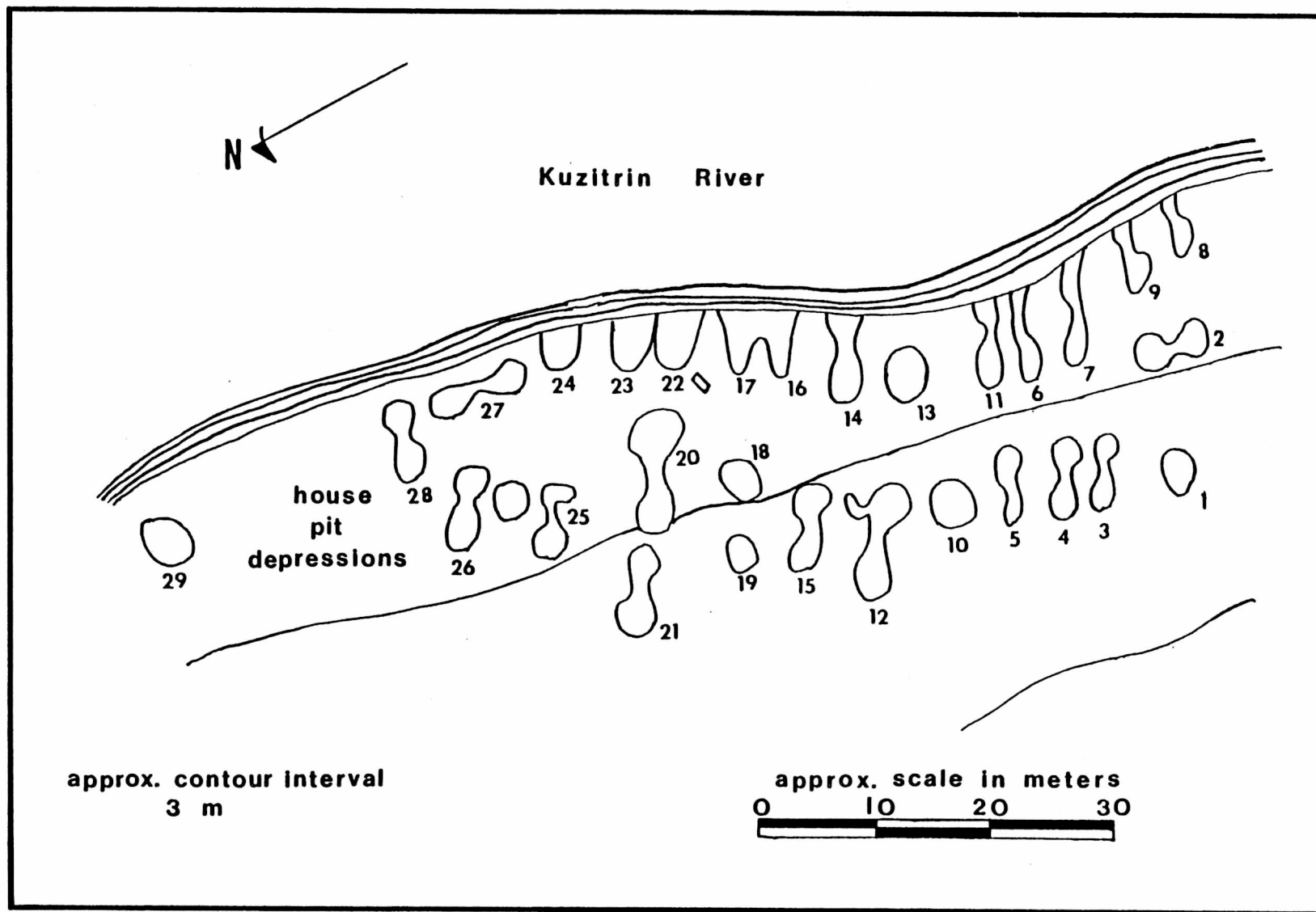


Figure 27. Kauwerak site map.

Nothing examined at the site, including features and artifacts, can be affiliated with anything other than an Eskimo cultural tradition.

30) Igaurak

The first (30a) of three sites, all referred to as Igaurak, is located 3.5 km above Kauwerak on the south bank of the main channel of the Kuzitrin. It is situated 0.5 km directly southwest from a second site (30b) situated between the north bank of the Kuzitrin and a small lake. A third site (30c) is another 1.1 km further upriver on the same side as the first locality. All three are situated on relatively high knolls and are clearly visible from one another.

The first site consists of four depressions which are less distinct than any of the other depressions seen at the Igaurak sites. These measure from 3 m by 3 m to 4 m by 4 m. In the three cases where entrances are clearly evident, the houses are oriented in a general southerly direction. An unusually heavy vegetational cover of grass marks the location of the second site. Three exceptionally large houses, measuring 7 m across, have storm entrances facing southwest. In one of these, posts are exposed which were apparently shaped with a stone adz. Local excavations in the houses and associated midden have brought to the surface potsherds of a thick-walled, sand-tempered type. The third locality known as Igaurak consists of a single house depression, 3.5 m across, with the entrance facing the water.

31) Shungiyorut

On the overland journey of February 1854, Hobson and his party stopped at a small village called "Shung-i-ow-ret." Hobson reported that the 30 inhabitants, mostly children, lived in two small huts and were still in residence there in March when he returned to the Rattlesnake (Ray 1975:152). Ray (1964b:78, 1971:27, 1975:152) believes this village to be a winter caribou village on the old channel of the Kuzitrin known as

Shungiyorut (spelled Sungiyorut by Ray in publications prior to 1975). Although Ray's description of the site's location is somewhat ambiguous, she places it on her map on the old channel of the Kuzitrin, 2 km above its confluence with the main channel, at a section of the river locally called Kurgum qitqa (Kuzrumkitka) (Ray 1964b:93).

We saw three house depressions on the north bank at this site, none larger than 3 m by 3 m. Entrances are clearly evident in two of the three depressions and these face south-southwest and northwest. The site is a short distance from the river and is obscured by a line of willows.

32) Aviunak (Marys Igloo)

The history of the modern town of Marys Igloo began just prior to the turn of the century when gold seekers from Nome were attracted to the Imuruk Basin region. The townsite was surveyed in 1901 (Ray 1964a: 12-13) at what was then the head of steamer navigation on the Kuzitrin River. The townsite was not far from the home of an Eskimo woman named Mary whose hospitality to struggling miners was famous throughout the region. Ray (1964a:12-13, 1964b:78) reports that Mary's hut was located at the site of a late nineteenth century village named Aviunak (Ahveunuk in Ray prior to 1971). The boom had attracted to the new town many Eskimo families who remained after the initial invasion of white miners had subsided. Oquilluk (1973:149-150) reports that a special qargi had been built across the river from Marys Igloo for the last Eagle-Wolf Dance and Messenger Feast held at Marys Igloo in 1914 and that the remains of this structure are still in existence.

No on-site confirmation of these references to native activity resulted from the present survey. The twentieth-century history of the modern town and vicinity has confused and obliterated any surface evidence of older sites. Nearly a kilometer downstream from Marys Igloo, however, at the first big meander of the river, two definite dwellings with sod-banked walls are situated on the "point" which is the north bank of the river. These are both rectangular structures with entrances facing northeast.



Plate 31. Boatman Paul Ablowaluk stands beside grave site at Kauwerak.

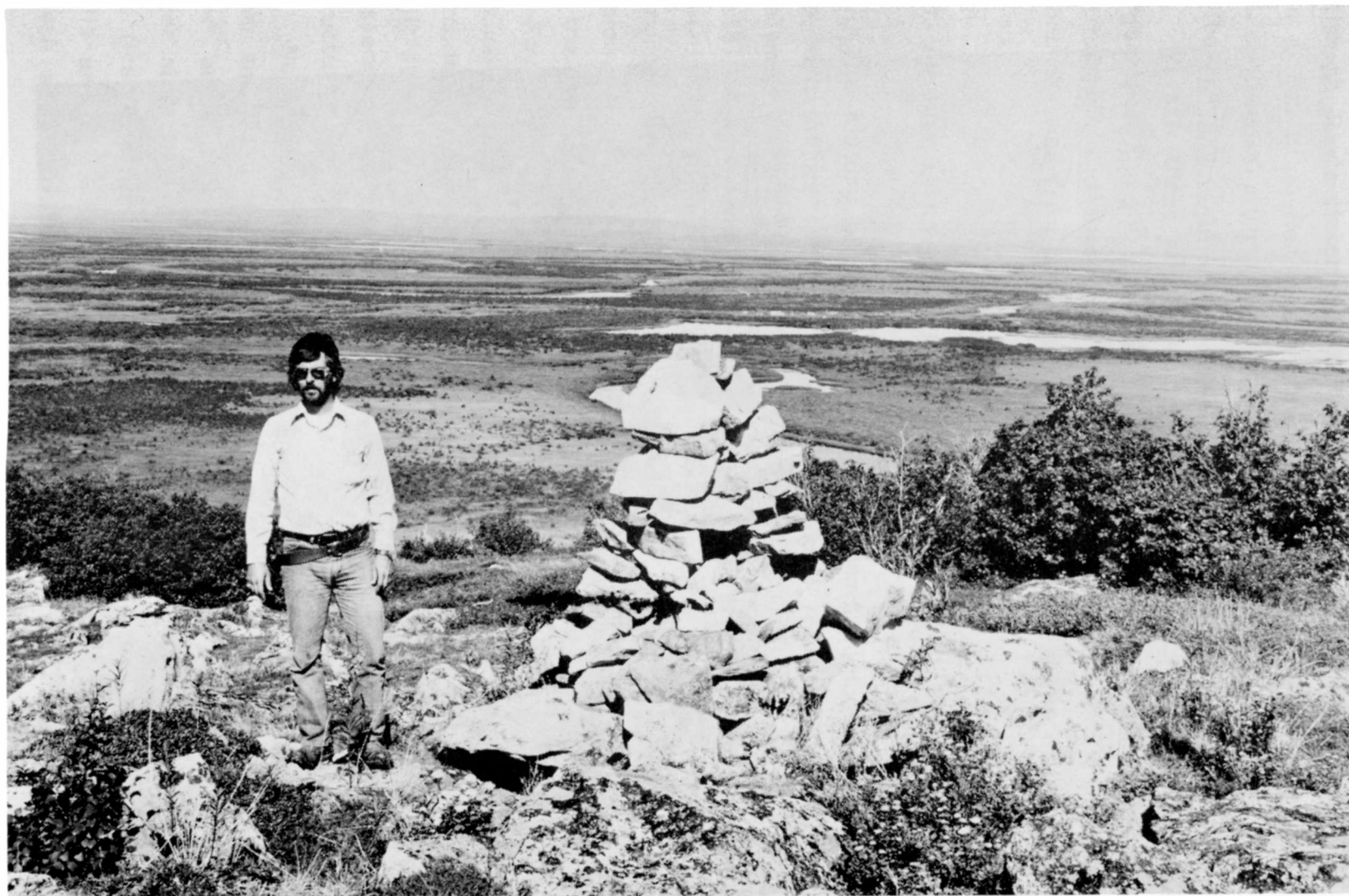


Plate 32. Cairn on Marys Mountain. Marys Igloo and the delta region of the Kuzitrin River in background behind anthropologist Richard Scott.

Aviunak is also the native name for Marys Mountain, a 500-foot hill behind Marys Igloo to the southeast. The old village is apparently named after the mountain, which has the appearance of and is named for "black whale" (Ray 1971:13). The local cemetery is located at the northwest base of this "hill" and contains at least 31 graves, most dating to the early 1900s. There are at least two rock cairns, or inuksuk, located on the hill; one is situated on the lower slopes (plate 32) and the other at the top. The latter has been embellished with a steel oil drum.

33) Kektoashliuk

References to this village date to the mid-nineteenth century, specifically to reports resulting from the Franklin search. Ray (1964b:78, 1971:22, 1975:146, 152, and 155) identifies "Tia-to-a-lukh," visited by Bouchier in 1851, and "Kik-to-alik," visited by Hobson in 1854, as Kektoashliuk. The visitors provided no extensive description of what must have been an important village, judging from the remains still evident at the site. Hobson did mention, however, that when he returned to the village in March after sledging to Kotzebue Sound, the river was flowing and had been dammed for the purpose of fishing (Ray 1964b:78, 1975:152). This stretch of the Kuzitrin is still known as a good spot for fishing.

Kektoashliuk is situated on both banks of the Kuzitrin 1.5 to 2 km above Marys Igloo. Four distinct clusterings of house depressions were noted here, all marked primarily by a heavy vegetation cover of grasses, but also by thick willows in the smaller groupings. For all four locations we enumerated a minimum of 39 depressions. The features here far outnumber those that remain of any other site investigated during the course of the 1975 survey, including Kauwerak, although some of the depressions in the latter may have been lost through erosion.

The first locality (33a) is situated on the north side of the river, screened from the riverbank by a line of willows. This group of 22 depressions is not oriented linearly along the river but rather, the individual houses are oriented randomly within a site area measuring approximately 50 m along the river edge and extending some 45 m north away

Table 6. Depressions at Kektoashliuk.

Depression Designation	Dimensions			Orientation	Comments
	Main Room	Passageway	Entry Room		
<u>Locality (a)</u>					
1.	3 m x 3 m	present		NE	
2.	3 m x 3 m	present		S	additional room to NW
3.	3 m x 3 m	present		SW	
4.	3 m x 4 m	present		S	
5.	3 m x 3.5 m	present		S	
6.	3 m x 3 m	present		N	
7.	3 m x 3 m	present		S	
8.	3 m x 3 m	present		SW	
9.	3 m x 4 m	present		NE	
10.	3 m x 3 m	present		SSW	
11.	2 m x 2 m	present		SW	
12.	3 m x 3 m	present		SW	
13.	4 m x 4 m	present		SW	
14.	3 m x 4 m	present		SSE	clearly defined
15.	3.5 m x 3.5 m	3.5 m		SW	clearly defined
16.	3 m x 3 m	present		S	
17.	2.5 m x 2.5 m	present		SE	
18.	2.5 m x 2.5 m	present		S	
19.	3 m x 3 m	present		W	
20.	3 m x 3 m	present		SSE	
21.	2.5 m x 2.5 m	present		SE	
22.	2.5 m x 2.5 m	present		W	

Table 6 (cont.)

Depression Designation	Dimensions			Orientation	Comments
	Main Room	Passageway	Entry Room		
Locality (b)					
1.	4 m x 5 m	present	2 m x 2 m	WNW	<u>qargi?</u>
2.	4 m x 4 m	present	--	NW	disturbed
3.	indistinct	?	--	?	adj. to #2; disturbed
4.	indistinct	--	--	--	behind #2 & #3
5.	indistinct, small	--	--	NNW	
6.	2 m x 2 m	present	--	W	storage pit?
7.	4 m x 5 m	present	2 m x 2 m	SW	
8.	3 m x 3 m	?	--	--	in willows
Locality (c)					
1.	2.5 m x 2.5 m	present	--	E	rectangular
2.	5 m x 6 m	present	--	S	rectangular walls distinct; disturbed
3.	3 m x 3 m	--	--	E	willows in depression
Locality (d)					
1.	3 m x 3 m	?	--	--	circular; indistinct
2.	6 m x 4 m	?	--	NE	rectangular, deep
3.	2 m x 3 m	?	--	SE	cache pit in association
4.	rectangular	?	--	NW	willow in center
5.	indistinct	?	--	N	
6.	indistinct	?	--	SW	

from the water. Data pertinent to individual structures are summarized in table 6.

Across the river, the depressions in three localities differ from this first cluster in being larger, deeper, and more clearly rectangular. We counted eight depressions at the second site (33b). At least three of these appear to be large houses. Approximately 100 to 150 m southwest of this locality, a third cluster (33c) of three rectangular depressions is located where the river narrows and bends to the southwest. Another group of six features (33d) is located 50 to 75 m further downstream. The first two depressions are separated by 20 m from another group of four at this location. Additional information concerning these last 17 depressions is also included in table 6.

Actual testing of a house depression was undertaken at locality 33a on the north side of the Kuzitrin (plate 33). A house was selected which showed no evidence of prior disturbance. We established a test trench measuring 1 m by 2 m in the main room of this feature so as to intersect an outside wall and possible central hearth (figures 28 and 29). The test trench was excavated to a depth of 50 cm, where we encountered permafrost. Fragments of wood and rotten logs were uncovered at 25 cm, but no artifacts were recovered until the test had penetrated to what proved to be a cultural horizon about 30 cm below the surface. Between that level and 41 cm we recovered several fragments of iron, an octagonal metal nut, a bone scraper, a fragment of a sled runner, and a worked piece of ivory, and noted scattered faunal remains. Toward the bottom of this level near the center of the depression, a heavy concentration of charcoal and ash indicated the presence of a hearth. A massive sand layer was uncovered below the ash and charcoal deposit in which no additional artifacts were encountered. An upright post which evidently served as a support member extended into this bottom sand layer. The lower end of the post was preserved by permafrost and had been cut with a saw.

34) Atnaq (Akluk)

Ray (1971:17) mentions Akluk as a slough "so named because a woman once met a bear there and hit him on the head with a root pick." In the



Plate 33. Alicia Godfrey testing a house depression at Kektoashliuk.

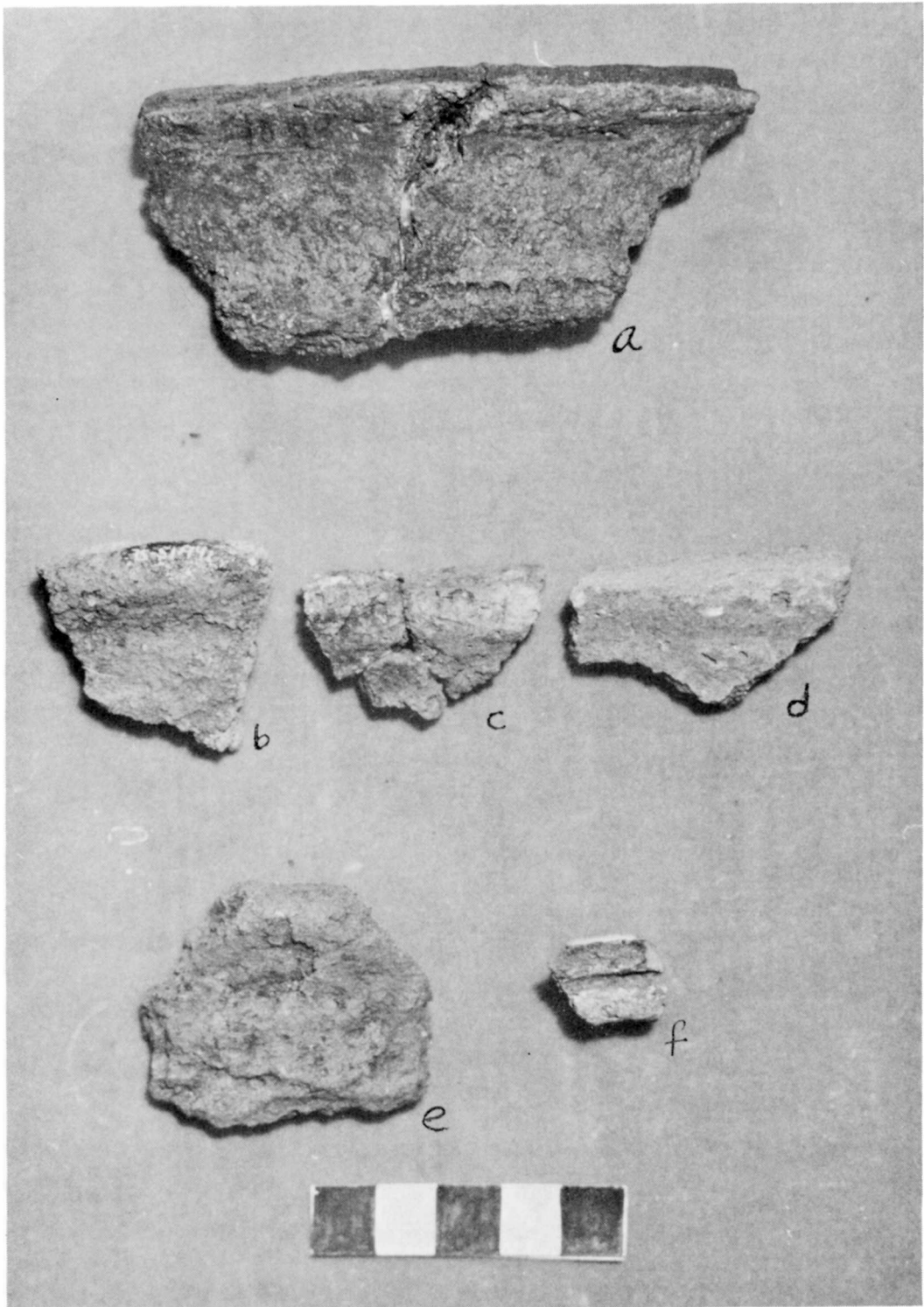


Plate 34. Rim sherds from Cloud Lake Village: a, vessel 1; b, c, d, vessel 3; e, vessel 2; f, vessel 3, top view.

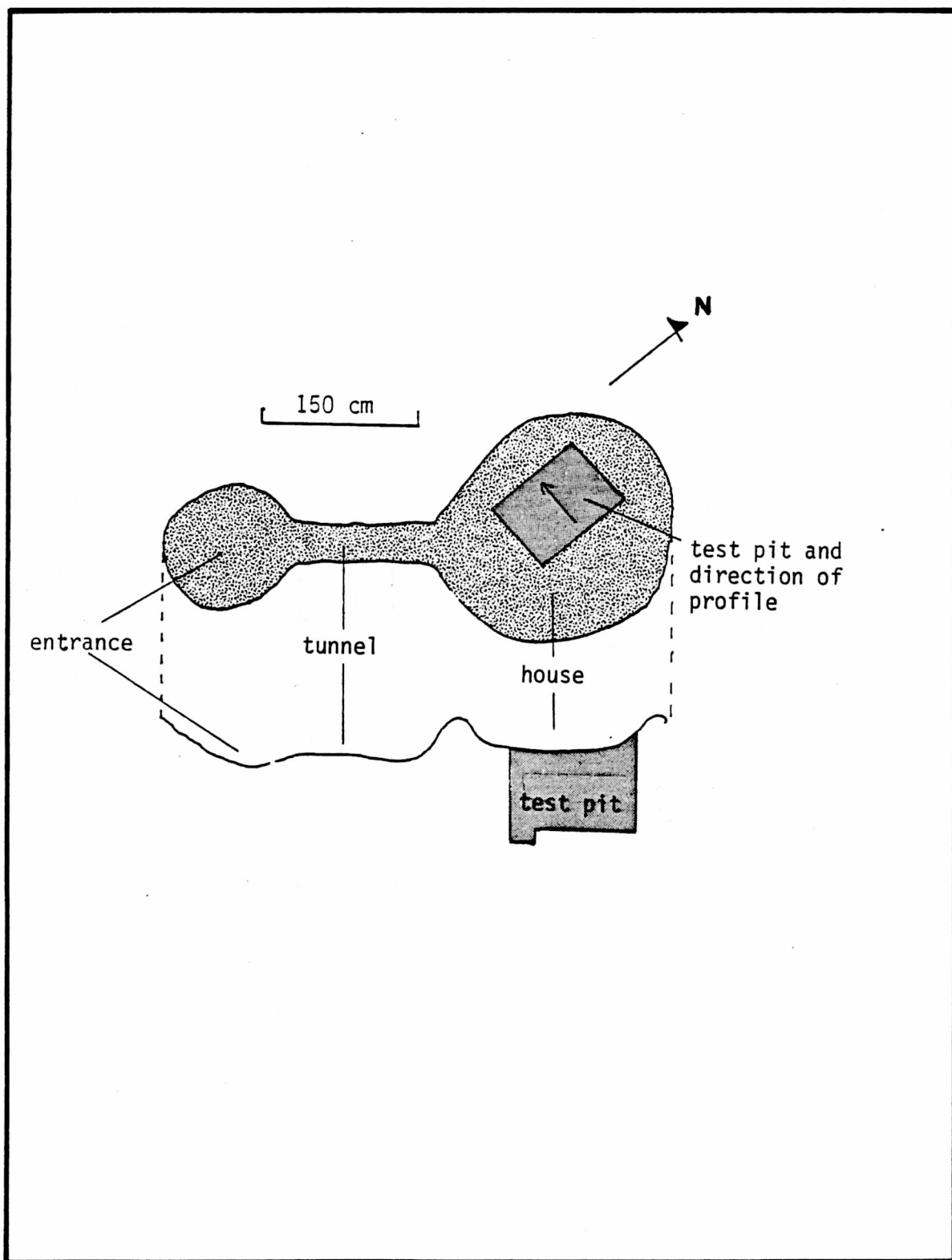


Figure 28. Test excavation at Kektoashliuk.

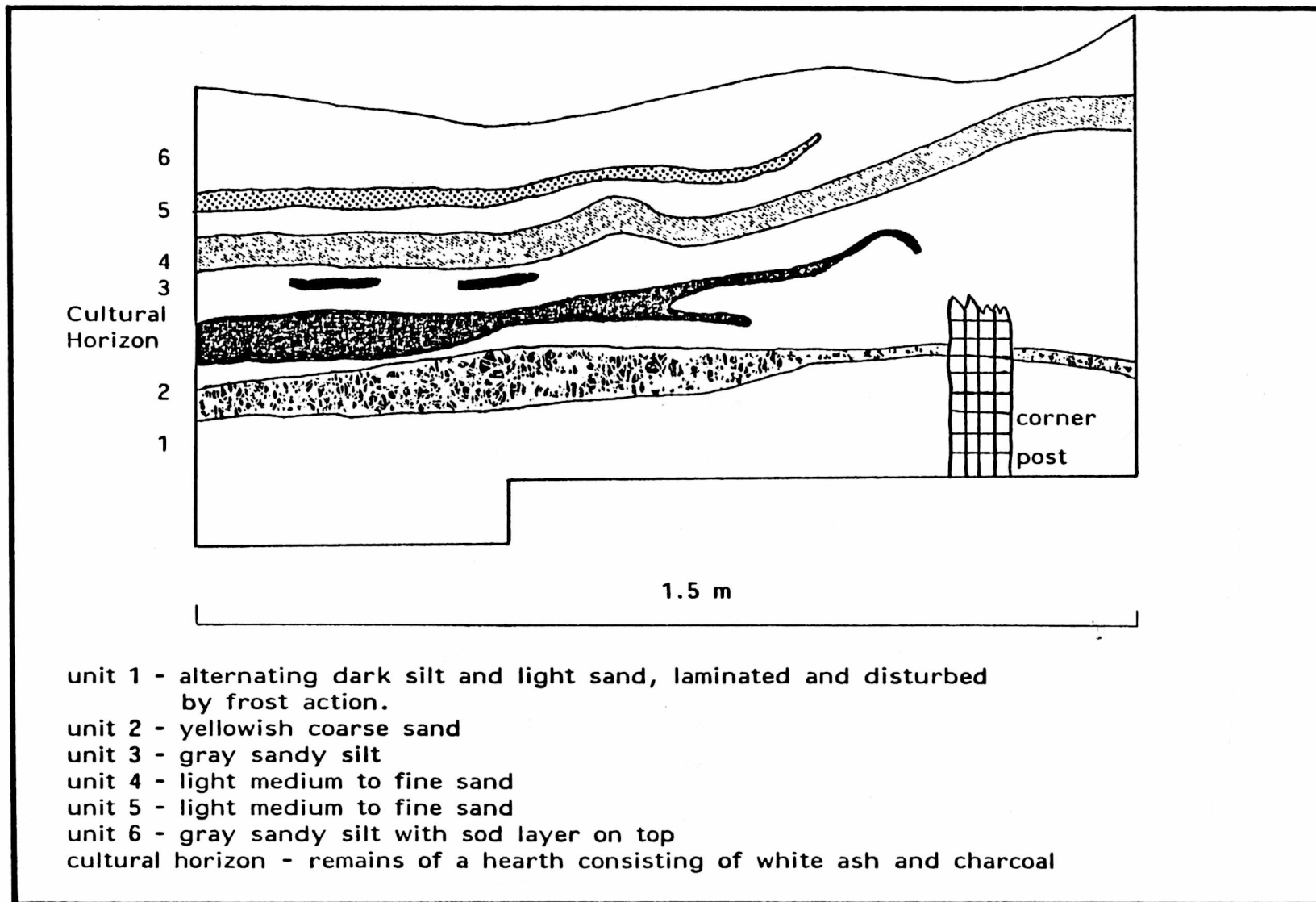


Figure 29. Profile of west wall of Kektoashliuk test excavation.

orthography of the Alaska Native Language Center in Fairbanks it is spelled Atnaq. This place name may or may not be connected with a site of the same name on the main channel of the Kuzitrin approximately 1.5 km upstream from Kektoashliuk. Behind a line of willows on the north bank of the river we counted 13 small circular and square depressions which evidently were used for whitefish storage. One definite rectangular house depression measuring 3 m by 2 m with a southeast entrance was also noted. Two additional depressions at this location may be natural rather than man-made features. One of these is a better candidate for a house depression, but its outlines were obscured by a thick growth of willows, making positive identification difficult.

35) Qasigiat (Kasigerit)

A possible site was located in the delta region of the Cobblestone River, 0.5 km above the point where the river forks. This place is known as Qasigiat or "spotted seal place." Three depressions, and a possible fourth, are situated on a low sandy ridge, or dune, on the east side of the Cobblestone. Denning activity by foxes has badly disturbed the area. Since testing in three of the depressions revealed neither artifacts nor other cultural indicators, it is possible that these tentative houses may be entirely attributed to foxes whose periodic burrowings have subsequently collapsed, forming sizable depressions.

36) Stone Rings

Two stone rings and a stone wall are located on the north end of a long island in the Cobblestone River, 2.4 km above Qasigiat. The larger of these stone rings is 2 m in diameter. The adjacent one measures 1.5 m across. A low pile of stones approximately 5 m long is situated 1 m away. We did not determine the purpose or function of these features.

37) Pamnikotut

Ray (1971:19) mentions a locality called Pamnikotut, known as a good berry-picking place. She located this area in a general way as being near the Tuksuk Channel. Informants identified a specific section of the south shore of the Imuruk Basin by a similar name which also referred to the blackberries found there. This area is located between Windy Cove, the shore of which is referred to as Manilik, meaning "hummocky area," and a rocky section of shoreline 3 km southwest of the delta of the Cobblestone River called Wuiaktok.

38) Igluk

Near the spit which marks the northwest corner of Windy Cove on the south shore of Imuruk Basin, 11 small pits indicate the remains of a former fishing station. None of these is large enough to be a house depression and a function as herring storage pits is suggested instead. These are shallower than any of the similar clusters of small pits noted previously during the survey.

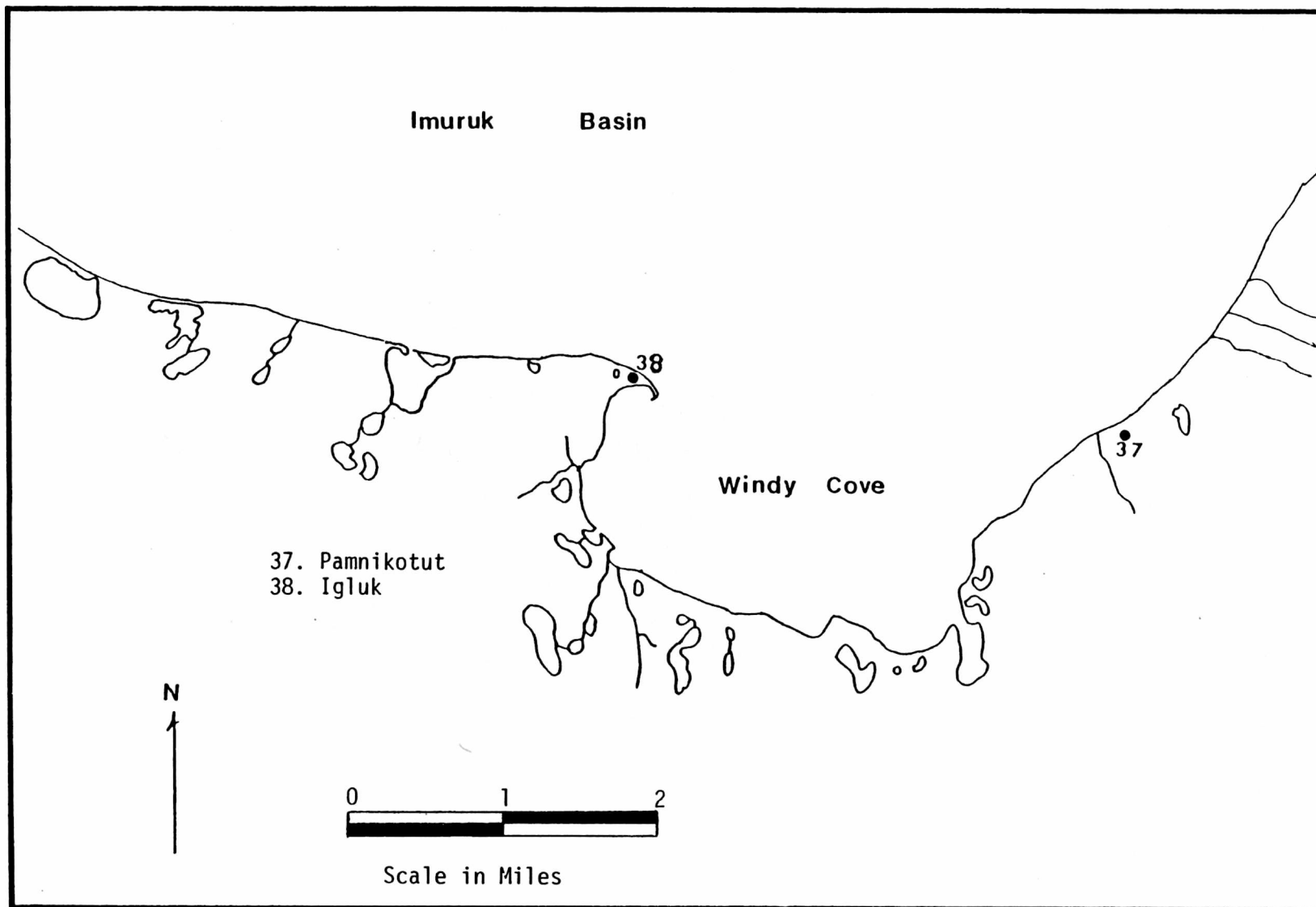


Figure 30. Site location map, south shore of Imuruk Basin.

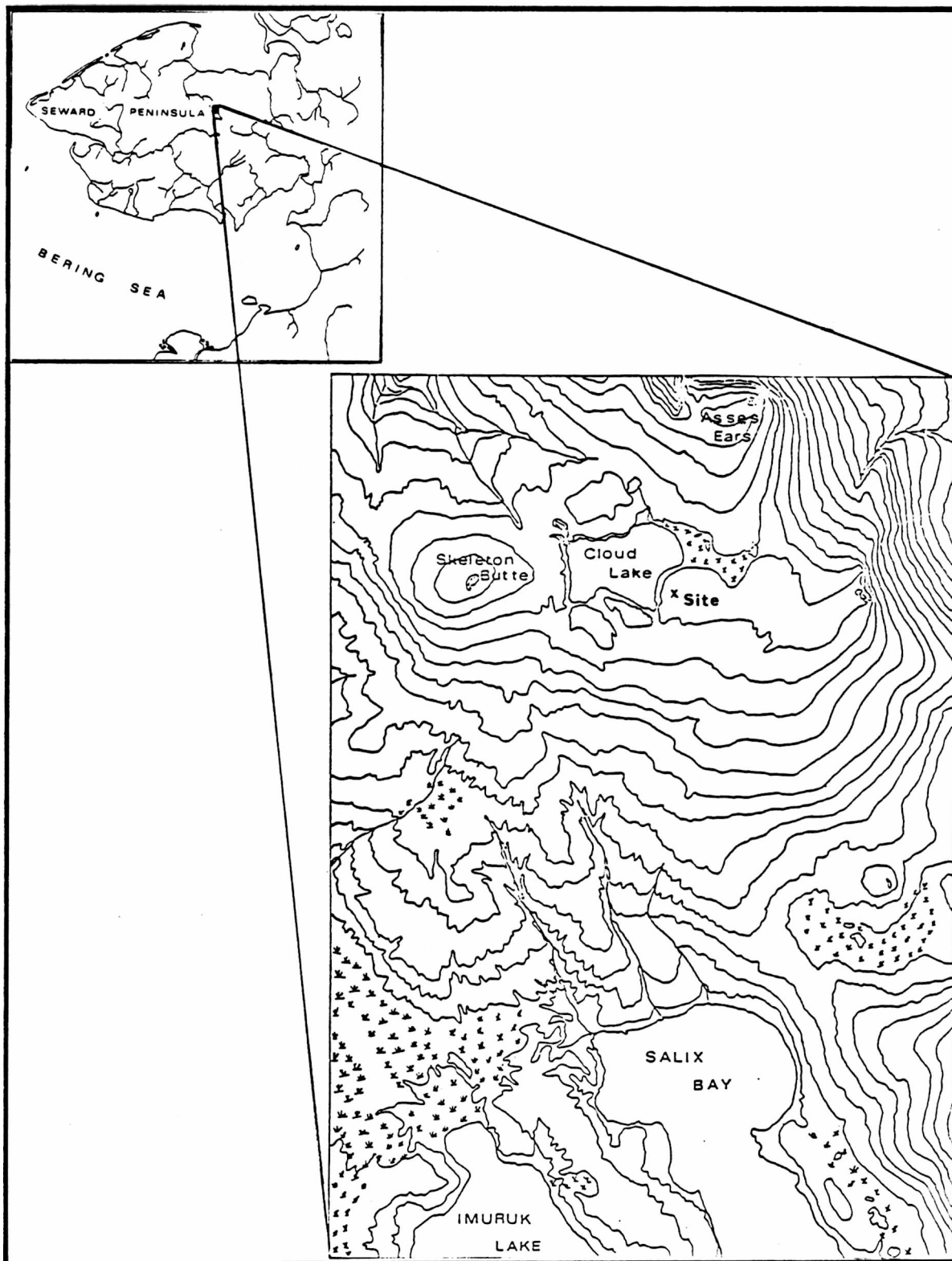


Figure 31. The Cloud Lake region.

6

ARCHEOLOGICAL EXCAVATIONS AT CLOUD LAKE VILLAGE

by Jo Anne Adams

In the summer of 1975 members of the Chukchi-Imuruk archeological survey team conducted test excavations at a protohistoric Eskimo site near the headwaters of the Inmachuk River approximately 40 km southwest of the modern village of Deering. The site, Cloud Lake Village, is situated on the north edge of a small pond about 0.5 km east of Cloud Lake (figures 31 and 32). The site area was mapped and a trench 14 m long was excavated through the largest feature and into a small midden on the bank of the pond.

Background Information

Cloud Lake lies at an elevation of 1640 feet above sea level on a broad, southward-sloping plain between Imuruk Lake to the south and a line of rugged hills to the north. Imuruk Lake, some 15 km distant, marked the border between the territory of the Deering Eskimo and the Kauwerak Eskimo of the interior (Ray 1967:383) and is visible from the site on all but the foggiest days. The two most conspicuous landmarks in the area are Skeleton Butte, 1.5 km west of the lake, and Asses Ears, twin basalt cones about 2.5 km to the northeast.

Environment

Cloud Lake lies near the headwaters of the Goodhope and Inmachuk rivers but is not connected to either system. Instead the lake drains into the surrounding tundra through a small channel on the southwest corner. None of the local streams are navigable and access to the site is limited to overland travel. The local topography, climate, and vegetation have been

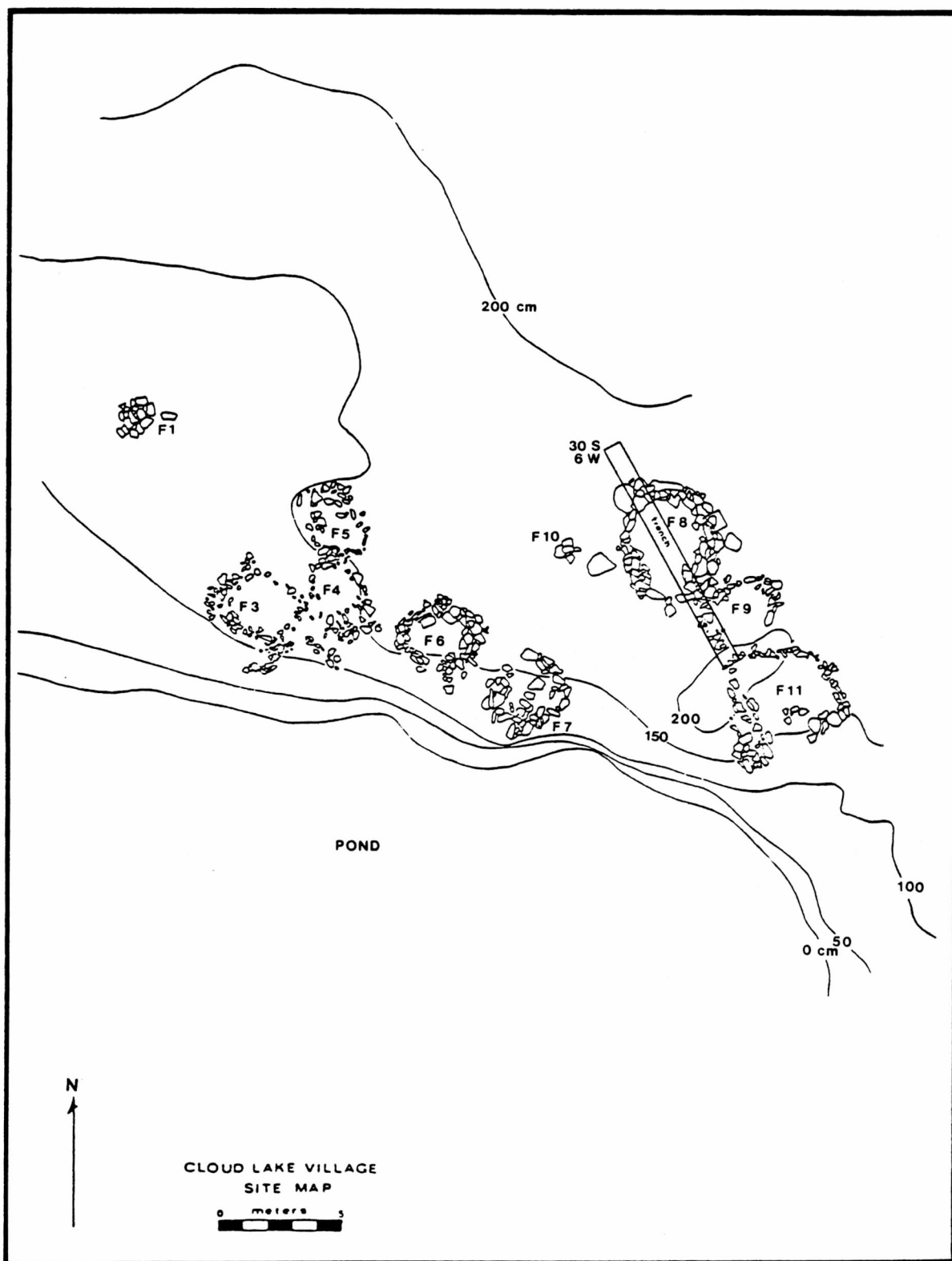


Figure 32. Cloud Lake Village site map.

discussed by Hopkins and Sigafoos (1951) and the following summary relies mainly on their work.

The area around Cloud Lake is poorly drained and contains many small lakes, ponds and streams. Most of the precipitation falls during the months from May to September and the summers are characteristically cool, cloudy and wet. Permafrost levels vary from 38 cm to 1.8 m below the surface. This, combined with frequent rain and a low evaporation rate, keeps the ground's surface over much of the area permanently waterlogged and makes travel during the summer extremely difficult. Freezing temperatures predominate from October to early May. The winters are generally clear and cold and snow cover is light due to low precipitation and frequent high winds.

The limit of the spruce forest is approximately 80 km to the east and, except for a few patches of cottonwood and alder and some small stands of willow along the water courses, trees are absent. The land is covered with a thick tundra vegetation of tussocks and mosses in the poorly drained areas. Areas of dry tundra are characterized by "the predominance of low matted woody plants and grasses...confined to areas in which the soil is relatively dry and well-drained and of sandy or rocky texture" (Hopkins and Sigafoos 1951:64). Rubble fields of basalt boulders, barren except for lichen growths, are scattered across the landscape. Several species of berries, including blueberries, cranberries and salmonberries, are found around the lake but are not abundant. During the 1975 field season none produced any fruit though the weather was not unusually cold or wet that summer.

Animal resources are much more abundant. Prior to the late nineteenth century, caribou were numerous and present year round (Ray 1975), for the thin snow cover made the area good winter range. Hopkins (n.d.) has listed several species of migratory birds from the area such as cranes, loons, ducks, geese, plovers, and phalaropes, all abundant in the spring and summer (Ray 1975). In 1975 ducks and geese were observed on the lake, frequently in groups of twenty birds. Ptarmigan are abundant and in the past were an important winter resource for the Eskimo of interior Seward Peninsula (Ray 1964b:75). Though early historic accounts report large numbers of hares in the interior of the peninsula (Ray 1975:

154), neither Hopkins' crew nor the crew in 1975 observed any at all in the Cloud Lake area. Small fur-bearing animals such as fox, weasel, mink, and wolverine are present, however, and muskrats are common in the smaller lakes in the area. Ground squirrel colonies are found in the well-drained areas. Wolves and grizzly bear are also known from the area, though we saw none during the field season.

Fish were probably not an important resource at Cloud Lake. Though Hopkins (n.d.) reports that grayling up to 20 inches long were present in the larger lakes and streams in the Imuruk Lake region, Cloud Lake is rather shallow and probably too small to contain appreciable numbers of fish.

Oral Traditions About the Site

According to accounts collected by Ray (1964b, 1967) Cloud Lake is near the southern border of the region traditionally exploited by the Eskimo of the southern coast of Kotzebue Sound, more specifically, the Deering Eskimo. The area is said to have been one of the poorest in resources of the entire peninsula and the people from the area are said to have been expanding into the more southerly regions. The land to the south of Cloud Lake was occupied by the Kauwerak, an inland group with whom the northern groups were often in conflict:

Kauwerak's most vigorously defended boundary lines were those to the north between both Shishmaref and Deering, and in the southeast between the Koyuk River people....the trespassing of inhabitants of the Goodhope River, Deering area, and Kiwalik River drainages into Kauwerak territory was said to have precipitated a number of disputes (Ray 1967:383).

Cloud Lake Village has not been occupied within living memory, but David Hopkins was able to collect oral traditions about the village during a geological survey around Imuruk Lake in 1948 (Hopkins n.d.). People from Cape Espenberg related that a sizable population of their ancestors, enough people to surround Cloud Lake completely during caribou drives, once occupied the site and maintained a caribou corral between Skeleton Butte and Cloud Lake. Their stories concerned caribou being driven into the lake to be killed, suggesting occupation of the village at least partly during the summer months. Evidence of a caribou fence or line of cairns

such as would indicate the presence of the corral was not found. The area was also reportedly important for the exploitation of a flint source near Asses Ears.

Other reports by "Deering or Cape Espenberg Eskimos" tell of their ancestors having been driven inland to Cloud Lake because of battles with other coastal Eskimo groups (Hopkins n.d.). There is some evidence to suggest that much of the north coast of the peninsula was occupied until sometime in the mid-nineteenth century by Unalit speakers who were subsequently displaced by the Malemiut expanding from the east (Ray 1967: 391). Conflicts arising from this situation may have been responsible for the reported move, the defeated group taking refuge in their inland village.

Settlement Pattern

Ray has pointed out that the activities of any one group on the Seward Peninsula, with the exception of trading journeys, were generally confined to a specific and recognized territory which usually centered on a major river and its tributaries (Ray 1967, 1975). The area between Imuruk Lake and the north coast was claimed by the Deering Eskimo (Ray 1967:383), known as the Imnatchiaġmiut, and the village at Cloud Lake was probably included within their territory.

The seasonal subsistence and settlement round of the Imnatchiaġmiut was described to Helge Larsen by Mary Morris of Deering, who recalled the stories of her grandmother. Since Mrs. Morris was over 80 years old at the time, Larsen places the date of the reported pattern at around 1850 (Larsen 1958:580). According to these accounts the winter months were spent inland at a semipermanent village in houses described as having walls of upright timber, moss roofs, willow-covered sleeping platforms and central fireplaces. Other house forms known were the snow house with a roof of willows and snow used when traveling in winter, a dome-shaped hide tent used during the summer, and a temporary house of willows and sod. The people depended mainly on caribou all year. In the winter at their inland village they drove the caribou into a willow enclosure set at intervals with snares. In the spring and early summer at the coast they

hunted seals and ugruk (bearded seal). They also probably hunted caribou if they were present, since Lucier (1954) describes the summer coastal activities of the nearby Buckland River people as including caribou hunting. In July the Imnatchiaġmiut returned inland, living in scattered bands, some hunting caribou, some fishing, and others trapping ground squirrels.

Cloud Lake Village

The village contained nine circular stone structures and two stone-lined cache pits. Eight of the structures and both caches were clustered along the north edge of a pond (figure 32) and the remaining structure was situated some 34 m south of the pond in a low, boggy area.

The area around the site slopes gradually downhill to the south and southwest and, except for the immediate surface on which the majority of the structures are located, the ground's surface is soaked with runoff from the higher ground for the entire summer season. The structures on the north side of the pond are built close together on a small rise. We originally thought that this higher ground was a midden accumulation but excavation showed that the midden debris was relatively shallow and the higher ground was part of the natural surface contour. This was probably one reason the area was chosen as a building site, as the faunal remains from the trench show that the village was occupied at least partly during the summer months.

The goal of the excavation was to obtain data which would aid in the placement of the site within the cultural historical framework of the Seward Peninsula. Data were obtained from a trench 14 m long by 1 m wide which crosscut feature 8, the largest and best preserved structure at the site, and part of the midden on the north side of the pond. The trench was excavated in 5-cm arbitrary levels. Further test pits scattered over the remainder of the site were planned if time permitted but it was felt that, should adverse conditions slow the excavation, a trench would offer the best possibility of recovering a representative sample, though possibly sacrificing information on "horizontal stratigraphy."

The character of the deposit within the trench varied (figure 33). The area to the north, squares 30-32S 5-6W, contained a dark brown, rooty soil, 15 to 25 cm thick, which lay above a sterile red layer. Cultural debris was concentrated in the dark brown soil with no visible separation into levels. Relatively few flakes were recovered, but as the deposit was not screened and the soil in the squares was waterlogged for most of the excavation season, many may have been overlooked in the mud. Organic preservation in these squares was poor. Deposits inside the house, in squares 34-38S 5-6W, consisted of an irregular layer of dark humus mottled with lenses of ash, clay and gray silt with numerous angular fragments of basalt varying in size from a few centimeters to as much as 40 cm across. A buried sod layer was uncovered some 5 cm to 10 cm below the surface at the center of the house. This was apparently the original surface which had been buried by the backdirt from the test pit dug by Hopkins when he visited the site in 1948 (Hopkins n.d.). The greatest concentration of cultural material, principally small flakes and bone fragments, was between 5 cm and 15 cm below the surface. The deposit near the wall consisted of a black, sooty matrix which extended from the surface to a depth of 20 cm and was filled with flakes, wood chips, twigs and bone fragments. Much of this material was directly overlain by rocks which had tumbled from the wall after the house was abandoned. The squares 32-34S 5-6W and 38-40S 5-6W included the area around and between the rock wall of the feature and sloped sharply downward under the wall itself. This lower area between the rocks contained a waterlogged midden-like concentration of flakes, bone and wood refuse in an advanced state of decay. The material could have been deliberately carried from the midden and used to fill the spaces around and between the rocks or could simply have washed down into the lower areas from the house fill and midden. The deposit to the south of feature 8 was a fine reddish, rooty soil overlying a heavier dark brown soil. Both levels contained concentrations of bones, potsherds, scattered flakes and wood chips, and angular rocks of varying sizes.

Artifacts tended to be concentrated around and between the rocks of the wall, though every square produced a few. Cultural material was less concentrated in the squares to the north of the house, which is to be ex-

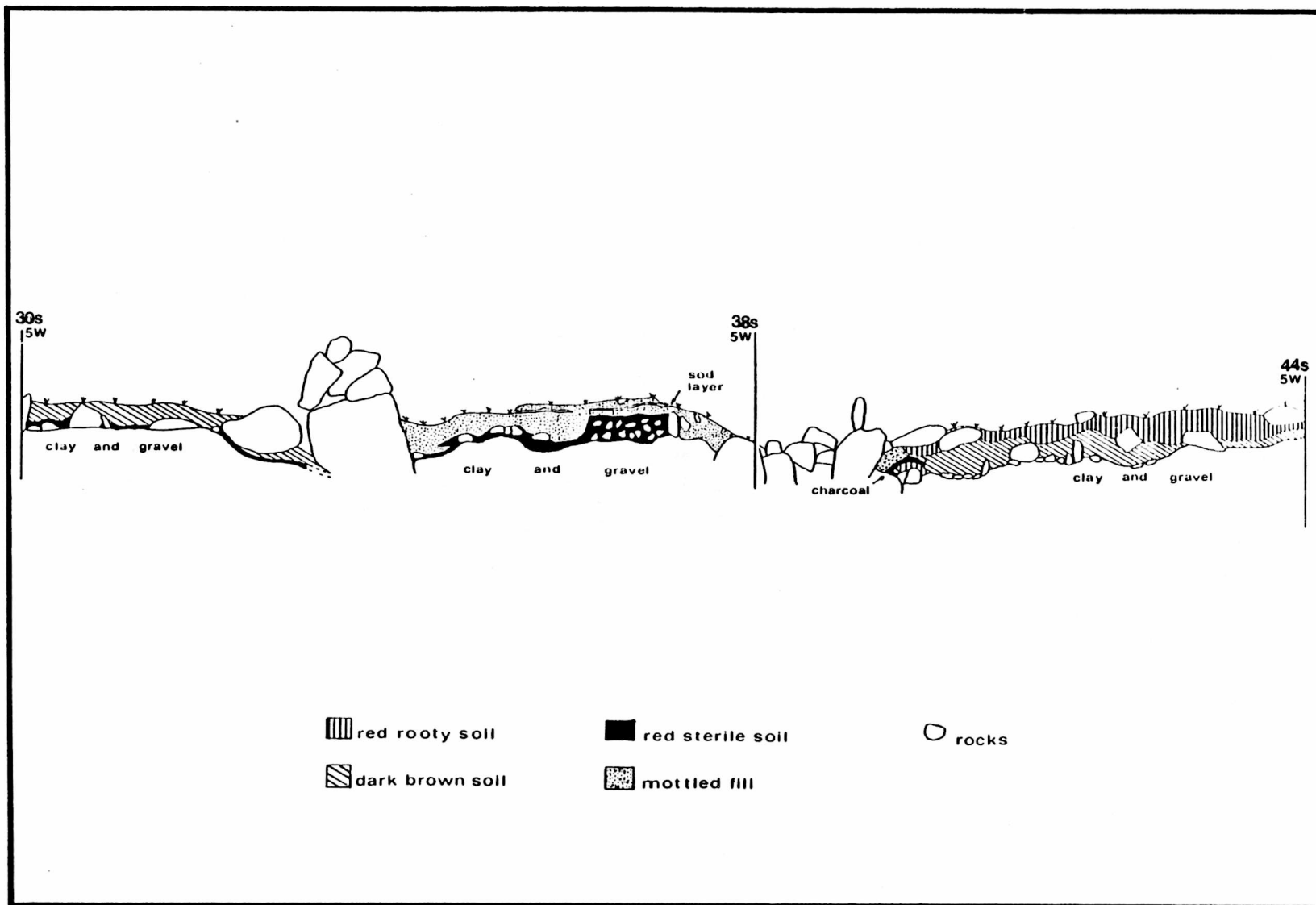


Figure 33. Profile of east wall of test trench, Cloud Lake Village.

pected due to the poor preservation. No cultural stratification was noted in the deposit either while excavating or during analysis. The material represents a single cultural occupation from the late prehistoric or early historic period on the Seward Peninsula, probably the latter.

It is possible that the structures were not occupied simultaneously and earlier or later cultures may in fact be represented at the site. Only feature 8 was tested, however. The others were mapped and detailed drawings were made of each. Some of the rocks used in the construction of the smaller features were overgrown with a thick root mat which we did not disturb. Only those stones protruding above the surface were drawn.

Caches

Features 1 and 10 (figures 34 and 40) were pits apparently lined with large stone slabs and covered over with similar stones laid horizontally, many as large as 50 cm by 100 cm. The features were identified as caches, though neither was opened and inspected.

A pile of stones originally thought to be a similar construction and labeled "feature 2" was later rejected as cultural after the dense grass cover had been cut away to reveal its form. The stones apparently were simply lying on the surface and no pit was visible through the spaces between the stones as in the two caches.

Structures

All nine structures conformed to the same plan, being circular to oval in outline with walls composed of basalt boulders of irregular shape and up to 1 m across. Much of the surface of the site was littered with large and small boulders of the same material. Apparently, the site was located on or near a small boulder field, a common geological feature of the area, and the rocks were then simply rearranged into the structures. Feature 8, for example, includes a natural arrangement of three large, deeply buried boulders used as the foundation for the smaller stones around the north side of the wall.

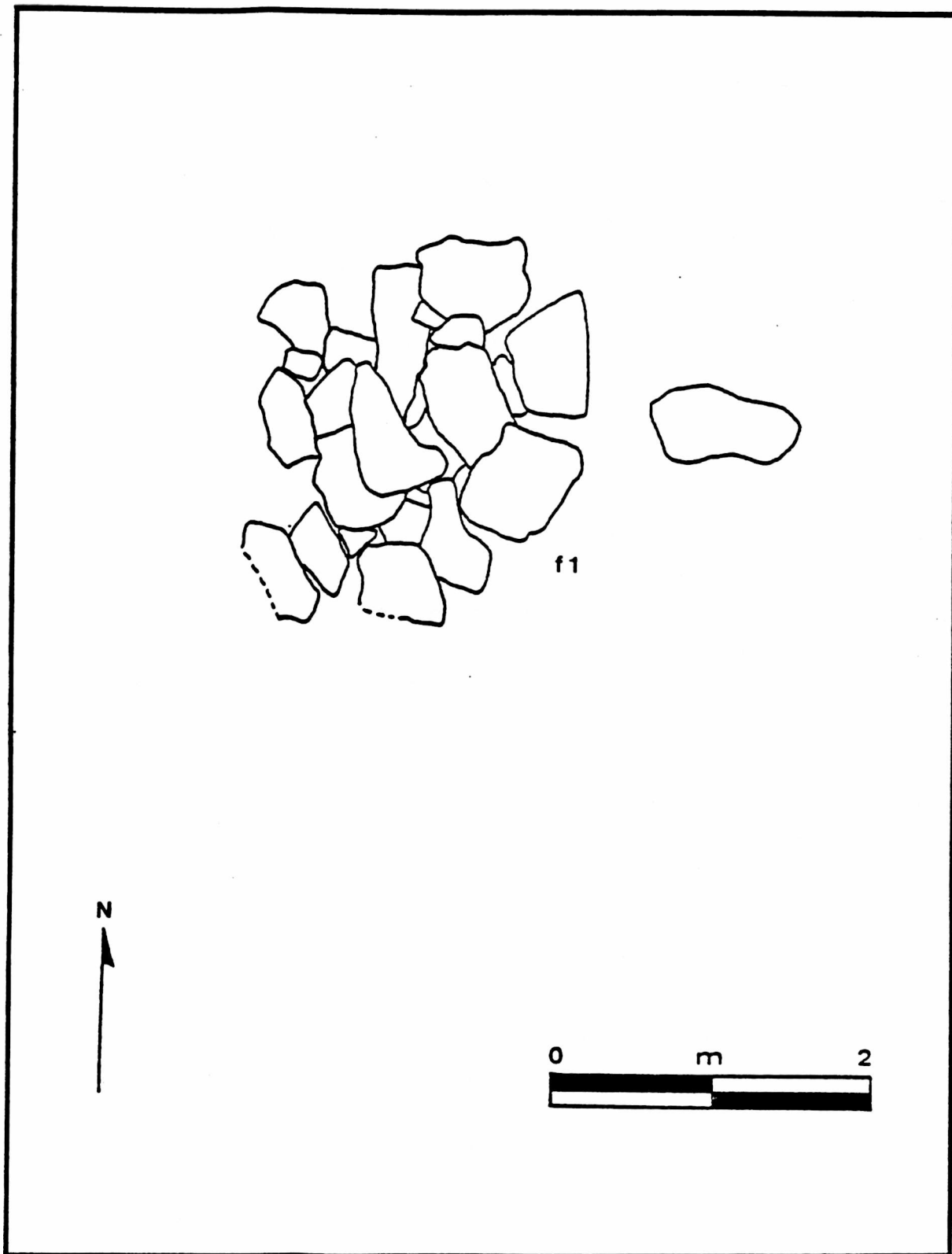


Figure 34. Feature 1 at Cloud Lake Village.

Feature 12 (figure 35) is located to the south of the pond and isolated from the other structures at the site. The outlines of the feature have been obscured and were it not for the fact that caribou bone fragments and flakes were seen eroding out of the deposit around the rocks inside of the structure, it might well have been dismissed as a natural scatter of boulders.

Features 3, 4 and 5 (figure 36) appeared to be the least well preserved of the structures in the main area of the site. While in many places the walls were still composed of rocks stacked atop one another, in other sections the walls appear to have collapsed or the rocks to have been removed, possibly for reuse in later building.

Features 9 and 11 (figures 40 and 37), built on the slope of the rise near the pond edge, may be tent rings rather than the remains of solid structures. The rocks that make up the "walls" are not stacked and are more widely scattered than in the other structures.

Features 6, 7, and 8 (figures 38, 39 and 40) were the best preserved at the site. The details of construction were not recovered since only one, feature 8, was excavated and that incompletely. Some remarks concerning the plan of the structure are possible, however. The floor was not deep below the surrounding surface and was apparently of earth. Hopkins' test of similar structures on the top of Skeleton Butte (Hopkins n.d.) revealed a carefully laid wooden floor at a shallow depth. This was not found in feature 8. The roof was probably of hides supported on a wooden framework. One possible post hole approximately 50 cm from the north wall inside the structure and several large pieces of wood recovered near the wall may be the remains of the roofing material. One piece found near the post hole measured approximately 30 cm long and 10 cm wide. Hopkins (n.d.) also reports finding "several 4-inch logs...near the wall of the hut." No definite hearth was uncovered in the trench but two burned areas, one near the center and one against the south wall immediately east of the entrance, were found. The wall was set into a trench which may have been deliberately dug during construction. Alternatively, it may have been a natural depression created by runoff and frost action along the edges of the abandoned structure. The trench also surrounded the three large boulders at the base of the north wall and since these boulders

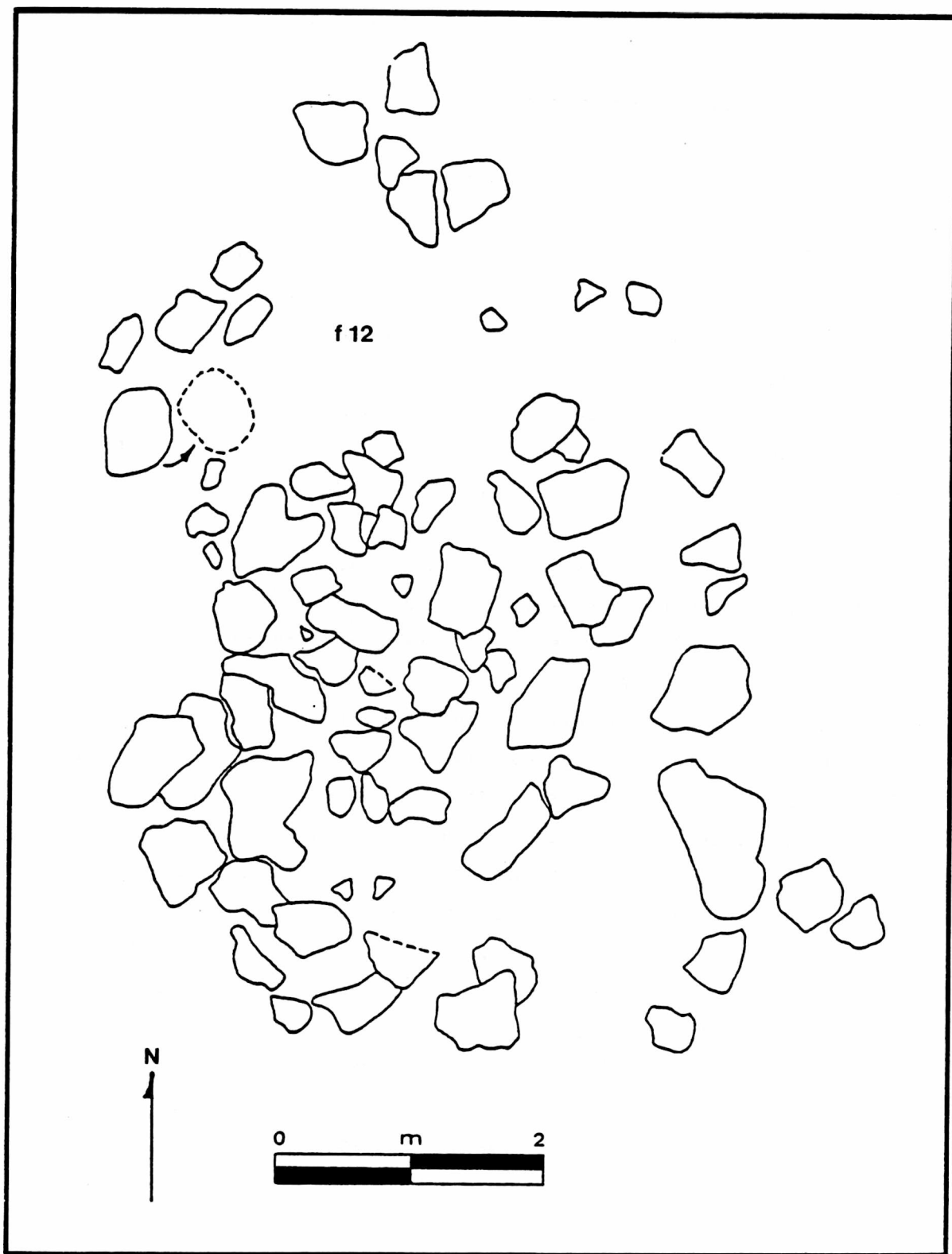


Figure 35. Feature 12 at Cloud Lake Village.

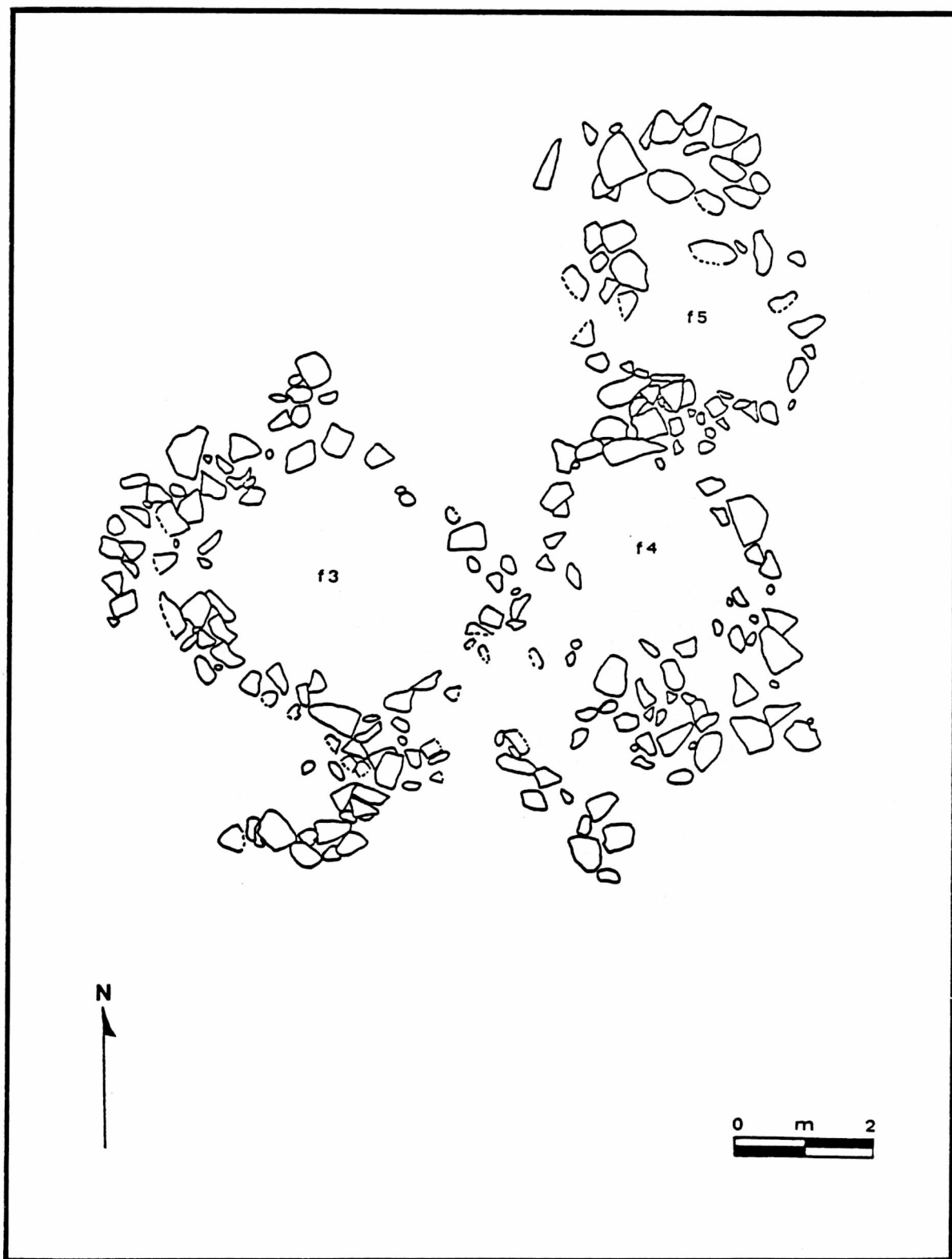


Figure 36. Features 3, 4, and 5 at Cloud Lake Village.

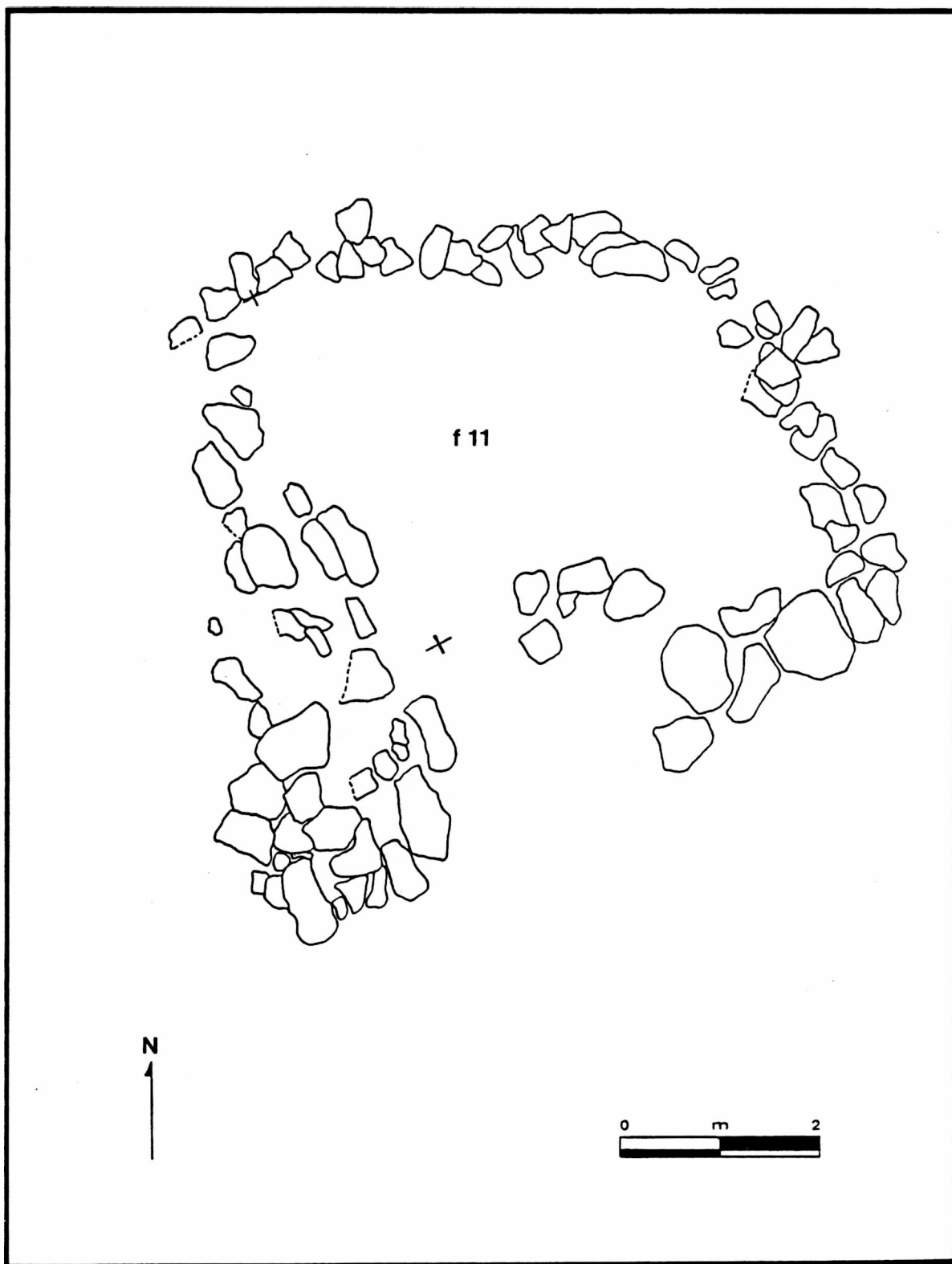


Figure 37. Feature 11 at Cloud Lake Village.

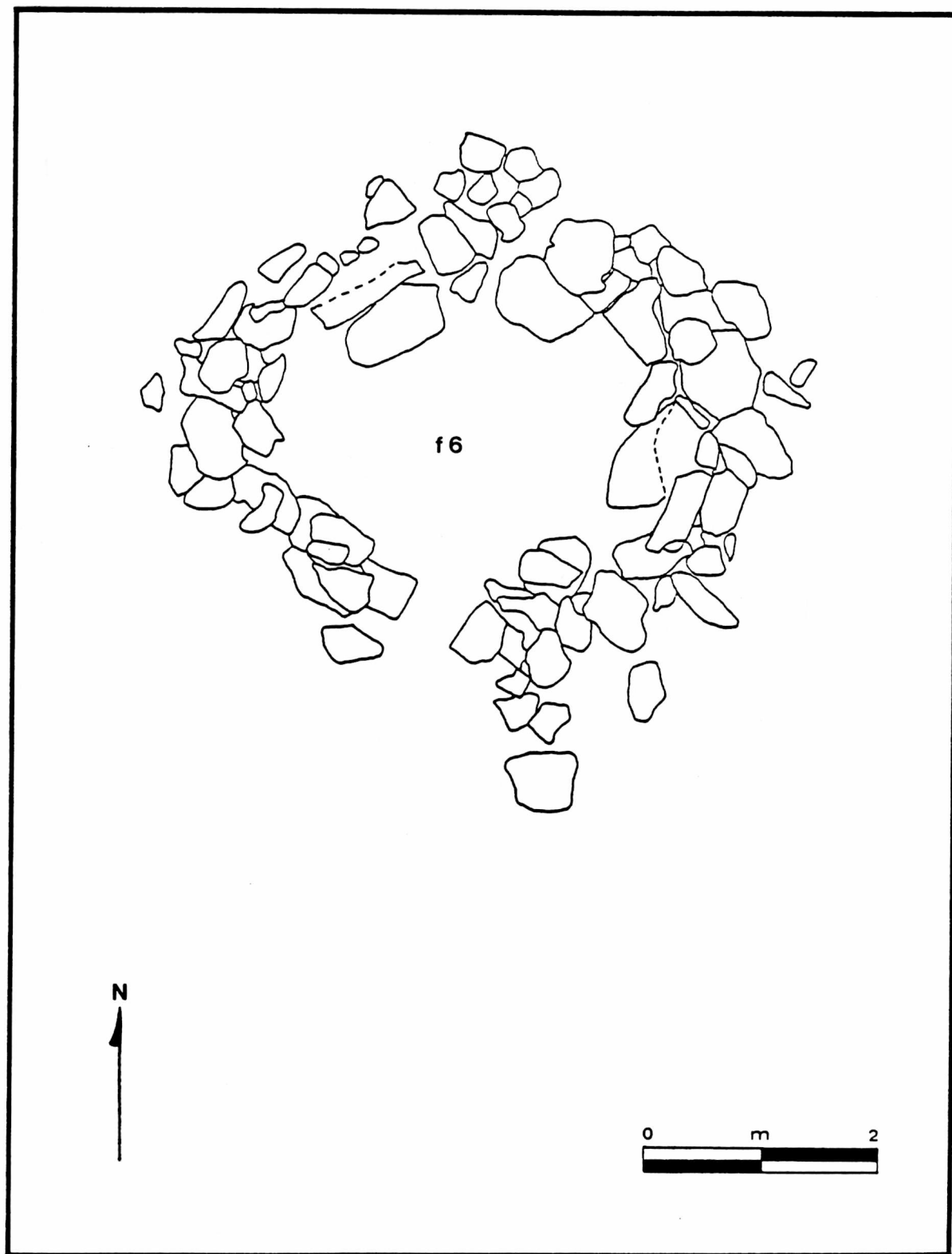


Figure 38. Feature 6 at Cloud Lake Village.

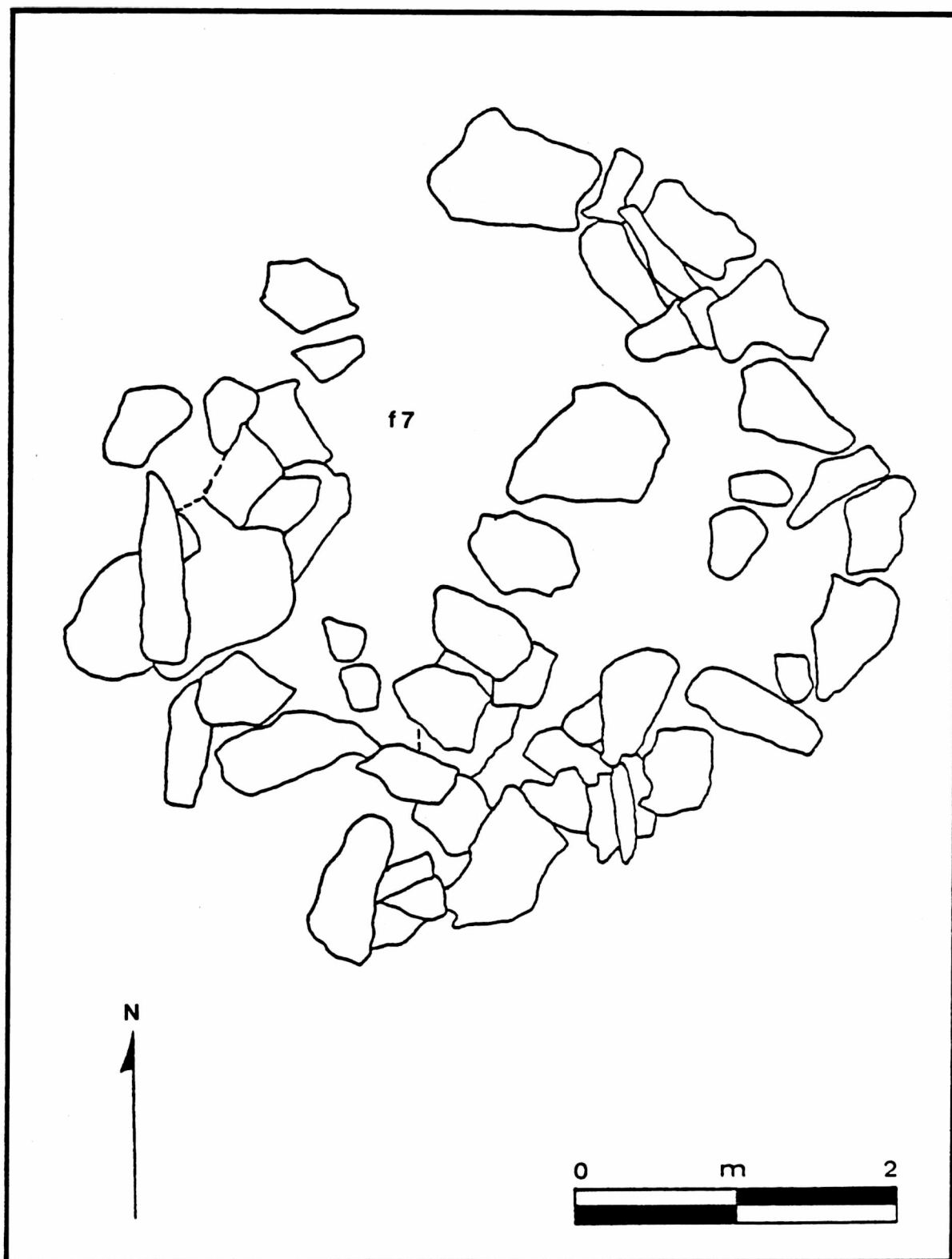


Figure 39. Feature 7 at Cloud Lake Village.

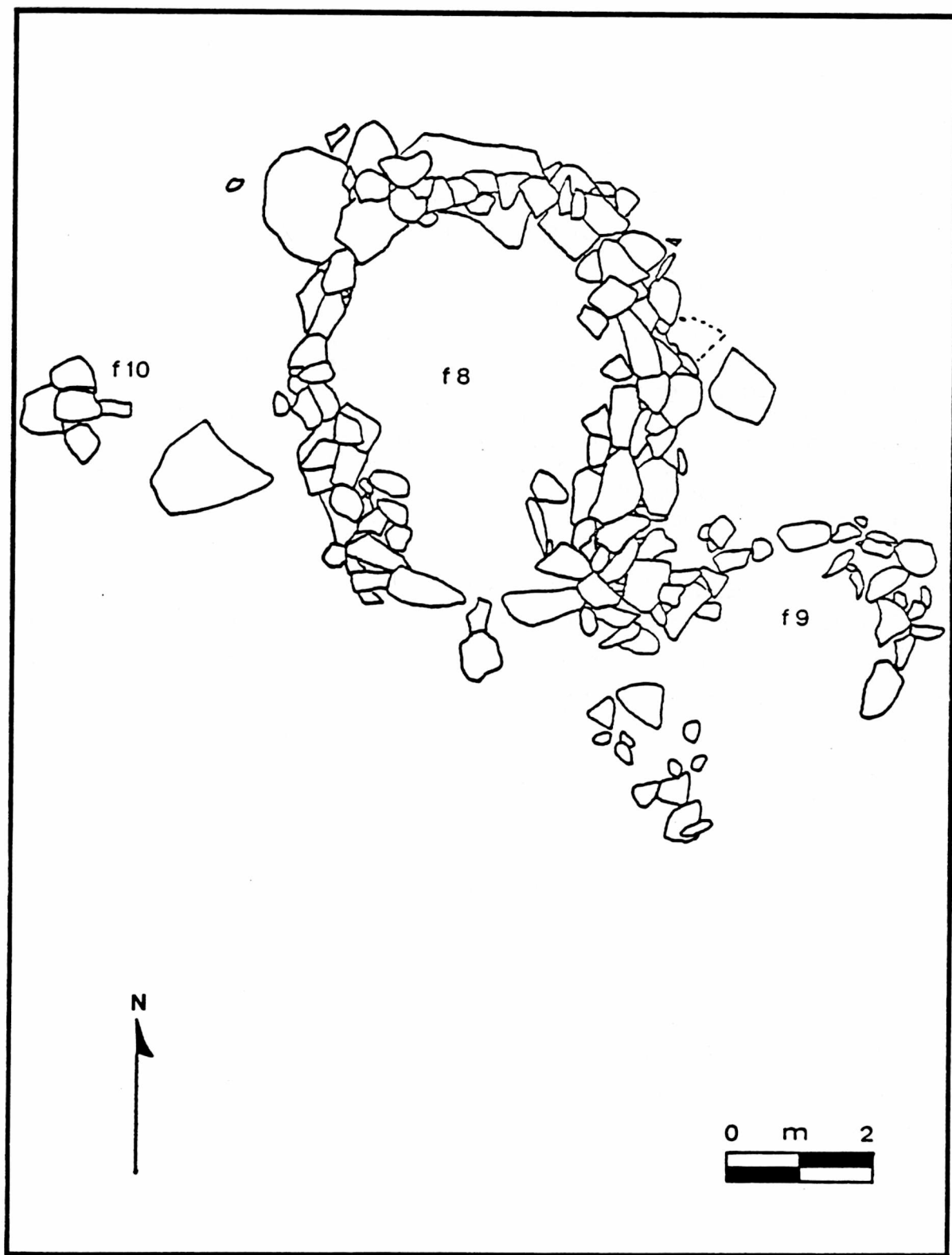


Figure 40. Features 8, 9, and 10 at Cloud Lake Village.

were probably used in place, the trench is undoubtedly at least partly a result of natural forces. A flat, raised platform of rocks and sterile earth was found near the center of the structure. Only one end of this platform protruded into the test trench some 40 cm from the east trench wall. Whether it extended for any length beyond the trench is unknown.

An explanation of the platform is suggested by Irving's discoveries in the foothills of the Brooks Range (Irving 1962). He describes a structure at Kinyiksukvik, very similar to feature 8 at Cloud Lake, which he identifies as a "kadigi" (qargi) or "men's house":

It is circular, about 12 feet in inside diameter, and outlined with large boulders estimated to weigh several hundred pounds. A doorway, without an entrance passage, points nearly south; the walls are lined by gravel benches rising half a foot or so above the gravel floor. In the middle of the floor there was found a large quantity of charcoal, but no other sign of a hearth. No indication of how, or whether, it was roofed was noted. That this is a kadigi or men's house appears likely, for the bench is too narrow for sleeping and would be out of place in a dwelling... (Irving 1962: 79-80).

Irving dates the qargi at Kinyiksukvik to the late prehistoric or early historic period. Bone refuse associated with the structure had been cut with a saw but numerous chert flakes on the floor showed that the occupation was probably not later than the late nineteenth century. Artifacts collected from the Cloud Lake Village site suggest a similar age for the occupation.

The Collections

Ceramics

A total of 150 pottery sherds weighing 684.4 g were recovered in the excavations. An examination of these sherds revealed that a minimum of four vessels appears to be represented, three by rim sherds and one by some rather distinctive body sherds. The overall distribution of the ceramics within the main test trench is shown in table 7; the sherds are illustrated in plate 34.

Vessel 1 consists of a single well-made rim sherd found somewhat isolated from the main trench in the test square 36-37S 2-3W, level I.

Table 7. Spatial distribution and weights of potsherds in test trench, Cloud Lake Village.

Excavation
grid square

30S	32S	34S	36S	38S	40S	42S	44S	level	
								I	
					4-18.9			II	
1-26.5	3-13.5				8-60.4	83-334.4		III	
				3-17.9	12-33.0	11-16.7	2-16.6	5-40.8	IV
					1-8.2	3-7.8	2-1.9	2-6.4	V
					2-4.9	1-3.5	1-4.1	1-8.3	VI
			1-4.3		2-6.3				VII
								1-8.1	VIII

- 1) Levels represent 5-cm increments of depth.
- 2) First number in each block of table represents number of sherds present, second number is the weight of the sherds in grams.
- 3) Chart does not include one rim sherd, weighing 41.9 g, recovered from test square 36-37S 2-3W, level I.

This sherd is unique in the collection by virtue of being carefully constructed and is the only rim sherd which bears decoration. It is tempered with sand and while the maximum particle size may reach 1.5 mm, the majority are less than 1.0 mm in diameter. The sherd is well smoothed both inside and out with few grit particles breaking through the surface. No organic tempering was noted. The vessel is black throughout and appears to be well fired. The lip is beveled both on the interior and exterior, forming a rounded ridge on top. The lip appears to have been formed by rolling the edge over and outward, then beveling it inside and out with a bone or wooden object to form a "keeled" surface on the upward faces. The results can be seen in the rim sherd profile illustrated in figure 41a.

The sherd is decorated by a single line of horizontal indentations occurring about 22 mm below the bottom of the lip. The shoulder of the vessel in this area is approximately 6.5 to 8.0 mm thick with an average of 7.0 mm. The decoration consists of a row of roughly rectangular, poorly formed indentations. The row is 34 mm long, ending on one side where the sherd is broken and on the other in a smoothed-over area on the shoulder. The indentations are 2.5 to 3.0 mm long, about 2.3 mm wide, and spaced at intervals of 1.2 mm. A plasticine impression taken of these indentations revealed that they are extremely irregular in their shape, and are definitely not rectangular check stamps. It is possible that they represent a form of "inverted pyramid" design, seen on Deering Pyramid Paddled as described by Oswalt (1953:13), which Griffin and Wilmeth (1964:281-282) suggest is dentate stamping.

The form of the vessel is impossible to reconstruct from the amount recovered although it is possible to suggest, on the basis of the curvature of the recovered rim sherd, that it probably possessed an orifice of about 27 cm in diameter. This would indicate that one is dealing with a sizable vessel.

Vessel 2 is represented by a single rim sherd excavated in level III of square 39-40S 5-6W. The sherd is grit tempered with particles ranging up to 3.3 mm in diameter but with most appearing to be between 1.5 and 2.0 mm. No organic material is present in the sherd. While the interior of the sherd is well smoothed, the exterior is ragged due to the addition

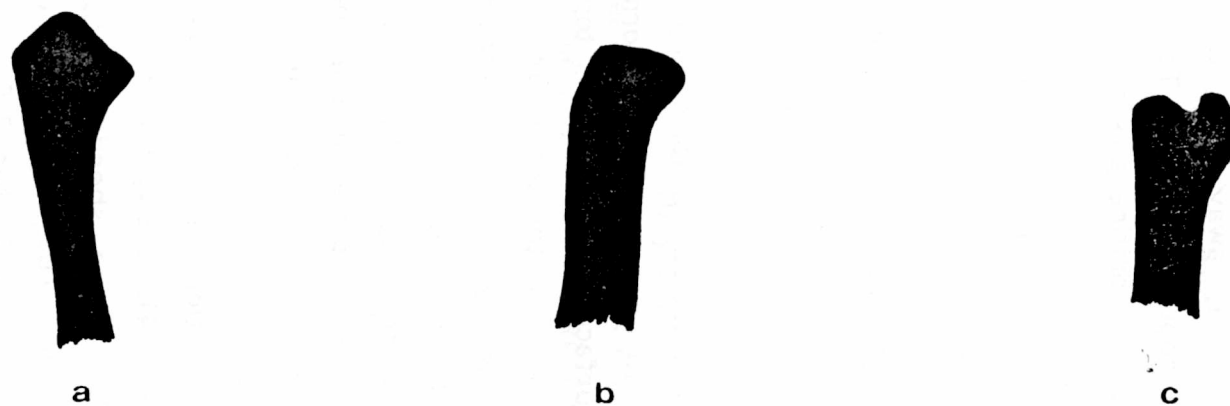


Figure 41. Profiles of rims of ceramic vessels from Cloud Lake Village.

of patches of clay. This sherd exhibits some exfoliation, but in general it is well fired and well constructed.

The rim profile of vessel 2 is shown in figure 41b. The top 15 mm of the vessel has been angled outward and the top of the lip rolled over to the exterior and flattened. There is no decoration present on the sherd. The lower part of the sherd, away from the lip, ranges from 8.0 to 10.5 mm thick, averaging about 10.0 mm. Too little of the rim sherd was found to reconstruct either the orifice size or vessel form.

In square 40-41S 5-6W four rim sherd fragments were recovered from levels III, IV, and VI. These sherds were of a uniform type and together constitute vessel 3. These rim sherds are tempered with both grit and grass. The grit consists for the most part of crushed angular rock up to 4.5 mm in diameter, although most is finer. Both the interior and exterior surfaces of the sherds have been smoothed, to the extent that a moderate amount of the tempering protrudes. Surface colors range from black to buff.

This vessel has a distinctive lip form as can be seen in figure 41c. The lip was rolled over to the exterior to form a rounded bulge, then flattened along its top surface. Finally, this top flat surface was grooved to form a continuous line around the top of the vessel's lip. This groove, which was apparently made by a convex-ended, straight-sided bone or stick, was made while the clay was still moist. It varies from 3.5 to 4.5 mm in width and is 1.5 mm deep. This is the only decoration on these sherds. The thickness of the vessel at the shoulder varies from 8.2 to 10.3 mm and averages 9.0 mm. The recovered sherds are insufficient to determine orifice size or vessel form.

It is appropriate to mention here that there was a large concentration of body sherds in square 39-41S 5-6W, levels III-IV, which are very likely associated with vessel 3. These sherds vary in thickness from 9.5 to 14.4 mm, averaging 12.5 mm. The temper is crushed angular rock, up to 12.5 mm in diameter, but mostly in the 2.0 to 3.0 mm range, mixed with grass and possibly feathers. There is a tendency for these sherds to exfoliate, and the temper often protrudes through the surface. Many of these sherds show undulating interior surfaces, perhaps representing the palm and finger impressions of the potter. These sherds usually are buff on the exterior with gray cores.

The above description not only characterizes the body sherds found in this concentration but applies to all of the body sherds recovered at the site with the exception of those associated with vessel 4. A few of the sherds are decorated with trailed lines. Two sherds showed three horizontal trailed lines on their exterior surfaces. These lines were shallow, 1.5 to 2.0 mm deep, about 5.5 mm wide, and spaced 5.0 to 6.0 mm apart. In one instance the bottom two lines were partially smoothed over. This is more likely due to careless handling before firing than to intentional smoothing. Two other small sherds have single trailed lines. No other decorative motif was seen.

The excavation of the two southernmost squares in the trench yielded a series of seven rather distinctive body sherds which have been labeled vessel 4. These sherds were located in squares 42-43S 5-6W, level IV and 43-44S 5-6W, levels IV-VI. They vary in thickness from 6.0 to 8.3 mm with most about 7.0 mm. The temper consists of coarse sand and small pebbles with a maximum diameter of 3.5 mm, although the majority are 1.0 mm or less. It is possible that a very small amount of grass temper is present. The distinctive feature of these sherds is the surface treatment. The interiors of the sherds have been well smoothed with no temper protruding through the surface. The exterior surface is quite different. In this case temper protrudes over the entire surface giving the sherd a quite gravelly appearance. It appears from examining the sherds that the still-moist clay on the exterior was deliberately wiped away to expose the pebble temper. This impression is reinforced by the presence of striations on the exterior surfaces as if hair or grass had been dragged across it. These sherds are well made and give no indications of exfoliation. They vary from black to buff in color. No rim sherds were associated with this vessel.

While the ceramic assemblage recovered from the Cloud Lake Village site is neither especially large nor diagnostic, it does provide some helpful data to the archeologist. All of the attributes from the Cloud Lake pottery fit quite comfortably with the known recent ceramic assemblages from the Seward Peninsula as outlined by Oswalt (1953:8-11). In two instances the Cloud Lake ceramics are useful in supporting the chronological placement of the occupation of the site. The presence of body sherds bearing a

series of horizontal line impressions is suggestive of more recent decorative motifs such as those associated with the type "Yukon Lined" as described by Oswalt (1955:37). This type is accepted by most to occur after A.D. 1600 and to continue down to historic times. An even more interesting case is provided by vessel 1. This vessel appears to represent a transitional form between Nunivak Check Stamped and Deering Pyramid Paddled, in that it combines the ware characteristics of the former with the decorative motif of the latter. Such a transition has been tentatively suggested previously by Oswalt (1955:35). Chronologically, this would indicate a date somewhere in the A.D. 1700s or 1800s. On the basis of the ceramic evidence alone it would seem possible to suggest a late prehistoric-early historic occupation of the Cloud Lake Village site.

Projectile Points

One complete antler projectile point was found wedged between the rocks of the south wall of feature 8 at the surface level (plate 35b). It is a tanged, unilaterally barbed point with an oval cross section. The base is too poorly preserved to determine the original shape of the shoulder, but it appears to have been rounded. While round-shouldered bases are typical of earlier Eskimo projectile points from the Seward Peninsula, they are also found in limited numbers in later deposits associated with the Nukleet culture (Giddings 1964:29). With only the one example, and that of doubtful form, it is not possible to determine either the "typical" form of the bases at Cloud Lake or the possible cultural affiliations on this basis.

A greatly deteriorated ivory object found outside the north wall of the structure was identified as a projectile point (plate 35d). Little of the detail of its appearance remains. The point has a long, tapering tang at the base and a single hole drilled through the widest part just above the tang. There are no barbs. It is 12.6 cm long and 1.1 cm wide at the widest point, though these measurements are approximate due to the poor state of preservation. The object may have been a foreshaft of some kind but the tang at the base seems to be too fragile to have served this purpose.

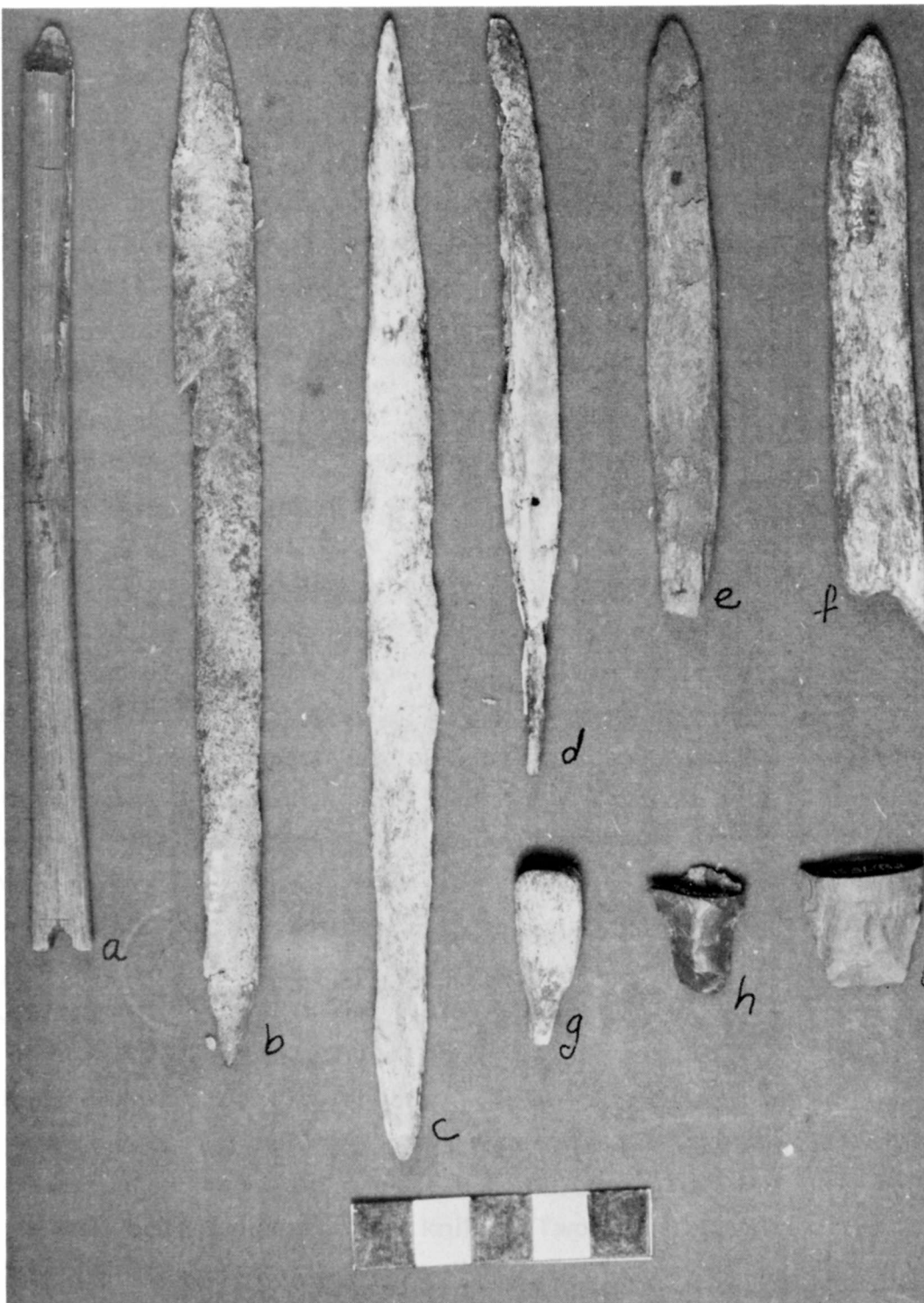


Plate 35. Artifacts from Cloud Lake Village: a, arrow shaft, distal end; b, arrowhead, antler; c, arrowhead blank (?), bone; d, arrowhead, ivory; e, arrowhead blank (?), bone; f, unidentified object, bone; g, blunt arrowhead, antler; h, projectile point base, chert; i, biface fragment, chert.

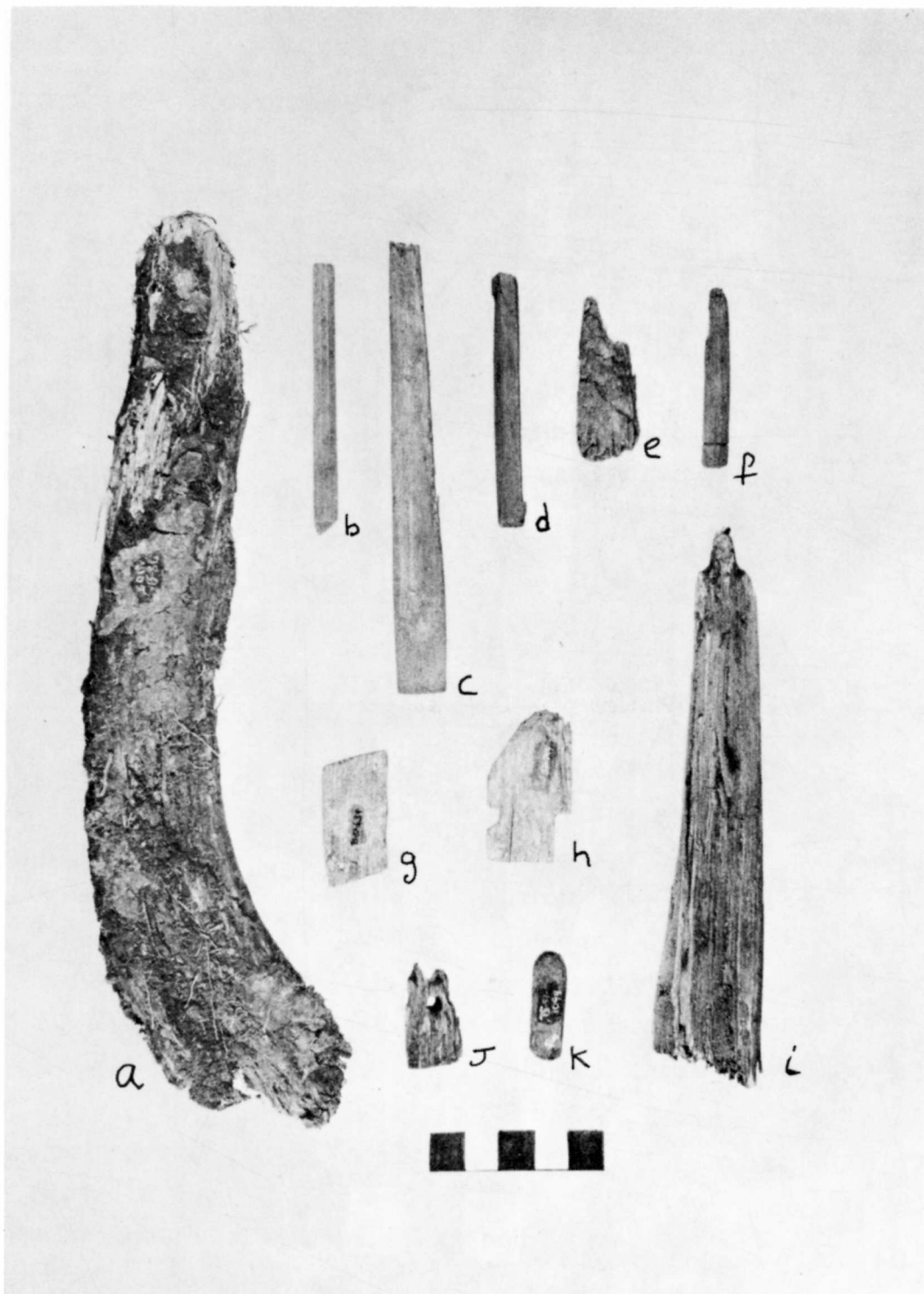


Plate 36. Artifacts from Cloud Lake Village: a, sled or kayak part (?), wood; b, peg, wood; c, unidentified object, wood; d, sinew twister, wood; e, unidentified object, wood; f, wooden tube; g, pendant (?), wood; h, unidentified object, wood; i, bow fragment, wood; j, unidentified object, wood; k, peg, antler.

One blunt arrowhead of antler was found inside the structure (plate 35g). It has been roughly worked into a rectangular shape with a short, tapering tang.

Two barbed bone fragments may be parts of projectile points. One, a medial fragment 0.7 cm wide, has three shallow, evenly spaced barbs along one side. The other, 0.42 cm wide, has one shallow barb and appears to have been cut from a larger piece, as the side opposite the barb is flat and smooth. It may be a by-product of manufacture rather than a deliberately produced piece.

One small charred fragment 2.1 cm long may be the tip of a bone or antler projectile point. It is subtriangular in cross section with a well-smoothed surface, tapering to a point at the end opposite the break.

Two roughly shaped bone objects may be blanks or preforms for arrowheads. One (plate 35c) is 19 cm long and 1.2 cm wide at the widest point. It has been worked to a sharp point at one end. The cross section at the center is oval in shape and gradually becomes triangular toward the point. The second (plate 35e) is a bone object 9.9 cm long and 1.1 cm wide which has been cut to a point at one end and left squared at the other. Both pieces are very roughly worked to shape and have the appearance of being unfinished.

No complete stone projectile points were recovered but seven broken chert fragments were identified as projectile point bases. All resemble closely the base form of late Eskimo points from Kangiguksuk illustrated by Hall (1971:82-83, plate 2, nos. 1-10). Only one preserves part of the body of the point (plate 35h). The rest are broken below the body so that their identification is tenuous. They range from 0.9 to 1.1 cm in width and 1.0 to 1.3 cm in length. One biface fragment (plate 35i) may be the base of a lanceolate projectile point (type 3 in Hall 1971:30), but could as well be a fragment of a knife. Two tip fragments of what were probably projectile points and a small curved section of a biface that may be from the shoulder of a point were also recovered. All are of chert.

Arrow Shafts

The nock end of a wooden arrow shaft (plate 35a) was found between the rocks of the north wall of feature 8. The shaft is 15.3 cm long and 0.8 cm in diameter and has a band of red pigment around the circumference 5.9 cm from the base. At the point of breakage there are two parallel grooves cut horizontally into opposite sides of the shaft. Another small, carefully worked fragment mimics in miniature detail the notched end of the shaft and may be a toy. Several pieces of worked wood may be fragments of arrow shafts. All range between 0.8 and 1.1 cm in diameter and between 7.0 and 10.6 cm in length. All have been carefully smoothed. One piece of wood 5.8 cm long and 0.7 cm in diameter has been tapered to a point and split for a length of 0.2 cm at the pointed end. At the base of the split, a groove has been cut horizontally into one side. This piece may be the tip of an arrow shaft. In addition, many of the wooden pegs recovered may be smaller sections of arrow shafts, the principal difference between the pegs and shafts being in the length of the fragments.

Bow

The end of the wooden bow (plate 36i) recovered outside the south wall of the structure measures 15.9 cm in length. Other dimensions could not be determined as the wood had been waterlogged in the ground and split when dried. The surface of the bow is not well enough preserved to tell if the bow had been sinew backed, but the presence of a sinew twister indicates that this type of bow was used.

Sinew Twister

This wooden sinew twister (plate 36d) measures 7.2 cm long and 1.1 cm wide. The lip at each end is rather shallow and the ends roughly cut. Otherwise the piece is well made and smoothed over the entire surface.

Flaker Points

Two objects were tentatively identified as flaker points. One rectangular bar of antler (plate 37r) is 7.2 cm long, 1.1 cm wide and 0.5 cm thick. It has been carefully worked and smoothed. There is a shallow lip at one end, perhaps to aid in hafting. A second, made of bone (plate 37p), is 6.8 cm long and 1.0 cm wide. It is tapered to a flat, square-cornered shape at one end. The identification is uncertain, though the objects resemble the description of flaker points from Kangiguksuk (Hall 1971:40).

Stone Drills

Two bifacially retouched chert flakes, 1.8 cm and 2.0 cm long respectively, are in the shape of small, crude, stemmed points. On one, the fracture hinge is still present on one face. Both have been bifacially retouched on one edge of the stem and shoulder and unifacially retouched the length of the opposite edge.

Stone Saw

A flat fragment of fine-grained sandstone has been shaped to a point at one end with one edge rounded and the other somewhat sharper. The material does not seem hard enough to have served as a knife though the shape is suggestive of that function. It may have been a saw. Giddings illustrates similar implements from the Norton levels at the Iyatayet site (1964:plate 61, nos. 1-2) and suggests their use in later cultures for cutting jade (1964:174). The jade industry at Cloud Lake Village is evidenced by a fragment of a carved jade pendant. It is possible that this item was traded into the site, of course, especially in view of the lack of jade fragments that would indicate local manufacture.

Chopping Tool

This large stone (plate 38h), which shows little evidence of modification, has roughly the shape of an adz or ax head. It is possibly an incomplete tool of this type or, alternatively, it may have been meant to be hand held. It seems rather too heavy to have been effectively hafted for use. The edge of the blade is asymmetrical and blunt and shows evidence of battering. The stone may have been used to break open the bones of caribou during butchering.

Whetstones

One flat, oval stream cobble of fine-grained sandstone undoubtedly served as a whetstone (plate 39g). Three depressions have been ground into the surface of one face and both of the long sides. The ends have been rubbed from two sides, leaving a ridge between the rubbed areas. Three other sandstone stream cobbles of similar size and shape were found (plate 39f, h, i). Two have some evidence of wear on the long edges; the third has been broken in half and shows no evidence of wear. The latter may also have served as a whetstone but the identification is due primarily to its resemblance to the other three.

A flat, square piece of fine-grained red stone 3.3 cm by 2.8 cm has been polished on all edges and on one face (plate 40g). It was undoubtedly a polishing stone or whetstone. Two of the edges show chipping as well as polishing. Three corners have been cut or ground to right angles; the fourth is rounded and is the area of greatest wear, having four polished facets at the corner.

Engraving Tool

This flat, rectangular bronze(?) cutting tool was set into a handle with an adhesive substance, some of which still adheres to the end of the tool (plate 37q). It measures 3.2 cm in length though this includes part

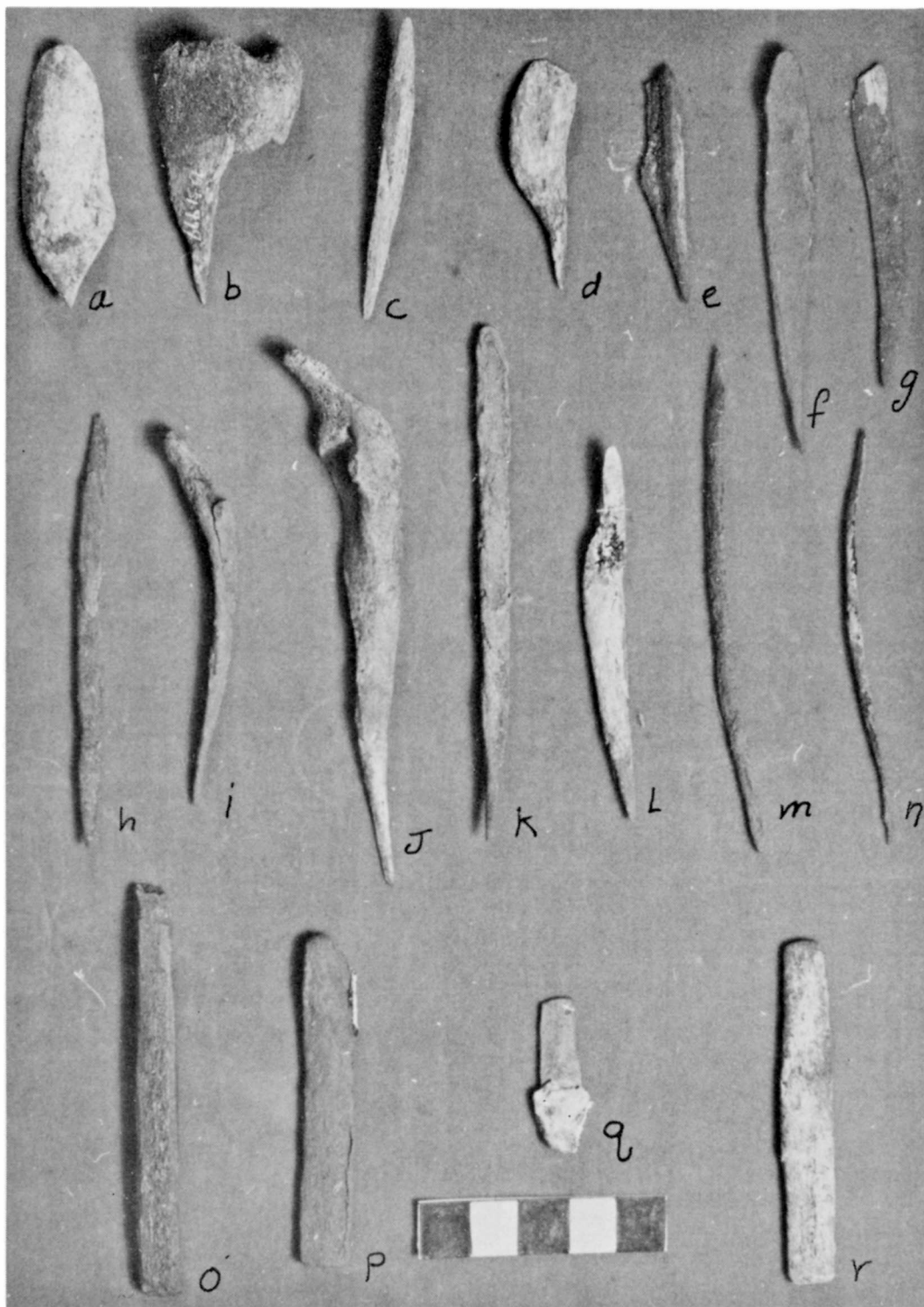


Plate 37. Artifacts from Cloud Lake Village: a-n, awls, bone; o, unidentified object, bone; p, flaker point, bone; q, engraving tool, bronze (?); r, flaker point, antler.

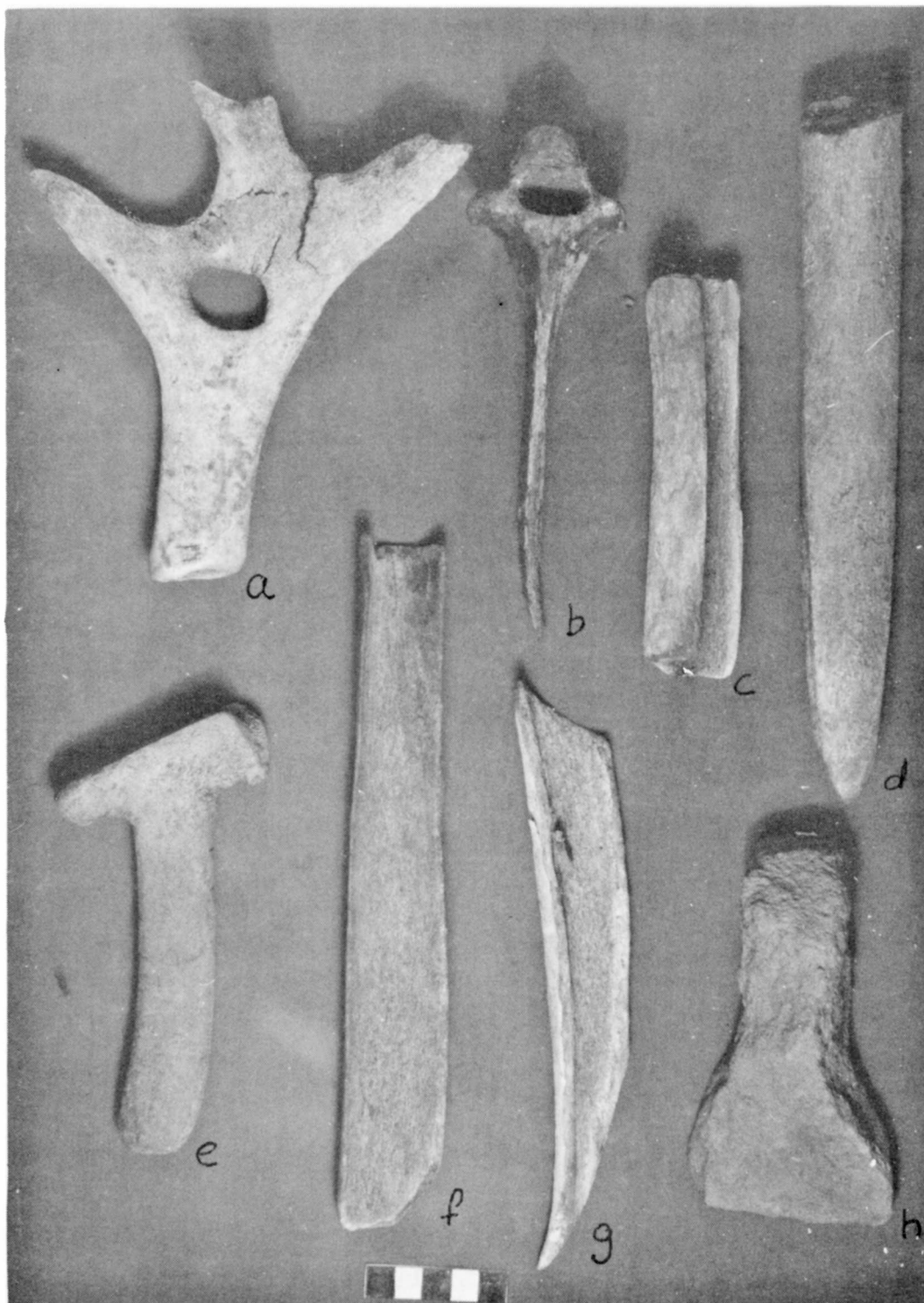


Plate 38. Artifacts from Cloud Lake Village: a, unidentified object, antler; b, pick, bone; c, unidentified object, antler; d, pick, bone; e, adz handle, antler; f, hide scraper, antler; g, pick (?), bone; h, chopping tool.

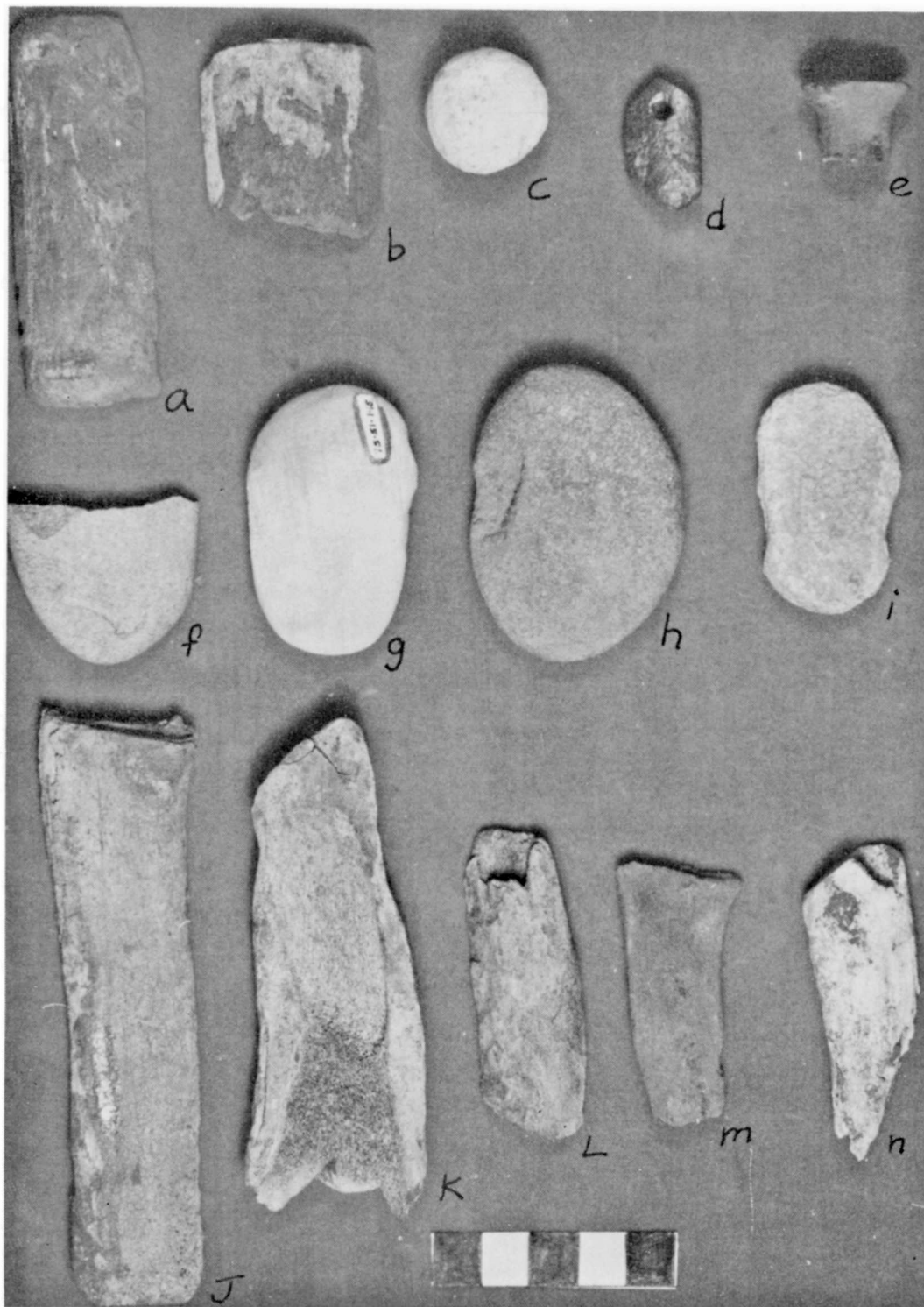


Plate 39. Artifacts from Cloud Lake Village: a, b, reinforcement pieces, bone; c, "juggling stone"; d, pendant, graphite; e, labret, ivory; f-i, whetstones; j, unidentified object, antler; k, unidentified object, bone; l-m, end-slotted handles, antler.

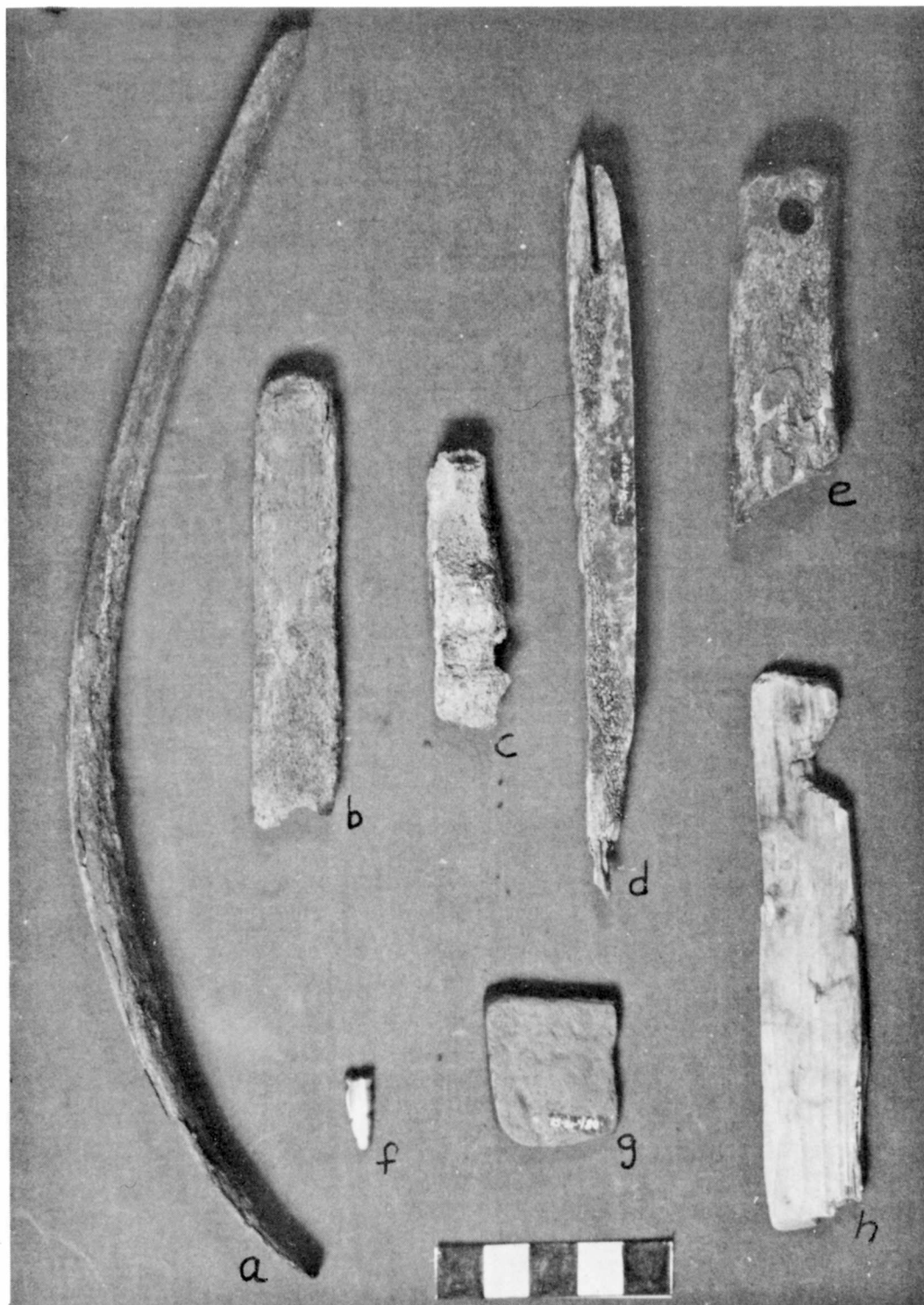


Plate 40. Artifacts from Cloud Lake Village: a, snow beater, antler; b, unidentified object, bone; c, handle, antler; d, composite handle, bone; e, handle, bone; f, pendant, jade; g, whetstone; h, handle, wood.

of the adhesive. The blade projects 1.8 cm above the adhesive and is 0.8 cm wide and 0.1 cm thick. The edges are flat and squared and the corners approximate right angles. The tool probably functioned as a burin for cutting and gouging bone and wood.

Handles

A piece of wood 11.9 cm long and 2.2 cm wide with a narrow triangular cross section has been deeply notched at one end (plate 40h). The piece has been broken off at the end opposite the notch and, while the original shaping was carefully done, the notch has been crudely made. It may have served as the handle portion of a larger tool.

A well-made rectangular bone handle 7.9 cm long and 2.4 cm wide has a hole drilled from both sides close to one end. The opposite end has been cut at an angle (plate 40e).

One side of a composite handle of bone (plate 40d), 15.6 cm long and 1.2 cm wide, has a slot 2.4 cm deep and, at the opposite end, an oval perforation. There is a groove running from the top of the perforation some 1.2 cm into the body of the handle on both sides. The hafting end has a lip, below which it has been roughened with parallel horizontal cuts.

A section of antler beam may have been made into an ulu handle. The section, 10.6 cm long, has a narrow slot 0.4 cm deep running the entire length. The ends have been roughly cut and the piece is not well finished. It may rather represent a step in the removal of smaller pieces from the beam since many of the larger antler fragments have similar grooving along parts of their surfaces (see below).

A poorly preserved fragment of an antler handle (plate 40c) is 5.6 cm long and 1.4 cm wide. It has two, possibly three, finger holds carved into one side and one into the opposite side.

Three antler end-slotted handles (plate 39l, m, n) are rather crudely made. One has been broken off at the end opposite the slot. The hafting slots are cut 2.0 cm into the handle on two of the pieces and 0.5 cm into the handle of the other.

A fragment of an ivory composite handle consists of only half of the hafting end of one side. The face opposite the slot is lipped, with a notch cut below the lip to hold the lashing.

Adz Handle

A well-made antler adz handle (plate 38e) has the entire surface of the handle portion roughened with a series of shallow horizontal cuts with two deeper cuts on the top near the crosspiece. The base of the handle has been hollowed to a depth of 1.5 cm. The crosspiece has a concave face and roughened back and the ends have been lipped to hold the lashing.

Awls

Fourteen bone awls (plate 37a-n) were recovered, ranging in length from 4.7 to 10.8 cm. Of the fourteen, only three (plate 37f, g, j) were modified significantly beyond sharpening one end to a roughly conical point. Of the other eleven, eight are made from fragments of long bone, one is a sharpened proximal end of a caribou ulna, and one is made from the distal end of a caribou metatarsal. The other is a bone from the dew claw of a caribou which may have been used as an awl. The tip has been modified by carving a ring around the circumference approximately 0.5 cm from the end. The piece is badly weathered, however, and it cannot be determined if the tip has been utilized.

A concave bone object 10.4 cm long and 1.5 cm wide has been tapered to a point at one end and the opposite end has been shaped to a smooth, sharp, unilateral point (plate 35f). The edges have been smoothed and one edge has a shallow notch cut or worn into the center. It may have functioned as an awl, possibly reworked from another tool.

Hide Scraper

An antler tool may have been used as a two-hand scraper (plate 38f). A section of the beam 24.4 cm long was cut in half and hollowed to a concave shape and the long edges, one quite sharp, the other more rounded, were rubbed smooth. Two-hand scrapers were commonly made from caribou metatarsals which had been broken open along one side leaving a sharp edge for scraping (Giddings 1964:62). It seems that to have produced a functionally identical tool from an antler beam would have required considerable trouble, especially since there was no lack of suitable metatarsals (see below).

Picks

A pick made of sea mammal bone 24.2 cm long and 3.8 cm wide (plate 38d) has one convex and one flat surface. The two narrow sides are double faceted with a central ridge and are well polished. The tool tapers to a blunt point which shows evidence of battering.

Another (plate 38g) seems to have been reworked from a bone scraper. The body of the tool is a deeply hollowed long-bone fragment with one long side smoothed to a thin edge.

A thoracic vertebra from a caribou has the lateral processes cut away and the spinal process sharpened to a point (plate 38b). It very likely also served as a pick.

Reinforcing Pieces

Two concave rectangular bone objects are probably reinforcing pieces. The one complete specimen (plate 39a) has a shallow raised ridge at each end as though for lashing. The other has been broken and consists of only one end. It has no ridge or other characteristics which would identify it as a reinforcing piece and was included here because of its general similarity in size and shape to the first piece.

Sled or Kayak Parts

A large curved piece of wood cut to a flattened oval cross section was found in very deteriorated condition (plate 36a). In general size and shape it resembles the objects which Hall (1971:88-89, plate 6, no. 6) refers to as "kayak ribs or sled platform pieces." A fragment of perforated wood with a triangular cross section (plate 36j) may also have been part of a sled or kayak.

It is conceivable that a kayak would have been portaged the short distance overland for hunting the caribou in the lake (see above). Alternatively, since there is evidence in the faunal remains that the site was occupied during the winter as well as the summer months, the presence of sleds would be expected. There were no remains of dogs or evidence of dog traction recovered. The presence of dogs is indicated by the high percentage of gnawed bones and certain patterns of erosion on the caribou phalanges (see below) and dog traction was certainly known to the occupants of the site. Hobson was able to purchase sleds from the peoples of the interior Seward Peninsula during his overland journey from Tuksuk Channel to Kotzebue Sound in 1854 (Ray 1975:153) and Cook reported finding a sled on Sledge Island off the coast of the peninsula near Nome in 1778 (Ray 1975:40).

Snow Beater

A snow beater made of antler 28.8 cm long and 1.9 cm wide (plate 40a) has two parallel grooves 9.3 cm long running from the pointed end along one face. The object is planoconvex in cross section and has a "neck" carved at the end opposite the point, presumably to attach a cord.

Pegs

Several small pegs of bone, antler, and wood were recovered (plate 36b, k). The wooden pegs range in length from 3 cm to 6 cm and average

0.8 cm in diameter. Some may have been sections of broken arrow shafts. Others probably served such functions as hide pegs and parts of traps. Two of the antler pegs were rectangular in cross section (plate 37o), the rest round to oval.

Wooden Tube

A carefully made tube of wood (plate 36f), 5.2 cm long and 0.7 cm in diameter, has a narrow groove around the circumference 0.2 cm from one end. The opposite end has been cut away leaving a shoulder 0.3 cm from the edge to form a blunt, tang-like tip. One side of the object only was recovered. It was apparently made in two separate halves that were then fastened together to form a hollow tube, probably a needle case.

Wooden Wedges

Four carefully made wooden objects with an oval cross section have been cut to a wedge shape at one end. They vary in length from 6.8 cm to 1.0 cm and average 1.7 cm in width.

Beads

Three blue glass beads were recovered at the site. The largest one, 0.55 cm in diameter, was found inside the house while two smaller ones, 0.34 and 0.29 cm in diameter respectively, were found in the midden deposit to the south of the feature. One of the small beads has been broken in half. Such beads have been frequently mentioned in early accounts of the Bering Strait Eskimo as a favorite item of trade (Ray 1975).

Labret

A single ivory labret (plate 39e) with an oval, slightly concave flange 2.2 cm long and a circular shaft 1.4 cm in diameter, resembles the plug type commonly worn by the Bering Strait Eskimo (Nelson 1899) and illustrated from sixteenth-century collections on the Kobuk (Giddings 1952: plate 41) and Noatak rivers (Hall 1971:90-91, plate 7).

Pendants

One incomplete jade pendant (plate 40f) was recovered. The perforation, only half of which remains, was drilled from both sides. Two opposite faces of the pendant are slightly concave with shallow raised ridges along the edges. The other two opposite edges are decorated with three pairs of parallel notches. The fragment measures 1.6 cm in length and 0.6 cm in width at the perforated end. It is well polished over the entire surface but shows minute lengthwise striations.

A hexagonal piece of graphite (plate 39d) has been polished on all six edges by rubbing. It measures 2.8 cm long, 1.5 cm wide, and 0.9 cm thick. The perforation appears to have been cut from two sides rather than drilled, since the edges of the hole are very irregular. The material may have been used as a pigment as well as, or instead of, a pendant (see below).

A perforated wooden square with a biconvex cross section (plate 36g) is 3.5 cm long by 1.9 cm wide. It has been smoothed over the entire surface and the edges are well finished.

Juggling Stone

A round limestone(?) pebble (plate 39c) 2.5 cm in diameter is similar in size and shape to objects identified by Hall (1971:44) as juggling stones.

Utilized Flakes

Few of the flakes in the deposit showed evidence of modification or use. A thin, roughly oval fragment of polished green stone (jade?) measuring 2.5 cm by 1.7 cm appears to have been broken from a larger piece and subsequently used. One face shows minute striations over the entire surface and the opposite face is rough as though it has been broken off. The tops of the raised areas on this rough side, however, are also polished. One long side is ground and polished to a straight rounded edge, the other long edge, though irregular in outline, is also polished smooth in places. Giddings (1952:66) describes several jade blades made from chips which are sharpened along one edge and "seem to be complete implements rather than fragments." These implements are associated with the Ambler Island materials (A.D. 1730-1760) on the Kobuk River.

A fragment of slate of similar size and shape was also recovered. It has been ground and polished on one face and one long edge and may have been part of a knife blade. The piece is too small to determine the original shape of the tool. Small striations are also apparent on the polished surface of this piece.

Of the large number of flakes recovered from the deposit only 12 showed definite evidence of modification. Six were chert blades with steep unifacial retouch on the distal end. They averaged 1.9 cm in length, with a range of 1.5 cm to 2.3 cm, and 1.4 cm in width, with a range of 1.2 cm to 1.6 cm. Three blades and one flake had unifacial retouch on one or both lateral edges and averaged 1.3 cm in width with a range of 1.15 cm to 1.45 cm. One small gray chert flake had been unifacially retouched on three sides. It measured 1.5 cm by 0.9 cm. Another of similar size had been unifacially retouched on all four sides.

Pigments

Two pieces of red ocher, the largest of which is smoothed on two sides from rubbing, were found in the midden deposit. Two small fragments of wood with red pigment on three sides and the arrow shaft frag-

ment with the band of red pigment, described above, attest to the use of this material for decoration.

The graphite piece described above probably served as a pigment as did a small piece of white chalky material which had been rubbed smooth on one face. All three materials have been described from the later Nukleet deposits at Cape Denbigh (Giddings 1964:76). Graphite, used as a pigment and traded as a luxury item, was common in the Ekseavik collections from the Kobuk River though it disappeared from later deposits in the same area (Giddings 1952:79).

Worked Wood

Several unidentified objects of wood were recovered as well as many pieces which had obviously been worked but either left unfinished or discarded as the by-products of the manufacture of another tool. Some which had grooves along one side may have been fragments of handles. Two pieces appear to have been deliberately produced, as their shapes and sizes are virtually identical (plate 36h). A flat, smooth stick 12.8 cm long and 1.4 cm wide (plate 36c) may have been the handle portion of a larger tool or could as well have been part of some more complex device.

Worked Bone

A curved section of bone appears to be part of a ring-shaped object. Two opposite sides have been carefully finished to a smooth, sharp edge. The other two "edges" have been snapped off but look as though they would have continued around to close a ring.

An unidentified object made of a section of long bone (plate 39k) has been cut diagonally at one end and cut and then snapped off at the other. The inner bone has been hollowed out near the center and there is a groove across the outer surface near the diagonal end, producing a neck at that end. It has the appearance of an unfinished handle.

A rectangular bone object (plate 40b) has been notched at one end and the surface well finished. Two pieces of bone cut to the shape of a flattened, multifaceted cone may have been discards from manufacture.

Worked Antler

A tool of unknown function (plate 38a) is made from the palmate section of a caribou antler. The section was cut at the beam, the tines above the palm were blunted and an oval hole 2.8 cm by 1.9 cm was cut through the center. The edges of the hole have been smoothed either deliberately or through use. The tool measures 18.9 cm in total length.

Several sections of antler beam have been modified. One has been hollowed to a shallow depth at one end. Another, 13.9 cm long, has a groove 0.8 cm deep and 1.7 cm wide cut the length of one side (plate 38c). One end of this piece shows evidence of battering.

Two large sections of antler beam have been deeply grooved. One, 22.6 cm long, has been cut through entirely from both sides, producing a slot-like perforation for about two-thirds of the length. The other, 22.0 cm long, has been similarly grooved and one side of the two prongs produced by the slotting has been cut away. This was probably the method of removing regularly shaped fragments of antler from which smaller tools were made.

Several antler tips have been cut off and blunted, perhaps by use. Giddings notes similar use of antler tines from the Kobuk sites (Giddings 1952:79).

Other Cultural Material

A small, flat, very corroded piece of iron 1.8 cm by 0.5 cm was found inside the structure. It is too rusted to determine its original shape or function. Iron was used for many purposes, not all of which were utilitarian. Ray (1975:51) has reported that small pieces of iron were hung on leather strings and used as ear pendants by the Bering Strait Eskimo.

Four small pieces of rolled birch bark were found. They averaged 0.98 cm in width, ranging between 0.52 cm and 1.1 cm.

A very deteriorated piece of unworked ivory was recovered. The piece measured 10.5 cm in length and was approximately rectangular. Other measurements could not be made due to the poor state of preservation.

Several small concentrations of quartz grains may be scatters of the grit used in tempering pottery (see above). The grains compare well in size to the grains of the tempering material.

Three small, irregular limestone pebbles and four flat unmodified pieces of coarse-grained sandstone were also recovered. The material must have been carried into the site, but for what purpose is not clear. The limestone may have been used as a pigment. The sandstone pieces may have served as abraders but they show no marks of having been used.

Fauna

There were 6643 bone fragments recovered from the trench and test pit at Cloud Lake Village, 2740 of which were identifiable (table 8). Of this number, 2727 were caribou (Rangifer tarandus), representing the remains of at least 52 individuals and accounting for over 99 percent of the

Table 8. Identification of faunal remains from Cloud Lake Village.

Species	Elements	% Elements	# Ind.	% Ind.
<u>Rangifer tarandus</u>	2727	99.50	52	92.9
<u>Erignathus barbata</u>	4	.15	1	1.7
<u>Citellus</u> sp.	4	.15	2	3.8
Anatidae	5	.20	1	1.7

identifiable fauna. Four bones of a bearded seal (Erignathus barbata), representing one individual, and four of a ground squirrel (Citellus sp.), representing two individuals, made up the remainder of the mammalian fauna. There were five bones from the wings of a medium-sized bird, probably a duck (fam. Anatidae). No closer identification was possible because of the poor state of preservation of the smaller bones. Of the remaining unidentifiable bone fragments, 95 percent were probably caribou.

The one bearded seal is represented only by bones of the forelimb. Among recent northwest Alaskan Eskimo groups, the bearded seal is valued as much for its hide as for the meat, which is often used as dog food (Nelson 1969:300-301). The hide is used by both coastal and inland groups for boot soles and for making rawhide thongs. Gubser reports that a green bearded seal hide which a Nunamiut family obtained by trade from the coast still had the front flippers attached (Gubser 1965:82). It is possible that the bones were brought to Cloud Lake in this manner. They may also be remains of food supplies brought from the coast, as seal meat is often left on the forelimb even when the rest of the meat is removed from the carcass (Nelson 1969:301).

The ground squirrel is a burrowing animal and may have been naturally present in the deposit. They tend to colonize areas which are well drained and the site was situated in an area of relatively dry ground. Since no evidence of burrowing was noticed during the excavation and since squirrels were an important resource in historic times for their skins, however, they were more probably brought to the village by the inhabitants. The meat is also occasionally eaten by Eskimos today.

Ducks and geese arrive on the Seward Peninsula in the spring and remain on many of the lakes and ponds throughout the summer. They were hunted by the Bering Strait Eskimo at inland lakes during the summer, the men in kayaks chasing the birds ashore where they were killed by women and boys (Ray 1975:116-117). During the field season ducks were frequently seen on the lake and nested on the small ponds around the area.

Food Resources Used

The absence of fish remains from the site is notable in view of the degree of dependence on this resource reported for inland and north coast groups of the Seward Peninsula Eskimo (Lucier 1954; Ray 1975). Also notable is the total absence of hares which were reportedly abundant in the interior of Seward Peninsula in early historic times. An almost total dependence on caribou is obvious from a calculation of the percentage of the available calories supplied by this animal (table 9).

All of the animals found in the site were considered edible by historically known Eskimo groups. Therefore in determining the amount of dependence on the various resources in the assemblage, all of the species were included even though they may not actually have been brought to the site as food.

The minimum number of caribou was determined by adding the 33 deer represented by mandibles to the 19 loose RM_3 s which could not have come from the mandibles, giving a total of 52 individual deer. The mandibles were divided into age categories of juvenile (less than 6 months), young adult (6 months to 18 months), and mature adults (older than 18 months) on the basis of tooth eruption and wear. Since the M_3 erupts between the ages of 22 and 25 months in populations of Alaskan caribou (Miller 1974: 16), all loose RM_3 s were considered to represent fully mature animals.

The live weights and percentages of usable meat for the bearded seal, ground squirrel and duck were taken from White (1953). The larger ground squirrel weight was used because the bones from Cloud Lake were closer in size to the larger species in the comparative collection. The weight of the duck is an approximate average of the figures given for the several ducks in White's list.

The weights for the three age classes of caribou are those used by Hall in his analysis of the caribou from Kangiguksuk (Hall 1971). His figure for the mature deer agrees closely with White. Like Hall, I have followed Foote's suggestion of using 65 percent usable weight for caribou rather than the 50 percent given by White (Foote 1965).

It is obvious from both the individual count (table 8) and the percentage of calories available from each species (table 9) that caribou

Table 9. Percent of calories per species.

<u>Species</u>	<u>Lbs Live Wt.</u>	<u># Indiv.</u>	<u>Lbs Total Wt.</u>	<u>Lbs Usable Wt.</u>	<u>Available Calories</u>	<u>% Calories</u>
<u>R. tarandus</u>						
Juvenile	75	4	300	195	194,220	2.4
Young Adult	160	6	960	624	621,504	7.9
Mature Adult	<u>240</u>	<u>42</u>	<u>10,080</u>	<u>6,552</u>	<u>6,525,792</u>	<u>83.6</u>
Total	---	52	11,340	7,371	7,341,516	92.9
<u>E. barbata</u>	800	1	800	560	557,760	7.1
<u>Citellus</u> sp.	1.5	2	3	2	2,092	.03
Anatidae	<u>2</u>	<u>1</u>	<u>2</u>	<u>1.4</u>	<u>1,394</u>	<u>.02</u>
TOTAL	---	56	12,145	7,934.4	7,902,762	100.05

was virtually the only resource exploited and for all practical purposes was the sole source of food for the villagers while they were at the lake.

Season of Occupation

The presence of ducks and ground squirrels in the faunal assemblage indicates occupation sometime between spring and fall. The caribou remains also suggest that the occupants were at the site during the summer. The ages of the four calf mandibles were determined by tooth eruption, which showed that all had died within the first five months of life. Calving season for caribou in northern Alaska today is in late May to early June (Skoog 1968) and there is no reason to expect that the Seward Peninsula herd would have been radically different. The calves must therefore have died between June and October.

Evidence from the antlers recovered also suggests summer occupation. The six frontals all retained the stumps of antlers which had been cut from the skull rather than shed. Also, much of the antler debris appeared to be quite porous and brittle, a condition characteristic of antlers in velvet. Neither point is conclusive, however. Female caribou carry their antlers through the winter months and since the antlers could not be assigned to a sex, they could represent winter kills. The brittle condition of the antler debris could be the result of chemical erosion which can reduce even dense, mature antler to a condition resembling immature antler.

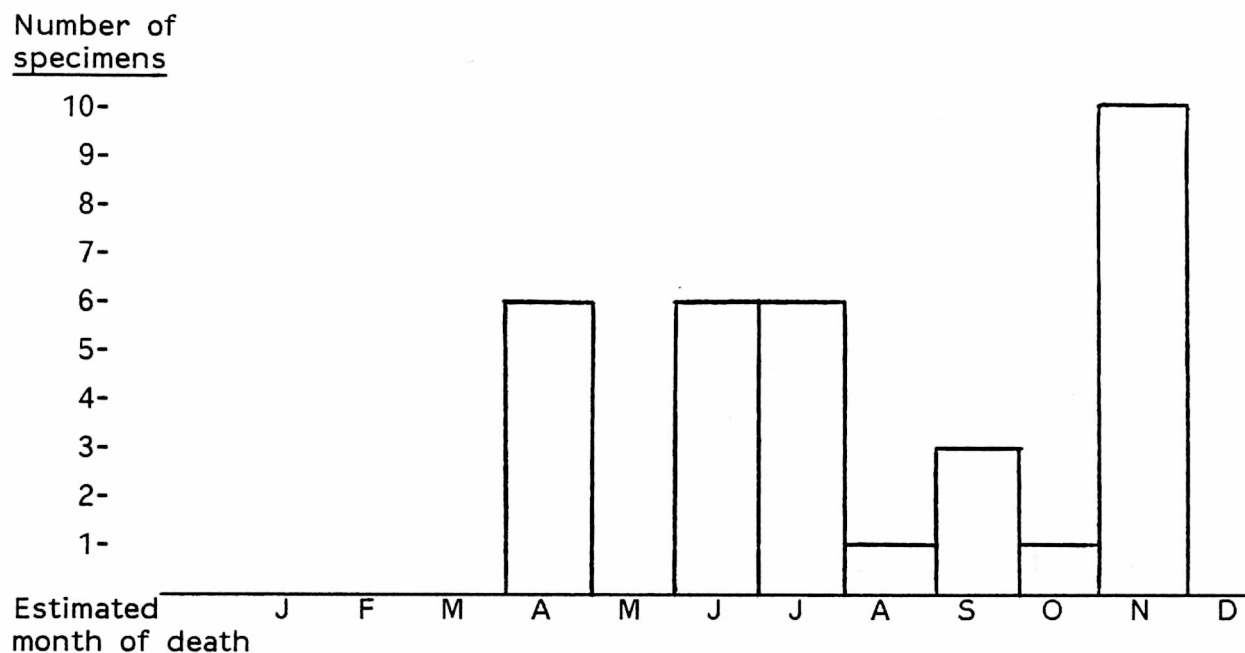
Some indication of occupation during the winter was noted in the mandibles from the site. Thirty-three of the most complete mandibles were assigned to age classes of 0-6 months, 6-12 months, 12-18 months, etc. The mandibles were aged by comparison to a series of mandibles of known age, and assignments were based on patterns of tooth eruption and wear. Tooth wear is a notoriously unreliable method of aging deer (Miller 1974: 83) and was rendered still more tenuous by the limitations of the comparative material: no mandibles from deer killed between the months of December through March were included. It was hoped that the use of six-month categories would help to overcome this problem.

On this basis there were 16 winter and 17 summer kills, an almost even distribution. The results of the assignments are shown in figure 42. Each individual mandible was assigned to the month it most closely resembled. Though a margin of error must be allowed, it would be unlikely that all of the winter mandibles and few or none of the summer mandibles have been consistently over- or underestimated. The clustering of the mandibles in the months of November and April is due to the inclusion in those months of mandibles judged as falling somewhere in the December-to-March period. There is good evidence for occupation in the summer, therefore, and some indication of occupation during the winter as well.

The seasonal movement pattern of the Seward Peninsula herd is not known since the herd has been extinct since the late nineteenth century and no studies of the biology and life patterns of the deer were made. Early historic accounts indicate that caribou were numerous along the coasts in the summer and were hunted in the interior in winter (Ray 1975). They were apparently present in the interior all year, however, since Ray reports that some Eskimo groups also hunted caribou at lakes in the summer, presumably in the interior (Ray 1975:117).

It is difficult to conceive of the village at Cloud Lake being occupied on a year-round basis. In the first place, this was not a typical pattern among the Eskimo of the northern Seward Peninsula. Also, though VanStone has suggested permanent settlements on the lower Kobuk River and in the Kotzebue Sound/Hotham Inlet area, these sites are located on the coast near the mouth of a major river and would provide a variety of resources all year in the immediate vicinity of the site (VanStone 1955:130). Cloud Lake, removed from the rich coastal and riverine resources, provided only caribou, small mammals and birds. Occupation of the village was undoubtedly seasonal and/or sporadic.

Accounts of the seasonal settlement and subsistence pattern of the Eskimo of the northern Seward Peninsula suggest that Cloud Lake would have been occupied mainly in the winter months by a number of families and perhaps visited sporadically by smaller groups of families or hunting parties during the summer. It may have served as a base camp during the summer from which hunting parties or families ranged over the surrounding territory for shorter periods of time.



<u>Ages Assigned</u>	<u>Number of Specimens</u>	<u>Ages Assigned</u>	<u>Number of Specimens</u>
1 month	2	60 months	1
3 months	1	63 months	1
5 months	1	65 months	3
12 months	2	77 months	4
15 months	1	84 months	1
16 months	1	97 months	1
17 months	1	109 months	1
22 months	1	120 months	1
27 months	1	125 months	1
34 months	1	137 months	1
36 months	1	166 months	1
46 months	1	178 months	1
58 months	1	181 months	1

Figure 42. Age distribution of caribou mandibles, Cloud Lake Village.

Butchering

Little can be said about the butchering patterns for small mammals and birds since the remains were so few and incomplete. In general, such game is skinned and eviscerated and the meat cooked on the bones without dismembering the carcass. The bearded seal remains have been discussed above.

Caribou bones were, however, recovered in sufficient numbers to provide some information on the processing of this most important resource. A census of 28 skeletal elements of caribou compared with the number of each element expected from a minimum of 52 deer is presented in table 10. The percentage of recovery per element ranged from a high of 41 percent to a low of 0.01 percent.

In his analysis of the caribou remains from Kangiguksuk, Hall has interpreted a similar distribution of recovered elements as being primarily due to differential retrieval and destruction during butchering (Hall 1971). This is in conformity with White's studies of aboriginal butchering in South Dakota (White 1952, 1954).

There are many other factors which may affect the frequency of recovery. The bones may have been discarded nonrandomly within the site or some of the smaller elements may have been overlooked during excavation. These and the more porous bones may have suffered more from chemical erosion or may have been devoured or mutilated beyond recognition by dogs and other scavengers. Many bones may have been destroyed to extract marrow or may have been preferentially modified into tools.

The deposit at Cloud Lake was not screened during excavation and it is possible that some of the smaller bones were overlooked. Since many flakes were recovered which were much smaller than the smallest caribou bones, however, it is unlikely that many were missed. It is also doubtful that the manufacture of tools removed many otherwise recognizable elements. Most of the bone tools appeared to have been made from fragments of long bones.

Differential preservation is probably responsible for a large part of the differences in recovery. Hall has interpreted the high percentages of

Table 10. Recovery rate of selected caribou skeletal elements at Cloud Lake Village.

Element	Number Expected	Number Recovered	Percent Recovered	Element	Number Expected	Number Recovered	Percent Recovered
skull*	52	15	29	carpals	520	47	9
mandible	104	43	41	metacarpals			
hyoid	104	11	11	proximal	104	12	11
atlas	52	11	21	distal	104	29	28
axis	52	17	32	pelvis	104	38	36
vertebrae				femur			
cervical	260	29	11	proximal	104	15	14
thoracic	728	55	8	distal	104	15	14
lumbar	260	67	26	tibia			
sacrum	52	2	4	proximal	104	4	4
caudal	572	5	1	distal	104	14	13
scapula	104	42	40	metatarsal			
humerus				proximal	104	6	6
proximal	104	5	5	distal	104	33	32
distal	104	34	33	patella	104	2	2
radius				fibula	104	5	5
proximal	104	15	14	calcaneum	104	8	8
distal	104	18	17	astragalus	104	8	8
ulna	104	11	22	cuneiform tarsus	104	2	2
phalanges	1248	265	21	sesamoids	832	85	10

* Count determined by the number of right auditory bullae.

mandibles and loose teeth present in the collections from Kangiguksuk to indicate that a number of the deer were killed away from the village and only the head and/or mandible retrieved along with the meat. An equally likely explanation, however, is the density of the bone of the mandible and the tooth enamel which would be less liable to destruction by chemical erosion. The minimum number of 52 deer at Cloud Lake Village was determined largely by the count of RM_3 which accounted for 37 percent of the minimum number.

Some of the bones which show a low recovery rate, such as the vertebrae, the proximal humerus and tibia, the patella, and the sacrum, are thin walled and cancellous and would not be expected to survive weathering and gnawing by scavengers as well as other, denser bones. In his analysis of the white-tailed deer remains from the Buffalo site in West Virginia, Guilday experimented with destruction of bones by scavengers and noted that the proximal humerus and tibia and the vertebrae (including the sacrum) could be completely devoured by dogs over a period of days (Guilday 1971:28). He also interpreted the pitted surfaces and extensive erosion of deer phalanges as the result of their having been swallowed whole and partially digested by dogs. Any smaller bones which were eaten, such as the sesamoids and carpals, would have been either completely digested or reduced to an unrecognizable state.

Many of the vertebrae and ends of long bones at Cloud Lake Village had been badly gnawed and many phalanges exhibited a pitted surface or were eroded to an almost paper-thin state. No dog bones were found in the deposit and it is possible that the bones were gnawed by foxes or rodents. It is unlikely, however, that a fox or rodent would be able to swallow whole bones as large as a caribou phalanx. Nor would a fox be likely to "redeposit" them at the site in any numbers. If the condition of the phalanges was produced, as Guilday suggests, by the digestive juices of an animal, that animal was probably a dog.

The relatively high number of lumbar vertebrae is more difficult to explain as this bone is particularly liable to destruction (Guilday 1971:26). It is especially notable since the surrounding bones, the thoracic and sacral vertebrae, show a very low recovery rate. Equally striking is the extremely low percentage of the astragalus and calcaneum. Both are very

dense and durable bones which are frequently preserved in archeological deposits. The fact that all of the tarsals occur in low numbers could be evidence that the lower leg was cut off and left at the kill site, but the metatarsal is present in sufficient numbers to contradict this explanation. Other than unequal distribution of bones within the site, I cannot account for the discrepancies.

There is in fact reason to suspect that this may be the case. Ninety percent of the atlases were recovered from three adjacent squares in the midden and 64 percent of the mandibles from two adjacent squares. Almost half of the loose teeth were found in the three squares from 30-33S 5-6W. Seventy percent of the rib fragments came from inside the house structure (40 percent from only one square). Almost 70 percent of both the astragali and calcanea came from the same square.

There is little reason to suppose, therefore, that many of the deer were killed at any great distance from the site. Most were probably killed in the immediate vicinity, probably in the lake during the summer occupation. The major part of the butchering probably took place at the village.

The surfaces of many of the bones have been rather extensively weathered and many of the skinning and butchering marks may have been obliterated. Enough of the bones retained cut marks to allow a few suggestions to be made concerning the process of butchering. Cuts on the bones made during excavation were readily distinguished from original butchering marks by the lighter color of the newly exposed inner bone.

The head was apparently severed from the neck in the region of the atlas and axis. Cut marks were found on the anterior articular surface of four of the atlases and one axis and on the posterior articular surface of one atlas. Cuts on the dorsal and ventral surfaces of these bones were probably from defleshing.

The crania had all been broken open, probably to extract the brain. No complete crania and only one complete set of frontals were recovered. All of the crania were virtually shattered into small pieces. The number of crania was determined by the count of the auditory bullae, the only bone of the skull which remained complete enough for identification in all cases.

The antlers were removed from the frontals using a series of cuts toward the cranium. Cuts on the frontals around the antler pedicels are probably skinning marks. The antlers were subsequently used for tool manufacture and were reduced to quite small fragments by this process. No whole antlers were recovered and very few large pieces, almost all of which had been worked.

Cuts on the lateral surface of the mandibles are probably skinning marks. The mandibles all are broken open below the tooth row, presumably to extract the marrow, and the ascending ramus of all mandibles is broken off. White has suggested that this is a method of removing the mandible in order to extract the tongue (White 1954:255). The pattern of breakage on the Cloud Lake Village mandibles, however, is not consistent, some being broken near the condyles and some at other places closer to the corpus of the mandible in the thicker part of the bone. Considering the abuse to which the bone was subjected in breaking open the corpus, it is possible that the more fragile ascending ramus was simply shattered in the process.

The symphysis of all of the mandibles is also missing. This could be due to deliberate removal. Both Nelson (1899) and Ray (1975) mention that women's belts were often decorated with the incisor teeth of caribou. Only a very few incisors were found in the deposit, which may indicate that they were used in this manner and carried away from the site. Ray (1975:175) has noted that a single belt could display the teeth of 150 animals. Cuts around the distal end of one mandible indicate that the symphysis was at least occasionally removed.

Random cuts on the dorsal side of 6 of the cervical, 17 of the thoracic, and 12 of the lumbar vertebrae are probably defleshing marks. Similar cuts on the ventral surface of three of the lumbar vertebrae may be from eviscerating the carcass.

The pelvic girdle was separated from the lumbar vertebrae by cutting between the points of articulation. One of the two sacra recovered had cuts on the anterior articular surface. The blade of the ilium was broken between 5 cm and 8 cm above the acetabulum on all of the innominates and two had cuts and evidence of crushing at the point of breakage. This was undoubtedly to disarticulate the hindlimb. No cuts were noticed in the

acetabulum, indicating that the limb was not ordinarily severed at this point. It would have been unnecessary in any case if the limb had already been cut off above the acetabulum. Cut marks at the origin of the rectus femorum and on the ischium behind and below the acetabulum are probably defleshing marks made after the hindlimb had been removed from the carcass. The pubis of all but one of the innominates is missing, but whether this indicates that the saddle was split at this point is not clear. In the one instance where the pubis is intact it is fused together completely. Whether the others were also fused and had been broken apart or simply separated after the ligaments had decomposed is not discernible.

The nine instances of cut marks on the dorsal surface of the scapulae are probably defleshing marks while the three on the ventral surface may be from cutting the scapula free of the carcass. Five of the scapulae had a series of cuts on the neck indicating that the forelimb was probably disarticulated by severing the triceps brachii.

Apparently random cut marks around the ends of the long bones are probably defleshing cuts. These marks showed at the ends of 7 humeri, 2 tibiae, 2 radii, 10 femora and 2 of the ulnae. Cuts were found on the distal articular surface of one humerus, one tibia and one radius, which may indicate that the limbs were disarticulated at these joints. There is no consistent pattern, however, and the limbs may generally have been left intact and simply defleshed.

All of the long bones, the mandibles, and 55 percent of the first and second phalanges were broken for marrow. The phalanges showed no other marks such as would be made during skinning or disarticulation, nor did the broken phalanges show any marks from gnawing. The ribs were almost invariably broken but this may have been due to damage after they had been removed from the carcass.

The caribou appear to have been processed as follows, although not necessarily in the order of steps given. The animal was skinned and eviscerated and the carcass was dismembered. The head was cut off near the atlas and the antlers and mandible removed. The head was broken open for the brains. The forelimbs were detached at the scapula and the hindlimb was detached by smashing the ilium and probably the sacrum. The pelvis may also have been split at the pubic symphysis. The limbs were

apparently usually defleshed without further disarticulation at the joints. The ribs were cut away from the spinal column, perhaps in two racks as Gubser describes among the Nunamiut (Gubser 1965:80).

Discussion and Conclusions

The occupation of Cloud Lake Village probably took place during the period just prior to the beginning of the intensive acculturation of the Eskimo of northern Seward Peninsula. The ceramic evidence from the collections supports a date falling somewhere in the late eighteenth or early nineteenth centuries. The presence of trade goods would indicate at least indirect contact with European cultures.

Ray has reported that the heavy influx of European items into the native cultures of the Bering Strait region began just before the turn of the nineteenth century (Ray 1975). In this light, the fact that only 5 items from the collections at Cloud Lake were of European origin, out of a total of 94 finished objects, is suggestive of a date just prior to or at the beginning of direct contact. The two small pieces of metal recovered may simply reflect the value which was placed on a commodity which had to be obtained by trade, and was therefore not frequently lost or discarded. Metal was apparently not common enough to have been used for such routine chores as butchering, however, since none of the bones from the deposit showed the marks of an ax or saw. Bone debris with saw marks is relatively common in northern Eskimo sites dating from the later decades of the nineteenth century, even in the interior Brooks Range where direct contact began at a much later time (Gubser 1965; Bacon 1971; Corbin 1971; Irving 1962). One would expect that, with the arrival of large numbers of European items in the early decades of the nineteenth century on the northern Seward Peninsula, metal tools would have become equally common much earlier.

The principal difference between the village at Cloud Lake and the mid-nineteenth century Imnatchiagmiut villages as described by Larsen (1958:580) is in the form of the houses. Mrs. Morris described to Larsen

four house forms in use among the early historic Imnatchiaġmiut: the dome-shaped hide tent, the snow house used when traveling in winter, the temporary house made of willows and sod, and a permanent semisubterranean winter house with upright timber walls and a mosssturf roof.

The structures at Cloud Lake do not appear to be the remains of any of the described forms. An exception might be features 9 and 11 which appear to be tent rings and may have been used during the summer. Larsen's description of the houses, however, is sketchy and leaves a wide latitude for interpretation of the construction details. It is to be assumed that, since the description of the Imnatchiaġmiut houses was given to illustrate similarities between this group and the interior northern Alaskan Nunamuit, the forms described correspond in most details to the known forms of the Nunamiut houses.

In the Nunamiut area, both Irving (1962) and Hall (1970) have reported finding large circular or oval structures with walls composed of boulders similar in size to those used at Cloud Lake in the construction of the largest feature. The structures also had shallow floors and lacked central hearths and entrance passages. They were identified as men's houses on the basis of the activities represented in the deposits. At least one of these was associated with houses dating to the early historic period (the late nineteenth century).

The feature tested at Cloud Lake Village was probably also a men's house or qargi. It is the largest, most substantial structure at the village, which may account for its better preservation. The narrow platform of earth and stones may be the end of a bench similar to the one described in the qargi at Kinyiksukvik (Irving 1962:79). Activities represented by the debris within the walls of the structure are those generally associated with males: woodworking, flint-knapping, bone- and antler-working, and hunting. Four small ceramic sherds were the only female-associated artifacts found inside the structure. Since the men were generally served their meals in the qargi this is not inconsistent with the interpretation.

It is possible that the smaller houses at Cloud Lake Village, built on a plan similar to the larger qargi, represent an earlier house form which

had gone out of use by the mid-nineteenth century among the Imnatchiaġmiut. The form may have been a response to the need to build relatively permanent structures in an area which lacked trees of sufficient size for use in construction. With the decrease in the caribou herds in the middle of the century, the interior territory may have been abandoned and the need for the use of boulders in construction may no longer have prevailed. The appearance of the boulder structures in the Brooks Range in association with more recent house forms may indicate a survival of the earlier form in a tundra environment, particularly in view of Hall's suggestion that the western Nunamiut originated in the area of the upper Kobuk and Noatak rivers (Hall 1970). The Kobuk and Noatak rivers have been culturally connected with the Kotzebue Sound area for many centuries (Giddings 1952; Hall 1971) and Larsen (1958) has suggested the existence of a common cultural stratum for the area based primarily on the exploitation of caribou.

In most respects other than house form, the picture of life presented in the collections from Cloud Lake conforms well with ethnographic descriptions of the nineteenth-century Imnatchiaġmiut. The village was occupied during both summer and winter by several families whose primary activities centered around the exploitation of caribou. Summer activities also included some fowling and trapping of small animals and probably gathering of plant foods.

The major strategy for taking caribou, the caribou corral or surround, would not show up in the artifact collections. No evidence of such a structure was seen in the area around the lake, but if the enclosure were constructed of willows, as Larsen reports for the Imnatchiaġmiut, it is not likely that the remains would still be visible.

The exploitation of marine resources is evidenced by the presence of bearded seal bones in the faunal remains. Bearded seal were hunted by the Imnatchiaġmiut in the spring and early summer during their annual visit to the coast and the presence of a small number of bones from this animal would not be unexpected.

No evidence of fishing was found either in the artifact inventory or the food debris. Fishing, when done, was probably carried out along the river rather than at the lake.

The activities of the men at Cloud Lake Village are represented by the hunting implements and the tools of manufacture which were recovered. Industries in wood, bone and antler are attested by the finished objects made from these materials, by the implements such as the adz, graving tool, and cutting tools of stone, as well as by the concentration of manufacturing debris in the form of wood shavings and worked fragments of bone and antler found in the structure.

Despite the abundance of flakes in the deposit, flint-knapping was apparently not a major activity at the site. A thorough analysis of the flakes from the site was not done, but a brief examination showed that virtually all were sharpening flakes. The material was predominantly gray or banded blue-gray and red chert, followed in decreasing order of abundance by translucent blue-gray chalcedony, red jasper, and a very few small chips of obsidian.

Activities generally performed by women are represented principally by the hide-working implements and ceramic vessels used in food preparation. The tanning of hides is evidenced by the awls, the possible scraper, and probably the numerous pegs. The fact that all of the caribou skulls at Cloud Lake Village had been broken open may also be related to this process. One of the methods of tanning commonly used by Eskimo women today is the application to the hide of a preparation made from the boiled brains of the caribou (Gubser 1965:82).

Gathering activities of the women are attested by the several picks in the collection. Picks are used by Noatak Eskimo women to dig up the roots of tuberous plants, often from the winter stores of voles and lemmings (Hall 1971:53). The butchering of game is also a chore commonly attended to by the women in Eskimo communities. Game brought back to the village would probably have been processed by the women, the men doing only what was necessary to reduce the kill to convenient portions for transport back from the kill site.

The status of Cloud Lake Village as a relatively permanent community rather than a temporary hunting camp is evident from the substantial nature of the dwellings and the presence of a qargi. The site was occupied by families rather than simple task groups (such as a hunting party) for at least part of the year and, judging by the accumulation of debris

along the edge of the pond, was either occupied for an extended period of time or reoccupied frequently. Ethnographic information on the seasonal settlement pattern of the Imnatchiaġmiut suggests that the primary occupation would have been during the winter, but this cannot be determined with certainty on the basis of the limited collections.

The testing at Cloud Lake Village was initiated primarily with a view toward determining chronological placement of the site and the cultural affiliations of the occupants. It was also hoped that information would be recovered pertaining to the economic structure and land use patterns of the precontact societies on the Seward Peninsula. In large measure this has been successful, but many further questions remain unanswered.

Archeological research in the area has the potential of making a significant contribution to the understanding of the changing economic and social patterns of the northern Alaskan Eskimo. Sites such as Cloud Lake Village are numerous in the interior of the Seward Peninsula and are a valuable resource for the study of Eskimo cultural history.

7

RESULTS OF THE CHUKCHI-IMURUK ARCHEOLOGICAL SURVEYS DISCUSSION AND CONCLUSIONS

Cultural Affiliations and Site Dating

During the 1974 field season 37 archeological sites were examined within and adjacent to the proposed Chukchi-Imuruk National Reserve. The limitations of time and logistics made it impossible to carry out more than a cursory testing program. In addition, permafrost was encountered close to the surface in nearly all the sites examined. As a result, few artifacts of diagnostic value were recovered during the survey. The absence of dated sites, ample assemblages, and stratigraphic sections makes it difficult or impossible to establish internal chronological and cultural sequences among these sites. The archeologist is left to derive chronologies through comparisons with known sequences in adjacent regions. Despite these limitations, a few observations can be made concerning the ages of the sites visited in 1974. Several diagnostic artifacts were collected from the coastal sites near Deering and some historical data pertaining to coastal settlements are available.

In February of 1854 Hobson reported seeing a small village, which he called Kip-pel-lik, at what is now known as Kipalut on Cape Deceit near Deering. The historical data do not tell us when the village was founded or abandoned. The diagnostic artifacts discovered here include an end scraper (plate 1) and ceramics (plate 3). The end scraper compares favorably with a similar tool from Ambler Island on the Kobuk River which Giddings dates to A.D. 1730-1760 (Giddings 1952:plate 5, no. 11). The Kipalut ceramic fragments also compare favorably with those from Ambler Island.

Imnatchiaġmiut is the historic village of the Inmachuk River Eskimos at Deering. After epidemic disease decimated the village in A.D. 1900, the few survivors moved into the white mining town of Deering or relocated at

the new village of Noorvik, on the Kobuk River. As mentioned above, the village site was destroyed when it was used as a source of gravel for the local road bed. A few house depressions across the Inmachuk River from the old village may be part of the site, but because no artifacts were found, this conclusion must await substantiation.

The old village just east of Deering was occupied within living memory. Two specimens collected from the surface here indicate greater time depth. An arrow point (plate 4a) compares well with a specimen of unknown stratigraphic position in cave 2 at Trail Creek. Larsen (1968:34, plate 1, no. 13) compares his specimen with Ambler Island points which Giddings (1952) dates to A.D. 1730-1760. The Deering specimen lacks the characteristic opposing knobs on the conical stem, but this could be explained by the fact that its stem is broken. If the knobs were once present, then the point should be of roughly the same age as those at Ambler Island. A closed-socket toggle harpoon head with an iron inset blade is similar to a specimen from Ekseavik which Giddings relates to known Thule types and dates to A.D. 1400 (Giddings 1952:54, figure 32, no. 1). The spur on the east Deering specimen is not as long and downward curving as that on the Ekseavik specimen. Also the spur on the east Deering specimen bifurcates slightly and in this respect resembles Nukleet harpoon heads from Cape Denbigh (Giddings 1964:plate 6, no. 12). Here harpoons with a bifurcating spur occur throughout the sections which date from before A.D. 1250 to after A.D. 1550 (Giddings 1964:116). It is possible that the east Deering site spans both Nukleet and Ambler Island in time. The entire midden is fairly shallow, however, and probably is more comparable with Ambler Island in age. Also, the occupation here continued into the twentieth century.

One closed-socket, single-spur, slotted harpoon head from Kugruk Lagoon is an exact duplicate of the east Deering specimen and may date roughly to the same time range. It should be mentioned that house pits occur on different beach levels at Kugruk Lagoon. The site is probably more comparable to Nukleet, which spans several centuries of the second millenium A.D.

There is one diagnostic artifact, not illustrated, from the Deering village itself which was collected by Alfred Karmun while digging a pit be-

hind his house. It is a well-known Western Thule type 2, comparable to a specimen from Ekseavik (Giddings 1952:figure 32, no. 7).

The interior sites are much more difficult to deal with. Unfortunately, no temporally sensitive artifacts were recovered. The ceramics from Salix Bay and Kuzitrin Lake are fully comparable to the coastal ceramics in range of thickness, color, temper, and surface decoration and are most similar to Ambler Island ceramics.

As the focus of the 1975 survey was to assess the general condition of known sites and to locate new sites within the study region, little of an analytical nature was attempted. Furthermore, the state of the sites discovered was such that the surface collections were next to meaningless. All but one of the sites had been badly damaged by local collecting and digging activities and nearly all of the surface artifacts were the result of this activity. The collectors had removed all but the broken and incomplete artifacts so that little was left which possessed diagnostic value. In addition to the digging activities, house-pit depressions at a number of localities have been used to keep dogs, apparently a fairly common practice in the region. While observations were made on the types of artifacts strewn about the surface of the sites, few were collected because no certain provenience could be established.

Such a depressing state of affairs should not be overemphasized since a great deal of valuable information on this period of time is undoubtedly still retrievable from this region. Experience shows, however, that small-scale testing programs at these sites will yield little information. Permafrost is nearly continuous and the middens are very thick. In addition, the spatial complexity of these sites is such that test pits or test trenches could yield little other than limited stratigraphic information. At this point in the general history of archeological research on the Seward Peninsula, sufficient information exists to formulate an excavation program which could be concentrated on the sites which have been discussed in this report. Extensive testing would demand greater expenditures of all necessary resources and would require lengthy stays at pre-selected localities.

Settlement Patterns

Considerable variability exists among the localities studied during the surveys. Available information does not, however, permit a sophisticated typology of the sites encountered. Based on both ethnographic and archeological information, it is possible to speak of general types of sites such as permanent villages, camping places, or fish camps, but any refinement beyond this would be both premature and presumptuous. Secondly, some of the sites are not presently used in the same way as they were historically described. For example, one old village is presently nothing more than a fish camp. Other problems present themselves in any attempt to determine the function of a site solely on the basis of morphological variables. Fish camps in the past may have been more substantial than those of the present day and could account for some relatively large, isolated house pits or even mounds. On the other hand, a more temporary camp might leave only cache pits for the archeologist to examine. Clearly, problems such as these can only be resolved by excavations. With the information we now have and keeping in mind the types of identification problems just mentioned, we can briefly examine the geographic distribution of sites studied during the surveys.

The two large sites visited on the north shore of Grantley Harbor are both villages and may have been quite substantial in the past. They were probably inhabited on a permanent basis and, while we lack the full range of data to explain this phenomenon, their position near the mouth of the Tuksuk Channel on a large body of salt water should be significant.

Of the sites on the Tuksuk Channel, three are large villages and were probably permanent. One of these, Singauraq, was located on both sides of the mouth of the Tuksuk Channel and the remaining two, Puibluk and Kangaruk, lay on both sides of the inland entrance to the channel. The remaining sites within the channel, Masu, Qargun, Fish Camp, Kopolokturuk, Akulesak, Titqiaq, Asagorak, Kingnugat and Alianok, are all small and are described as camping places or fish camps. One factor clearly affecting the size of some of these sites is the amount of habitable land available near the shore of the channel. Other factors, however, are also at play here. It is clear that at present this area is exploited only

seasonally, during the period of open water, for fishing. The small size of the channel sites may reflect this usage in the more remote past. Itak is a unique pictograph site which might stand on its own or could be associated with the camp site of Asagorak.

Three sites are located on the shore of the Imuruk Basin proper at the point where the basin constricts to form the entrance to the Tuksuk Channel. These localities, Tapqaq, Tipuklevik, and Ipnaq, are described as small villages or camps. Qaḡriugvik is the famous location of an alignment of inuksuk situated on a prominent hill overlooking the entrance of the Tuksuk Channel. It is not a living place and should be considered separately from the settlement pattern, per se.

Within the territory of the Imuruk Basin proper, only three areas have traces of heavy use: the Agiapuk River, the Cobblestone River, and Windy Cove. Metuktuk, located up the Agiapuk River, may have been the site of a permanent village. The present usage of this area, however, is primarily for fishing during the summer. The small unnamed site just upstream may likewise have been a summer fishing camp. The only remains of the Tunu site at the mouth of the Agiapuk are fish storage pits, a fact which again lends support to the idea of seasonal usage for this area. This is not to deny that these resources were used at another time than when they were taken. The Cobblestone River drains the high, glaciated Kigluaik Mountains to the south. There is evidence of settlement at the mouth of this river, but we could not determine its nature or purpose. The remains of a camp on an island in the river are likewise mysterious. These sites could be fishing stations or may be oriented toward hunting and the high country to the south. The two localities on Windy Cove are quite unimpressive. Pamnikotut is a place name referring to a berry-picking locale and no evidence of a site could be located there. On the opposite side of the cove at Igluk are several fish-storage pits but again no evidence of a camp. This part of the Imuruk Basin appears to have been economically important only on a seasonal basis.

The delta of the Kuzitrin River is another area to be considered. While the modern settlement pattern of the local inhabitants has shifted westward to the coast of the Bering Sea, this inland region was very important in the past. The remains of two large villages, Kauwerak and

Kektoashliuk, are here. Both were permanent, but of the two, Kauwerak is historically the more important. Available information indicates that a relatively large population was concentrated here as late as the nineteenth century although just when these villages were established is still unresolved. The majority of the remaining sites in the Kuzitrin delta, Qikiqtaġruk, Kiliotangnaga, Paniruhk, Isuktukpaga, Isuqtuq, Isuqtum kanja and Aviunak or Marys Igloo, have been described in this report as camps. Shungiyorut may have been a small village although we cannot be certain. Atnaq is a fish storage locality although we cannot be certain that it is necessarily related to the Kuzitrin sites or settlements further west. Aviunak is also the name of a large hill just south of Marys Igloo on which both inuksuk and a cemetery associated with the village are situated. Other sites are known historically further upstream on the Kuzitrin, some of which were briefly spotted from the air during the survey. We were unable to land and examine them at that time, however.

Based on information from the 1975 survey, we can conclude that large permanent settlements existed on Grantley Harbor, at both ends of the Tuksuk Channel, and in the delta of the Kuzitrin River. The areas between were occupied by small camps which were probably oriented toward seasonal economic activity. The spacing of the large villages could, of course, be due to many factors, but the availability of resources should be considered as very important. The ecology of these regions should be central to any further research.

While the ecology of the subsistence base of these populations is of utmost importance to the understanding of the prehistory of this region, there are other problems which must be addressed. First, we have no real understanding of the chronology of the occupation of this region during the late prehistoric and protohistoric periods. Without chronological control it will be quite impossible to assess the temporal relationships between the known sites. While it may prove very difficult, it is very important to know which large villages were contemporary with which camp sites and fish camps. It is also necessary to establish both the temporal and spatial relationships of the large villages in the region and to attempt to account for their development. While most or all of the sites which were examined during the surveys have been assigned to the late or

protohistoric period, the beginnings of the villages may relate to other factors in deeper antiquity. Another important consideration is the relationship of the sites of the lower Kuzitrin River, Imuruk Basin, and the Tuksuk Channel, to the sites of the interior of the peninsula at Kuzitrin Lake and atop the volcanic buttes between Kuzitrin and Imuruk lakes and around Cloud Lake. The major economic activity of this area appears to have been caribou hunting (Adams, chapter 6 of this volume). While it may be the Inmachuk River Eskimo (Imnatchiaġmiut) who were responsible for the sites in the Cloud Lake region, those villages to the south of Imuruk Lake could well have their relationships to the Kuzitrin River populations.

There are very noticeable differences among the sites in house types. The coastal sites contain rectangular to square houses with entrance passages, whereas the interior sites contain stone-lined circular depressions lacking entrance passages. There are two exceptions: Kuzitrin Lake I, where there is a rectangular house with adjacent rooms but no entrance passage, and Gosling Cone, where entranceways are present. These differences do not necessarily indicate different ages for the inland sites. It could be that these stone-lined structures represent the summer and fall sequences of an economic cycle, during which time caribou were being taken. During this time of the year entrances or cold traps would not be necessary. For the purposes of shelter, a simple skin tent would suffice. The stone circles in some instances probably served to anchor the lower tent wall, while in other instances the stones form low walls over which some type of roof was constructed. In several cases the house depression contained nothing but caribou antlers, suggesting that these served as a roof structure over which skins could be stretched. In some places a large number of stones had to be moved just to provide a suitable surface on which to camp. These stones seem simply to have been piled in circles around the tent area.

The stone-lined depressions representing houses plus an equal number of cache pits at Skeleton Butte and Gosling Cone give the impression of large and permanent settlements of up to 28 houses. In addition, the large number of caribou bones present is good evidence for the primary purpose of these settlements. Hopkins (n.d.) reports that the ancestors of Eskimos living at Cape Espenberg operated a caribou trap in the Asses

Ears-Skeleton Butte area. A wooden fence extended from Skeleton Butte to Cloud Lake and caribou were driven across the plateau to the fence and thence into Cloud Lake where they were dispatched. Neither Hopkins nor the 1974 survey crew could find any evidence for such a fence, however. It was also reported to Hopkins that people collected flints in the Asses Ears region to make tools. In addition, there is the implication that these people lived in the Cloud Lake area because they were driven away from the coast by wars with coastal Eskimos and that Skeleton Butte was chosen for occupation because it offers such a command of the surrounding area (Hopkins n.d.).

Skeleton Butte also figures importantly in the folklore of the Inmachuk River Eskimos. Local informants relate that the Skeleton Butte-Cloud Lake area is an ancient battleground, hence the name "Skeleton Butte." Stories tell of a people who lived on Skeleton Butte and were occasionally attacked by another, unidentified, group. In these battles the people of Skeleton Butte always won and expelled the intruders.

These tales confirm the reports of Hopkins concerning warfare and the populations of the Cloud Lake area. The main implication of information provided by both Hopkins' informants and the archeological survey is that there was a fairly stable population concentration in this area, at least on a seasonal basis. If available resources did permit intensive exploitation sufficient to sustain a permanent population in this region, it would be extremely important to document this particular subsistence strategy. It should be mentioned that local references to the habitation of the Cloud Lake region refer to the settlement on Skeleton Butte and sporadic use of the beaches by reindeer herders. No reference is made to the Cloud Lake site, which apparently was occupied well before the living memory of the local Eskimos.

The areas south of Imuruk Lake, such as Gosling Cone and Kuzitrin Lake, are not frequented by the Inmachuk River people, who have little knowledge of the area. This is unfortunate because we have little information bearing on the utilization of this area. The substantial settlement on Gosling Cone is roughly comparable with the Skeleton Butte site except that, to a certain degree, the Gosling Cone structures are more elaborate, including houses with entranceways capped with stone slabs. Thus, we

have evidence of more permanent structures. This bears directly on the question raised earlier concerning a permanent interior population. We must await further excavation before this problem can be addressed in depth.

Suggestions for Future Research

That the area within what is now called the Bering Land Bridge National Preserve has a rich prehistory is evidenced by excavation at the Trail Creek Caves (Larsen 1968). At Trail Creek the record of human occupation extends from the late Pleistocene to the historic period, including evidence related to: 1) Pleistocene hunters of perhaps 13,000-15,000 years ago, 2) the Northwest Microblade tradition, 3) the Denbigh Flint complex, 4) Trail Creek-Choris, 5) Near Ipiutak, 6) Norton, 7) Western Thule, 8) Intermediate Kotzebue, 9) Ambler Island and, finally, 10) the introduction of firearms. The presence of the Northwest Microblade tradition is especially intriguing since evidence for this particular cultural manifestation is seldom encountered on the tundra and is known nowhere else on the Seward Peninsula except possibly at Glacial Lake, approximately 48 km NNW of Nome in the Kigluaik Mountains. Here, Hopkins (personal communication) has reported finding microblades on a breached moraine. Unfortunately, no evidence older than Western Thule was detected during our archeological surveys. It must be stressed, however, that if full scale archeological excavations are carried out at some of the sites, earlier cultures comparable to those at Trail Creek may be brought to light. There is an urgent need to elucidate the part of the record which dates to the late Pleistocene and early Holocene.

The later prehistory of the Seward Peninsula also warrants further study. Given the wealth of historical and archeological information available, it is now possible to develop a research program to examine cultural, historical, and ecological relationships along an environmental transect which runs from the saltwater areas of Port Clarence and Grantley Harbor through the Tuksuk Channel and the Imuruk Basin to the freshwater areas

of the lower Kuzitrin River and beyond to the terrestrial hunting and trapping areas of the interior highlands. With this type of baseline study, it would then be possible to study the demographic factors involved in the development of the cultural and political units in this area during the eighteenth and nineteenth centuries.

Lastly, the western Seward Peninsula is a key area for examining cultural, historical and political relationships with the people of Chukotka. We know these relationships existed during the nineteenth century and were important in the study area where conflicts with Siberian peoples figure prominently in the local oral tradition. Further archeological investigations at such sites as Kauwerak may bring these cultural relationships into sharper focus and shed some light on the much broader trading networks which spanned the Bering Strait and involved peoples and cultures far removed from the Seward Peninsula.

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