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Kobuk Valley

Kuuvaŋmiut Subsistence

Traditional Eskimo Life in the Latter Twentieth Century

Douglas B. Anderson
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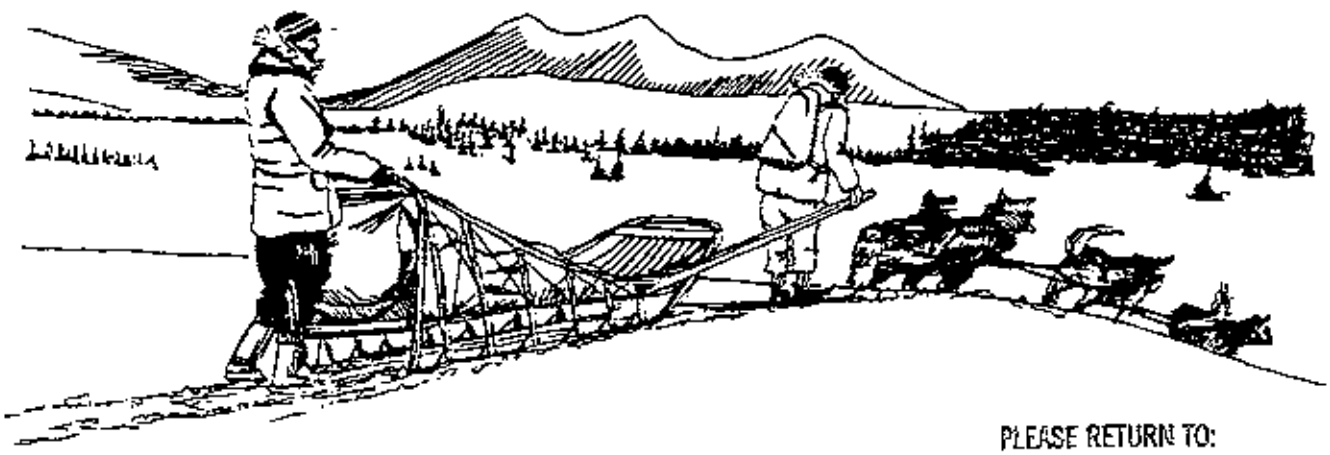

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ABOUT THIS BOOK

Asia and North America were once joined by a massive "land bridge" in a region now popularly called "Beringia." In order to promote the conservation of the unique natural history and cultural heritage of this region, the governments of the United States and Russia have proposed the establishment of an international park agreement between the two countries. The Shared Beringian Heritage Program of the National Park Service recognizes and celebrates the contemporary and historic exchange of biological resources and cultural heritage in this region. The program seeks local resident and international participation in the preservation and understanding of natural resources and protected lands and works to sustain the cultural vitality of Native peoples in the region. To these ends, the Beringia program promotes the free communication and active cooperation between the people and governments of the United States and Russia concerning the Bering Straits region.

Located in northwestern Alaska, the Northwest Arctic Borough School District operates schools in 11 villages for approximately 2,000 students. Ninety percent of the students are *Iñupiaq* Eskimo. The district's main goals are to prepare students to be contributing members of a rapidly changing society and to preserve the unique heritage and values of the *Iñupiaq* culture. The district's Bilingual Bicultural Education program is based on *Iñupiaq* language and culture study. Its goals include helping students learn cultural skills, instilling a sense of pride and identity, and helping students learn to communicate with elders.

Kuuvaŋmiut Subsistence: Traditional Eskimo Life in the Latter Twentieth Century was originally released as a commissioned report giving a detailed description of the lifestyle of the Kobuk River area people in northwestern Alaska as observed in 1974 and 1975. The study was undertaken as a part of the National Park Service's interest in learning about the Alaska d-2 proposals (proposed Alaska additions to the national park system) and the natural and human resources, which are integral parts of the land. A limited number of copies were published in 1976, funded by the National Park Service with additional funding from the Northwest Alaska Native Association. Recognizing the value of *Kuuvaŋmiut Subsistence* to the people of northwestern Alaska, the National Park Service prepared an edited, unpublished version of the original manuscript in 1986. In 1992 the Northwest Arctic Borough School District requested a re-publication of *Kuuvaŋmiut Subsistence* for classroom use in its bilingual curriculum . This volume, prepared in cooperation with the Bilingual Program, is based on the 1986 edited version. Publication of this 1998 edition was funded by the Shared Beringian Heritage Program of the National Park Service, through a cooperative agreement with the Northwest Arctic Borough School District.

The maps, which accompanied the original release of *Kuuvaŋmiut Subsistence*, are not included in this edition. These maps have been digitized, or computerized, and are available to researchers through the National Park Service at Kotzebue, Alaska.

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Acknowledgements

This study is based on a year's research among the *Kuuvaŋmiut* (pronounced *Kuu-vahng-meet)* Eskimos of northwestern Alaska. It was carried out from the summer of 1974 through the summer of 1975. Principal support for the research was provided by the United States Department of the Interior, National Park Service. Additional funding and assistance was given by the Northwest Alaska Native Association (NANA), the regional Native corporation.

All of us who participated in the study are extremely grateful for the kindness, hospitality, and assistance extended by the people of the five Kobuk River villages in which we worked. In every community we were made to feel welcome, and we received the utmost cooperation in all aspects of our work. Our fondest hope is that people of the Kobuk villages will find merit in what we have written, and that our research will be of use to them in making decisions affecting their traditional culture and livelihood.

We were assisted in some way by almost every family in the Kobuk River villages, but there are people in each community to whom we owe special thanks. Those in Noorvik are Louie and Annie Commack (*Aquppak* and *Nauyaq*), Jenny Jackson (*Masruana*), Lucy Foster (*Akuġluk*), Beatrice Mouse (*Anausuk*), Douglas Brown, Elisabeth Sheldon, and Albert and Minnie Sheldon. We are also grateful to Martha Garfield, who worked as an able assistant to the project.

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participated in preparing and editing this report. Map work for the report was capably done by Arturo Frizzera.

Finally, a very special note of thanks to Zorro Bradley, anthropologist with the National Park Service, and his wife Nattalie. Mr. Bradley initiated the project, gave constant, invaluable assistance as it was carried out, and helped it to final completion. More important, Mr. and Mrs. Bradley shared with us their friendship, kindness, and hospitality during the year of the study. For this we offer our sincerest thanks and warmest affection.

Many other people, in the villages and outside them, have helped us in innumerable ways. Although they are not specifically named here, their support and encouragement are deeply appreciated.

Chapter Authors

This book was written jointly by the five researchers: Douglas Anderson, Wanni Anderson, Ray Bane, Richard Nelson, and Nita Sheldon. In addition, Stephen McNabb compiled the material on place names in the Kiana area. Lawrence Kaplan revised the spelling of *Iñupiat* words and place names throughout and contributed the appendix on *Iñupiat* orthography. The illustrations were drawn by Tim Szawinski based in most instances on field sketches by Ray Bane. Chapters or chapter sections were organized and written by specific members of the project, but each contains data and perspectives contributed jointly. In the chapters on subsistence activities, some sections were written by researchers other than the principal author, but are not here credited.

Principal authors for each part of the book are as follows:

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Chapter 3 ..... **R. Nelson**
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Chapter 5 ..... **W. and D. Anderson, Sheldon, and Nelson**
Chapter 6 ..... **N. Sheldon Towarak**
Chapters 7 to 10..... **R. Bane**
Chapter 11 ..... **W. Anderson**
Chapter 12 ..... **R. Nelson and N. Sheldon Towarak**
Chapters 13 & 14..... **R. Nelson**
Appendix 1 ..... **Lawrence Kaplan**
Appendix 2 & 3 ..... **R. Nelson**

This volume was edited and revised by Richard K. Nelson, from an original report prepared for the National Park Service in 1975. Before the original report was submitted, it was reviewed in draft form by many people, including representatives of the Northwest Alaska Native Association and the five Kobuk River village corporations. The authors would like to thank all of the reviewers for their suggestions, which substantially improved the quality and accuracy of this study.

Introduction

Background

The *Kuuvaŋmiut* Eskimos and their ancestors have lived in the Kobuk River valley of northwestern Alaska for thousands of years. They are a branch of the *Iñupiat* Eskimos, who inhabit a vast expanse of the Arctic, stretching from Alaska across northern Canada and around the coasts of Greenland. The Kuuvanmiut are among the few people in North America, indeed in the entire world, who still actively pursue a hunting-fishing-gathering lifeway and sustain themselves in major proportion by the harvest of wild resources.

In 1980, the U. S. Congress passed legislation that led to establishment of Kobuk Valley National Park. This park encompasses nearly two million acres, a substantial part of the homeland that has nurtured *Kuuvaŋmiut* people for millennia. As a national park it is now open to all visitors; but the founding legislation also stipulates that it should remain available for traditional subsistence activities by residents of the Kobuk communities.

Establishment of the Kobuk Valley National Park will undoubtedly bring changes to the *Kuuvaŋmiut*, most of them beyond our ability to foresee or control. At the very least it will attract many more persons to the region than have visited there in the past. Management of the park will also affect the Kobuk people in many other ways, but hopefully they will have an active role in all decisions that affect this area. Their own village governments and traditional institutions will be important in this process, as will regional organizations like the NANA corporation and Mauneluk association. Nevertheless, their destiny will also be profoundly affected by government policy makers, whose decisions must consider not only the indigenous people but also broader state and national interests.

Passage of the Alaska Native Claims Settlement Act (ANCSA) by the United States Congress in 1971 has brought far-reaching changes and an array of important challenges to Alaskan Natives. The act was to provide a "fair and just settlement of all claims by Natives and Native groups of Alaska, based on aboriginal land claims . . . without establishing any permanent racially defined institutions, rights, privileges, or obligations." After it was passed, many unforeseen problems arose concerning land occupancy and usage rights. Some of the most important issues were related to a further stipulation that "no provision of this Act shall replace or diminish any right, privilege, or obligation of Natives as citizens of the United States or of Alaska, or relieve, replace, or diminish any obligation of the United States or of the State of Alaska to protect and promote the rights or welfare of Natives as citizens of the United States or of Alaska." This study was carried out to provide information for legislators and planners who must consider these mandates of law, and in whose hands the fate of Alaskan Natives lies.

Two of the most important issues affecting the Kobuk villagers are: First, given that the Alaska Native Claims Settlement Act has granted formal

ownership of core regions to Native groups, to what extent do these people retain rights to use lands beyond these core regions—lands that have been theirs for millennia? And second, since areas beyond the core regions are considered essential to the lifeway and economy of the indigenous people, how can their opportunity to continue traditional subsistence living be assured, in the light of Native Land Claims mandates?

The Study

This study was commissioned by the National Park Service and the Northwest Alaska Native Association (NANA), to provide background information for the Kobuk Valley National Monument. The monument was then a part of pending legislation, but necessary planning for its establishment and management was already under way. The research goal was to compile an accurate and comprehensive description of subsistence activities among Kobuk villagers, viewed from as many perspectives as possible. It was also intended to provide information necessary to answer questions like those above. And it was meant to help toward clarifying concepts, such as the nature and definition of "rural Alaskan subsistence," which have become crucial elements of laws and policies affecting village people today.

In implementing our research, we set the following objectives:

(1) to document the history of Native use and occupation of the Kobuk River valley;

(2) to determine patterns of recent, historic, and prehistoric change in subsistence activities, and to examine the role of change in shaping modern subsistence;

(3) to describe the fluctuating nature of resources within the Kobuk valley ecosystem and to establish whether open access to all traditionally utilized lands is necessary for perpetuation of the indigenous economy and its cultural underpinnings;

(4) to compile an accurate description of modern and traditional subsistence activities;

(5) to describe the knowledge and perceptions that underlie *Kuuvanmiut* subsistence activities, to examine their significance in the contemporary economy, and to understand their role in the overall pattern of Kobuk village culture; and

(6) to examine the future of subsistence activities in the light of changing cultural patterns and land use policies.

Field Methods

Research was conducted among the Kobuk River *Iñupiat* between June 1974 and August 1975. Efforts were made to incorporate all five Kobuk villages into the study, and to include as many local residents as possible among the researchers.

Work was initiated by Ray Bane and his wife Barbara, who resided in Shungnak on the upper Kobuk River from June 1974 until June 1975. Mr. Bane developed and implemented the methods of delineating village subsistence areas, and he documented subsistence techniques of the upper Kobuk people. His work was aided by Mr. Joe Sun, a Shungnak elder, who contributed much useful information from his inexhaustible knowledge of *Kuuvanmiut* traditions.

Nita Sheldon Towarak returned to her home village of Noorvik from January until July 1975, postponing her final year at the University of Alaska to record the cycle of life in this lowermost Kobuk River village. Aided by her knowledge of the *Iñupiat* language and her training in linguistics, she concentrated on recording personal recollections of older village residents. Martha Garfield, also a resident of Noorvik, was engaged to document subsistence areas and place names of that region.

Richard Nelson and Kathleen Mautner lived in the upriver village of Ambler from January until June 1975. Studies in Ambler focused on utilization of subsistence resources, mapping of harvest areas, analysis of general subsistence ecology, and description of the non-Native resident community in the upper Kobuk region.

Douglas Anderson, who served as head of the project, resided in the downriver village of Kiana from March until July 1975. He was joined by Wanni Anderson in April and Stephen McNabb in June. The Kiana research covered a range of topics, including compilation of village and regional history, description of subsistence areas and techniques, documentation of women's economic roles, and recording of place names. Two residents of Kiana, Donna Atoruk and Helen Blastervold, were also engaged to collect information on subsistence areas and place names. A third resident, Elmer Jackson, a student at the University of Alaska, did research on the life histories of several village elders.

Methods of conducting the study differed according to the kind of information being sought. Subsistence techniques were observed and, where possible, the researchers took part in the full round of hunting, fishing, and gathering activities. Researchers also made an effort to participate in all aspects of village life, to gain understanding of the community patterns which integrate with subsistence activities.

Much information was gathered through informal conversations, covering a broad range of subjects that could not be studied by direct observation. Most of this work took place during daily visits to people's homes or casual meetings in public places such as village stores. Information gathered this way included knowledge and techniques, attitudes toward the environment and subsistence living, ecological concepts, and specific historical events.

Formal interviews were also carried out by all researchers, to allow structured exploration of particular subjects. They were used especially for gathering the personal recollections of older residents in Noorvik and Kiana. These people were sometimes asked direct questions about events, activities, or tech-

niques of the past. But at other times they were only asked to talk freely about their younger days. Some of these conversations were tape recorded, and copies of the tapes were given to the narrators.

Documentation of areas used for subsistence by the *Kuuvanmiut* was done through interviews with most families in the five Kobuk villages. Household members were asked if they had participated in a certain activity during each of the past three years or, if not, when they last did so. Then they were asked to show exactly where they carried out the activity. They also designated areas where they generally obtained each resource, such as where they hunted caribou in the fall, seined for fish in the summer, fished with gill nets in the spring, and so on. This information was used to make fairly detailed maps of resource places and subsistence zones in the Kobuk valley.

Place names were also recorded and mapped during these interviews. This allowed a fairly complete inventory of places presently significant to the Kobuk people. The names usually designate landscape features, campsites, abandoned settlements, special resource places, and locations of noteworthy historical events. A researcher flew with knowledgeable upriver residents along travel routes to mountain hunting areas, and several boat trips were made with downriver people to record traditional campsites between the Kobuk River delta and the Hunt River. Although not complete, the place name list gives an indication of use areas throughout the Kobuk River valley and demonstrates the Kobuk Eskimos' detailed knowledge of their region.

Most of the material in this book was written at the University of Alaska, Fairbanks during the summer of 1975, immediately after our research in the villages. In the summer of 1976 Stephen McNabb returned to verify the locations and spellings of place names.

Part 1
The Historical Context

Chapter 1

Earliest Inhabitants of the Kobuk River Valley

Ten thousand years ago, when the Bering Land Bridge connecting Alaska and Asia had barely vanished beneath the rising sea, forerunners of the *Kuuvaŋmiut* Eskimos were already at home in the Kobuk River valley. They lived in a landscape vastly different from today. Whereas the vegetation is now dominated by tall stands of spruce, poplar, alder, and willow, very few of the plants 10,000 years ago would have reached higher than a foot or two. Early residents of the Kobuk valley hunted caribou and other modern arctic fauna, possibly together with native species of horse and bison which may have persisted until that time.

Compared with most other parts of Alaska, the prehistory of the Kobuk valley is extremely well known, largely through the archaeological research of J. L. Giddings in the 1940s and subsequent excavations made in the 1960s at Onion Portage, midway up the Kobuk River. Despite these extensive studies, archaeologists are still far from a thorough understanding of how Kobuk valley lifeways developed and evolved. For example, they can only speculate on many aspects of the subsistence cycles represented by archaeological materials.

The gaps in our knowledge are related to the kinds of archaeological sites known from this region. Most of these sites are the remains of winter settlements, and so our information about past lifeways is skewed toward this one season. Winter homes were often partly underground and built of wood and sod. After they were abandoned and deteriorated, they left easily seen depressions covered with thick grass. During the other seasons, people of the Kobuk occupied temporary camps and lived in tents of wood and skin. Although these camps saw as much activity as the winter settlements, they vanished almost completely after abandonment, leaving no surface signs to give their presence away. Further, these ancient campfires now lie in dense undergrowth along the river and its tributaries. They are extremely hard to find and yield only scant evidence of the activities that took place there. (For further information see Giddings 1952, 1967; Anderson 1968, 1970a).

Onion Portage, situated at a place called *Paatitaaq*, is one of the most important archaeological sites in arctic America. More than 70 distinct cultural layers reveal a progression of winter, summer, and fall settlements spanning 10,000 years. Objects left by the people who lived or camped there include stone, bone, and antler tools, pottery shards, and bone fragments from the animals they hunted. Archaeologists use these remains to piece together a picture of life during ancient times.

The earliest people who occupied Onion Portage were big game hunters. Their stone implements resemble tools left by hunters of the last Pleis-

tocene mammoths in eastern Siberia; and they are similar to ones used elsewhere in the Alaskan interior by people who hunted extinct horses and bison. Despite their close ties to groups so far away, we are quite certain that the Kobuk River people of 10,000 years ago were not recent arrivals from Asia. Most likely, they had come to Alaska thousands of years earlier, and the reason we see such strong cultural similarities between Kobuk and Siberian peoples is that Asia and Alaska were connected as a single land mass. Styles that emerged among people in one part of the vast tundra region quickly spread throughout the other parts. For example, a particular type of stone core, part of the Akmak complex used by the earliest people at Onion Portage, was used throughout Alaska, northeastern Asia, Mongolia, and northern China.

Residents of the Kobuk valley must have traveled widely to obtain materials that could not be found locally. A particularly important case is wood for poles, shafts, and other items which must have been necessary for people's survival. One source of wood may have been through trade with residents of the Koyukuk River to the south. Kobuk people also seem to have communicated and traded with groups living in a distant part of the Brooks Range, because their tools were made from a kind of chert stone found there.

As conditions gradually changed, dwarf birches, alders, willows, and perhaps poplars began growing along the Kobuk River and its tributaries. After about 8,500 to 8,000 years ago, the Kobuk people thus had the advantage of local access to wood. They continued to be in touch with their neighbors of the Koyukuk River drainage, but now it was to obtain obsidian, a glass-like stone used for making fine tools. At the same time they began using locally available cherts, which were inferior to those obtained earlier through trade but nevertheless suited their needs.

A cluster of abandoned hearths uncovered at Onion Portage gives evidence of subsistence activities among people living there 6,500 to 6,000 years ago. All hoofed animals except caribou were extinct in the region by that time, so this animal had become the primary source of food. Neither these people nor their ancestors seem to have depended on fish from the rivers or lakes. Perhaps they occasionally speared fish to supplement their diet, but we may never know for certain because any antler used to make fish spears would have long since rotted away.

The Onion Portage hearths were situated on what was once a low, wet flood bank on the river's edge. The associated campfires were probably backed by willow thickets like those that line much of the Kobuk River today. In all likelihood, they were occupied briefly during early June or early September by hunters searching for caribou. Like their predecessors they used antler-headed spears, and perhaps arrows, for taking game. Although the antler itself has decomposed, the stone microblade insets from these spears have survived. Scattered about the hearth areas are remains of caribou jawbones, probably left after hunters had removed the tongues for eating. Imbedded in the hearths are tiny fragments of other bones, which may be the remains of rib sections that hunters roasted over their fires.

Undoubtedly the winter dwellings of these people were not far away. But no trace of them has yet been found, and so we do not know if their tools and weapons resembled those of the Akmak complex 2,000 years earlier. We can speculate that their tools were perhaps smaller than the ones used by their Akmak ancestors, considering the kinds of game they hunted. Information on many different groups across the arctic shows that small, delicate weapon heads and knives are sufficient for bringing down and butchering caribou.

After about 6,000 years ago, Onion Portage was abandoned for a period of 2,000 years, and archaeologists are at a loss to explain why. Perhaps the river channel here simply changed, making the site unattractive to potential residents. Or possibly there is a more far-reaching explanation, such as diminished availability of food. This could have resulted, for example, from changes in the region's vegetation. After about 6,000 years ago, spruce trees began spreading along the Kobuk River and its tributaries, and alder became abundant throughout the region. Caribou tend to avoid alder thickets, seeking their feed in open tundra areas, tussock meadows, scrub willow patches, and muskegs. So perhaps domination of the landscape by alder caused the caribou to move elsewhere. Without caribou, and lacking knowledge of fishing techniques that were developed later, the area would have been too barren to support a human population.

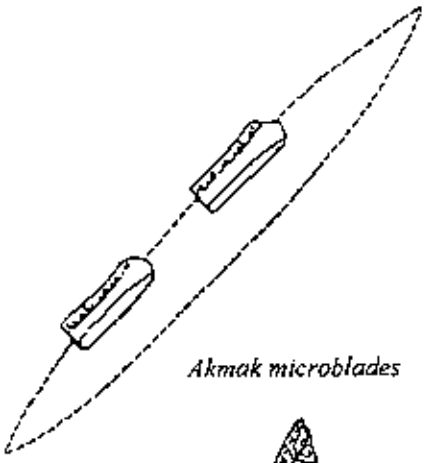
When people again occupied the middle Kobuk valley, they were not descendants of the earlier residents. Instead, their culture showed affinity with areas farther south in Alaska's interior and the southwest Yukon. These may have been Indian people, using tools much like those in other parts of the interior, where abundant supplies of wood were available. Or perhaps they were Eskimos who had taken on an interior Alaskan lifeway and material culture, adapting to the new habitat of spruce forests lining the rivers. But if this were so, we would expect that a few traces of their original cultural tradition should have remained.

Since there are no earlier traces of Eskimo culture here, it was probably Indians who began to occupy the Kobuk River valley about 4000 B.C. Their tools included small, irregular projectile points notched near the bases for tying to wooden arrow or spear shafts. Toward the latter part of their occupation, around 2500 B.C., these people began making use of fish from the river. The first notched stones at Onion Portage, which were probably used for gill net sinkers, come from levels representing occupation by these people.

It was not until 2200 B.C. that arctic peoples again occupied the Kobuk region. The changeover was dramatic, for after 2,000 years of Indian occupation it only took about 50 years for an early, dynamic Eskimo culture to spread throughout the Kobuk valley. This culture is known archaeologically as the Denbigh Flint complex. The Denbigh people were master craftsmen who lived in various coastal areas of western Alaska. They appear to have developed two of the three major subsistence patterns followed by modern Eskimos—sea mammal hunting with harpoons (except for whaling), and caribou hunting with spears, bows, and arrows.

Archaeological Artifacts from Onion Portage

Akmak microblade core



Akmak microblades

Denbigh spearpoint

Palisades spearpoint

Denbigh Eskimos also developed a pattern of seasonal moves between the interior and coast that remained a vital part of Eskimo lifeways until modern times. They wintered along the Kobuk River and elsewhere in the Brooks Range, spent their summers on Kotzebue Sound hunting for seals, and returned to the Kobuk for fall caribou hunting. Like the earlier tundra-oriented residents of the valley, and in contrast to the Indians they had replaced, the Denbigh people maintained contact with Siberia. Perhaps this was through trading connections like those known from the nineteenth century at Kotzebue and at *Sisualik* across Kotzebue Sound. The craft of flint knapping was apparently acquired from the Siberians, but the Denbigh Eskimos achieved its highest refinement.

Denbigh Eskimos may also have introduced to northwest Alaska the idea of grinding stone tools instead of only chipping them to shape. They used this technique to make adze blades for woodworking, as well as certain other grooving and cutting implements. Like their predecessors, they were primarily caribou hunters, whose lifeway resembled that of Brooks Range Eskimos during the nineteenth century.

It is quite possible that Denbigh people were the ancestors of all Eskimos. In any case, between 1600 B.C. and 600 B.C., their descendants began to concentrate on intensive hunting and gathering within their own local regions. This brought about regional variants in their culture. Game must have been plentiful during this period, so that families could spend most of their time hunting and fishing right in the Kobuk valley.

Their Eskimo relatives who lived year round on the seacoast or along the shores of Kotzebue Sound no doubt supplied them with foods like seal oil and beluga *maktak* (skin and blubber). From coastal people they also acquired pottery, which was newly introduced from Siberia. These Kobuk valley residents of the first millennium B.C. also had frequent contacts with the neighboring Indians, even to the point of adopting many traditionally Indian ways of making things.

After the beginning of the Christian era, the Onion Portage site was abandoned, perhaps because people favored other camps nearby. More and more, they did things in the manner of their coastal relatives. Their tools, for instance, became much alike, and they constructed their houses with long tunnels more suited to the coastal climate than to that of the interior. Their

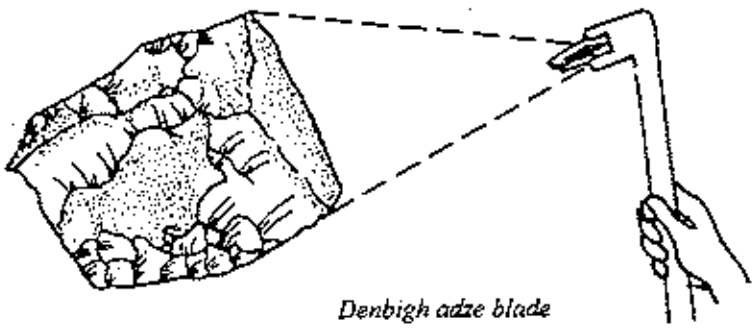
subsistence activities, however, remained typically interior Eskimo. They wintered in isolated households along the river, perhaps spent springs at the coast, and returned before fall to hunt caribou from camps along the riverbanks. They communicated extensively with people from the Koyukuk River drainage (Clark 1974) and perhaps spent time living along some of its tributaries.

People flourished in the Kobuk valley until between 500 and 600 A.D., when declining caribou populations forced them (and other interior tundra groups) to concentrate along the coast and live by harvesting fish and sea mammals. Previous seasonal experience on the coast must have helped them in adapting to the patterns of life there.

The temporary evacuation of Eskimos from the Kobuk and other northern river valleys allowed neighboring people from the interior to utilize these areas. These were presumably ancestors of the Koyukon Athabaskans, Indians who live along the Koyukuk River today. For 50 years or so they occasionally made fall hunting forays to Onion Portage, probably one of the few places where caribou could still be found. When they had finished hunting, they may have dried meat to take back to their home bases. This practice must have been similar to the more recent *Kuuvaŋmiut* practice of going north to hunt caribou along the Noatak River.

Before 1000 A.D., the Eskimos had concentrated their activities on the seacoast, where they developed the elaborate seal, beluga, and whale hunting techniques that still sustained them during the past century. Then, around 1000 A.D., Eskimos who were most likely ancestral *Kuuvaŋmiut* returned to the Kobuk valley. They probably brought many coastal practices with them, such as winter houses with long entrance tunnels to keep out the draft of severe storms. Only later were these replaced by houses with storm sheds, which became typical of the interior.

The period following 1000 A.D. was one of population growth and plenty for both the Kobuk and Kotzebue Sound Eskimos. Caribou were again abundant in northwestern Alaska, and the Kobuk people developed new fishing technology that enabled them to make full use of the river's resources. At the same time, conditions along the northern edge of Kotzebue Sound favored hunting for baleen whales and other sea mammals, providing goods that were traded to the river people.



Denbigh adze blade

Between 1000 and 1400 A.D., the *Kuuvaŋmiut* developed a wide range of fishing techniques and began a seasonal round of subsistence activities basically like that followed today. Settlements that developed along the middle Kobuk River centered their economy around winter caribou hunting in the valley, spring seal hunting at the coast, and summer salmon fishing in the main river. The earliest of these winter settlements were located where people could also fish for salmon during the summer. At Ahteut, Onion Portage, and *Qalugraitchiaq*, winter houses were located at bends in the river with long sandbars, where seining would have brought fine yields of salmon.

Archaeological remains show that the *Kuuvaŋmiut* possessed sealing harpoon heads, so they must have made spring trips to the coast to hunt seals after the ice broke up. They apparently did not engage in spring gill netting. In fact, the scarcity of sloughs near these three sites makes them rather poor for early summer fishing.

On returning from the coast, probably around the first of August, the early *Kuuvaŋmiut* set up fish camps near their winter settlements. Their tents may even have been within sight of the winter houses. A possible reason for having the two settlements close together was the ease of transporting summer-dried fish to winter quarters. Dog traction had not yet been developed, so pulling was solely a human task.

Since Ahteut, Onion Portage, and *Qalugraitchiaq* are located at main river crossings for southward migrating caribou, hunters also had easy access to caribou in the fall. These animals may, in fact, have remained near the settlements all winter. Also, whitefish traps may have been set up in the river at these sites during late fall or early winter. Although evidence for such traps is difficult to come by, the sites are located where they could easily have been built. In any case, life on the Kobuk River remained quite bountiful during the fifteenth to seventeenth centuries.

The oldest known archaeological site along the lower river is Ekseavik (*Iqsiugvik*), located about five miles up the Squirrel River. This was a winter village, probably situated some distance from the residents' midsummer camps, although it is near excellent sites for early summer gill netting. Several net sinkers and net gauges excavated from the roof and floor middens of houses indicate that gill nets were prepared at the settlement. These lower Kobuk people traveled to the coast for sealing, as did their forerunners from the three middle river settlements. Before the river opened in spring, they also traveled to Kobuk and Selawik lakes before the river opened each spring, to catch sheefish through the ice.

On an island across from the mouth of the Redstone River, the eighteenth century settlement at *Ukitivigruich* was home to families who pursued a typical upper Kobuk subsistence cycle. Because they now possessed dog teams, they had much greater winter mobility than did their ancestors. But these people did not visit the downriver areas or the coast in spring; instead, they remained inland year round, apparently traveling only to the higher reaches of the Kobuk River. They made extensive use of birchbark, probably gathered farther upriver. No trace of sheep horn was found in the site, so they apparently did not hunt this animal, although it should have been available.

As far as can be determined, the eighteenth century Kobuk subsistence cycle continued throughout the early nineteenth century (Hickey 1976). Some time during the latter half of the nineteenth century caribou began to decline, as they had periodically during the previous ten millennia. Again, Kobuk people had to rely heavily on the seacoast for their economic pursuits. This time, however, those living in upriver areas were able to stay in the interior because a growing influx of foreign goods offset the effects of caribou scarcity.

Chapter 2

The Historic Era

The five modern Kobuk villages were established between 1907 and 1914, attracting families from the entire river system. Although there are few living people who can remember the pre-village days, stories rich in details of that former way of life have been handed down as part of *Kuuvaŋmiut* oral history. In addition, other descriptions are found in accounts written by early explorers and visitors to the region.

Few westerners explored interior northwestern Alaska until near the end of the nineteenth century, so little was written about the area or its people before that time. The earliest reference to Kobuk River Eskimos appeared in an 1847 report by the Russian explorer Zagoskin, who was told of a village named Kobuk "on the river of the same name" (Zagoskin 1967:126). Zagoskin obtained this place name from Norton Sound people, who had learned it from other Eskimos during the 1838 Kashevarov expedition to the Arctic Ocean. Thus, we have no way to determine the settlement's location along the river, or to know if it was occupied during the summer or winter.

The next mention of a village along the Kobuk was by John Simpson (1852:92), the first European known to have entered the river itself. Simpson, who was the surgeon on HMS *Plover*, made a sled trip in May of 1850 over the rotting spring ice to Selawik Lake and Hotham Inlet. He also went some distance up the Kobuk's eastern channel (probably *Makkaksraġiaq* Channel). Along the lower Selawik River, people told him of a large village on the Kobuk, seven days' travel to the north. Depending on whether we rely more on the direction or on the travel time, this would place it either a little upstream from the mouth of the Squirrel River or somewhere in the upper half of the Kobuk River system. The reference was clearly to a winter village. At the mouth of *Makkaksraġiaq* Channel, Simpson visited a *Kuuvaŋmiut* camp and saw many caribou bones and antlers lying around, indicating that caribou occurred in the lower river area at the time.

The second westerner to visit the Kobuk River was Capt. E. E. Smith, who went a few miles upstream in 1874 but made no report useful for locating *Kuuvaŋmiut* settlements during that period (Cantwell 1889:105). Therefore, early written sources reveal only that villages existed in the lower Kobuk River area during the first half of the nineteenth century. Archaeological findings indicate that such villages had existed intermittently in the area for the previous four centuries.

The first sizable Kobuk settlement actually visited by westerners was located along the low shores of the delta about ten miles from the mouth of one of the channels (Cantwell 1889:54). G. M. Stoney visited this village in 1883 and gave it the name Gilderville. He traveled about 85 miles upriver, probably to the vicinity of *Kakiaqtuġvik and Iglulisaaq* (Stoney 1900:535).

Stoney returned to explore the river again in 1884. During the same year, Lieutenant John C. Cantwell of the U. S. Marine Revenue Service also made a trip up the Kobuk, and he wrote excellent descriptions of the settlements his group encountered. The assistance of Cantwell's guide Natarok had much to do with his expedition's success. Natarok not only knew the geographical features but also seemed to be acquainted with families along the entire river. On the low shores of the delta, Cantwell found several settlements, most of them unoccupied:

> We passed many deserted huts, but saw no natives until about 10 a.m., when we observed a collection of huts on the right bank, and upon landing discovered a native and his family, who were greatly surprised at our appearance. The children were perfectly naked and retired precipitately to their huts. Here we were informed that many natives had starved during the winter. (Cantwell 1889:54).

Cantwell came upon another group of huts atop a high bluff about 31 miles above the river's mouth, and he learned that this was the settlement Stoney had called Gilderville. Apparently, he saw no more winter houses or occupied summer fish camps until he reached a deserted village in the vicinity of *Qalugraitchiaq*. This was the first settlement large enough so that Cantwell called it a village rather than a group of huts.

A few miles farther upstream, Cantwell reached an occupied settlement where people were "busily engaged in repairing their nets preparatory for the run of salmon." His account of a conversation with the residents gives us an insight into Native and Western viewpoints at the time:

> A number of natives had preceded us to a place where suitable wood could be obtained, and for a small quantity of tobacco agreed to have sufficient quantity of wood cut to last us through the day. Here I saw a specimen of green stone which the Indians informed me had been obtained from the mountains about five days further up stream. They say that whoever goes to that mountain and brings away any stone will be afflicted with some dreadful malady everafterwards, and that the stone belongs to the natives and not the white men. I argued that the stone did not belong to them individually, but had come to them from their great-grandfathers, who were also our great-grandfathers. This direct claim to relationship did not meet with a very cordial reception, but they were not inclined to discuss the matter any further. (Cantwell 1889:56-57)

On July 21, Cantwell located another village near the *Nuna* (Hunt River). The people were just getting settled, having come upriver behind Cantwell; so they had presumably spent the first part of summer at the coastal trading rendezvous, which by 1884 had apparently shifted from *Sisualik* to Kotzebue. Entire families were there, and the men showed no intention that late in the season of going north to hunt in the mountains.

Residents of this village showed considerable knowledge of the upriver area, although they were apparently from the middle river. They told Cantwell that:

> During the winter all the Indians *[Kuuvaŋmiut]* who come down to fish in the summer live near the headwaters of the river, and . . . after the snow has fallen they make sledge journeys to the headwaters of the Koyukuk, where they trade with the Yukon Indians, and then go still farther to the northeast until they reach a range of very high mountains, where the moose and mountain sheep are found in great numbers. (Cantwell 1889:61)

Farther upstream, Cantwell diverted the expedition to visit a settlement located about 25 miles up the *Imaġuktuq* (Black) River, hoping to find boats that would allow him to continue to the Kobuk headwaters:

> At 1 p.m. [July 27] we arrived at the village and were welcomed with many manifestations of delight. Some of the Indians had never seen white men, and they crowded around me examining my clothing, etc., with the greatest curiosity. My watch was a source of never-failing interest to all, and whenever I took it out they eagerly pressed around me to see it opened, then they would express their astonishment by uttering the single word "Kay" in a short surprised tone of voice. This ejaculation seems to answer the purpose of expressing either joy or grief, admiration or contempt, acquiescence or disapproval. A traveler soon learns to distinguish the meaning to be conveyed by the difference in inflections. Our two river Indians [lower Kobuk River Eskimos] having explained the object of our trip, we had a consultation in which the entire village joined. I was disappointed to learn that no boats suitable for our purpose could be obtained, as the frail birch-bark canoes they use in fishing are never taken as far as the head of the river. . . I also learned that from this village a portage could be made to the Kowak, and we would strike the river some twenty-five or thirty miles upstream from the mouth of the Umakalookta. The Indians agreed to help us make the portage if we remained with them till morning. (Cantwell 1889:61-62)

After portaging, the expedition encountered another settlement on the Kobuk River between the present location of Shungnak and the mouth of the *Imaġuktuq*. Some of Cantwell's guides from the *Imaġuktuq* village decided to stay there "for all summer apparently, as they had constructed a number of houses by weaving together the supple willow boughs in basket fashion and covering them with skins and old pieces of cotton cloth" (Cantwell 1889:63).

Cantwell describes fishing activities in this Kobuk River settlement:

> The women, in frail canoes, were running out their nets or hauling them up on the gravel beaches alive with the gleaming white fish, salmon and trout; and as we whirled past them one of their number seized a struggling king salmon by the tail and by a dextrous movement twirled it high in the air and it fell struggling and flopping into our boat. The feat was greeted with a tremendous "kay" of approval, and the sound of their shouts could be heard long after a bend in the river hid them from our view. (Cantwell 1889:63)

In all, the 1884 expedition located one unoccupied and eight occupied villages between the Kobuk River mouth and the farthest point of ascent, somewhere below Shungnak. Of these, two were situated in the delta, where there were also many deserted huts; five were along the middle section of the river between the mouths of the *Siksrikpak* (Squirrel) and the *Ivisaaq* (Redstone/Ambler) rivers; and two were in the *Imaġuktuq*-Shungnak area. Of the five mid-river villages, three were occupied for summer fishing after July 21. Presumably these people had been to the coast for hunting and trading, and they had returned in time to fish but not in time for the men to hunt in the Noatak River mountains.

On Cantwell's return expedition in 1885, he saw a deserted winter village between the mouth of the *Nuna* (Hunt River) and Paatitaaq (Onion Portage), which he described as follows:

> An old winter habitation was discovered a short distance from the river, and Mr. Townsend and I proceeded to examine it. The spot had no doubt been selected on account of its sheltered situation. The densely wooded ridges running in on the river surtounded the collection of huts almost completely, and approach to the village was made by way of a narrow trail leading from the river. The houses were built by excavating a square hole five feet deep and from twenty to twenty-five feet square. Stakes or piles of spruce were driven close together along the walls, and long poles were then laid across the top, forming the roof of the house. The necessary pitch to shed rain was obtained by covering the outside with earth arranged in such a manner as to produce a moundshaped structure. We pushed aside the tall grass which choked the entrance and crawled on our hands and knees along a narrow passage just large enough for one at a time, until we reached the large chamber which doubtless constituted the living room. A small square hole in the middle of the roof furnished us sufficient light to see the interior. On the floor, along the sides of the walls, if I may so call them, were laid small willow wands, upon which the inmates were accustomed to lay their skins and sleep. In the center a square space was left,

> where could be seen charred sticks of a long-extinct fire. We set fire to a few dry sticks, and the smoke shot up in a straight column through the opening in the roof, showing that defective flues are a source of annoyance not yet known to the natives. (Cantwell 1887:26)

Cantwell saw another unoccupied summer village, named Un-nah-tak, on the Kobuk somewhere above the mouth of the *Ivisaaq* (Redstone/ Ambler River). He also noted many deserted villages in the vicinity of present-day Shungnak and Kobuk.

The one inhabited settlement in this area was on a large island at *Sikḷaqsram Paaŋa*, south of the Kobuk-Shungnak channel. Living here were people he had met the previous summer on the *Imaġluktuq*. Farther upriver was a small fish camp with two women and three children who were subsisting on young shoots of willows while waiting for the salmon run. Their husbands were away in the mountains hunting caribou.

Two more fishing villages were established between Shungnak and the mouth of the *Maniilaq* (Mauneluk River) sometime after Cantwell passed on his way upstream on July 11 and before he returned downstream at the month's end. One of these settlements, which he visited on July 30, was near *Qala* (Kalla) if not at *Qala* itself. The other was a fish camp probably located a few miles below the *Maniilaq* River mouth. In it were eight women, ten children, and one elderly man:

> The husbands of the women were away in the mountains hunting deer, and the solitary representative of the sterner sex, a decrepit old fellow, sixty or seventy years of age, seemed to have some difficulty in holding his own against such odds.
>
> The fishing season being at its height, the women were busy all day and until it became too dark at night, hauling their seines. A large fire was kept up in which round stones, two and a half to four inches in diameter, were heated red hot, and when a meal was desired they were thrown into a tub of water, rapidly raising its temperature to the boiling point. A half-dozen fish were then put in and in a few moments the natives gathered round the fire, and after the woman who superintended the cooking had removed the fish from the tub and placed them in a large wooden tray, they fell to without ceremony and ate until the supply was exhausted. In a short while another haul of the seine would be made and another feast inaugurated, so that one sometimes wonders if it is possible to appease their appetites.
>
> The Indians of my party took an active part in eating the fish after they had been cooked: but I never saw one assist in their capture by so much as helping the women shove

their boats off the beach. They would squat lazily down on their haunches and look on with ludicrous impassiveness while the women loaded their boats with the seine or hauled it in heavily weighted with fish.

The children assist the women, and the scene when a big haul is made is picturesque in the extreme. A half dozen little naked savages, up to their waists in the water and struggling frantically with refractory salmon and whitefish, almost as large as themselves, was an event of frequent occurrence.

The fish which were not immediately eaten are cut open and the entrails removed, and are then hung up to dry on long poles placed horizontally on upright supports along the beach. The head is removed and the roe is dried separately. Fish are sometimes, though not commonly, buried without having been previously cleaned, and allowed to become putrid before eating. This form of diet is esteemed a luxury, but owing to the trouble of transporting it when traveling it is not so common as the dried fish. I attempted to eat some of the buried fish, but in spite of the fact that I was very hungry at the time, I could not retain it on my stomach, and I am satisfied that a white man would starve before his stomach could be educated up, or down, to this repulsive diet. In addition to the drying-poles, each fishing village contains a square house, ten or twelve feet high, made of piles and covered by small poles. When a sufficient number of fish have been dried on the poles, they are put in this house and thoroughly smoked, and are then ready for storing away for winter use.

The seines are cleverly made from the inside bark of the willow and range from thirty to sixty feet in length by four to six feet in width. Pieces of deer antlers are commonly used as sinkers for the seines. In many places along the river the banks are filled with a tough fibrous root, from which is manufactured a most admirable substitute for twine. Seines made of this material are accounted superior to any others, and from my experience with one which we had brought from the ship I do not think a comparison with the native article would show that civilization had made any improvement in this direction, except perhaps in point of weight. (Cantwell 1887:42)

Cantwell saw many deserted winter settlements above the mouth of the *Quglugtuq* (Kogoluktuk River). He also noted other signs of human activity in the area: "now and then we catch sight of a tall pole, bearing a fluttering pennant of some gaily colored cloth, marking the grave of some

departed brave" (Cantwell 1887:30). On July 11, the party observed fresh signs of bear, porcupine, and caribou along the upper Kobuk. The Natives told him, "those animals were very plentiful in the mountains in this region. During the colder weather of the winter months the deer migrate farther to the northeast" (Cantwell 1887:30).

At the mouth of the *Sagvaqsigiaq* (Pah River), Cantwell was told that people used to follow this tributary to reach the Koyukuk River, but that now another easier route was used (Cantwell 1887:31). Opposite the mouth of the *Anauligvik* (Selby River) was a group of summer houses occupied by some half-dozen persons waiting for the salmon. When Stoney had been there in 1884, he noted many deserted winter houses, "but no natives, as they are either in the mountains hunting deer or at the fishing villages" (Cantwell 1887:32). This was apparently the farthest upriver village Cantwell encountered along the Kobuk.

Information from Kotzebue Sound and Kobuk River expeditions between 1881 and 1885, together with that from the diaries of early missionaries and the late period archaeological data, reveals many aspects of nineteenth century *Kuuvanmiut* life. During that century, as during the preceding four centuries, large groups of Kobuk people spent up to two months each year at the coast hunting seals and beluga, fishing, and conducting trade. Most of them were from the lower half of the river. By 1899, when caribou had declined in the upper region and the flow of western goods to Kotzebue Sound had expanded, increasing numbers of upriver *Kuuvanmiut* also began coming by boat to the coast each year.

A few families from the lower Kobuk remained on the river all summer. For example, some people with winter homes in the delta also established summer camps there, presumably to fish and to hunt waterfowl and muskrat. Other families from the lower Kobuk would travel to the coast before breakup and establish hunting camps a little east of Sealing Point at Cape Krusenstern. Still others would wait until the ice left Hotham Inlet, usually after July first, then travel by boat to *Sisualik*. Those who had reached the coast before breakup would also join the other groups at *Sisualik* to fish and, more importantly, to participate in the trading.

Lower Kobuk families would return to the river in late July, laden with seals and sea mammal products, reindeer furs, and other exotic items they had traded for pelts of small fur bearers. Back on the Kobuk, they would establish camps and seine for whitefish and salmon along the main channel between the mouth of the *Siksrikpak* (Squirrel River) and *Paatitaaq*. Accounts from the 1880s expeditions do not tell us when people from the upper Kobuk area would customarily return from the coast. However, stories told by village elders today recall that some people would come back just before freeze-up, traveling as far as possible upstream before the ice blocked them. Here they built houses and remained at least through early winter. One such village is said to have been located near *Paatitaaq*.

Neither Cantwell nor Stoney reported winter houses or settlements in the lower river area, but they might have been concealed by extensive willow thickets in the *Aksik* (Oksik) and Squirrel River mouth areas, where winter house ruins of undetermined age are still concentrated.

In the 1880s, there were many more all-women fish camps in the upper Kobuk than in the downriver area. Apparently, men from lower Kobuk families usually went to the coast in summer, which prevented their traveling to the Noatak headwaters to hunt caribou. To make this trek, they would have to head north in June, which they could not do if they were on the coast. Both lower and upper Kobuk people established their fish camps in latter July; but among upriver people the men only remained with the women until this was accomplished. Then they went off to hunt in the mountains.

Perhaps a few lower Kobuk men hunted in the interior during summer, but more often they went north to hunt along the Noatak River drainage in the winter. Ethnographic evidence indicates that fish camps existed along the Squirrel River as far upstream as the *Auriviuraq* (Omar River). The *Iñupiat* name of the latter river means "summer camps," so there must have been fish camps along it as well. The Omar is the major travel route to the Noatak from downriver Kobuk areas, and families may have set up fish camps there so the men could reach the Noatak country for summer hunting. There is no firm evidence of this, however.

Between 1881 and 1884, *Qikiqtaurak* (Kotzebue) replaced *Sisualik* as the coastal trading center. Western traders and whalers called this place the Summer Rendezvous, or simply Rendezvous. It probably became important because of its closeness to the ship anchorage off Cape Blossom and because the channel into Hotham Inlet runs near shore from the anchorage to Kotzebue. Thus, goods could be transported to and from ships more easily here than at *Sisualik*.

Lack of caribou in the lower Kobuk valley during the 1890s undoubtedly gave the downriver people an additional incentive to visit the coast each summer, so they could trade furs for Siberian reindeer skins to use for clothing. According to the naturalist C. H. Townsend, who was on the 1885 expedition of the *Corwin*:

> Reindeer skin appears to be the principal material used for clothing by the natives of the Kowak [Kobuk] River region, but judging from the number of "piebald" garments we saw, the stock is derived chiefly from the domesticated variety, which is herded in great numbers on the Asiatic side of Bering Straits, and obtained by means of exchanges carried on in summer. The wild Alaskan variety of a reindeer is probably not very numerous in the Kowak region, although Mr. Cantwell saw a few small herds among the hills at the headwaters of the river, to which they migrate in summer. (Townsend, in Cantwell 1887:87)

Settlement Locations: 1884 and 1885

	Occupied Summer Camps		Winter Settlements	
	1884	1885	1884	1885
Kobuk River Delta to *Nuna* (Hunt River)	2	2	0	0
Ivisaaq (Redstone/Ambler River area) to below *Imaġluktuq* (Black River)	4	1	0	1
Imaġluktuq to *Anauliġvik* (Lake Selby)	2*	5	0*	0**

* Below Shungnak ** Many deserted villages

Because caribou hides taken in the winter and spring are poor clothing material, the lower Kobuk people would have lacked necessary skins even if they did make forays into the upper Noatak area during these seasons. The upriver *Kuuvaŋmiut*, on the other hand, were able to hunt caribou in the summer when the hides were good.

Most downriver people conducted their own coastal trade, whereas the upper Kobuk people relied on certain individuals to do their trading for them. These few upriver traders became quite important and traveled great distances to trade with Koyukon Indians and with coastal *Iñupiat* both north along the Arctic Coast and west at Kotzebue Sound. Their pivotal position—between *Iñupiat* sea mammal hunters, foreign traders at the coastal trading fairs, and Indian trappers on the Koyukuk River—gave them an ideal opportunity to become middlemen.

In contrast to earlier times, the highest density of *Kuuvaŋmiut* population during the 1880s was apparently in the upper Kobuk area, perhaps due to the greater abundance of caribou there. This population shift was undoubtedly caused because people left much of the lower Kobuk area in favor of the coast. Some may also have moved upriver, but we have no evidence of it. Differences in population between lower and upper parts of the river in the 1880s are indicated in the table below (compiled from Cantwell 1887, 1889; Stoney 1900).

Little is known of changes in subsistence and settlement during the decade following 1886, except that Kobuk people traveled to the coast annually to hunt and to trade at Kotzebue, which remained the regional trading center. Certainly the *Kuuvaŋmiut* were well aware of changes taking place among coastal groups, such as the introduction of reindeer herding on the Seward Peninsula in 1892. This must have sparked their imagination, because they were much affected by the caribou population decline which now affected upriver areas as well as the lower Kobuk.

In addition, news of schools at Cape Prince of Wales and elsewhere along the coast must have made the Kobuk people aware that schools, and perhaps missions, brought the benefits of new goods and services offered by the U. S. government. Their first direct encounter with missionaries probably came during this period. In 1896, David Johnson, of the Swedish Evangelical Mission Covenant, traveled from Unalakleet to Kotzebue Sound. He was accompanied by the Native evangelist *Iyarok*, or Mr. Rock, who had previously made a trading expedition to the Kobuk and Noatak rivers. Looking at possibilities for setting up a mission, the two men spent that summer and fall visiting settlements along Kotzebue Sound and up the Kobuk and Noatak rivers. Mr. Rock, who had relatives in the region, returned to the Selawik-Kotzebue Sound area early in 1897 to carry out missionary activities (*Svenska Missionsforbundet i Amerika* 1897:121-41; Karlson n.d.).

Establishment of the mission and school at Kotzebue would eventually bring great changes to the *Kuuvaŋmiut*. Despite the Swedish Evangelical effort, Sheldon Jackson, Commissioner of Education in Alaska, gave the Friends Church jurisdiction to missionize and educate Natives of the Kotzebue Sound area.

The task of establishing the first mission in interior northwestern Alaska fell to the newly formed *California Yearly Meeting of Friends*. In August of 1897, Carrie and Robert Samms arrived at Cape Blossom and were met by Mr. Rock, who acted as interpreter. They had intended to establish a mission and school up the Kobuk River, but instead decided to stay at the Summer Rendezvous. The settlement apparently had just two winter households then, but later it grew and the Samms decided to remain there. The Rendezvous settlement was renamed Kotzebue in 1900.

Besides educating residents of the Kotzebue vicinity, Mr. and Mrs. Samms took in pupils from the Kobuk and other river systems during the summers. This practice continued until upriver schools were established in 1907 and 1908. The Kotzebue school was popular and most of the children attended. This meant that children who spent their summers in school were not learning about summer activities from their families at home. It began the process of transferring part of the traditional family role in education to white teachers.

The summer of 1898 brought what must have been one of the most dramatic events in *Kuuvaŋmiut* history. During July and August, as many as 1,200 gold seekers from California and elsewhere made their way up the Kobuk. They scattered along the entire river and remained for about a year. The magnitude of this influx of outsiders has never been equalled in any year since, notwithstanding the rising number of tourists, sports fishermen, hunters, and government administrators who now visit the area.

However, the prospectors probably had less impact on Kobuk valley resources and cultural traditions than one might expect. First of all, contact with foreigners was already an established way of life, although it now

occurred in their own territory rather than on the coast. Secondly, most of the prospectors brought in more supplies than they could use, so they did not rely on local game except for ptarmigan, hare, and waterfowl. On rare occasions they purchased food such as bear meat from the *Kuuvaŋmiut*. Thirty-two prospecting camps were spread out along the Kobuk, the first one 40 miles above the mouth and the last at the junction of the Reed River (Grinnell 1901:31-32). In some areas the camps were only one-half to three miles apart. One of these camps was apparently at the present site of Kiana.

The distribution of Kobuk people during the winter of 1898-99 was recorded by Carrie and Robert Samms, who made a government-sponsored trip to ascertain conditions and take a census of the Natives. One of two major settlements was at the mouth of the *Nuna* (Hunt River), where 80 *Kuuvaŋmiut* were living. The other was the *Paa* settlement, at the mouth of the *Saġvaqsiuġiaq* (Pah River), where 280 people, over half of the river's entire Native population, were residing (U. S. Dept. of the Interior 1900:1400-1401). The remainder, about 140 in all, were apparently dispersed along the rest of the river.

The *Paa* settlement must have been the most populous in interior northwestern Alaska at the time, apparently even exceeding the size of Kotzebue. At the request of the people living at *Paa* village, Samms recommended that a school and mission be established there. The people at *Nuna* had intense contact with prospectors in several nearby camps and were the first *Kuuvaŋmiut* to participate in regular church services conducted by some of the prospectors.

In the spring and summer of 1899, prospectors abandoned the Kobuk as fast as they had entered. Some followed up reports of the Nome gold strike and many returned to their homes outside. Several prospectors stayed in the Shungnak area, however, and some others arrived in 1900.

Kuuvaŋmiut settlements were apparently more dispersed in 1901 than in previous years, and Mendenhall (1902) recorded only 250 Natives living in the valley, as compared to 500 in 1898. The farthest upriver settlement was at *Anauliġvik* (the outlet of Lake Selby), and there was apparently another at *Qala*. According to Mendenhall, the *Kuuvaŋmiut* went through one or two years of starvation after the 1898 gold rush. Contrary to the evidence from miners' accounts, he attributed their plight to the "disrupting effect of the prospectors."

During the winter of 1901, several Kobuk people died of starvation, and others died of influenza, which reached an epidemic level in the region that year (Hadley 1969:103). To compound the problem, there were again no caribou in the Kobuk valley; the few that remained were in the Noatak or near the headwaters of the Totsenbet (John River). Moose had apparently entered the Kobuk area some years earlier, but were also absent in 1901. Because of the scarcity, many upriver people migrated to Nome or the Yukon Territory, where they could work to buy foreign foods and western clothing (Mendenhall 1902:56).

Life in the upper Kobuk remained difficult through the first few years of the twentieth century, apparently because caribou were still declining and moving farther to the north and east. Conditions were even worse in the lower Kobuk, where residents had to travel far up the Noatak River to find caribou in winter, and during summer they were totally out of reach. Also, traveling such distances in winter meant that the dogs ate so much of the meat that little remained to bring back to the village. As a result, settlements were small and dispersed in the lower and middle Kobuk areas. In December 1905, a woman now living in Kiana traveled from Shungnak to Kotzebue. She recalls seeing just one house in the middle region, at *Qalugraitchiaq*, one house at the mouth of the Squirrel River, between three and seven houses at *Aksik* (Oksik), and only a few others in the delta area. The people were subsisting primarily on fish, hare, and ptarmigan.

In the upriver area, prospectors who stayed around Shungnak managed to obtain enough gold to attract more miners back to the area. In 1903, the present site of Kobuk village became a depot for supplies hauled upriver by launch from the coast. The "Shungnak Post Office" was set up at Kobuk village, and by 1905 mail was delivered by dog team from Kotzebue five times a winter. Two trading posts were listed for Shungnak in Polk's 1907-8 *Alaska-Yukon Gazetteer*, and during the same years systematic development of gold mining began (Brooks 1925:51). By 1909, sixteen white miners took about $16,000 worth of gold out of the district (Brooks et al. 1910:46).

The first Kobuk River mission and school was established by the *California Yearly Meeting of Friends* in 1905 near the Shungnak Post Office (*Annual Report of the California Yearly Meeting of Friends* 1906:84). The settlement immediately attracted people from the region and grew almost overnight to 150 residents. James V. Geary, the first teacher-missionary, christened the village Long Beach after the California city, but the name never took. Within a year, even the missionary reports refer to the village as Shungnak. The school had an initial enrollment of 63, but lasted only a year until Geary's transfer to the Kotzebue mission. However, because the village now existed, the U. S. government reopened the school in 1907 (Brown 1907:2). Its 1908-09 enrollment was 61, with an average attendance of 40. This was nearly identical to the enrollment of 65 and average attendance of 33 for Kotzebue that year (U. S. Dept. of the Interior 1910:1031).

To provide a source of meat and skins for residents of the Shungnak region, the government established a reindeer herd there in 1907, bringing animals from Unalakleet. This was the first interior northwestern Alaskan herd, and shortly afterward another was set up in the Selawik River valley. Game remained scarce in the region for many years. According to the 1911 U. S. Geological Survey report on mineral resources in Alaska:

> There are but few game animals now [in 1910] in the Shungnak region except bear. These are found mostly back in the hills or along the unfrequented streams. Both black

> and brown bears are reported. Caribou have been shot at several places within the region, but they are not numerous and the natives have to travel far to obtain their supply. There is, however, a herd of reindeer in the Sheklukshuk Hills and strays from this herd have probably been taken for wild caribou. Small fur-bearing animals, such as fox, mink, and marten, are occasionally caught, but they are found in no great numbers and are becoming scarcer each year. (Smith and Eakin 1911:279)

In the downriver area, the population was still dispersed except at *Aksik* and at the mouth of the Squirrel River. A depot had been established at the Squirrel River mouth by 1908 to supply the few prospectors in the region. It apparently also attracted *Kuuvaŋmiut*, who set up households in their traditional settlement nearby. In 1908 or 1909, placer gold was discovered at Klery Creek, a tributary of the Squirrel River, and there was a mild stampede to the area. The depot, known as Squirrel City, was transformed to a village of 20 or more log houses, a store, and a restaurant. The following year, Squirrel City was renamed Kiana, and two more stores were established, along with the government recording office for the Noatak-Kobuk mining district (Smith 1911:307).

Physically, Kiana was two separate villages. The Native settlement was at the base of the bluff facing the Squirrel River. It was called "Old Village," or *Katyaaq*, a name indicating the lower end of many channels (two of the Kobuk River and one of the Squirrel River). The miners' village, along the eroding bluff facing the Kobuk, was called Kiana, from the *Kuuvaŋmiut* name for the point of land across the river. Remnants of the old village, including several caches and two large abandoned log cabins, could still be seen in the 1970s. Many of the original miners' houses and one or two stores along the Kiana bluff have washed out.

Fish were the main resource available to the lower Kobuk people around 1910. According to P. S. Smith who studied the area for the United States Geological Survey:

> Undoubtedly, in the more remote parts of the Squirrel River basin large game, such as bear and caribou, may be found, but in the parts near the placer diggings [Klery Creek] this is not the case, and there are few indications that there has been much game in the region in the recent past. Ptarmigan and water birds, however, are abundant, and may be approached sufficiently close to obtain a considerable number, but it is believed that they are not to be entirely depended upon for food. Fish are numerous in all the streams. Salmon by the hundreds are caught in dragnets in the Kobuk and lower Squirrel River, and grayling may be had in almost all the smaller streams. So abundant are the fish that they may be safely counted on for food. (Smith 1911:310)

Wage labor and store supplies became available to the residents of *Katyaak* shortly after mining operations began. This attracted more people from the upriver region; most mining was conducted by single individuals or pairs working their own small claims. Opportunities for mining employment around *Katyaak* developed slowly, however. In 1910, presumably all workers were white, and P. S. Smith wrote:

> At the time the region was visited by the Survey Geologist there were not over 50 men in the whole region and about a third of this number were employed on one claim. Capital had not taken hold of the region, and there were few opportunities to work for wages; consequently the camps were run on a partnership basis and few of the men were equipped with the necessary supplies to carry them for a year or so of unproductive labor in building drains, etc., preparatory to opening a property. Wages were said to be $7.50 a day and board for ordinary miners, but as there was only one company employing men and as that company was able to obtain all the help it needed at $5.00 a day, the above figures are more or less fictitious. (Smith 1911:312)

According to one Kiana resident, people from *Katyaaq* were hired at the mines shortly after 1910, but at a wage of $2.50 for a ten-hour day. Most of the jobs were transporting supplies to the mining camps, and payment was largely in foodstuffs and other store items.

The next event that profoundly affected population and economic conditions for downriver *Kuuvanmiut* was a government decision to establish the Noorvik Reservation. In 1914, the schoolteacher at Deering reported that the Native residents were experiencing economic difficulties:

> The [Deering] Eskimo hunter finds his vocation greatly hampered since the advent of the white hunter and trapper, who has made it necessary for the Eskimo to go on longer journeys than formerly for the game birds on which he depends for his summer supply of food to a great extent. The seal is plentiful, the natives going about 80 miles for it. The supply of salmon has, however, greatly diminished. Owing to the extension of mining operations, the river water is muddy and saturated with gasoline. More salmon were shipped in from Kotzebue this year than was taken in Deering waters. (U. S. Dept. of the Interior 1915:31-32).

In response, the federal government established a reservation around *Putu* on the lower Kobuk River. The place was renamed Noorvik (from *Nurvik*, meaning "moving place"), and many Deering families resettled there, anticipating a plentiful supply of salmon and abundant trees for building. But the area was not as desirable as people had expected, and before

long some families returned to Deering. In fact, the bleak picture of conditions in Deering may have been somewhat overstated. According to recent information from some persons who took part in the move:

> Food was no problem at any time. They [the residents of Deering] always went to their traditional hunting places for the seal and *oogrook*, salmon fishing was even better when the mining started because the sluice muddied the water and the fish couldn't see the nets. The white people and the Natives personally had no problem with each other, but the BIA was discouraging mixing company. Both Kugruk and Inmachuk Rivers were used for subsistence hunting and fishing. Fish, fowl, sea mammals, greens and berry picking were taken in season. The only problem they had was heating. The only fuel they had was drift wood and alder. (Craig 1976)

The government intended that Noorvik would become a major settlement in the Kotzebue-Kobuk-Noatak area. Soon after its founding, a telegraph system was installed for direct communication to Nome, the first hospital in the region was built, and electricity was provided. The hospital remained until the next decade, when it was removed to the faster growing community of Kotzebue. Another potential asset of Noorvik was a herd of reindeer, which were brought from Deering in 1915 and grazed in the area for several years.

Once Noorvik was established, people from the lower Kobuk also moved there, including some from Kiana and nearly everyone from *Aksik*. Only two years earlier the first government school in the lower area had been established at *Aksik*, and the residents' departure effectively shut down the school. Lumber and supplies intended for a new *Aksik* schoolhouse were therefore diverted to Noorvik, and the school was built there.

Kiana continued to grow during the 1920s, through a continuing influx of miners and upriver families. The upper Kobuk people were attracted by foreign goods from Kiana's three stores, work on mining-related activities, and the chance to hunt and trap muskrats for furs. Because the *Kuuvanmiut* had little money, furs began to serve as the standard medium of exchange at the trading posts.

Summary of *Kuuvanmiut* Economic History

Looking over the Kobuk valley's economic history, we observe that the area's major subsistence resources have experienced a constant ebb and flow. Although each important innovation in harvesting and storage techniques has cushioned the effect of scarcity, periodic absence of game animals has required major adjustments in way of life. There has also been a constant interaction between Kobuk River people and their coastal *Iñupiat* relatives, on the one hand, and their Indian neighbors along the Koyukuk

River on the other. This interaction has played a vital role in maintaining the well-being of each group and in keeping options open during the constant shifts of animal ranges and populations.

During the past 10,000 years, the most important technological influence on human success and survival in the Kobuk valley was acquisition of the means to hunt caribou during the winter. Presumably, the critical implement was the bow and arrow, although the earliest inhabitants of the valley may have possessed this weapon already. The development of fishing technology, such as spears and traps, presumably came later and may have been modeled after the use of hunting and trapping devices. These technological advances allowed early Kobuk River people to occupy the valley year round, relying on caribou hunting and fishing for their subsistence.

Over the long course of millennia, Kobuk people maintained access to the coast, either through trade or travel, and in this way they obtained sea mammal products. When caribou were scarce, fish trapping, which was done primarily in the fall and early winter, would not have been productive enough to sustain the population. Therefore, each time the caribou dwindled, failed to migrate through the valley, or wintered outside the area, people were hard pressed to make a living. We envision that periods of starvation became increasingly frequent during the last thousand years or more, and so a growing number of families moved to coastal settlements where they had relatives. This was especially pronounced in downriver areas, where people were more familiar with the coast. It gradually led to abandonment of the valley during winters. This pattern of movement, together with a decline in the Eskimo population at any time of year, would have allowed Koyukuk Indian hunters freer access to the upper Kobuk.

After the development of gill nets and seines, great quantities of fish could be taken. Now people had a food base to see them through all but the most severe caribou population declines. Perhaps because of this, the valley seems to have been continuously occupied by *Kuuvagmiut* after 1000 A.D. As long as enough caribou were available, people could maintain a few sizable winter settlements despite lacking a means of rapid transportation such as dog teams. When caribou declined, the Kobuk people had to disperse for the winter to sustain themselves on small game and early season fish catches.

After dog traction developed—initially with teams of no more than three to five dogs—people were able to live year-round in their villages. This was even possible when caribou were in short supply, as during the late nineteenth century. It was about that time that a heavy demand for imported goods developed. Furs were the major trade item that Kobuk people possessed, and since these could not be intensively trapped from large settlements, people again scattered into separate household groups.

As exposure to western culture, schools, and trading posts increased, the Kobuk people again became concentrated in settlements. Greater mobility was needed for successful trapping and hunting, so larger dog teams were developed. This led to teams numbering from 18 to 24 dogs, and some families owned as many as 40 animals. Large dog teams required enormous amounts of fish, and luckily the salmon harvests were plentiful. With the coming of the snowmachine, dog teams are apparently becoming obsolete, and the number of dogs per family has declined. This has of course reduced the need for salmon, but in its place is the demand for a sizable and steady cash income to pay for snowmachines and their upkeep.

Life along the Kobuk River has clearly been cyclical throughout the centuries. There is no reason to doubt that cycles of abundance and of scarcity will continue into the foreseeable future.

Part 2
The Environment

Chapter 3

The Environment

The *Kuuvanmiut* inhabit a vast area of pristine forest and tundra just above the Arctic Circle in northwestern Alaska. This is a land of singular beauty, with great sweeps of open country bounded on all sides by mountains. To the north, the Baird and Schwatka mountains rise abruptly, dominating the view from all parts of the Kobuk River valley. They form a southerly extension of the Brooks Range, a chain of rugged mountains stretched in a broad arc across the north quarter of Alaska. South of the Kobuk valley are the lower and more weathered slopes of the Kiana Hills, Waring Mountains, and Zane Hills.

The mountains are not large by Alaskan standards; elevations vary from 1,000 to 4,500 feet. However, their closeness to the river and to the villages gives an impression of greater size. Narrow valleys and low passes that cut through the mountains create natural pathways for overland travel. For many generations, the Kobuk people have traversed these passes, northward into the Noatak valley and the Brooks Range beyond, or southward into the Koyukuk valley and Selawik lowlands.

For the most part, however, they have utilized their traditional homeland within the Kobuk River valley. This is a broad expanse of flat and low-rolling terrain, 15 to 25 miles wide and some 350 miles long, oriented roughly east to west. The valley floor is covered by a complex pattern of tundra and forest interspersed with streams, river channels, lakes, and sloughs. Vegetation and drainage patterns are heavily influenced by the depth of permafrost, which underlies all of the valley except some areas close to the river.

The dominant feature of the landscape is the Kobuk River and its tributaries. From headwaters in the southern Brooks Range near Walker Lake, the Kobuk flows generally westward, never more than a few miles south of the mountain flanks. The upper river is swift, shallow, and clear until a point below the villages of Kobuk and Shungnak. There the channel deepens and the flow becomes sluggish. Fifty miles above its mouth, the river divides into a broad delta with many channels that empty into Hotham Inlet near Kotzebue.

Along most of its course, the Kobuk meanders widely over its flood plain. Lakes, sloughs, and timbered ridges mark the river's past wanderings and create a rich, diversified environment along its entire length. During annual periods of high water, old banks collapse into the current and new deposits enlarge sand bars in other parts of the channel. The river's banks are quite low, except in a few areas where bluffs rise 50 to 100 feet above the water.

The Kobuk River is fed by innumerable small tributary streams and by several sizable rivers. Important tributaries flowing into the Kobuk from the south are the Pah, Pick, and Black rivers. These contain dark, sluggish waters derived from hundreds of small ponds and lakes in huge forested or tundra-covered flats. Tributaries north of the Kobuk, which drain mountain areas, include the Squirrel, Mauneluk, Shungnak, Ambler, and Hunt rivers. These rivers are all swift-flowing and clear.

It is difficult to overestimate the role that the river plays in *Kuuvanmiut* life. Its waters provide a rich harvest of fish every year, and along its course the hunters take waterfowl, caribou, moose, bears, and many smaller animals. It is an avenue for travel, by boat in summer and by dog sled or snowmachine on the frozen surface in winter. Without the river and its concentrated resources, it is doubtful that people could live in the Kobuk River valley.

Climate

The climate of the Kobuk region is predominantly continental, with very cold winters and warm summers, but maritime influences from the nearby Chukchi Sea help to moderate the temperature extremes. This is especially noticeable along the lower river, where cloudiness is more prevalent and the temperature range is less pronounced.

Winter is the Kobuk valley's dominant season, encompassing roughly five months of the year, November through March. During most of this period, temperatures remain consistently near or below zero (all temperatures are in Fahrenheit). Seasonal lows of -60° to -70° are the rule, and cold spells with -40° to -50° weather commonly last from one to three weeks. These periods are frequently interrupted by storms that sweep inland from the coast, bringing snow, gale winds, and temperatures ranging from 0° to 20° or higher.

Climatic Data for Villages of Kobuk and Kotzebue

Period		Kobuk Village	Kotzebue
January	mean maximum temperature	0.5° F.	1.3° F.
	mean minimum temperature	-20.2°	-12.7°
	mean minimum temperature	-10.4°	-3.7°
July	mean maximum temperature	68.4°	58.6°
	mean minimum temperature	45.1°	46.8°
	mean minimum temperature	57.1°	52.9°
	annual mean temperature	22.1°	20.7°
	highest recorded temperature	90.0°	85.0°
	lowest recorded temperature	-64.0°	-52.0°
	average annual precipitation	18.0"	8.0"
	average annual snowfall	63.6"	46.0"

At the other extreme are the three months of summer—June, July, and August—which bring mild weather and occasional hot spells. Temperatures average from 50° to 60°, and range from the upper thirties to about 90°. The spring and fall transitions only last from six to eight weeks. On the upper river, freeze-up comes in mid-October, and breakup occurs in mid-May; on the lower river, freeze-up and breakup are delayed one or two weeks.

There is surprisingly little precipitation here, but evaporation is very low and permafrost makes for poor drainage. So instead of looking like a desert, the Kobuk country is covered with lakes, streams, and wetlands. Summer months bring the heaviest precipitation, especially near the mountains, where convective showers are common. Long, soaking rainfalls also occur, especially during July and August. Snowfall amounts are not large, but the long uninterrupted cold of winter allows considerable accumulation. Total snowfall varies from about 45 inches at low elevations to about 100 inches in the mountains.

Wind is also an important element of climate in the Kobuk region, because the valley is a natural channel for air flowing between the inland and coastal areas. As a result, moderate winds blow much of the time, and powerful gales are not uncommon. East and west winds predominate, but north winds often blow near passes through the Brooks Range.

The daylight period changes drastically from summer to winter, and it exerts a powerful influence on people's activities. During the months from May to August there is no real darkness. The sun circles monotonously above the horizon, dropping behind mountains to the north for only a few hours each "night." The spring and fall transitions are very rapid—the period of light changes by six or seven minutes each day. For several weeks in midwinter the sun never climbs above the horizon. Even at this time, however, there are five or six hours of twilight, enough to allow extensive outdoor activity. Also, the long nights are often brightened by moonlight and the aurora.

Flora

The vegetation of the Kobuk River valley is strikingly diverse for an area so far north. Over 360 plant species have been recorded in the region. Boreal forest, tundra, and coastal plant communities intertwine in complex patterns, their designs differing according to elevation, drainage, soil, climate, and fire history. Viewed from a high vantage, broad tundra prairies dominate the terrain. Scattered over these open plains are copses of birch, usually on low knolls or hillsides. Depressions, gulleys, creek beds, and lake shores are generally covered by thickets of low willow and alder. Along the Kobuk River, on rolling uplands, and in mountain valleys, there are large areas of spruce forest.

Tundra vegetation consists of a low mat of mosses, lichens, sedges, and cotton grass. In many areas, especially in very wet or alpine areas, no

plants taller than these are found. Elsewhere, isolated thickets of low shrubs—dwarf birch, willow, cranberry, blueberry, and Labrador tea—dot the tundra. These shrubs are rarely more than waist high. Tundra is an extremely important element of the Kobuk valley ecosystem. It supports herds of caribou which are a vital resource in the subsistence economy; and it is ideal terrain for spotting and hunting these and other animals. It also permits easy travel on snow packed hard by strong winds.

Continuous shrub thickets of close-growing willow, alder, and birch are also found throughout the non-tundra areas of the Kobuk region. The best developed thickets, with shrubs reaching 10 to 30 feet high, occur on gravel bars and alluvial deposits along the river and its tributaries. Dense brushy thickets of alder and willow also grow on the mountains near the tree line and in sheltered hollows on the tundra. The shrubs in these thickets rarely stand over 10 feet tall, yet they create pockets of shelter for humans and animals in the otherwise open country.

Kobuk valley forests are dominated by small to medium-sized white spruce, aspen, paper birch, and balsam poplar trees. Because these forests are located on the tundra's edge, they tend to have a fairly open character. The largest and most dense growth is found along the river and its flood plain (where permafrost is poorly developed) and on warm, dry, south-facing slopes. Many timbered areas have been burned in the past, creating successional communities of willows, aspen, birch, and sapling white or black spruce. In poorly drained areas or on north-facing slopes, forest succession leads to stands of black spruce underlain by a thick boggy mat of mosses, grasses, sedges, and prostrate shrubs.

The forests are very important to the Kobuk people, because they provide wood for construction and heating as well as game and fur-bearing animals different from those found on the nearby tundra. The *Kuuvaŋmiut* are unusual among the Eskimo groups, for nearly all Eskimo peoples are oriented exclusively to the resources of water and tundra environments. But people of the Kobuk valley have added to this an adaptation to life in timbered country and the special array of resources it provides.

Fauna

The Kobuk valley fauna, like the flora, is a mixture of species found in the boreal forest and tundra. It is made more diverse by the presence of mountains and, in the lower valley, the nearness of the seacoast.

For the *Kuuvaŋmiut*, the most important tundra animal is the caribou. Thousands of caribou migrate into the Kobuk region each fall, scatter widely for the winter, then move north through the valley again in spring. During all of these seasons the people hunt them intensively.

Another tundra animal of importance to Kobuk villagers is the grizzly bear, which is regularly hunted for its meat and hide. Red fox, wolf, and

wolverine frequent both open and timbered country, but are usually hunted or trapped on the tundra. In tundra-covered mountains or hills, there are Dall sheep, hoary marmot, arctic ground squirrel, and arctic hare.

Boreal forest, which includes both the timber and the flood plain shrub thickets, supports a rich fauna of its own. Moose are common in forested areas along the entire Kobuk River. These very large animals are newcomers to the valley, having appeared toward the end of the nineteenth century; but they have become quite important in the local economy. The black bear is another frequently hunted animal that favors the timbered country.

Forests and thickets are also inhabited by important small game, including the snowshoe hare, porcupine, and red squirrel. Lakes and streams in these same areas provide the habitat for muskrat and beaver, which are both used extensively for meat and fur. Other fur species of the timber include marten, mink, otter, and weasel.

About 100 species of birds have been recorded in the Kobuk valley. The most important are waterfowl, including six species of loons and grebes, four species of geese, and 13 species of ducks. Kobuk people hunt geese and ducks during the annual migrations and regard them highly as food. Ptarmigan and grouse are the only other birds that rank high in village economies. Ptarmigan snaring is an important winter activity for women in the villages today.

The Kobuk River, its tributaries, and the nearby lakes and sloughs are very productive environments for fish. In the summer, salmon and sheefish provide a relatively stable foundation for the local economy. These are augmented by rich catches of humpback and broad whitefish, least cisco, grayling, trout, northern pike, sucker, and burbot. In terms of resource volume and long-term reliability, fish are the economic mainstay of *Kuuvaŋmiut* society.

Flora and Fauna Used by Kuuvaŋmiut Eskimos

	Number of Species Utilized	
	Upper River	Lower River
Mammals	26	26
Birds	42	42
Fish	13	14
Plants	34	37
Total	115	119

The table above lists the number of plant and animal species utilized for subsistence by modern Kobuk villagers. Certainly the actual number of species taken varies from one time period to another; and the tally includes species that are rarely taken. A list of *Iñupiat* names for utilized species is found in *Appendix 2.*

Chapter 4

Kuuvaŋmiut Subsistence Cycles

In the subarctic environment of the Kobuk valley, the changing seasons have importance beyond all other natural events. Every plant and animal species must respond in its own way to the seasonal transformations of warmth and cold, light and darkness, rain and snow, water and ice. Each year is marked by a regular cycle of growth, reproduction, fruition, migration, and dormancy or death. This sequence of changes also governs the patterning of human life, and from it the *Kuuvaŋmiut* have developed an annual cycle of subsistence activities. Because there are important environmental differences between the upper and lower Kobuk regions, the annual subsistence cycle for each area is discussed separately. In both cases, there are also separate sections detailing patterns followed during the last century and during modern times.

The timing of seasonal changes varies from year to year, and no season is ever perfectly typical or "normal." The discussions that follow mask these variations but give a sense for general yearly patterns of Kobuk River life. The seasons are defined as follows:

Spring	late March to mid-May
Summer	mid-May through August
Fall	September and October
Winter	November into March

Upper Kobuk Region

The Traditional Subsistence Cycle

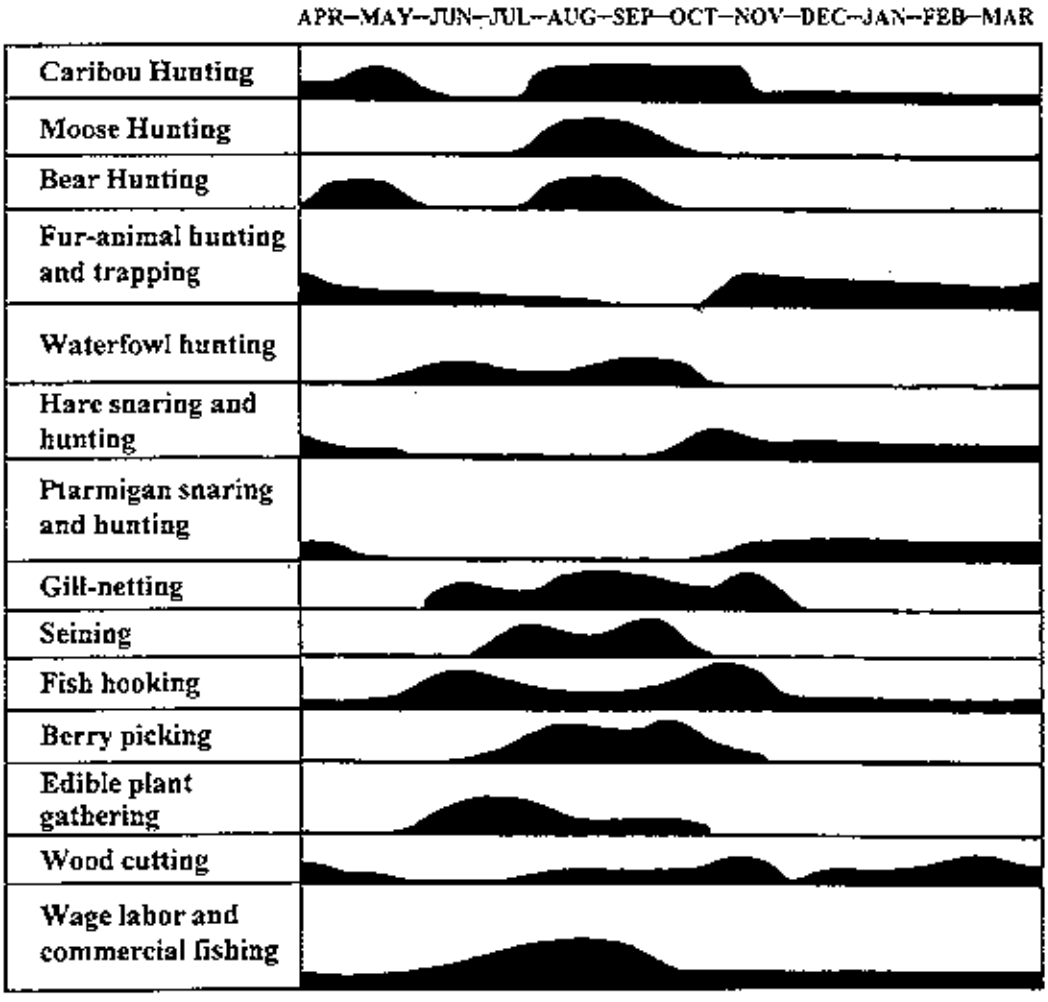
J. L. Giddings' ethnographic study of the upper Kobuk Eskimos (1956) describes the annual subsistence cycle followed by these people during the early 1880s, before the first European explorers ascended the river. His account, which provides the basis for this section, is taken from recollections of elders who were adults before they had contact with whites.

Spring. In former times, as today, spring was a season for traveling. As early as February the lengthening days made people restless to move, anxious to leave their permanent winter dwellings. So the sleds were loaded and a period of wandering began. Families of upper Kobuk people sometimes made their camps beside caches of food left during the previous fall. They might also camp near lakes where fish could be hooked, in willow stands with abundant ptarmigan or snowshoe hares, or in areas where scattered caribou bands could be found. Often, times were lean, especially during March, when people were forced to rely heavily on stored foods.

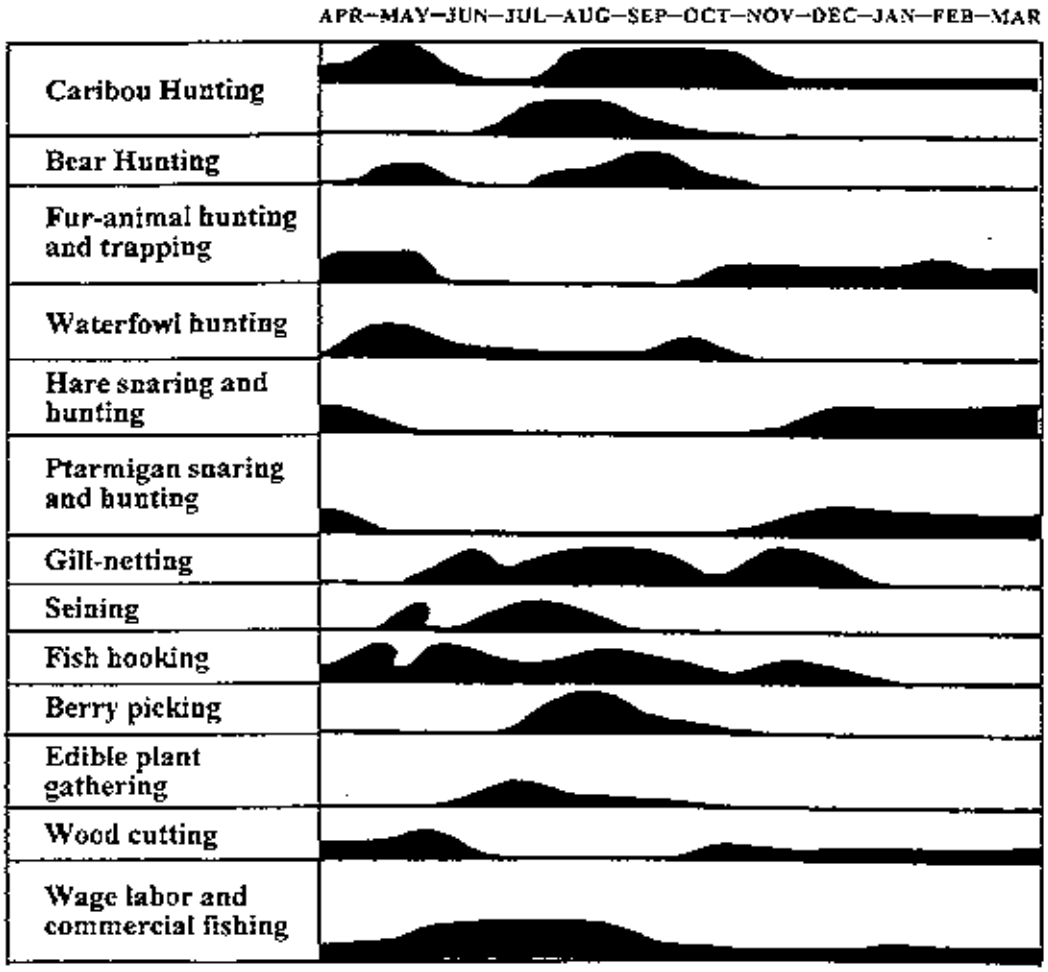
Spring camping lasted for several months while the weather steadily moderated. People lived comfortably in hemispherical, caribou-skin-covered tents heated by wood fires. When the days became warmer, they built tipi-like structures of spruce saplings, or they lived outdoors.

As the season progressed, new resources became available. Bears were sometimes taken from their dens, beavers were dug out from their houses, muskrats were shot with arrows, and migrating waterfowl were hunted. During this time, too, the snow melted, lakes and creeks became clear of ice, and finally the river ice broke up and churned its way downstream. When the river was clear, the people made large rafts and drifted down to their summer camping places.

Annual Activity of the Upper Kobuk River Communities



Annual Activity of the Lower Kobuk R iver Communities



Summer. Hemispherical shelters covered with spruce bark were built each year at summer fishing camps along the upper Kobuk. After this was done, usually in early June, the men joined together in small groups and walked northward into the Brooks Range. They moved high up through the mountains, hunting and snaring sheep, caribou, marmot, and occasionally bear. The men hunted all summer, accumulating valuable hides and sinew that the women would later use to make clothing, tents, and sleeping bags. Antlers were saved for making a variety of tools. The meat was largely consumed in the mountains, and very little was saved to be taken home. The men's summer hunt was thus directed mainly toward acquiring animal products other than meat.

While the hunters were away, the women, children, and old men stayed in camps along the river. In early summer they made willow-bark nets, gathered edible plants such as wild rhubarb and willow leaves, collected birds'

Kuuvanmiut Subsistence Activities in the Kobuk Valley National Park

Spring	*Summer*	*Fall*	*Winter*
Eastern Portion of the Park			
hunting camp*	fishing camp	fishing camp	hunting camp*
caribou hunting*	caribou hunting	caribou hunting*	caribou hunting*
bear hunting	gill-net fishing	moose hunting	fur-animal hunting and trapping
waterfowl hunting	hook and line fishing*	bear hunting	ptarmigan hunting
muskrat hunting	edible plant gathering	gill-net fishing	birch wood cutting
		hook and line fishing	
		edible plant gathering	
		berry picking	
Western Portion of the Park			
caribou hunting*	fishing camp	fishing camp	caribou hunting*
bear hunting*	caribou hunting	caribou hunting*	fur animal trapping*
waterfowl hunting	seining*	seining*	ptarmigan hunting
	hook and line fishing*	moose hunting*	hare hunting
	edible plant gathering*	hook and line fishing	
		edible plant gathering	

* denotes activity for which park withdrawal is a key subsistence area

eggs, and did some fishing in small streams and sloughs. Early in July the salmon began to run, and the women were constantly busy from that time on. Paddling birchbark canoes, the women would pull long seines out into the river, encircle schools of salmon and then bring them into shallow water along the beach. After making a catch, they spent many hours laboriously cutting the fish and hanging them on racks to dry. When this was finished, the innards were boiled to make fish oil, the vital fuel for light and heat during the winter months.

Fish runs reached their peak in August, when salmon, whitefish, and sheefish were caught in great numbers. Lines of racks laden with fish stood along the bank at every camp, and the people subsisted mainly on their catch. August was also a time for picking blueberries, cranberries, currants, and other fruits as they ripened. Some were eaten immediately and the rest were preserved in oil or dried for use the following winter.

Fall. At summer's end, in late August or early September, the men trekked down out of the mountains, burdened with great packs. At the headwaters of the Kobuk tributaries they built log rafts, loaded their goods aboard, and began the final leg of their homeward journey. Eventually they reached the main river and the fish camps where their families had been all summer.

For some time thereafter, the *Kuuvanmiut* stayed at their summer camps. People hunted migrating waterfowl, checked the nets each day for several kinds of late-running fish, gathered berries, and used up the few choice pieces of sheep and caribou meat brought from the mountains. Then, as colder weather descended into the valley, the people broke camp and began pulling their heavily loaded boats upstream.

New camps were established in the upper Kobuk valley, where many families gathered at known caribou crossings. Skin tents were erected, and small fires were kept going inside to provide warmth. Somewhere nearby was a caribou corral. This consisted of two lines of stone cairns, maintained year after year, that stretched for miles across the tundra and converged upon a large lake. When herds of southward migrating caribou arrived, they were driven between these cairns and into the lake, where men in kayaks speared large numbers of them. Killed animals were butchered immediately, and their meat was preserved by drying or freezing. Almost all parts of the animal were utilized—meat, hide, antlers, bones, and internal organs.

Winter. After the fall caribou hunt, people separated into small family groups, traveled down to where the river was large, and built their winter houses. These were substantial, half-underground, sod-covered dwellings that provided shelter against the extreme cold of winter. Heat was supplied by an open fire set beneath the house's smokehole, and light came from oil lamps and a gut-skin skylight.

Immediately after freeze-up, the people began making fish traps. These were of several types, but all consisted of fences put down under the ice to divert fish into trap devices or hand-operated dip nets. Sheefish, burbot, whitefish, and pike were taken in large numbers during this time. Later on, as the snow deepened, ptarmigan and snowshoe hares were hunted or snared. Hook and line fishing was also done through the ice until the fish stopped biting in midwinter. Caribou and fur-bearing animals were also taken for food and hides during the winter months.

Subsistence activities slowed considerably during the coldest and darkest times of the year. People occupied themselves indoors, however, making and repairing equipment, telling long narrative tales, joining shamanistic performances, and participating in trading feasts that brought people together from distant camps. Finally, as the days lengthened, they prepared again for the travel and camping of early spring.

Kuuvaŋmiut Calendar

January	*Siqiñaasrugruk*	*(new sunshine)*
February	*Kusrugaqtugvik*	*(icicle time)*
March	*Qiḷġich tatqiat*	*(Moon of the Goshawk)*
April	*Tiŋmirrat tatqiat*	*(Moon of the Geese)*
May	*Sikuigvik*	*(ice breakup time)*
June	*Iġñivik*	*(birth time)*
July	*Itchavik*	*(molting time)*
August	*Amigaiqsivik*	*(when caribou lose velvet from antlers)*
September	*Tiŋŋivik*	*(bird migration time)*
October	*Sikkavik*	*(freeze-up time)*
November	*Nippivik*	*(sunset time)*
December	*Siqiñaatchiaq*	*(no sunshine)*

(Source: Webster and Zibell 1970:119-20)

The Modern Subsistence Cycle

The years since 1880 have brought a great many changes in life on the upper Kobuk River. Much of the traditional technology has been altered, lost, or replaced by new implements from western culture. Log and lumber houses have supplanted tents and semisubterranean dwellings, rifles have displaced bows and spears, motorized boats have replaced canoes, nylon gill nets substitute for nets of willow bark, and snowmachines have largely superseded dog teams. The life pattern, too, has changed considerably. People are permanently settled in villages, they participate in a wage economy, and their entire social culture has been altered drastically.

Despite these changes, the *Kuuvaŋmiut* still make their livelihood primarily from the land. Because they depend on hunting and gathering for much of their livelihood, they must respond to the yearly cycle of changes among the plants and animals, just as their predecessors did in the last century. Although their technology and settlement patterns have changed, their annual round of hunting, trapping, fishing, and gathering remains fundamentally intact.

The following descriptions of *Kuuvaŋmiut* life today are based on observations of upper Kobuk subsistence activities in 1974-75 and on verbal accounts of the yearly cycle given by Ambler and Shungnak villagers.

Spring. The spring season begins in long, often winter-cold days, and it ends abruptly after the river ice breaks up in the summery warmth of middle or late May. This is a time of sudden transition—days lengthen

until there is no night, warm air spreads into the north, caribou pass through and are gone, waterfowl appear, river ice lifts and is swept away, snow vanishes, and green vegetation covers the land.

During March and April the days are long, temperatures are moderating, and snow conditions are excellent for dog teams or snowmachines. People make long and frequent hunting trips, journey to the medicinal hot springs, and exchange visits with friends and relatives in villages throughout the region. Overland travel continues until early May, when the snow becomes slushy and water overflows the ice on tributary streams. People are then largely immobile until the Kobuk River is ice-free, which begins a flurry of boat travel.

Spring is also a favored season for camping away from the villages. Until recent years, family camps were established from early April until after breakup. These camps were an escape from the mud and crowding of settlements, and gave people access to local concentrations of game such as caribou, waterfowl, muskrat, and beaver. Presently, however, children must remain in school until after breakup, so family spring camps have become a rarity. Temporary camps are still used by men on prolonged hunting trips. After breakup, family camps are often established on traditional sites known for good fishing and hunting.

Spring is second only to fall as a time of intensive caribou hunting. In April and May, the caribou start fattening, and the quality of their meat improves. Caribou leg skins are good for making boots, but the hides themselves are nearly useless because of shedding fur. Nearly all meat from spring-killed caribou is cut into strips or slabs, hung on racks to dry, and kept for summer use. The best weather for drying meat comes in May, during or just after the northward caribou migration. Primary areas for spring caribou hunting depend on the animals' movements, but in recent years the Hunt River country and nearby tundra flats have been favored. Caribou also tend to frequent the Ambler River valley and the tundra flats between Shungnak and Ambler villages during the spring.

Hunters on far-ranging spring trips sometimes encounter black or grizzly bears. These animals are still fat during April, just after emerging from their dens, but they begin losing their fat in May and are not hunted much thereafter.

Spring is also a very important season for hunting ducks and geese, which are fat and have excellent meat at this time. The Eskimos can reach their long-established hunting places by land or water, depending on the progress of the season. Waterfowl can be a vital resource in the springtime, especially during years when other game is scarce or unavailable.

Muskrats are fat and good to eat throughout the spring. They can be trapped on lake ice from March until May, then hunted after they come out onto the ice in mid-May. Hunting lasts until the males begin to fight and perforate their skins with wound-holes. Some excellent muskrat hunting

and trapping areas are located south of the Kobuk River in the eastern part of the Kobuk Valley National Park.

The upper river *Kuuvaŋmiut* anxiously await their first chances to catch fresh fish in the spring. Gill nets can first be set at certain creeks where water flows out over the ice before breakup. This catch is largely broad whitefish and some pike.

After breakup, the main spring fishing begins. Gill nets are put in creeks and sloughs known to have fish at this time, and occasionally at favored spots in the Kobuk River. Some of the best places used by the Ambler *Kuuvaŋmiut* are in the Kobuk Valley National Park area. Netting continues from breakup (middle to late May) until late June, when the high-water period ends. Species caught include sucker, pike, and broad whitefish along with some grayling and humpback whitefish.

People also fish through the ice with hook and line during the spring. Pike and burbot are taken this way from February until breakup, with the best catches occurring in April and May.

Some gathering of vegetation also takes place in the spring. Firewood is cut, green willows are gathered for basket making, and birches are cut for making sleds. After the snow melts, people occasionally pick blueberries, cranberries, or bearberries that remain from the previous fall.

Summer. This is the most uniform season: there is continuous daylight, the temperature is never cold, and the only marked resource changes are the appearance of fish and the growth of plants. Sometimes, however, there is a period of scarcity in early summer, around June and early July. Caribou are absent (or in poor condition if present), fish are scarce and difficult to catch, and nearly all other game resources are at a low point of accessibility. Older *Iñupiat* can recall times when they had "nothing but coffee to eat" for several weeks, when they ran out of stored foods and could not replenish their stocks.

In summer, the upriver villagers travel largely by boat, following the Kobuk River and the streams, sloughs, and lakes that flow into it. This travel keeps them within the forest zone, since timber usually flanks the waterways. Overland travel, which must be done afoot in summer, takes them away from the forest and onto the open tundra. Here they can make straight traverses, orient themselves easily, and usually find enough wind to suppress the mosquitos.

Upper Kobuk people may live in camps during the summer, sometimes for only a week or two, sometimes for a month or even more. Most of these camps are at traditional fishing places and are occupied year after year by the same families. Some sites are located quite far from any settlement, including several within the Kobuk Valley National Park that are regularly used by Ambler Eskimos.

Very little caribou hunting takes place during the summer, because the herds have moved far to the north. There are occasional stragglers,

however, especially along the Kobuk River near the Hunt River mouth and around Onion Portage. These animals are shot for fresh meat whenever possible. Summer caribou hides are excellent for making fancy skin boots.

Few bears are taken during the summer. They are in poor condition, with little fat, from May until the end of July, when they start fattening on berries and fish. However, people may take a bear at any time if food is in short supply. Ducks also have little fat during this season, and are very rarely taken. Geese are in good condition, but are not often seen. In the past, people would hunt for molting and fledged geese at certain lakes and tributary streams in July. Apparently, this is no longer done.

The most abundant and reliable summer resource is fish. People may camp for long periods at fishing places, or they may visit their nets daily by boat from the village. Cutting and drying fish is also a major part of the task. Both upper and lower Kobuk villagers use three methods for summer fishing: gill netting, seining, and hooking.

Gill netting begins along the upper river when the salmon appear in mid-July. Other fish are available before this time, but the weather is too hot for proper drying. Nets are nearly always placed in eddies, which are scattered along the river's banks, sometimes many miles from the villages.

Species caught in gill nets include the following: chum salmon are taken from mid-July to early September, with the largest catches late in the season. Sheefish are caught from July to September. They are fattest and best for cooking in July, but are also dried throughout the season. Pike are netted from July through fall; and broad whitefish are taken from mid-July through fall.

During June and July, seining is done along sand bars in the Kobuk and Ambler rivers, in spots where the water is fairly deep and has little current. Chum salmon are seined in July and August. Early salmon are the fattest and best for cooking, but they are good for drying all summer. Broad whitefish are taken mostly in July. Up to 2,000 or 2,500 may be caught in a single seine haul, and all must be scaled and strung on willow sticks. Round whitefish are taken only in summer seining, but are never common.

Pike, grayling, and sheefish are caught all summer with rod and reel. This is a fairly common method of catching fish for subsistence purposes, especially in the case of sheefish. The best areas for sheefish hooking by the upper river villagers are located within and just upriver from the Kobuk Valley National Park. These are specific deepwater places where the fish school temporarily during their migration, usually in the month of July.

Firewood cutting is not an important summer activity, but trees are cut for logs used to make houses and platform caches. Other uses of vegetation during the summer include peeling birchbark from the trees in June and early July, when it comes off most easily. Spruce roots are dug in June and early July, when they are juicy and easy to peel. Young shoots of wild

rhubarb and sourdock are gathered in June and July. And wild chives are gathered in July (late June in early summers), before they become hard and strong-tasting.

Summer is also the main season for wage labor and commercial fishing activities. Most of this work takes the men outside their villages—to Kotzebue, Fairbanks, or along the Alaska pipeline. Wage employment is always temporary, but it may require absences of a month to four or five months' duration. This summer work pattern in some ways resembles the traditional cycle, where men left their families to hunt in the mountains. Nonetheless, most men strongly prefer to remain in their home villages if possible.

Fall. Like the spring, fall is a period of rather sudden transitions. The days become shorter, the temperatures drop rapidly, the snow comes, and the waters freeze over. Fall usually brings great abundance to the Kobuk River people; it is a time for intense hunting, fishing, and gathering activities, when caches are filled for the winter ahead.

Most fall travel stems from the hunting, fishing, and gathering activities. Trips are fairly short because harvests are large and made quickly, and there is little time to waste. Travel may come to a brief standstill between the time of freeze-up and the first snows, when overland transportation again becomes possible. Fall camping is done in connection with gill netting and seining, mostly during September. Men who hunt away from the villages also make short-term camps, but their stay lasts only from a few days to a week.

After fishing, perhaps the second most important single subsistence activity for the *Kuuvanmiut* is the fall caribou hunt. This takes place during August, September, and October, the exact time depending on the southward migration of caribou into the Kobuk valley. Areas where the hunt takes place also depend on the caprices of the caribou, but the migratory passage does tend to follow certain predictable patterns.

Favored migration routes in the upper Kobuk area cross passes between the Noatak valley and the Ambler, Redstone, and Hunt river valleys. In recent years, the caribou have used the Hunt River route most heavily, and almost exclusively in some years. After reaching the Kobuk River area, the animals tend to spread southward across broad stretches of tundra in the Kobuk, Selawik, and Koyukuk River drainages. Before crossing the Kobuk River, however, the herds may pause for some time, wandering east or west. One important route brings them down the Hunt River, then eastward through the Onion Portage area, and finally southward across the Kobuk in the Ambler-Shungnak region. The most important area for caribou hunting is in the vicinity of Onion Portage. In many years the heaviest activity is within the boundaries of the Kobuk Valley National Park.

Caribou are in excellent condition during the fall. Bulls are preferred in August, because they are fat and their hides and leg skins are prime. But

they begin to smell with the rut in October and remain foul into November, so females are taken during this time.

The moose is another important big game species. It is hunted almost exclusively during the fall, but if people are in need of food they will take it in other seasons as well. Moose hunting is done before freeze-up, when the animals congregate along the Kobuk River and its major tributaries. They are in excellent, fat condition during late August and early September. Hunters prefer two- or three-year-old bulls at this time. After the first part of September (as soon as the leaves fall), the bulls smell and lose fat from the rut, and so only cows are taken.

Bears are also hunted during August and September. They reach their peak condition in September, especially in areas where they feed on berries and small animals. If they are feeding on spawning fish in the upper tributaries, they are not taken because their taste is poor. Ambler people prefer to hunt in certain parts of the Redstone and Hunt river drainages, where the bears tend to be in prime condition.

In recent years the upriver *Kuuvaŋmiut* have seldom made fall hunting trips to the upper Noatak River valley, where mountain sheep are most abundant. Sheep are found and occasionally hunted in the Kobuk valley, however. These animals have excellent meat and prime hides in August and September. Males are preferred until they begin smelling with the rut in September, and after that time the females are hunted.

Ducks and geese are also taken in the fall, when they are fat and excellent tasting. They are enthusiastically hunted by people traveling on the rivers, and by those living in fishing camps away from the villages. Favored waterfowl hunting areas of the Ambler *Kuuvaŋmiut* are located along the Kobuk River in the eastern section of the Kobuk Valley National Park.

Fall fishing, a busy continuation of summer fishing, produces very sizable catches. Gill nets are set primarily in the Kobuk River during the month of September and until just before freeze-up. Ambler people make their largest catches of sheefish at this time. The highest quality sheefish, ones that are full of eggs, are taken by Shungnak and Kobuk people in areas upriver from their villages, beyond the place named *Qala*. Salmon also run in September, though the late ones have the least fat. Other species of fish taken include humpback whitefish (just coming upriver at this time), arctic char, pike, and burbot.

Seine fishing begins again in mid-September and continues until ice starts forming in early or middle October. Ambler people seine primarily along the Ambler River and Shungnak people use the Kobuk River. Fall and summer seining are done in the same places, scattered from below the Hunt River mouth to above the mouth of the Pah River. Species taken include broad whitefish, humpback whitefish, sheefish, and sucker. Very large catches of least cisco are also made in fall seining.

Intensive berry picking activity begins in August and ends with the October snows. Berries are usually gathered along the Kobuk River and its main tributaries, but people also walk far back into the flatlands and mountain flanks to some favorite areas. The most important species is bog blueberry, which is collected from August into October. The berries become soft after snow comes, but they are still usable. Lowbush cranberries are also gathered in large quantities during August and September, provided the crop is a good one. Bearberries and cloudberries, picked in August, are highly desired as food. The uncommon bearberries are picked almost exclusively in sand dune areas within the Kobuk Valley National Park. From year to year, the abundance of each berry species is likely to vary greatly. One other important fall plant is Eskimo potato, which is dug after the ground freezes in September.

Cutting of spruce for firewood is done along the river banks, especially when freeze-up approaches. The wood is hauled to the village by boat. In recent years oil heat has largely supplanted wood in many houses, so there has been a steady decline in timber curting.

Winter. This is by far the longest season, encompassing nearly half of the year. Daylight decreases until there is no direct sunshine at all, temperatures drop to extremes of cold, and the snow deepens and is blown hard by gale winds. Although it is long and harsh, winter does not necessarily bring scarcity. Kobuk people remain active throughout the season, utilizing a variety of game and fish species.

Winter travel is strongly oriented toward the tundra, where the snow is hard and sleds can be pulled easily. Nearly all regular winter trails follow the open country, sensibly avoiding the deep powder snow and mazes of forest along the rivers. The cold season brings freedom for snowmachine and dog team travelers, who now have easier access to every part of the region. Winter travel sometimes involves camping, either while en route to distant places or while on long hunting excursions. The upriver people rarely camp for more than a few days at a time during winter, however, especially since the advent of rapid mechanized travel.

Winter activities of all sorts are, of course, heavily influenced by the weather. Except for periods of gale winds and accompanying deep cold, however, Kobuk villagers are continuously busy outdoors throughout the season. Notes written in December 1974 illustrate:

> Several days after we arrived in Shungnak the temperature abruptly fell to -30° [F], then to -40°, -50°, and finally to -65°. Despite the intense cold, there continued to be much activity in and around the village. Children's voices could be heard at all hours, as they played outside the houses. Snowmachines ran up and down the river. Chain saws buzzed in the surrounding forest. On December 31, a group of men and women traveled 35 miles to Ambler by snowmachine, in -55° to -65° temperatures.

Caribou are taken throughout the winter, but the intensity of hunting depends on the proximity of herds, the condition of the animals, and the need for fresh meat. Caribou (regardless of sex) are usually not fat during the cold season, so unless people are low on food they do not hunt them intensely. If fat animals are found, however, men will surely go after them. Winter hides are relatively poor, except for the leg skins, which are very good for boot making. Caribou taken in the winter are often cached until spring, when they are cut up to make dried meat.

Hunting caribou in winter depends entirely on the animals' unpredictable wanderings. Herds are usually south of the Kobuk, but the distance varies from a few miles to over a hundred. In recent years, wintering herds have remained on the tundra north of the Waring Mountains.

At the time of this study, Kobuk villagers seldom traveled north to the Noatak Valley for winter mountain sheep hunting. During the first half of the century, however, trapping and caribou hunting were frequently done there during the winter, and sheep were taken at the same time. Winter hunting in the Noatak region could become common again if caribou remained north of the Kobuk valley (as happened in the past), forcing the *Kuuvagmiut* to travel farther north to obtain necessary supplies of meat.

Some hunting and trapping of fur-bearing animals takes place in winter. In the past, when commercial hides provided one of the few sources of income, fur animals were trapped diligently. Today there are other ways of earning cash, and so very little trapping is done for commercial purposes. However, the Kobuk villagers take many fur animals for their own use. This is done largely by hunting, and it constitutes a major winter subsistence pursuit for some men.

The principal fur species are the red fox (including cross and silver phases), wolf, and wolverine. Although these animals are hunted (and sometimes trapped) throughout the tundra regions surrounding upriver villages, there are favored areas. The Ambler people focus their activities west of the village, in the Onion Portage area, the Hunt and *Nuna* river drainages, and in the tundra-lakes country south of the Hunt River mouth. These areas are especially known for wolf and wolverine.

The Hunt-*Nuna* river drainages have been utilized extensively for fur hunting and trapping throughout this century. Traplines in this area are noted for otter, mink, marten, beaver, and lynx, as well as the major species above. Lakes south of the Hunt River mouth have also been utilized for beaver, mink, muskrat, and otter trapping during the winter months. Most fur species are in prime condition from November or December through March. After this time their fur begins to shed and is bleached by the sun. Beaver and muskrat remain prime through the spring, however.

During the first half of this century, when moose and caribou were scarce in the Kobuk valley, snowshoe hare and ptarmigan were often the most important winter game. Although no longer staples, these animals still provide important supplementary food during the cold months.

Snowshoe hares inhabit brushy areas throughout the upper Kobuk region. They undergo drastic population changes, varying over the years from abundance to scarcity. Hares are hunted and snared year round, but most are taken from October to May when they are fat and have prime fur.

Ptarmigan move into lower elevations of the Kobuk valley after the deep snows of early winter. They inhabit the low tundra and stands of willows along the rivers, usually from November until May. In good years, women snare large numbers of ptarmigan near the villages. They are also hunted by school-age boys, and by men who encounter flocks while traveling.

Early winter fishing is done with gill nets, set under the Kobuk River ice during several weeks immediately after freeze-up. This usually starts in mid-October and ends with the thickening ice and growing cold of early November. The largest caches are of humpback whitefish, which migrate down the river at this time. At Ambler, a single family might take between 1,000 and 2,000 of these fish during the few weeks of the season. Other species caught by gill netting include broad whitefish, sheefish, arctic char, and burbot. Fish are also hooked through the ice in early winter. Large catches of grayling are made through holes chopped for the gill nets in October, and burbot are hooked in known schooling places from October until early December.

Burbot traps are made by Shungnak people shortly after freeze-up, and they remain in use through December when catches diminish rapidly. These traps are not presently made or used by the Ambler people. They were in the past, however, and they could easily be revived, as was the case in Shungnak.

The only significant winter use of vegetation is cutting timber for firewood. Wood-burning stoves are used as primary heat sources in many homes, and as supplements to oil heat in most others. People also cut low-grade firewoods such as willow or poplar throughout the winter for outdoor cooking of dog food.

Lower Kobuk Region

The Traditional Subsistence Cycle

Year-round subsistence activities of the lower Kobuk people have never been described in detail for the 1880s. This is partly because disappearance of the caribou by that time forced many families to leave the lower river and move elsewhere. The most complete account of downriver subsistence activities is by Giddings (1961), who recorded the reminiscences of *Uilaq*, a man who spent his childhood around the Salmon River and much of his adult life near present-day Kiana. In his description of a typical year's subsistence activities, men of the family spent the summer hunting in the interior. Many other lower river *Kuuvaymiut* of the late nineteenth century traveled each summer to Kotzebue Sound, where they hunted sea mammals or traded for sea mammal products and foreign items.

Spring. In late April or early May, downriver families set up spring camps for hunting and trapping at the mouths of sloughs entering the Kobuk. These were either between the Squirrel River and the Kobuk delta or along the narrow winding channels of the delta itself. People lived in lean-tos of spruce saplings (with branches left on) stacked against a large spruce tree. Scarcity of caribou made the winters lean, so the move to spring camp was a welcome chance to get fresh meat as well as furs.

Small game and fur-bearing animals were abundant, and the men hunted constantly in the uninterrupted daylight. Muskrats emerging from their winter quarters fell easy prey to skilled male archers, and hares were caught in snares set by the women and boys. Occasionally a lynx was also taken.

Most lower delta families also traveled to Hotham Inlet and Selawik Lake to hook sheefish through the ice. Using ivory lures shaped like tiny fish, they could catch a large number of fat sheefish in a week or two. One of the favorite settlements for sheefish hooking was at the mouth of *Makkaksraġiaq* Channel at Selawik Lake. Because breakup occurred later there than upriver, people could continue fishing through the ice when other families were already preparing for summer. Ducks and geese were also plentiful in the delta by mid-May. They were caught in snares made of twisted strips of salmon skin, placed on sand bars. While the women fished, men who were not hunting collected spruce bark for making houses and boats at the spring camp.

Summer. During the period of ice breakup, families were confined to their separate camp areas, unable to travel on the unsafe ice or walk through the swampy, often flooded landscape. They were plentifully stocked with geese and half-dried muskrat, however, and suffered no particular hardship while waiting. Once the flood waters began to recede, women set gill nets for whitefish, first at the mouths of streams draining the shallow lakes, and later in the deeper sloughs. They also set nets at selected spots along the Kobuk River. The fragile nets of twisted willow bark had to be taken out constantly or reset as water levels changed. Otherwise, they could be damaged by driftwood or buried in the mud. In some of the smaller sloughs, dip nets were also used for whitefish (Wells 1974:36).

Muskrat skins were used for clothing when caribou hides were unavailable. These animals were hunted along the edges of sloughs and lakes. High water made the hunting especially productive because it flushed muskrats from their homes. Skinned muskrat carcasses were either partially dried and then boiled for eating, or they were roasted fresh over a spit.

The whitefish run continued through June and, depending on the amount of rain, a woman could net as many as 100 or 200 fish a day. During the first or second week of June, smelt began their annual run up the river to spawn. Traveling in long lines near shore, they were easily caught with small-mesh dip nets or with seines. Smelt fishing lasted more than a week in the Kobuk delta, but from the upper delta to just below the mouth of the Squirrel River it lasted only one to three days.

Some families that were particularly anxious to obtain coastal products—such as bearded seal skins for ropes, boot soles, and boat coverings—went to the coast in April, a month before breakup. They took their skin umiaks (broad, open boats) on sleds pulled by dog teams, and stayed in camps east of Sealing Point. They lived in these camps until middle or late June, hunting *ugruk* and ringed seals among the ice pans. Other *Kuuvaqmiut* families, who had remained in spring camps along the Kobuk River, moved to the coast in the third or fourth week of June. They crossed Hotham Inlet by boat and then went to *Sisualik*, where they hunted *ugruk* and beluga, and fished. They were soon joined by their relatives who had gone to the coast earlier. Occasionally a whaling ship on its way north took the trouble to stop, and then they had the opportunity to trade.

Some lower Kobuk families chose to remain inland, fishing all summer. When the daily catch of whitefish declined and the pike catch increased, it was time to move to the main summer camp. This was generally along a broad bend of the main channel such as at *Qalugraitchiaq*, or on a long, flat sandy stretch, as at *Puivlich*. Here salmon or whitefish could be seined easily.

Unlike the scattered spring camps, summer camps were often quite close together. For example, several might be located within fifty yards of each other along a particular stretch of river bank. Caches of dried fish were established at the summer camps, and people would come periodically during the winter to obtain supplies from them.

The summer house was erected by the man of the family. A hemispherical frame was made of branches tied together at the top, then sided with spruce bark collected during late spring. Blocks of moss were used to cover the entire structure, except for the opening where smoke from the cooking fire could escape. If the family returned to camp at the same place year after year, the man built a permanent drying rack with four or six large posts. Otherwise, he erected a rack with tripod supports. Racks could be placed near the water's edge, where mosquitos were less numerous and the fish could be handled easily. Then, at the season's end, the small poles were easily disassembled and piled on the high bank above flood level.

Normally, two women and their children would fish together, as in the upriver area. The work of making a seine was time-consuming, so each woman contributed a section of the net. Sinkers were made by the men, preferably from sections of caribou antler or from elongated waterworn pebbles that could be notched for ties. Seining was done with open boats that were larger than the hunting kayaks and covered with spruce bark. Although some families owned skin-covered *umiaks*, these were normally used for traveling on the river and moving from camp to camp, rather than for fishing.

The women seined nearly every day, hauling in large catches of salmon or whitefish, cutting them up, and hanging them to dry. Then they would

wait for the next run of fish and start the process all over. Seining methods were identical to those used in the upriver area.

After a man had set up the fish camp for his family, he was ready to head north to hunt in the mountains. Hunting groups were small, often made up of brothers, brothers-in-law, and their older children. The men carried only one or two pairs of boots, some extra clothing, and their weapons. Men from fishing camps near the Salmon River *(Qalugruaq)* trekked north on high ground west of that river, while those who started farther down the Kobuk went up the Squirrel River valley or smaller valleys to the west of it. Once in the Noatak drainage they hunted sheep and bear in the mountains or continued up the Noatak River until they found caribou. Bears were abundant, and occasionally the hunters got as many bear hides as they did hides of sheep or caribou.

Summer was a time of constant walking and camping within a fairly well-defined area. Small groups of hunters would often meet, and if possible they would camp together for a while; but the emphasis was on hunting in the small family group that started out together. It was during these trips that the young men learned much about hunting techniques and hunting lore from the older men.

People who had gone to the coast for summer trade returned to the Kobuk fish camps around early August. Although coastal products were vital, they did not furnish a major part of the winter food supply. Despite the large size of the boats, they could only carry limited amounts of food in addition to the skins, kettles, pots, seal oil, and other items brought from the coast. The bulk of the winter food supply had to be obtained from the river, so it was important to establish fish camps in time for the peak runs of salmon and whitefish.

On their way upriver, people stopped in the delta to pick salmonberries, which they stored for winter in sealskin pokes. Salmonberries were less plentiful on the drier inland terrain, so this was the only opportunity to harvest them.

When these families reached their fish camp sites, the men set up drying racks and erected the conical skin teepees they had used on the coast. Because the season was so far advanced, the men remained in camp rather than hunting in the Noatak headwaters. There is no record of camp activities, but men probably did not participate in salmon fishing because camps throughout the Kobuk were principally the women's domain.

Fall. As the willow and alder leaves turned brilliant colors, men who had gone to the mountains started back with their game. They carried burdens of caribou and sheep hides for clothing, bear skins for mats and door coverings, and caribou sinew for thread. Sheep horns were also brought back for fine utensils. In addition, the men carried as much fat as possible without leaving other, more important, items behind. They had feasted on meat all summer, but even when dried it was too heavy and bulky to carry back in any quantity.

Upon reaching the headwaters of Kobuk tributaries, the hunters built rafts and floated down to their families' fish camps. By this time the bountiful salmon and whitefish seining was near an end, and the families moved to fall fishing camps such as at *Alallauraq* and *Qalugraitchiaq*. There they seined for *qalusraaq* (least cisco) which are exceptionally plentiful in September.

Winter. Just before freeze-up, around the middle of October, the families moved back to their traditional winter locales. These were situated along main channels of the delta or at the mouths of the major tributaries. They were also near timber for firewood and houseposts, willow thickets for snaring hares and ptarmigan, and fishing places where grayling and burbot would be plentiful through much of the winter. In the earlier years, when caribou were numerous, people could winter in sizable settlements; but in the 1880s, families usually lived in single, isolated households.

The old house was not repaired and used again; rather, a new one was built each year. Its shape and size depended on whether married children and their offspring were also going to live there. The winter house was basically the same everywhere in the Kobuk region—a flat topped, log frame structure covered with planks and sod. A pair of ridge poles was for the combination skylight and smoke hole. It was best to dig the pit for the house just after freeze-up, when the sod was frozen to a depth equaling the thickness of the sod blocks to be removed.

Because caribou were absent in the lower river area, winter was precarious. Even with the summer's catch successfully stored away, the early winter fishing was extremely important. We have no evidence that gill nets were set under the ice in the 1880s, as was done later on. The major late fall-early winter fishing involved trapping whitefish in weirs just after freeze-up, when they migrated downstream in the greatest numbers.

Fish weirs used by the lower Kobuk people were huge in comparison to those in the upriver area. They were built across the entire channel at specific places, such as *Sapusrigaitchiaq*, just above the mouth of the Squirrel River. These weirs were too much for a man and woman to build, so they were made by communal groups. The number of whitefish caught in these traps was more than enough for one family, so all families in the area were welcome to use them. The fish were probably divided equally among the families who worked in concert to harvest them.

Weirs were used throughout the whitefish run during October and early November. During the day, they mainly caught whitefish, and at night they caught burbot. Because so many burbot were taken at these weirs, burbot traps were less common in the lower river than in the upper river area. A smaller trap, set along the edge of the channel, was also used for burbot. This trap could be built by a single family, so it was popular with people living in isolated areas. It could keep a family supplied with fish until mid-winter.

In the absence of caribou, ptarmigan and hares were the main source of fresh meat during winter. Fences of willow stakes and brush were made, then

snares were set in narrow openings where the animals would try to pass through. Either men or women would check and reset the snares each day. The men also set traps for fox, ermine, mink, and wolverine, whose furs were needed for clothing. By the 1880s, steel traps were already one of the major trade items brought from the coast to the interior of northwestern Alaska.

Another important winter activity, particularly for women and children, was collecting firewood. Women also devoted much time to making nets for the next summer's fishing. With the returning sun, the downriver *Kuuvaqmiut* began to prepare for spring camp and the start of another year.

The Modern Subsistence Cycle

The major difference between lower Kobuk seasonal subsistence rounds in the 1880s and in modern times is the presence and economic significance of caribou. For many village families, caribou are now at least as important a food resource as fish.

Spring. People of the lower Kobuk villages look forward to the long days of spring and the chance for extended family trips by snowmachine and sled. Many special events take place in the Kobuk region during March and April. First of these is the quarterly meeting of the Friends Church, held in Selawik, Noatak, or one of the five Kobuk villages. As many as 700 people from these villages, as well as Buckland, Kivalina, Point Hope, Barrow, and Kotzebue, travel to the host village by snowmachine or airplane for a week of services and visiting.

This gathering of so many different *Iñupiat* groups has taken on important economic functions. Residents of the host village must begin planning in the previous summer to accumulate enough food for the guests. They need plenty of fresh and frozen fish, plus enough dried fish to give to visitors or trade with them. Before spring comes, the men make extra caribou hunting trips so that the village will not run out of meat.

The visitors have also brought along special foods from their own areas. People who come from coastal villages bring items like seal oil and beluga or bowhead whale *mukmk*. If they are from interior villages, they bring extra caribou meat or frozen fish. The visitors stay in village homes and provide this food to help their hosts with the meals. There is constant visiting back and forth between houses, usually with meals served each time, so great amounts of food are needed. For many Kobuk River people this is a rare opportunity to eat as much coastal food as they like. Similarly, it is a chance for the coastal residents to eat salmon, frozen fish, and dried fish, which they are unable to get in their own villages.

This is also a time when partnerships are made between people from different regions, and when relatives and established partners exchange goods from their own areas. In 1975, Kiana was the host village, and three months after the meeting nearly half of the households were still enjoying coastal foods brought in for the meeting.

Other events held each spring are carnivals, scheduled on alternate weekends so that people from different villages can attend. Groups of young people often travel together on snowmachines to the host village. The spring carnivals give them a chance to watch and participate in races and other events, and to meet others their age. Although the carnivals have little economic impact on the villages, they play a role in establishing and strengthening social ties that later may have economic ramifications, as through marriages.

Spring is also an important time for caribou hunting, which is done by the men. If a hunter returns with a sled-load of fat caribou, he lets others know where he found them, and the next morning several other hunters will probably go out. In 1975, many Kiana residents traveled to the Hunt River area, because the caribou in that area were fat. Some hunters were unable to go that far, however, because they had jobs in the villages or were short of fuel for their snowmachines. These people went to the mountains between the Salmon and Squirrel rivers, where the caribou were leaner and less prized. In 1975, Noorvik hunters concentrated on hunting caribou in the area between Noorvik and Selawik.

During April and May, many families remain in the villages. When the weather is calm, however, some people from Kiana travel to Hotham Inlet or Selawik Lake to hook sheefish through the ice. Occasionally, pike are also caught, but these are less prized than the larger and fatter sheefish. Because they can make the trip quickly with snowmachines, Kiana people are usually gone less than a day on these trips. As soon as the sled is filled with fish the family returns. Often several couples or families will travel together, and the trip doubles as a pleasant family outing, especially for the wives, who travel much less often than the men.

Noorvik families tend to spend more time away from the village catching sheefish, often staying in camps for a week. Although they live closer to the lakes, Noorvik people have had a chronic gasoline shortage in spring and thus tend to travel less than they would like. Schools of sheefish constantly roam the lakes searching for least cisco, so the fishermen usually test a wide area for schools by chipping holes in the ice. Once fish are located, other fishermen move in and make holes for themselves. Some fishermen use ice augers to make this job easier, but others say that it scares the fish and is less productive than chipping with an ice pick. When they travel to and from the fishing areas, people are alert for game such as geese or muskrats, and often they are successful with hunting as well as fishing.

When they are not fishing, men from downriver villages are often busy with their other major spring subsistence activity–waterfowl hunting. After a winter of living primarily on caribou and fish, goose or duck soup is a welcome change of diet. They hunt primarily at places along the lakes and rivers where waterfowl are known to return each year. Some of these are located near the villages, so schoolboys can walk to them and hunt late

at night or early in the morning. This is also a time when fathers take their young sons out, often for their earliest hunting experiences.

If spring breakup is late and the northward migrating caribou come anywhere near the village, the men make a special effort to hunt them. Because late spring brings ideal drying conditions, free from insects, every opportunity is taken to lay in a supply of dried meat. Also, if a hunter should spot a wolf or wolverine, he will do everything he can to take it. The furs are used as ruffs and trimming on cloth and down parkas, the everyday winter garments.

Spring is also the time when people clean up the entire village, store winter equipment, and prepare other equipment for the season ahead. One important job is overhauling boats that have just emerged from the melting snow. Boats are first pulled to spots that are protected from the spring flood and drifting ice. Then they are recaulked, their rotten boards are replaced, and they are repainted. Once the boat is in summer use, only an urgent need for repairs will prompt a person to lay it up for extended work. Women are also busy at this time, retrieving whitefish gill nets from storage and repairing any torn meshes. Usually several women have bought new nets, and they must fit them with sinkers and floats.

Finally, breakup begins in the upper Kobuk and people are informed of its downriver progress through radio reports or information from pilots who land in the village. Some impatient men launch their boats and follow the narrow lane of open water along the banks to reach waterfowl hunting areas. Of course, they can only go short distances and must secure their boats again when breakup comes. During breaks from their busy work schedules, people gather at vantage points to talk and watch the progress of the disappearing ice. The Squirrel River opens before the Kobuk itself, allowing people to hunt along that tributary while ice still blocks the main channel.

Muskrats have been scarce in the lower Kobuk area during the 1970s, so people devote little time to hunting them. Muskrat skins are used locally for making parkas and are sold commercially when an excess is available. At the time of this study they were occasionally traded between individuals, a few were sold to Kotzebue stores (where in 1975 they sold for four dollars a skin), and some were used for tithes to the church. But the number was economically insignificant.

Summer. At the end of breakup, the men watch for large drifting logs, which they collect among the ice floes and drag to shore. These logs are used as posts for the permanent fish racks and for various other purposes. When the amount of driftwood and debris increases, people say that the passing ice is from the upper Kobuk, a sign that breakup is almost over.

As soon as there is no danger of running into ice jams, groups of men, or husbands and wives, take off for the Salmon River, Hunt River, or Onion Portage. They hope to intercept whatever few caribou stragglers are still fording the river at those spots, and they watch for waterfowl along the banks. If the parties go as far as Onion Portage, they usually continue on to visit friends or

relatives in Ambler. Meat obtained on the trip is either dried or stored in freezers. When the ice breaks below Noorvik, men from both Kiana and Noorvik boat down to the delta to hunt muskrats, hook sheefish and pike, and hunt waterfowl. Two or three friends may spend the entire night in the boat, fishing at various places and hunting waterfowl as they move from one spot to another.

Several Noorvik families spend much of the early summer at their whitefish camps in the delta, such as the popular campsite at *Makkaksraq*. Couples work together setting gill nets across the mouths of sloughs, and the racks they have set up quickly fill with cut whitefish. The husband often helps his wife in removing fish from the net, handling the heavy tub-loads, and hanging the catch to dry; but women alone do the cutting. If gasoline is available, men will also take their boats out to fish with hook and line, and to hunt muskrats and waterfowl. Kayaks are not used.

In the Kiana area, most families set nets for whitefish across small streams draining lakes or along the Kobuk banks within two miles of the village. In 1975, no families moved to fish camps for the season. Those whose camps are within five or ten miles of the village will spend the day there, check the net twice, cut the fish, and hang it on drying racks. Then they return to the village for the night. If the camp is farther away, they spend two or three days at a time there and return to the village with a boat-load of partially dried fish. They string these at home, eight to a string, and hang them to dry further.

During the 1970s, whitefish have been a more important food resource than salmon for residents of the lower Kobuk area. The duration and intensity of early summer whitefishing depends on weather conditions. If the usually dry month of June is rainy, the river rises and essentially eliminates the take. Therefore, every effort is made to get the nets in early and to utilize them fully for as long as good weather holds. Trout, pike, and grayling are also caught in the nets.

Shortly after breakup, sheefish reach the vicinity of Noorvik on their way upriver. Men and boys go out in boats, often all night, to catch them at favored spots. Usually each person keeps his own fish, but the catch will be divided if someone takes far more or less than the others. At the village, children spend long hours casting from shore for grayling, trout, and whitefish. This is the best season for catching trout, although they are always rare. When a child lands one, he or she usually takes it home immediately and it is cooked for the evening meal. The child is praised for this contribution to the family's larder. Later in the summer, fish caught by the children are not so readily consumed by the family.

By mid-June the women are ready to set gill nets for sheefish. They are placed in eddies along the Kobuk, where sheefish congregate in the evening before continuing upriver. Three to five sheefish, averaging 20 to 30 pounds apiece, are usually caught each day. It is not unusual to make a daily catch totalling 150 pounds. Fish not consumed immediately are cut and dried for later eating. If wet weather prevents the fish from drying properly they are used for dog food.

During the second week of June, smelt begin their run up the river, reaching as far as a point just below Kiana village. The few women who own small-mesh seines have them ready, and as soon as the smelt arrive, boatloads of people go to catch them at the fishing sites below Kiana. Some people may catch smelt with dip nets, but this method is not much used if someone has a seine. Smelt seines are emptied directly into tubs or, if too few tubs are available, into a trough dug in the beach.

People who help with the seining can take as many fish as they want. When members of a helping family feel that a good catch has been assured and want to go home, they either set their empty tub in front of the net to be filled or they dip fish out of the common pile. The fish are eaten fried, stored in home freezers, or hung to dry. Frozen smelt are also eaten during the winter or are used as bait for sheefish the following spring.

Whitefish nets are usually pulled out during the second week of July if the catch has been satisfactory. Pike begin to outnumber whitefish at that time, and although they are good eating they also damage the nets with their teeth. The women next concentrate their attention on preparing gill nets for sheefish and large salmon, and seines for whitefish and smaller salmon. These nets represent a large investment of time and money. A fully outfitted seine would cost around $450 in Kiana or Noorvik in 1975, the exact price depending on length, weight of the twine, and kind of floats used.

Before using her nets, a woman must check every inch of mesh and repair any that is torn, and she must see that all weights and floats are in place. If the old parts of the net show signs of weakness, they are taken out and new sections put in. New sections are usually put on the offshore end, which gets considerable strain as fish fight with the net.

To select a seining place, women boat to where the fish are expected and look for telltale ripples or jumping fish. The crew will not wait for fish at a potential spot, but travel from one to another until they find a school. Seining trips from Kiana often last all day, depending on how successful they are. Usually two women fish together, along with some of their children or other helpers. Women who seine together contribute sections of the net, share expenses such as gasoline, and alternate use of their own boats and motors. In the last few years, couples and their children have also seined together. On returning to the village, women cut the fish and hang it to dry on racks near the river's edge.

In recent years most of the seining has been for whitefish, because downriver people now prefer to catch their salmon with gill nets. Since the number of sled dogs has declined, gill nets can now supply enough salmon for a family as long as conditions are favorable all summer.

Many of the men go to Fairbanks or other parts of Alaska for summer construction jobs, and several men have gone to Kotzebue in recent years

for the commercial fishery. Wage earning is crucial to the villagers, for without money they could not buy the equipment needed for subsistence hunting and fishing. The most constant summer employment for both Kiana and Noorvik people has been fire fighting, and crews of men and women are organized before summer to be ready at a moment's call.

Fall. Lower Kobuk villagers continue to seine and to set nets for salmon and whitefish in the fall, but the intensity of their activities depends on how successful the summer fishing has been. If the summer has been rainy and the catch small, they take every opportunity to build up their winter supply by seining. For families who have gone to the coast to fish commercially, this is a crucial time of year. By the last of August their fish camps must be set up, and they work long hours to catch and dry enough salmon before the run is over. Despite their earnings from commercial fishing, these families need to obtain enough subsistence foods to satisfy their own needs. Most families are willing to share their food supply during the winter, especially with relatives, but people would feel uncomfortable burdening others with constant requests for traditional foods.

As soon as the legal season opens, most men go out by boat to hunt for moose. Animals are often spotted several weeks earlier, but the men wait until they have fattened before hunting them. With freezers in nearly all homes now, moose meat can be stored fresh and has taken on an important role in the lower Kobuk subsistence economy. Most people regard the moose as insurance against the possibility that caribou will not show up or will arrive late.

Winter. After freeze-up, people prepare for the changeover to winter living. Women in Kiana and Noorvik set gill nets under the river ice as soon as it is strong enough to walk on. The best net sites are those in front of the villages, or at least as close as possible. Variations in the river bank, the bottom, and the weather conditions mean that netting locations change from year to year. In the fall of 1974, for example, a favored site near Kiana was unusable because rough ice jammed there during freeze-up. This made it difficult to set and check nets, so people had to use other spots that year. Gill netting continues until the ice thickens and threatens to freeze the nets into it. This usually happens in November.

As soon as the streams are frozen thick enough for travel, men take their snowmachines to search for any caribou in the vicinity. The herds should be nearby at this time, and until they are spotted there is some anxiety for the coming winter. The amount brought in during the early season determines how much effort must go into caribou hunting during the coldest months.

Trapping is carried on from December or January into the spring. It has been a minor activity during the last few years, however. Each trapper

has a trapline, separated by several miles or more from that of the next man, and this is often where he obtains his winter supply of caribou.

During the coldest months, few people make long journeys in pursuit of game. One reason is the busy cycle of village activities connected with Thanksgiving, Christmas, and New Year's Day. Another reason is that snowmachines do not function well in the extreme cold of January and early February, and in temperatures of fifty to sixty degrees below zero they sometimes break down. If this happens the hunter needs help, and if he is far from home he may be in real danger.

By late February and early March the men begin traveling farther for caribou hunting. By this time the locations of winter herds are well known and people keep careful track of their movements. Caribou hunting in late winter is considered enjoyable as well as necessary. When late March finally comes, everyone in the village is eager to travel, and all look forward to the spring events that give people an excuse to visit neighboring villages.

Part 3
The Village and Its People

Chapter 5

Modern Village Life

Prospectors and members of government expeditions who visited the Kobuk River at the end of the nineteenth century noted that *Kuuvaymiut* camps and settlements were located in the best places for fishing, hunting, and gathering (Stoney 1899; Cantwell 1887; Mendenhall 1902; Grinnell 1901). Later on, trading posts, churches, and schools were built, employment opportunities developed, and subsistence resources changed. Kobuk River people were drawn together into larger settlements, and the five modern villages were founded.

Populations of the Kobuk River villages in the 1970 census were as follows:

Noorvik	462
Kiana	278
Ambler	169
Shungnak	165
Kobuk	56

Population Dynamics

The following is an analysis of population patterns in two of the Kobuk River villages, Kiana and Noorvik, from the late nineteenth century to 1975. Information on these communities shows the strong influence of changing subsistence opportunities on their patterns of development, and it describes the network of social ties that exists within and between Kuuvañmiut communities.

Kiana: Turn-of-the-Century Population

Before the first influx of white prospectors into the Kobuk valley in 1898, the only settlement near present-day Kiana was at *Kurriaq* Slough at the mouth of the Squirrel River. There lived *Aaquaksrauraq*, his wife *Miiyuuraq*, their son *Iknautak*, and later their adopted son Arthur Barr. The third and fourth generations of *Aaquaksrauraq* and *Miiyuuraq's* descendants live in Kiana today. According to the 1900 census figures, 45 Natives lived in the Squirrel River country that surrounds and includes the modern site of Kiana.

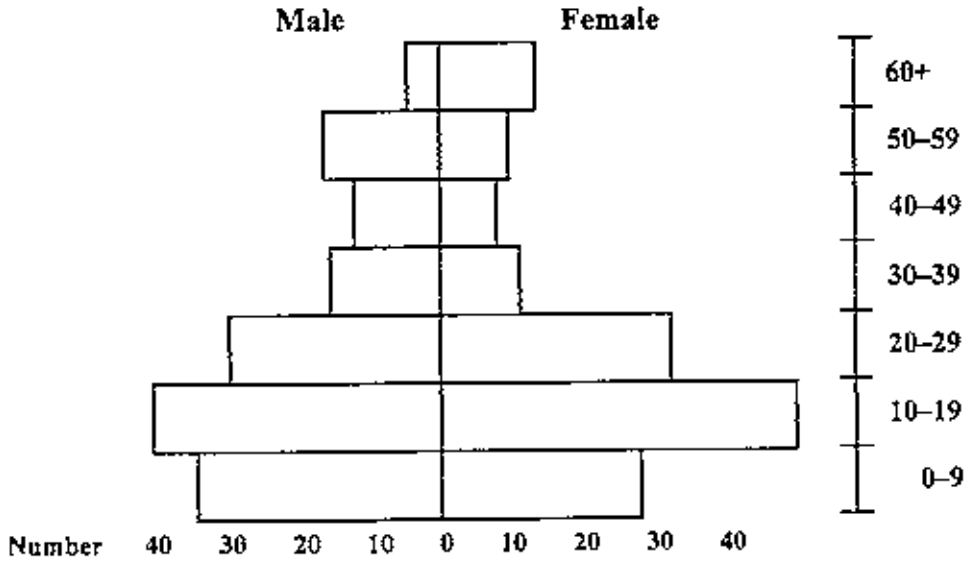
By 1909, gold mining operations were under way at Klery Creek, on the Squirrel River. The chance to find work here, plus access to newly-established trading posts, attracted individuals and families from the upper Kobuk country. Some of these people settled here and became the founders

of *Katyaaq*, or "Old Village." The Eskimos settled on the bank at the mouth of the Squirrel River, and the white miners settled on the hill, the site of the present Kiana village. They first called their settlement Squirrel City and later Kiana, but among themselves they simply called it "Downtown." The two settlements were within a ten-minute walk of each other. The white miners were of diverse ethnic origin, with Polish, Greek, and Japanese family names among them. Some present-day Kiana families are descendants of miners who married *Kuuvaŋmiut* women.

Kiana: 1975 Population

In 1975, the population of Kiana included 280 Native residents and 17 white residents. Among the latter were school teachers and their families, a school maintenance man, two store operators, and an air service pilot. Also included were Kiana residents temporarily away from the village for work or school. Students from other villages currently attending school in Kiana were not counted.

Age Distribution by Sex of Kiana Residents in 1975



The Kiana population of 1975 had 146 men and 134 women, so males represented 52% of the population and females 48%. This village has increased in size from 253 in 1960 to 280 in 1975. Over the same 15 year period, Shungnak's population grew from 135 to 165 (Source: Mauneluk Association). In the mid-1800s, *Kuuvaŋmiut* households averaged seven persons, often including not only parents and their children but also other relatives. By 1965, there was a shift away from these extended families toward nuclear families, and the average household had six persons (Foote 1966:46). In 1975, the number in an average Kiana household was 5.6. The largest Kiana family had 13 members, of whom nine comprised the nuclear family (parents and children).

Number and Percentage of Kiana Residents by Age Group and Sex in 1975

Age Group	Number of Persons			Percentage		
	Male	Female	Total	Male	Female	Total
0-9	33	28	61	22.6	20.9	21.8
10-19	40	46	86	27.4	34.3	30.7
20-29	26	18	44	17.8	13.4	15.7
30-39	15	13	28	10.3	9.7	10.0
40-49	12	7	19	8.2	5.2	6.8
50-59	15	10	25	10.3	7.5	8.9
60 & over	5	12	17	3.4	9.0	6.1
Total	146	134	280	100.0	100.0	100.0

More people of Kiana were in the 10-19 age group than in any other. The number in the 0-9 age group was unexpectedly small, perhaps because effective birth control methods had come into use (U.S. Dept. of the Interior 1973:92). A recent movement of people in their early childbearing years away from Kiana may also have contributed to the low number in the youngest age group. For example, between 1972 and 1975 five women moved out of Kiana to live elsewhere with their spouses and young children. There is a recent tendency for more girls to meet and marry spouses outside the village. These factors help to explain why there are fewer women than men in the 20-29 age group.

Life expectancy in Kiana follows the universal tendency for females to live longer than males. Among Kiana residents 60 or more years old, 12 were females and five were males.

Kiana: Marriage and Residence After Marriage

Some couples live together without formal marriage, even with children. But in most cases the expectation or birth of a child leads to marriage and/or establishment of a separate household. If a relationship is dissolved, the children are often adopted, usually by grandparents.

The highest percentage of Kiana marriages, 32.1%, are with persons originally from Noorvik. This is the closest village to Kiana, about 45 minutes away by snowmachine during winter and an hour by boat in summer. Not surprisingly, the two villages have close social and economic relationships. For example, the largest number of visitors attending the Spring Carnival and snowmachine race at Kiana in 1975 were from Noorvik. The second largest were from Selawik, and others came from all of the Kobuk River villages as well as from Kotzebue. Closer geographical proximity leads to closer social interaction, which in turn results in a higher frequency of marriage.

Marriage Patterns of Kiana Residents in 1975

Premarital Residence of Husband or Wife	Premarital Residence of Spouse	Number of Couples	Percentage of Couples
Kiana	Kiana	10	17.9
Kiana	Noorvik	18	32.1
Kiana	Selawik	3	5.4
Kiana	Ambler, Shungnak, or Kobuk	6	10.7
Kiana	Elsewhere in Alaska	5	8.9
Kiana	Lower 48 states	3	5.4
non- Kiana	non- Kiana	11	19.6
Total		56	100.0

In nearly one-fifth of Kiana marriages both spouses were non-Kiana residents, but this is because five schoolteacher couples were part of the computed data. Not many marriages occur between Kiana residents and people from elsewhere in Alaska or from the other states. The majority of Kiana marriages are exogamous, that is, between a resident and non-resident. Among all the couples residing in Kiana, nearly half (44.6%) involve a woman from another community married to a man from Kiana (patrilocal residence). By contrast, only 17.9% of marriages involve a woman from Kiana residing there with a non-Kiana man (matrilocal residence). Of the 11 couples involving two spouses from outside Kiana, only six are *Iñupiat* and the other five are school teachers.

Ratio of Kiana Residents Married to Non-Kiana Residents in 1975

Premarital Residence of Husband or Wife	Premarital Residence of Spouse	Number of Kiana Residents			Percentage		
		Male	Female	Total	Male	Female	Total
Kiana	Noorvik	16	2	18	64.0	20.0	51.4
Kiana	Selawik	3	0	3	12.0	0.0	8.6
Kiana	Ambler, Shungnak or Kobuk	5	1	6	20.0	10.0	17.1
Kiana	Elsewhere in Alaska	1	4	5	4.0	40.0	14.3
Kiana	Lower 48 states	0	3	3	0.0	30.0	8.6
Total		25	10	35	100.0	100.0	100.0

Marital Residence Pattern in Kiana in 1975

Marital Residence	Number of Couples	Percentage of Couples
Patrilocal: wife from elsewhere; lives with Kiana husband in Kiana	25	44.6
Matrilocal: husband from elsewhere; lives with Kiana wife in Kiana	10	17.9
Common: both spouses from Kiana	10	17.9
Neolocal: neither spouse from Kiana	11	19.6
Total	56	100.0

Noorvik: 1975 Population

While the majority of Kiana marriages are exogamous, Noorvik's marriages are predominantly endogamous, that is, between two Noorvik residents (57.8 %). The low percentage of Noorvik-Kiana couples residing in Noorvik after marriage (6.0%) contrasts sharply with the 32.1% of Kiana-Noorvik couples who settled in Kiana. The percentage of Noorvik-Selawik couples settling in Noorvik is slightly higher (9.6%).

More spouses from the upper Kobuk villages settled in Kiana than in Noorvik, partly because Noorvik is farther away than Kiana. As with Kiana, the percentage of neolocal couples is high because of schoolteachers (7 couples) from outside.

When a husband and wife are both from the same village,the couple usually stays in their home community after marriage. Also, in Noorvik as in Kiana, more married couples settled in the husband's village than in the wife's village.

Marriage Patterns of Noorvik Residents in 1975

Premarital Residence of Husband or Wife	Premarital Residence of Spouse	Number of Couples	Percentage of Couples
Noorvik	Noorvik	48	57.8
Noorvik	Kiana	5	6.0
Noorvik	Selawik	8	9.6
Noorvik	Ambler, Shungnak, or Kobuk	1	1.2
Noorvik	Elsewhere in Alaska	8	9.6
Noorvik	Lower 48 states	2	2.4
non- Noorvik	non- Noorvik	11	13.3
Total		83	99.0

Marital Residence Pattern in Noorvik in 1975

Marital Residence	Number of Couples	Percentage of Couples
Patrilocal: wife from elsewhere; lives with Noorvik husband in Noorvik	12	14.5
Matrilocal: husband from elsewhere; lives with Noorvik wife in Noorvik	11	13.3
Common: both spouses from Noorvik	48	57.8
Neolocal: neither spouse from Noorvik	12	14.5
Total	83	100.0

The Social Network

Movement Between Villages

Kobuk people have a variety of reasons for choosing to live in a particular village. For example, a number of social and economic factors discussed below were mentioned by Kiana residents who explained their preference for this community.

1. Job opportunities. It was the chance for employment in gold mining operations that first drew settlers to Kiana. When these activities diminished, many people stayed on and adapted to an evolving subsistence-wage economy. At present, employment in other areas attracts a number of residents away from Kiana, but most such employment is temporary.

2. Subsistence resources. According to a Kiana resident whose parents were among the first group to settle there, some of the original residents chose to stay because of the area's abundant food resources and fur-bearing animals. A journalist who visited Kiana in 1938 wrote that the settlement of about 20 white and 125 Natives had an ideal environment for subsistence living. During all of the Depression, he wrote, the people needed no outside relief:

> They have their reindeer herds, their hunting and fishing, to all of which industries they give good heed. There is abundant supply of spruce for the making of their simple one room homes and for fuel and the dogs still satisfy their need for speed and for transportation.
>
> The muskrat hunting in and around the delta of the Kobuk is one of the chief resources of income from furs. One fifteen year old boy got ninety-nine with a .22 rifle. One of the local traders told me that from forty to fifty thousand were taken last season (1937) alone in or near the delta of this Kobuk River.
>
> In addition to muskrats, there are in their season, foxes, both red and silver gray; mink of exceptionally fine quality, land otter, ermine, and wolves... Duck and geese are common in spring and fall. Rabbits and ptarmigan often caught by the women in snares during the winter add much to the family supply of food. *(The Fairbanks News Miner*, 1938:2-3)

Access to subsistence resources, particularly fish, is still one of the reasons people give for selecting Kiana as a place to live. Kiana is also strategically located for hunting caribou, which can often be found near the Hunt River if there are no herds in the village area itself.

3. Population. Many people originally from Noorvik chose to settle in Kiana because this small community had ample land available for homesites, and its lower population meant less competition for subsistence resources. Some Noorvik families who moved to Kiana had no relatives there to lend assistance or support.

4. Kiana relatives. A few Noorvik families who moved to Kiana had relatives there already—a parent, sibling, or more distant kin. Their presence, plus the subsistence resources or other opportunities, attracted more members of the family to Kiana.

5. Access to imported goods. The stores in Kiana have more complete stocks, compared with stores in the other Kobuk villages. Residents of Noorvik or even Kotzebue sometimes buy merchandise from Kiana stores because it is unavailable in their own community.

6. Marriage. As discussed earlier, many men and some women from Kiana bring spouses here from other communities. Factors like those mentioned above may influence the couple to live in Kiana, in addition to the common pattern for a wife to move to her husband's village.

Obviously the *Kuuvaŋmiut* are a mobile people. Kin and marriage factors aside, they are willing to move within the region to find employment, access to subsistence resources, and the best overall quality of life. Many present-day Kiana residents moved from place to place along the Kobuk and Selawik rivers before eventually settling in Kiana. Indeed, should conditions worsen in Kiana and better opportunities arise elsewhere in the region, many Kiana residents might well move again. As it is, a few Kiana families spend part of the year away with the other spouse's family or move to another village for part of the year for employment. Added to this is the mobility caused by fluctuations in subsistence resources. People feel a strong dependence on these traditional resources, and access to fish and game is a major consideration in where they choose to live. Mobility is basic to the *Kuuvaŋmiut* way of life, and it is likely to remain so in the foreseeable future.

Linking the Villages

The population of each village is a composite of people who were born there and people who came from elsewhere. This means that each family in a particular village will have relatives by blood or marriage in the neighboring communities. This network of kinship relations throughout the region has pervasive effects on subsistence.

An inland village like Kiana still makes use of marine products as part of its subsistence economy, depending on contacts with coastal people. For example, members of one family said they were very fortunate to have in-laws in Kotzebue who provide their yearly supply of seal oil. Those without coastal kin try to establish formal trading partnerships, as their ancestors did in the past. Several people from Kiana went to the 1975 spring whaling feast at Point Hope, stayed there with relatives or trading partners, and returned home with *maktak*, whale meat, and other choice parts of the whale they had received. In anticipation, they had worked hard to put up a good supply of dried and half-dried fish, dried meat, and frozen berries to take along for their Point Hope partners. Similar exchanges take place among inland villagers.

Without a relative or trading partner to provide them, subsistence products are sometimes purchased, but even here friendship or a quasi-kin relationship is important. In the early spring of 1975, the caribou in the mountains around Kiana were lean, but near Selawik they were very fat. A Selawik man brought several of these caribou to Kiana in his sled. He sold them to families who were originally from Selawik and to an elderly lady for whom a member of his family was named. Whenever people acquire subsistence products from other villages, they go about it through some preexisting kin relationship, partnership, or other social tie.

These relationships are involved in a whole range of social and economic interactions between villages. Residents of any Kobuk River village have relatives in one or more of the other communities. Whenever they come to another village for a church meeting, spring carnival, holiday celebration, marriage, funeral or simply a social visit, people can count on hospitality in the homes of relatives, friends, or partners. These contacts strengthen and increase the number of bonds between community members throughout the region. The all-important marriage bonds are often based on relationships that begin when young people visit relatives in another village.

Within a village, everyone interacts with everyone else, but there are closer and more frequent interactions between relatives and friends who originally came from the same home community. A person's identity with his or her home village is strong. This is emphasized by the fact that even when someone moves to a spouse's village at marriage, that person continues to be identified as a native of his or her community of birth. For example, a resident of Kiana who came from Noorvik several decades back may still be referred to as a Noorvik woman.

If a person has no relatives in an adopted village, he or she will usually turn to someone else with the same home village for aid or moral support. Thus, a widowed woman might become formal partners with another woman from her home village. If she had no transportation, her partner could invite her along on fishing and berry picking trips; and she could receive meat from game brought in by her partner's husband. In Kiana, when activities such as hunting, seining, gill netting, and berry picking are not done jointly by relatives, they are done by partners from the same home village. Also, the people who most often visit one another socially from day to day are either close relatives or home village friends.

The Partnership

Kobuk villagers often express a sentiment that it is good to have children. Their families are generally large, not only because the *Kuuvanmiut* love children but also because they need them. Each mother hopes for a daughter to help her with the housework, gathering, and fishing. And it is important to have a son who can join the father in activities such as hunting and maintaining equipment. Thus, a family with only daughters will probably adopt a son, and vice versa. Natural and adopted children usually have a close rela-

tionship and give solid support to their family. When parents become elderly and inactive, they often depend heavily on their children. For example, a widowed woman in one village is supplied with firewood by the husband of her adopted daughter, while her son and daughter-in-law provide her with fish and meat.

Within the village, people who join together for subsistence activities are generally relatives. In seining, gill netting, and berry picking, the working team is usually a mother and her daughters or a team of sisters, sisters-in-law, or cousins. Among the men, brothers and brothers-in-law sometimes hunt together. Relatives who do things together sometimes refer to each other as "partner," using the English word, but they are not partners in the traditional sense of the word.

People who become partners within a village are generally close school friends or friends who come from the same home village. Sometimes a partnership is formed between widows who come from different home villages, but have neither blood relatives in the village where they now live nor a home village friend to establish a partnership with. The following types of partnerships make up a formal non-kin network that is an important element of *Kuuvaŋmiut* subsistence living.

Kuvraqatigiik—fishing partners. The name for this partnership derives from *kuvraq*, or fishing net, and *-qatigiik* (the dual form) which means together or each other. It is a partnership between two women who own a seining net and use it together. In the old days, they both contributed materials for a willow bark net and worked long, hard hours together to make it. Nowadays, they jointly purchase the expensive net, rope, and floats. One village woman told us that her partner already had the sections of a net, so she contributed by joining these sections and by supplying the rope and floats. The partners seine and cut fish together, and later divide the catch equally between them. At least three or four people are needed for seining, so the partners usually take along one of their children or a husband to help. The *kuvraqatigiik* partnership is exclusively for seining, because most women own their own gill nets and use them independently.

Suuraqatigiik—real partners. This word derives from *suuraq* which means things, wealth, or treasure, and *-qatigiik* meaning together or each other. This partnership is between two women who "do everything together" as well as "have things together." They own a seine and go seining together, as fishing partners do, and sometimes they do gill netting together as well. They also go berry picking and plant gathering together, but in berrying each partner keeps whatever she has picked. When the husband of one of the partners gets a game animal, part of it will be shared with his wife's partner. The fact that these partners share and cooperate in all joint subsistence activities makes them "real partners."

Piqatigiik—two persons who help each other. This is a transitory type of partnership between either men or women. Two women who sometimes

set and check gill nets together become *piqatigiik*. Since the nets are not jointly owned, the catch is not divided in halves. Men can become *piqatigiik* when they travel together, as when one provides the boat and the outboard motor and the other provides the gas.

Aŋuqatigiik—hunting partners of the same sex, either male or female. In the latter case, it is usually for small game hunting, but it may be for hunting large game if the women are widows who must obtain meat for their families.

Tiŋuqtuutiruk (plural)—partners who send things to each other. This is the trading partnership, which is often between inland and coastal people but may also involve inland partners who trade for the local resources each would like to have. In this type of relationship the partners can be of the same sex or opposite sexes.

Nuliaqatigiik—a traditional partnership of two men who exchanged wives.

Niuviq (singular), *niuvigiich* (plural)—general term for partners who help each other in various ways and do not have to "pay" for it. One *Kuuvaŋmiut* villager stated that *niuviq* is a term used by *Iñupiat* who live on the coast. According to Burch (1970:52-53), the term is used by *Iñupiat* between the mouth of the Colville River and the southern coast of Seward Peninsula. Three additional terms used to refer to partners in general are *paatnaq*, *ilagiik*, and *ikayuqtigiik*.

Although a partnership usually involves joint activities between two people, a third person such as a husband may help his wife and her partner. Groups who work together in subsistence activities are not always exclusively kin or partners, but may be a combination of both. For example, two women who were "real partners," or *suuraqatigiik*, were joined in fishing by a daughter of one partner. In a smelt-seining operation we observed, the largest group consisted of five families plus the non-kin partner of a woman from one of the families.

Although work groups are important in *Kuuvaŋmiut* subsistence activities, this is not their only function. Both the kin work group and the non-kin partnership spring from close social interactions, and long-term cooperation helps to strengthen the bonds between families.

Division of Labor

Subsistence activities profoundly affect the economic and social structures of Kobuk villagers. This is not only true of large social groups like the extended family, but also of the smallest group—the husband and wife. A Kobuk River wife cooks, keeps the house, makes and mends clothing, raises the children, and, in some cases, works outside the home as a wage earner, just as an urban wife does. But beyond this, she is her husband's most important partner in traditional subsistence pursuits.

The *Kuuvaŋmiut* woman's day is usually long and arduous. Her burden of work varies, depending on how many children she has to care for and how

many are grown enough to take on some of the responsibilities. In years past, the wife was expected to make clothing for everyone in the family. Nowadays, the availability of mail-order clothing lessens this duty, but many women still make skin boots, parkas, and other traditional items. Those who have sewing machines also make calico and corduroy parkas for everyday wear. And some women knit woolen mittens, socks, headbands, and baby booties for family members, relatives, or friends.

Although fishing is less vital to Kobuk village economics than it was before caribou and moose became readily available, it remains a significant activity during much of the year. Men focus on hook-and-line fishing and on the process of making and using traps, while women are mainly responsible for the seining and gill netting. Women cut and dry the large proportion of fish catches that must be stored for later use. Husbands sometimes help with seining and with gill netting if no one else is available and they are not working away from the village.

Big game hunting and trapping are considered men's responsibilities. Caribou, moose, and other large animals are gutted and quartered where they are hunted, but once animals are brought home the women are responsible for cutting the meat and preparing it for use or storage. Both men and women hunt small game such as hares and ptarmigan; when they accompany their husbands on muskrat hunting trips, women also help in taking muskrats.

Berry picking and wild plant gathering are done more by women than by men, but they have become family activities. Often everyone joins together for an outing that may last only one day or involve some camping. A joint activity in former times was building a birchbark kayak. Men collected the bark and women collected spruce pitch needed for the boat. Then it was men who made the frame and stitched the birchbark together with spruce roots, while women prepared the pitch and put it on the stitched seams (Giddings 1961:38).

In the upper Kobuk villages, birchbark baskets are made primarily by the women today, and most are sold for cash. Handmade skin boots, parkas, and other clothing are also a home industry for some *Kuuvaymiut* women.

A small number of Kobuk villagers are employed outside their homes in part time or full time jobs. These include women who become teacher's aides, health aides, secretaries to Native organizations, and cooks in the schools. The Kiana magistrate in 1974 and 1975 was a woman. Women also work on forest fire fighting squads during the summer. Those who are wage earners continue their subsistence activities outside of working hours and during vacations. They fish and go gathering to the same extent that unemployed housewives do, because the kind of food they can buy does not adequately replace the traditional food they prefer for their families.

With the approach of old age, men and women gradually shift away from intense participation in subsistence activities, but they take an in-

creasingly important role as advisors. For example, a group of people was seining smelt on the lower Kobuk River, apparently with good success. But after the elderly woman who owned the net looked on for a while, she gave a few instructions. When the crew followed her advice their catch immediately increased. Some women continue gill netting and fish cutting until their late seventies. One Kiana woman in her seventies not only does the gill netting and gathering with her husband, but also goes with him to hunt large and small game; and she collects and chops firewood. Babysitting their grandchildren is another important occupation for most older women, and it is a task they gladly accept.

The partnership of husband and wife is essential for subsistence living. One woman remarked that when her first husband passed away her children were still very young, and she had to do all the hunting, fishing, gathering of firewood, and other subsistence activities by herself. If a widow is not already living in her home village, she will usually move back, so that her male relatives can provide her with meat and others can give her whatever help she and her children need. The widowed husband has an even harder time, because he has to maintain the housework and care for the children while continuing his hunting activities. Thus, economic necessity as well as the need for companionship and love are strong motives for widows and widowers to remarry whenever they can.

Sex roles and the division of labor are not rigidly defined in *Kuuvaŋmiut* communities. If a husband is disabled, the wife often becomes the hunter of the family, unless they have a son who can assume this responsibility or they can afford to buy meat from others. An unmarried woman with children will often hunt to feed her family. A husband takes on the responsibilities of cooking and caring for the children when his wife leaves the village temporarily. The attitude is that one does what needs to be done, and people respect a family that makes a living for itself without requiring the help of others.

Child Training

Self-reliance and readiness to help others are among the values emphasized in *Iñupiat* culture. Early in their childhood the *Kuuvaŋmiut* learn these values and the roles that are expected of them. This is illustrated by the comment of an eight-year-old girl: "You should have children; they can help you work." Small children are trained to be helpful by running errands for their families, such as carrying messages to other houses or getting things from the store. Adults from outside the family also ask children to do errands for them and contribute in this way to their training. The children always comply, and they are rewarded with praise. People feel that the earlier a child is trained the better he or she will be as a worker.

By the time the children are eight or nine years old, this helpful attitude extends beyond their own homes to the old people in the village, particularly those who live alone. The boys help with hauling water, getting firewood, and running other errands; the girls do similar jobs and help with the housework. They are rewarded with gifts, food, and sometimes money to buy treats at the store.

An eight-year-old daughter can relieve her mother of a great deal of housework, such as cooking simply dishes, cleaning the house, helping with the laundry, and caring for younger siblings. By this age, she has also participated in berry picking and knows where some of the rich picking spots are located. Girls as young as six or seven start learning the first stages of fish cutting and scaling. For example, a little girl who tired of playing while some women were cutting fish asked her mother if she could try scaling. She was given a dull knife and a small fish, and then she simply imitated the way the adults were doing it.

In another fish-cutting session, an older girl had her first try at cutting after she saw a friend have fun at it. The adults kept an eye on her, but gave no verbal instruction unless she asked for it or made a serious mistake. They ignored small mistakes so she would not be discouraged. The fish was pretty well mangled and she felt embarrassed by it; but a woman consoled her, saying, "It's O.K. It's your first fish!" *Kuuvaŋmiut* stress observation and imitation as the best ways to learn, and they rarely give verbal instruction.

Boys' training is also done by this learning-through-doing method. For example, a boy helps his father with spring maintenance and repairs on the family's boat and outboard motor. If he is 14 or 15 years of age, his parents might give him an old boat that he and his friends can fix up before the river opens in spring. Should they be lucky enough to have an outboard motor, they can use the boat for muskrat and ptarmigan hunting once the ice is gone. A boy usually begins learning how to make a sled or repair a snowmachine in his late teens or early twenties. Also, the village school may teach these skills as part of a workshop program.

Since hooking fish is part of a man's job, the father usually takes his sons along whenever he goes out. Learning to hunt for big game begins at 11 or 12 years of age, when a son starts accompanying his father on hunting trips. Later, as an older teenager, the son will hunt with friends of the same age. Some older, unmarried girls also learn how to hunt, and they generally go out with another girl or with the family.

Children's play often parallels the adults' activities and in this way helps them to learn practical skills. Girls play at cooking and keeping house. When small boys go around with slingshots in the spring, they learn precision aiming. During the spring and summer, small children can often be found on the river bank with their fishing rods, and sometimes they are rewarded with a catch.

Children's seasonal round of imitative play closely parallels the adults' subsistence activities. In spring, when the adults are intent on bird hunting, the children are also busy trying to get small birds with slingshots. When the adults are traveling the river in boats, children can be found at the river bank playing with toy boats made from a flat piece of wood with a string attached. During the fishing season the children fish too. And when the adults begin to drive snowmachines on the fall snow, little boys go around pushing toy sleds their fathers have made for them.

Noorvik Village Life

While life in a Kobuk River village is a blend of both *Kuuvanmiut* and western traditions, it is also a single, coherent, and largely consistent flow of activities. The following is Nita Sheldon Towarak's description of life in her home village of Noorvik, as she experienced it in the early 1970s.

The yearly activities and special occasions that she describes are typical of those in all Kobuk communities.

Early Spring

In spring the river ice is rotten and unsafe, so the villagers must do a lot of walking on land. There is constant daylight, and men leave the village in late afternoon to spend the "night" hours hunting ducks along the lakes and streams. Because so much walking is involved, it is mostly the younger people who hunt in this season.

Memorial Day. On Memorial Day everyone in the village who can walk and who has relatives buried in the cemetery goes to the graveyard. Since the ice is still rotten, people may have to walk as much as three miles. They spend a good part of the day at the graves, cleaning and changing the artificial flowers, sitting around eating, and enjoying the springtime. Although some people may cry a little, they accept the fact that their mother, father, husband, or wife has died and they just sit at the grave site, feeling once again close to the dead person.

Funerals. When someone in a village dies, everyone stops whatever he or she is doing. They stop fishing or working, even if they are employed by a company. They become very solemn, and the sense of death can be felt through the stillness that descends on the village. If a husband dies, for example, the wife and other close relatives will show a lot of emotion. No one holds back, and all cry and stay close to her.

In preparation for burial, people first clean the body and then dress it in new clothes. The body is kept in the village for at least two days. Meanwhile all the men and some of the women go to the Friends Church where the men work all day and late into the night building a coffin. The women make coffee or serve food for men who do not go home for lunch or supper. Usually everyone in the village helps at one time or another. After they put a sheet or some other white material into the coffin, they bring the body to the church and put it in the coffin. If the person has died while away in the city, the body is returned to the village in a commercial coffin.

Relatives come from all the Kobuk River villages, no matter how distant the relationship might be, and even if they never knew the one who died. In the western world, a cousin (for example) who did not know the person that died is under no obligation to attend the funeral. But in the Kobuk villages, there is such a strong blood tie that everyone shows up for the funeral, even the dead person's *atiuns* (namesakes) from other villages.

When the funeral service begins, close relatives sit in front in the church by the coffin, and more distant relatives sit behind them. After the minister

says a prayer the mourners join in singing hymns, usually somber ones. Then the minister talks a little, people say prayers, and finally they walk up to view the body for the last time. The last persons to see the deceased are the closest relatives. People who have seen the body then leave the church and wait outside. Usually six men help to put the cover on the coffin and carry it outside.

Noorvik has two grave sites, one three miles away by trail or a half-mile away by boat, the other about two miles south of the village. Nowadays burials are often made closer to the village so that the trip to the grave will not be so far. For instance, a woman whose husband was buried near the village goes to his burial spot about once a week, taking along her small children because they miss their father. The youngest child does not understand where his father is and expects to see him, which makes these visits more emotional.

Marriage. In the Kobuk River villages, marriage is much less formal than it is in the city or the lower 48 states. Long ago the *Kuuvanmiut* did not have formal marriages. If a man liked a woman, he went to stay with the woman's parents and helped them however he could. If her parents accepted him, they gave their daughter to him. Nowadays a couple usually first lives together, and most women have a child before marriage. When the couple decides to marry, they go to Kotzebue for blood tests and then to the judge for the marriage. The marriage is simple. There is usually no white dress and no tuxedo—the couple gets married in jeans. When they come back to the village they pass out big cans of candy to everybody, or they may pass out soda pop or have a big party.

Late Spring

When the ice breaks up, everyone stays by the river bank and watches it go. With high water on the river and throughout the lowlands, the people are eager for boating. Many villagers hunt for muskrats, then dry the meat or boil it for eating. For dried muskrat the animals are gutted and then two carcasses are tied together by the tails and hung up in the open air. The skins are saved for making parkas. After the ice is gone, some people travel to spring camps and set nets for whitefish and pike. They also hunt ducks that are flying north at the beginning of summer, and everyone looks forward to adding this favorite food to their menu.

A Spring Camp Diary. In the early summer of 1975, Nita Sheldon went to a traditional camp with others from her home village of Noorvik. The following are slightly edited excerpts from a diary she kept and contributed as part of her work on this volume.

Makkaksraq Camp

Monday, 6/2/75, 1:30 AM

Left Noorvik at 7:30 PM and arrived at *Makkaksraq* Camp about 11:30 PM. In our party were Billy, Aggie, Valeria, Tilmer, and

I along with one dog and many things necessary for one week of camp. We left Noorvik with a full boatload and made our first stop one river bend away from the village, where Billy shot two ducks. Because the ducks are just beginning to arrive, they shoot any they see just as long as it's in shooting range. After about an hour's traveling we stopped on a bluff and had coffee, tea, dried meat, homemade doughnuts, and crackers. Angie and Gordon stopped and joined us. They have been down near *Makkaksraq*, where they set up a tent and stove. They will be heading back down to their camp tomorrow. We stayed there about a half hour. There was still snow around.

After snacking and sharing a few words we were on our way again. It was a slow trip, and we made another stop where Billy again shot a duck. About 1½ hours before we got to *Makkaksraq*, fog started to roll in, making visibility very poor. The wind was blowing and we were being splashed, but we were kept dry by plastic sheeting. Our driver Billy didn't have a raincoat on, so by the time we got to *Makkaksraq* he was soaked right down to his skin. We saw a lot of ducks on the way but they were too far to shoot at. We also passed *Milugiurvik*, Doug Brown's camp, and Snell's camp.

We finally got to *Makkaksraq* some four hours after leaving Noorvik. When we got there we met Maggie, her nephew, her four kids, Ruth and Raymond George and their two kids, and Fred and Alta Jack and their son. We got here to the most welcome, warm tent of the Georges. Their tent has been here all year, but luckily it didn't flood much during this year's breakup or else it would have been wiped out. Also, if snow had gonen in the tent it would have been very wet.

We had hot coffee and tea, and Ruth had caribou meat boiling on a red-hot wood stove. All of the other families were in there, so it was a little crowded but very warm and the atmosphere was friendly. For dinner we had boiled duck meat, *tuttu* (caribou) meat and dried caribou with seal oil; after that we had tea with crackers. After sitting around talking for some time each family went back to their tents. During the time when dinner was being cooked, Billy and the other men pitched up our tent.

Everyone is finally in bed now, but conversations can still be heard from the other two tents.

Makkaksraq Camp

Tuesday, 6/3/75, 1:20 AM

Weather: Foggy, windy, and cold, similar to yesterday's weather.

Today we ate big meals. Val, Tilmer, and I woke up at 10 AM and ate hot cakes for breakfast in our own tents, but ten minutes later we were called to the Georges' tent for a big meal. Two big pots of

duck soup were cooked. Aggie and Billy had gotten up at 6:30 this morning and went hunting while us kids were asleep. There were about 12 people in the tent, and it was a very good meal.

After lunch Maggie, Aggie, and I went to put their nets out, right across from the camp. About three hours later we went and checked them. Six or ten pike and whitefish were caught in each net, and Maggie had put out two nets. Maggie's net caught a big *siulik* (pike), so Aggie boiled it in a pot outside on a campfire. Then we had another big meal at Ruth's tent. We also had boiled *siulik* intestines. Then for dessert we had blueberries that Maggie had brought from Noorvik. There were conversations during the meal but mainly joking around.

All day there has been scolding of the kids for various reasons. One main reason is that the children should not go in the boat or near the water because it is very murky and cold, and the current is swift. No one would have a chance to survive in it. There would be chaos if a kid were to fall in. Although some of the parents let their frustrations out on their children by scolding them, the parents tend to get more lovable toward the evening. This is probably because their strenuous work has been done, and the only thing they have to worry about is going to bed.

One cannot help but notice the most popular tent in this camp. It's Ruth's tent, which is the center one, although the position hardly has anything to do with popularity. The tent has a wood stove which is usually kept burning continuously, whereas the other tents have Coleman stoves. These are usually on only when necessary because gasoline costs so much; it has to be rationed out according to how many days they will stay at camp. The Georges' tent is somewhat like a house; it has a wood frame, plyboard walls, and wood flooring. Because of its continuous heat and comforts of a house, it drew us when we were cold and hungry.

Our meals are like a potluck, where everyone contributes food at one time or another. I could tell that the *Makkaksraq* Channel has abundance of various game and fish, mainly sheefish, pike, and whitefish. We have ducks of all kinds, and *tuttu* (caribou) that was brought from Noorvik. Everyone eats like we haven't eaten in a long time. They mention that once we go back to Noorvik we will just go hungry, because when you're at camp, food is *kayumik* (it always tastes so good).

After lunch Donna (age 10), Val (age 10), Yogi (age 11), and I went for a walk up in the higher grounds. We ate cranberries and blackberries left over from last year. Now and then we would find a bunch that birds hadn't already feasted on. I also picked *tilaaqqiuq* (Labrador tea) and brought it back to camp with me.

Then Maggie and I went to check nets. Aggie's net caught five whitefish while Maggie's two nets caught 25 whitefish and pike.

This time our dinner was a little small. We ate leftovers: a whole potful of untouched duck soup that we didn't eat at lunch time. After all dishes were done we settled to a game of Pit—Ray, Ruth, Maggie, Aggie, Billy, and I. It was foggy and cold so we couldn't do much.

Makkaksraq Camp

Wednesday, 6/4/75, 11:00 PM

Today has been a similar day, weatherwise. As usual it was foggy, windy, and cold. After breakfast Aggie, Maggie, and I went to check nets. Aggie got half a tub and Maggie got almost a tubful. Women tend to go check nets alone when more than one woman is in camp. Maggie's outboard motor wasn't running so she has been going with Aggie. Ruth checks her net with her husband.

For lunch we had roasted whitefish and two whitefish that I tinfoiled separately and cooked in an outside fire. Also Billy made *qauraq* with one pike and two whitefish. *Qauraq* is an Eskimo way of cooking fish, the only method that was used long ago when there were no pots and pans. You poke a sturdy willow through the fish without taking the insides out and bore the stick into the ground by the fire, continually turning it from side to side as long as the heat will permit it. You do not let the fire flame up or it will burn the fish; get green willow wood and let it burn until it turns to hot coals. Then it will gradually cook the fish.

After a big dinner at the Georges' again, Aggie and I plucked three ducks and she roasted them over the open fire outside. There wasn't much to do, so I made a fish rack four feet high for Valeria to hang her fish eggs on. I put three forked willows on each end so they can hold up and then put a center willow to hang eggs on.

There was another big meal but I wasn't hungry. My stomach has been giving problems from overeating, so I resigned from supper. There is a graveyard here with Raymond's namesake grandfather and his two brothers buried in it.

NoorvikSaturday, 6/7/75, 12:30 PM

Haven't been writing for couple of days. I'm recuperating from a head cold I got from the foggy *Makkaksraq*. I came back here to Noorvik with Valeria and Bobby S. on Thursday night 1:00 AM, after we left the camp at 11:30 PM. It was a little faster coming home because Bobby bought a new motor; I think it was a 55-horse, and he also bought a used speed boat from Willard.

It is a little different coming back. Time had little meaning at camp, and work and eat and sleep were the main activities. Now I find

that it is a little lonely coming back to all the luxury of material objects. Although all these comforts make life easy, I also seem to lose my identity in one way or another. At camp everyone was expected to help at one time or another, but when you come back here you don't have to lift a finger if you don't want to.

Although we came back late there were still 15 to 25 people walking around having really nothing to do. Most of these young people easily fall into a late-to-bed and late-to-rise pattern, so most of them don't go to bed until one or three in the morning.

Summer

During summer the people gather sourdock and wild rhubarb. Sourdock is eaten cooked and eaten by itself, cooked with whitefish liver, or put in barrels and saved for winter. Later on the salmonberries and blueberries begin to ripen, and it is usually the women who pick them. Women who are related or who are best friends go out together on all-day excursions, and sometimes men go, too. People try to go every afternoon if they can.

Usually the women check their fish nets in the morning, and around Noorvik they might average about 15 salmon a day each. Salmon first come up the river around the middle of June and run heavier in July. Women also get whitefish and pike. Villagers get smelt in the springtime, too, but not so many since a little girl was drowned by the bluff across from Noorvik. While her parents were catching smelt the bank caved in and she fell in the water and drowned. Smelt fishing has declined since then.

In summertime the women go to the beach, check their nets, cut the salmon, and then go home for lunch after they finish. They also build smudge fires under the fish, using rotten wood that makes a lot of smoke and keeps the flies away. At this season the women are kept busy from morning to late afternoon.

A Summer Camp Diary. In early summer the villagers try to spend some time living in fish camps. One of these camps is *Amaamnunaaq*, and when Nita Sheldon stayed there with her family she kept a diary. The following are slightly edited excerpts from it.

Amaamnunaaq Camp

Friday, 6/27/75, 11:00 PM

Dad, Mom, Allen, Sharon, and I left Noorvik at 6:30 PM, after Dad finished work at the post office. We got here to *Amaamnunaaq* at 8:00 tonight. This is my mother's parents' camp; they've been coming here ever since I remember, and my mother was practically brought up here.

Viola (Mom's sister) and Lee Barr were camping here last week, and they left their tent up so we stayed in it. There is a lookout tower here that was built about 25 years ago, and a cache that is

about the same age. The tower is very useful, because it gives a view of the surrounding area. There are a lot of lakes, so if someone spots a moose from the tower they can pinpoint the exact position. There is also an underground storage place at this camp that is used in summer to keep food cool or refrigerated. Lee B. and Mom's youngest brother Leo are building a new log cabin here. The walls are done but it has no roof yet. I guess their work will resume this fall.

We didn't eat supper, so when we arrived here Mom fried some caribou meat we had brought from our freezer in Noorvik. We also had homemade doughnuts that Mom made this morning, as well as cookies and tea. After eating, we went to the slough across from our camp and put out a net. Pike are still running. According to Mom, whitefish should also start running in about a week—about the Fourth of July.

While Mom and Dad were putting a net out a pike got caught, so we decided to wait around a bit. Dad hooked up a rod and reel, and he caught two pike with it in about 10 minutes. We didn't stay too long, but we checked the net before leaving and it had caught four more pike. When we got back Dad listened to Eskimo story on the radio and I checked out the tower. It's a little shaky but it's still sturdy, and it gives a good view of the camp surroundings.

Amaamnunaaq Camp

Saturday, 6/28/75, 12 midnight

Woke up at 8:00 this morning. It was cloudy today and it looks like it will rain. Yesterday was a nice day, sunny.

Mom and Dad went to check the net at 8:30 this morning, when Allen and I were just getting up and Sharon was still asleep. Mom had already cooked when I woke up, and we had sourdough hot cakes for breakfast. They came back with their catch—1-1/2 tubs of pike and whitefish—so I went and helped Mom scale *(kavisiiqsi)* and then she cut the fish herself. When lunch time came around, Mom roasted three choice whitefish along with some potatoes. It was a good and delicious lunch because the fish were fresh.

After lying around for a couple of hours after lunch, we went across to the lakes that can be reached from the slough where our net is set. We went to the farthest lake and landed on the other side, and there Dad got some old dried-up trees for wood. I picked *tilaqqiuq* (Labrador tea) and we ate some cranberries that were still there from last fall. They were fresh and juicy because the snow had just melted. Looks like there will be a lot of cranberries this year, and there are a lot of *aqpiqutaq* (salmonberry flowers that will eventually turn to berries).

On the way out of the second lake we stopped and picked a whole armload of *quaġaq* (sourdock). We also stopped at the net and checked it again. We got another 1½ tubs, all pike and whitefish.

When we got back to camp at 4:00 PM, we started working on the fish. Dad scaled the pike because they are harder to scale than whitefish. And Allen, who is nine years old, scaled the whitefish. Mom and I did the cutting. I'm really learning how to cut fish.

When we finished with the process of cutting, washing, and hanging the fish, Mom started cooking dinner. We had *aqiaġuq* (intestines) and *quaġaq* for dinner. Mom boiled the *quaġaq* and put cooked liver and a little sugar in with it. Really delicious.

After supper Allen, Sharon, and I paddled across to the slough, and we caught two pike in no time. The fish were biting but we couldn't hook them. Allen got the prize fish. We stayed for only half an hour because it started to sprinkle a bit. The dark, black clouds had been threatening us all day. Everyone is asleep now and I can hear birds beginning to chirp.

This morning Dad fell into the slough when he was putting the support stick of the net back into the water. What they do is stick the pole into the underwater mud so it can keep the net even and straight. To check the net they untie one end, pull the net into the river bank, take all the fish out, and then pull the net back out again. The slough is not very long but it is deep.

Amaamnunaaq Camp

Sunday, 6/29/75, 10:30 PM

Everyone else is in bed now. Mom is drinking tea in bed, I'm sitting near the wood stove drinking tea with *tilaaqqiuq*, Dad is reading, and Sharon and Allen are asleep. I can hear the wind blowing and there is a light rain shower, but it's getting clearer.

This morning we woke up late. I woke up at 10:30 AM, after everyone else had already gotten up. For lunch we had a choice of wieners, intestines, doughnuts, and tea. We just laid around until about 1:30 this afternoon and then we took off to visit Daniel Sheldon and his family (Mom's brother).

On the way, we were so busy looking at someone's camp that no one noticed the moose to our left. I saw a movement, and there was a bull moose running along the side of the river; then it took off into the willows. Dad ran after it to see where it was going, and he said it was slowly walking in the opposite direction. He also said that moose sleep in the afternoon, so we must have awakened it. He told us that this is the best time of year to get them, and since it wasn't an old moose it must have been the right type. We went to Daniel's camp through *Narvaġruuraq*, which is a big lake, and then there is a slough leading to their camp. When we arrived there was only an empty tent, so we went on to *Aquppak's* (Louie Commack's) camp about two bends away.

When we got to their camp *Nauyaq*, his wife, was cooking caribou soup on the wood stove that she placed outside the tent. Annie (her granddaughter) was putting wood in the stove. *Aquppak* and Arthur, his grandson, were watching curiously to see who was coming. The sun was shining so we all sat around outside, but there were a lot of mosquitos. They didn't seem to bother the older people but they were really beginning to bug me.

Arthur, Allen, and Sharon started playing. Annie told me she found a bird nest *(pikiut)*, and this morning she was feeding the featherless babies with worms. She showed me where they were and they were really tiny. Then we sat around until the soup was done and we ate outside on the ground. The soup was made with meat, macaroni, potatoes, rice, and chopped onion, and we also had crackers, bread, intestines, canned fruit, and tea. It was a delicious meal.

Annie and I did dishes while the others lazed around and the children resumed their playing. After doing dishes Annie told me I could go read in her tent, so I did, because I couldn't stand the mosquitos. Meanwhile the older people were talking and telling stories.

About 6:00 this evening we decided to head back because the wind was beginning to blow and the clouds were gathering. On the way back we saw a flock of geese, at least 10 of them. They were just beautiful. And we picked three or four armloads of *quaġaq* from Mom's Native Allotment. When we finally got back to the camp it was starting to rain.

Then Mom started cooking again. Seems like all we do is eat, but once we go home to Noorvik it will be different. Yesterday Mom put *aqiaġuq* (intestines) in cold storage and tonight she cooked them. She also cooked *quaġaq*, and we had dried whitefish. After eating we burned trash, because someone left a mess here. We waited around until midnight because no one does anything on Sundays.

Allen and Mom got up after midnight, and then we paddled across to put the net in. But the water had risen and Mom thought it might get tangled with drifting sticks and wood, so we decided not to put our net out. Allen and I hooked for a little while, and then we went home to bed.

Noorvik

Monday, 6/30/75

Got up late today because it was raining. We knew it was going to be cloudy and rainy so we decided to come back to Noorvik. Also, we couldn't set the net because the water was still high. So this afternoon Allen and I did most of the packing, and we loaded the boat around 3:00 PM, then left for Noorvik.

> Coming back, the wind was blowing and we got rained on at a couple of places along the river. It was really cold, so we stopped for about 10 minutes to warm up about halfway home. Allen shot at a couple of ducks but he didn't get them. When we were a couple of bends away from Noorvik on the Nazurak Channel the waves were big. We were getting sprayed, so Dad slowed down and that helped us from getting too wet.
>
> When we got to Noorvik my grandmother *Aana*, Ramona, and Sarah were on the beach. Ramona and Sarah were going to go put a net out, but it was windy and it looked like it was going to rain so they changed their minds.

Fourth of July. On this holiday people of the Kobuk River villages have foot races for all age groups, from the small children to the older women. There are also boat races for different-sized outboards, paddling races across the river with six or eight men in a boat, and women's teams competing with each other in paddling contests.

Late Summer. During the last part of the summer, villagers are busy picking berries and catching salmon. This is also when supplies they have ordered arrive from the lower states. After the *North Star* anchors at Kotzebue, goods are transferred to a tug which brings them to the village store in late August. Some of the men earn money for a couple of days as longshoremen, taking the food to the Native Store by truck. Candy bars, pop, and Cracker Jack abound. When people visit one another they all enjoy the new supplies. Although the *Kuuvanmiut* depend on Eskimo foods, they have also become accustomed to *naluagmiu* (white man's) food. This is a feast time and a happy time.

Fall

On many nights in the fall people have nothing special to do, so they visit friends and relatives. Visitors are always welcome for dinner without any formal invitation. They usually arrive at about 8:00 or 9:00 in the evening, and eat an hour or two later. Villagers eat about four times a day, usually whenever they feel hungry rather than at any special time. When visiting, people tell stories, talk about what is going on in the village, or play a variety of card or board games—unless their Christian beliefs forbid this entertainment.

During the fall women make mukluks and parkas for their children. Commercial clothes are not warm enough. There are also nights when families enjoy staying at home to listen to the Kotzebue radio station where Eskimo stories are told. People send tapes from different villages to the radio station, and two times a week the tapes are played on the radio. These are very popular programs. Even though it is cold in the fall, Kobuk villagers also enjoy traveling out somewhere to see the country and have a picnic. This is done especially by the younger people.

Sometimes people travel by the scheduled mail planes to visit friends and relatives in neighboring villages. Some also fly to the hot springs near Buckland, mostly for healing in the medicinal waters. Villagers always eagerly await the plane to see who arrives on it and to hear the news from other places. They are also anxious to see the mail. Noorvik's post office is a one-room building, where the postmaster sorts mail, passes it out, and issues money orders. People come to the post office not only to pick up their mail but also to sit outside the building and visit while they are waiting. There is now a new post office with individual mailboxes in Noorvik.

Before there is snow in the fall, villagers dig *masru* (Eskimo potato) and pick frozen cranberries, blackberries, and blueberries to put away. The men go out to hunt for moose when the season opens in August. Unless they have meat stored in their freezers, moose will be the only meat until caribou come. Women also catch fish, which they string to dry and put in their caches to freeze. Fall is the busiest time of the year because everyone is storing away food for the winter.

Birthdays. Village people have different birthday celebrations than those in the city. When a child has a birthday, the mother or sisters bake a cake, and they make Jello and sometimes soup. Often they invite 10 or 15 of the child's schoolmates and all of his or her *atiutit* (namesakes) for an afternoon party; and then in the evening they may have a party for the older relatives and friends. They serve *akutuq* (Eskimo ice cream), *quaq* (frozen raw meat), *uqsruq* (seal oil), *paniqiuq* (dried fish), caribou or moose soup, and caribou tongue. Most of the birthday presents given to any person are money. Usually the amount is one dollar, though an *atiun* (namesake) who especially likes a child may give a present of about twenty dollars.

Winter

In winter the men go off to hunt caribou, the main meat for subsistence. Caribou meat is usually frozen with the skin on, and then it is taken off when the meat is to be eaten. The hide and leg skins are saved to make mukluks. When people eat meat from the long bones, they also crack the bones and eat the marrow inside. Many parts of the caribou are used, including the head and intestines. People also shoot snowshoe hares and ptarmigan with .22 rifles, and they catch them with snares as well. Ptarmigan are a delicacy for the older people, who even eat the insides, slightly cooked. Villagers also fish through the ice in winter, and some of the men go out trapping.

The colder it gets, the fewer activities there are. Bingo is a main winter entertainment for some Noorvik residents. Every Tuesday and Saturday night around 9:00 PM the hall where Bingo is played draws 15 to 20 villagers. Sometimes as many as 50 people come, or even more if a carnival or dog race is going on. The bingo players are regarded as non-Christians by the church-goers. The prize per game is eight or ten dollars, except for the jackpot prize, which can be much bigger.

Thanksgiving. Kobuk River people celebrate Thanksgiving in church, and it takes the place of the potlatches held long ago. Everybody brings food: soup, frozen fish, berries, Eskimo ice cream, rice, crackers, cookies, and fruit. The first bell calling everyone to the church is rung at 5:30 in the evening. After the people have gathered they have a prayer, and then the women help to set the food in the middle of the room. The women cut the meat and various people help to serve things. Chairs are set up so that people will face each other across the church. Families ordinarily sit together.

Servers go between the rows passing out the food, giving everybody the same amount. If there is not enough of one kind of food to go around, it is given to the older people. Because the elders are respected in the villages, they are given first choice. Each family brings its own plates, cups, and spoons, plus extra containers to carry additional food home. Finally a big box of candy is passed around, and this is the time to visit. Thanksgiving is regarded as a big, happy family occasion.

Christmas. The church is decorated about a week before Christmas. Men go out and get the best tree they can find for the church, and the older people help to decorate it with popcorn on strings, lights, and candies. There is just this one tree for everybody. People either order their presents from catalogues or pick them out at the store. Since the village store stocks mainly food and supplies, it does not offer many things to choose from.

The Christmas feast is held in the church, and many people come dressed in new clothes. The long program starts with a prayer around 6:00 PM. Each age group from the village has a part in the evening of songs, scripture, and other readings. Groups and individuals take part, and the older they are the longer the pieces they do. There are also short plays or skits. The old people give texts or testimonies, and they sing translated songs in Eskimo. Then there is prayer.

Popcorn, candy, raisins, and candy bars are passed out to each family afterward. Every person gets a bag of mixed goodies, and even those family members who are away are sent a bag, wherever they are. By this time people are visiting back and forth as they enjoy their sweets. All of the gifts were taken to the church before the celebration began, and finally the big moment comes to pass them out. Presents are given to a person's best friends, to his or her *atiun*, and to relatives. It is estimated that the people of Noorvik spent a total of $2,000 to $4,000 on Christmas gifts in 1974.

New Year's Eve. Everyone in the villages stays up New Year's Eve. The normal curfew for school-age and younger kids is not observed that night, so all of the children play out. Until a few years ago, the adults used to play Eskimo games on New Year's Eve, like arm wrestling and the ear pull with string. But now, if the church allows it, the young people try to have a big dance. There has been some disagreement about this in the village.

Carnivals. Like the other villages, Noorvik has dog team races each year in March and sometimes also at Christmas. There are men's and

women's races, and competitors are invited from other villages. Children's dog races were once held, but are not any longer. There is a daily prize for the musher who finishes with the fastest time, and then a grand prize for the fastest combined time. In 1975, only five men and three women competed with their teams, so each of them had a good chance to win money.

During this same time there are also foot races. In 1975 the men's race at Noorvik was four miles long and the women's was less than a mile. While the races are taking place the villagers have a tent set up where they sell coffee and doughnuts, and after the races they have a carnival with all kinds of activities. Carnivals are held in all of the Kobuk villages at different times during late winter, and these are a good chance for people to visit neighboring communities.

Subsistence and the Cash Economy

Every Kobuk River person sees himself or herself as basically oriented to a subsistence way of life. For the man especially, self-esteem is firmly tied to the ability to hunt and cope with his environment. He finds a great deal of satisfaction in his success, such as bringing a sled-load of caribou back to his village. Even men who have lived away at dormitory schools for many years feel their identity to be with their own lands and resources. Among the women, it is most often those who are middle-aged or older who highly value the traditional subsistence activities.

Younger girls, especially those who have been outside to school, often downplay the value of their traditional subsistence roles. For example, they do not express the same satisfaction from cutting, catching, and hanging a rackful of fish as boys do from hunting and traveling on the land. Not until the girl matures, becomes a mother, and assumes responsibility as the joint head of a family does her emotional attachment to subsistence activities deepen.

Despite their primary orientation toward traditional subsistence values, the lives of the modern *Kuuwaŋmiut* are also strongly tied to wage earning. Virtually every hunting, fishing, and trapping activity involves the use of manufactured items that have to be purchased with money. Necessary equipment includes snowmachines, rifles, ammunition, traps, motors, boats, tents, nets, camp stoves, and many other items. There are also increasing demands for money to pay for the myriad new items and services being introduced into the villages. Within the last five years, for example, residents of some Kobuk River villages have bought new houses, which has indebted each family for a period of 10 or more years. There are also expenses such as electricity, running water, and sewage which help to create a steady demand for cash.

The villagers are being drawn into an ever-tightening web of money encumbrances that they would have great difficulty removing themselves from, even if they wanted to. Undeniably, many of these developments are improving their way of life. Electrification, for example, has permitted the use of home freezers, and these have allowed much more effective use of traditional

resources. But the new items also reduce the amount of choice each person has in allocating time between subsistence and wage-earning activities.

Cash was extremely scarce in the villages until the early 1950s. Before then, transactions took place at trading posts in Kobuk, Shungnak, Kiana, and Noorvik, primarily on a barter-credit basis. Muskrat pelts were the usual medium of exchange. Furs such as mink, beaver, otter, and marten were not usually bartered—at least not during the last 40 years—because they were sold to fur exchanges outside the village. Normally, families built up a small debt at the trading post during the winter, then a large debt for camping equipment and food in the spring just before going out to spring camp. When they returned with their take of muskrat skins they used them to pay it all off.

Before the widespread use of outboard motors, the greatest flurry of business was conducted when the trader went to the individual spring camps to collect pelts in exchange for a large quantity of goods. After outboard motors came into general use about 1950, an increasing number of trappers traveled in their own boats to the trading posts for their goods. The value of annual fur transactions in the Kobuk valley was considerable. For example, in Kiana 10,000 muskrat furs, valued at one dollar per skin, were traded in 1953. As cash became increasingly available during the 1950s, muskrat pelts ceased to be the standard exchange medium in the village stores. By the early 1970s, total cash income within the Kobuk villages had increased greatly. In 1971, for example, gross receipts at village stores totalled $283,000 at Kiana, $60,000 at Noorvik, and $62,000 at Ambler (*Maumeluk* 1974:110).

Most of the cash available in the Kobuk River villages comes from wage employment. In 1969, the median income for all NANA region Native families was $5,742, and nearly 90 percent of all families had some wage and salary income. Between 1970 and 1972 about 15 percent of the total cash income came from some form of public assistance (*Ibid.*:83,154).

By far the majority of job opportunities are for temporary wage labor away from the village. In 1975, only eight Kiana residents (about nine percent of the labor force) had steady jobs in their village, filling about 50 percent of the steady jobs, excluding those in trading posts. Whites from outside the Kobuk region filled the other 50 percent. From the labor force of 100 people (16 years of age or older), 13 earned $5,000 or more; 34 earned less than $5,000; and 53 were not employed.

Employment conditions between 1974 and 1976 were exceptionally favorable because of year-round work available on the Alaska Pipeline project. Other employment is available only during the summer, such as fire fighting, river and coastal freighting, commercial fishing in Kotzebue Sound, and local construction jobs. In the upper portions of the river, some mining jobs are also available. Each village has at least one family with income from a small store in the home.

One major problem confronting all Kobuk valley residents is how to reconcile the need to earn a wage with the desire to make a living off the land.

Simply stated, money has become an essential adjunct to living the traditional subsistence way of life. A man's decision about taking a job is therefore based on the amount of work he must do in order to live the way he wants to, believes he should, and feels he has a right to. A balance between wage earning and subsistence is often difficult to achieve because of constant changes in the wage economy, the types of jobs available, and the amount of money a person needs. Since most of the available jobs are away from the village, far from family, friends, and familiar surroundings, employment is regarded as a necessary evil.

Villagers usually do not feel that they receive important rewards from the jobs themselves. Jobs are regarded as a way to spend the rest of the year at home and living off the country. Paradoxically, the fact that Kobuk villagers take jobs reflects their dedication to pursuit of a traditional lifeway in the modern world. Those who most avidly seek jobs are often the most dedicated to subsistence living.

Certain types of jobs are more compatible than others with traditional pursuits. For example, commercial fishing in Kotzebue Sound is favored by many, who point out: "We have handled salmon all our lives, so it comes natural to us to fish salmon commercially." Reindeer herding is another tradition-oriented job. Although it entails a hard and lonely existence, which few *Kuuvaqmiut* enjoy, it also provides traditional rewards of meat and skins while also producing a cash income. Guiding sport fishermen may someday become another favored type of employment, although it requires a business orientation, long-range planning, and advertising, and it limits a person's other activities during the summers.

Fire fighting, one of the oldest kinds of reliable summer employment, is exceptionally compatible with traditional *Kuuvaqmiut* living. It conforms to the old pattern in which men and boys go out away from the village in summers. It is a village-coordinated activity, and each community has developed a pride in the effectiveness of its own crews. It also permits closeness between the older and younger persons. Significantly, teenage boys tend to speak English in the village, but while fire fighting they often speak Eskimo among themselves and with the older men. Beginning in 1974-75, fire fighting crews included both men and women, a situation that pleased everyone.

The following figures for 1971 through 1973 indicate the impact of fire fighting jobs in the Kobuk River villages:

Number of Fire Fighters

	1971	1972	1973	Dollars Earned
Ambler	4	1	13	$6,596
Kiana	5	101	59	24,657
Kobuk	0	0	0	0
Noorvik	0	119	59	21,349
Shungnak	0	32	2	384

Source: *Mauneluk* 1974:108

The constant attempt of each *Kuuvaŋmiut* to strike a balance between wage earning and subsistence is illustrated by the following example:

In the summer of 1974, a Kobuk villager went to Kotzebue to help a relative with his commercial salmon fishing. The fish run was exceptionally large and the boat owner earned over $20,000 during the two-month season, sometimes making as much as $2,000 in a single day.

Having seen this, the Kobuk River man decided to buy lumber with his share of the earnings, and he built his own boat to use the following season. Before freeze-up he returned to his village with the boat and spent the fall hunting caribou. His wife, who spent the summer with him in Kotzebue, fished intensively for their own winter fish supply.

After freeze-up the man registered for work on the Alaska Pipeline. Then he began hunting daily to get a supply of meat for his family, since he would have to leave on a moment's notice and would be away for most of the winter months. When his work call was announced on the Kotzebue radio station, he left along with some other men on the next commercial flight. He worked nine weeks on the North Slope, returned to the village for two weeks, then went back to work for another nine weeks.

After he came home for good in April, he threw a party for friends and everyone else in the village, then settled down to intense hunting again. He had to make up for the "poor diet" of store bought foods his family had been forced to eat in his absence, and he had to repay his relatives for sharing subsistence foods with his family during that time. He also took fishing trips with his wife to Selawik Lake. After breakup he fixed up things around his home and got the boat ready for commercial fishing. In mid-July he and his family went down to Kotzebue to begin fishing with his new boat.

In recent years construction jobs have opened in the villages, allowing more people to earn wages at home. These jobs include building new houses, installing sewage systems and water pipes, and constructing new school buildings. Wages in 1975 were in the range of $8.50 to $9.00 an hour. Village youths were employed during that year by the government-sponsored Neighborhood Youth Corps, which paid $1.75 an hour for work such as cleaning the village and repairing roads. Whenever work is available in the village, men will pass up jobs elsewhere even if they offer higher pay.

People use their earnings to meet living expenses and buy equipment such as snowmachines. Although no statistics are available, probably less than a quarter of *Kuuvaŋmiut* families have checking accounts at the Kotzebue bank, and fewer than a dozen have savings accounts.

The Settlers

Some non-Native people live in each of the Kobuk River villages. Most of them are associated with the schools and churches, and they stay in the area for only a few years before moving elsewhere. Although few settle here permanently, they do participate to varying degrees in community social life and subsistence activities.

Over the past two decades, however, a permanent subcommunity of non-Natives has developed in the upper Kobuk valley, particularly in the village of Ambler. About 15 years ago, a small group of white settlers (less than 10 people) established homes near the Hunt River, 17 miles west of Ambler. These people relied heavily on subsistence resources, and they began assimilating the life style of the nearby Eskimos, with whom they had frequent and amiable contact. Some of the original settlers eventually left the area, but they were replaced by others who stayed. Within the last 10 years, all of them have built houses in Ambler, except for one family that remains in the original settlement.

The move to Ambler allowed very close interactions between these new community members and the *Kuuvaŋmiut* villagers. Drawing on their deep respect and admiration for the Eskimos, the settlers quickly absorbed subsistence skills, knowledge of the land, food preferences, social patterns, and a general Native living style. In a sense, these people became culturally hybridized, as they added an overlay of *Iñupiat* culture to their own backgrounds. At the same time, they influenced the *Kuuvaŋmiut* and helped them in their dealings with the outside world. They gave assistance with the growing burden of paper work that confronted both individuals and the village as a whole. And they helped people to make decisions that would influence the general direction their community would move.

This relationship worked to the benefit of all concerned, but in recent years the need for it has diminished. The Native people have developed the skills to deal effectively with the outside world, and the non-Native people have learned to subsist successfully on their own. Both groups are characteristically very individualistic and independent, so they have come to rely less on one another. Their open, friendly social interaction continues as before (some have married into local families), and strong feelings of mutual respect appear to be maintained.

It is important to note that the non-Natives have taken a very low profile in village affairs. Nearly all have little involvement with local political matters and social factions, and none have established themselves in business enterprises. This unaggressive attitude, which is unusual for non-Natives in rural Alaska, has probably been the key to maintaining a harmonious mixed community.

In 1975, there were 29 permanent non-Native residents in the upper Kobuk region. Of these, 16 were living in Ambler and another family of four was planning to settle there; a family of three was temporarily residing in Shungnak; and another family of four was living permanently (for the past 15 years) near the mouth of the Hunt River. One single non-Native person lived in Shungnak and another in Kobuk. Not included here, because of their isolation, are scattered recent settlers in the upper Ambler River and far reaches of the upper Kobuk River.

All of the settlers obtain most of their staple foods by subsistence hunting, fishing, and gathering. Their involvement with a cash economy varies

considerably, as it does among the Native people. One of the settlers, who lives almost exclusively on food from the land, requires only a few hundred dollars per year to purchase clothing, ammunition, and other incidentals. About half of the non-Natives follow an economic pattern nearly identical to that of the typical Native householders. Subsistence is their basic livelihood, and intermittent employment provides enough cash to purchase supplemental food and other basic necessities.

The Thompsons (a pseudonym) are typical of the subsistence-oriented settlers. They live with their children near the edge of Ambler, in a small and simple home with fewer luxuries than most Native households have. They do not own a snowmachine, wood furnishes their only heat, they have no electricity, and they almost never travel beyond Kotzebue. Their life revolves entirely around subsistence, and much of their food is prepared Eskimo fashion. Each summer Mr. Thompson is temporarily employed in the region, but he earns barely enough cash to bring his family through the year. Still, the family is healthy and obviously contented. Like some of the other settlers, the Thompsons still follow patterns that have otherwise become rare. For example, they go to spring camp far from the village for about six weeks each year to put up a supply of meat for the summer.

A few of the other non-Native families have kept stronger ties to the wage economy. For example, three families support themselves by employment as teachers or maintenance personnel in local schools, and another family owns an air charter service. Most or all of these people do not plan to continue full-time employment permanently. In fact, the majority have spent periods of years in the area without more than temporary work.

The non-Native settlers in the Kobuk valley represent a unique and interesting phenomenon. Like modern pioneers elsewhere in Alaska, they have adopted a subsistence lifeway in a remote area of the state. But they differ greatly from most others in having partially assimilated to the Native community and its cultural traditions. In this sense they are most akin to some early American pioneers, who lived among the Indians and became very much like them. Opportunities for this kind of cultural hybridization have been pushed to the northern fringe of the North American continent, where the last living indigenous cultures are to be found. The Kobuk settlers thus represent a final remnant of the American pioneer tradition.

Chapter 6

Reminiscences of *Kuuvaŋmiut* Villagers

Part of this study in the Kobuk River villages was devoted to recording oral histories and reminiscences from elderly *Kuuvaŋmiut* about their way of life as children and about their parents' stories of life still earlier. Most of these reminiscences depict life along the Kobuk River in the late 1800s and the early 1900s. Some of the early ways they describe continue today, while others have changed considerably. The following remembrances were taped in *Iñupiat*, transcribed, and then translated as closely as possible to the narrator's original words. These reminiscences give a sense for the way *Kuuvaŋmiut* people feel toward their land and cultural heritage, the events that have shaped their lives, the values they hold, and the times that have brought them happiness or disappointment.

Lucy Foster *(Aquġluk)* Remembers

Lucy Foster was born in Kivalina. She and her father lived in various places along the lower Kobuk River before finally settling in Noorvik, where she lived when she gave the following recollection.

> My name is Lucy Foster *Aquġluk*. I was born in Kivalina, and I don't even know my mother. My father raised me. Whenever someone was nice to me, I called them "mama"; I even called my grandmother "mama." My father brought us to the Kobuk, and we started living here on the Kobuk. I didn't have a mother, but I had my father.
>
> Back at *Siksriktuuq* we spent some years with *Panikpiak's* and *Quŋisik's family*. I don't know how many years we lived there, but then we moved to *Qaġġuġruaq* near Kiana. My father started making a living for us, ...he got us a mother first, and we started living at *Qaġġuġruaq*. That was where *Uluġġaq* and his family lived. The couple were just getting old, and Joe Carter was their baby. I always packed him and took care of him although he had a sister named Belle. But like a man, she [Belle] would take a shotgun, go out, and bring back a rabbit. After spending a year there, my father and I moved to *Aksik* to find a place to live with *Nalikkatkatnun*, my father's father. I schooled for half a year in *Aksik*.
>
> After I went to school there for a year, Noorvik started having people. They said, "There are people from Deering who are going to move to *Putu* [original name for Noorvik]." When they said that, my father wanted to go to that place, Noorvik. I don't know how old I was when Noorvik was built—maybe 12 years old. My

father built a house when I was about 14 or when I turned 13. Then my father said, "These two people have only one child, and they are going to send him away for good." When they were going to send him, my father gave me away. Sometimes I asked my father, "Pop, why did you give me away?" He just always laughed at my stupidity.

I was an orphan, and when someone was nice to me, I called them sister and brother. I remember when *Putruq* and her family first came. Their father always told me his kids were my sisters and brothers. "They are your sisters and brothers," he always said to me. Then they started calling me sister, and *Putruq* also became my mother. There were lots in the family, and I added more to their family.

The missionary, Replogle, told the Deering people to move to Noorvik so they wouldn't have a shortage of food. But, some of the people moved back to Deering when they started to crave for seal oil. When they spent another year without seal oil, they moved back. How many of them came here? There were the Wells, the Newlins; I don't know the rest of the people. The Wells and Newlins are the only ones now in Noorvik. Then, there were only few people living, and they ate fish and their food. When there were no caribou, they ate ptarmigan and rabbit.

It was said that at that time people cooked their fish by skewering them with willows. After running the stick through the fish, they were put near the fire and constantly turned around to let them cook.

When they wanted boiled fish or meat, they got the rocks and put them into the fire till they were red hot. Then the rocks were put into a wooden pot that had water and cut-up fish or meat. They let the rock boil it—that was how they cooked. I don't know how many rocks they always put in. It had to be about three, probably, that were about this big [gesturing], or maybe they used about two rocks. And then they started eating the cooked meat [fish] that the rock had cooked.

Long ago when they had no matches, they used flintstone and got white cotton from the willows. This white cotton they put...in an old fireplace where there was charcoal or soot...and they smeared the cotton with this, then stretched the cotton out so that it would burn easy. They got two flintstones and hit the rocks in opposite directions, and when the fire sparked and it started burning, they put it where the fire would burn. They had to blow at it, and this was how they made fire.

One time my grandmother, *Iyaġak*, and I followed the people that were going berry picking. With *Ayaatchiatkut* while they were still alive, we followed them for blackberry picking. There were people dipping *qalupiat* [whitefish]

down there at a little river or creek. They made a ditch, and they shared the fish with *Iyaġak* and I. They gave us part of the fish in the ditch near the area where we went berry picking. And then *Akpaġialuk*, in the wintertime, would go and get some fish from there. He did not give me anything. He probably gave some to *Iyaġak* because she might become his mate [laugh]. That was the way people went places—by storing and taking everything.

People went to get wild rhubarb, sourdock, and berries when they were ripe. By going barefoot or without boots into an undulating tundra, you found no pain even if you stepped on twigs that were going to turn to berries. But now when you go without shoes and when you are going to walk, it hurts.

When my father and I lived alone, he made a rope, stretched it, and put it on a pole. I guess he made it because he saw how lonely I was. For this type of bird, when they landed, you pulled the rope. The bird tried to go up, he did not know what happened. When it fell, you ran to it real fast and killed it. After getting a few, I would pluck them and cook them because I was a big girl then.

When the seal bones had worms or larvae on them, the baby birds always tried to eat the worms, and you could hit them with a stick. They are the type that goes way up and when they start coming down, they always make a sound—the snipe [*kuukukiaq* or *putukiutuich*].

Also, [there were] birds that were a little bigger and looked like a robin. They had quite a lot of meat on them, and we always went nest-hunting for them. When we found a nest, we put a snare out, made of hair. When we put out a snare, they always got strangled. And when a bird did not want to go into her nest, we sang for it and tried to persuade it to come to her nest. "Your nest, your children. Take the nest and take the children away." That was how we always sang for them, and they always came to their nests. That's how we sang for them down there [probably Kivalina].

Long ago down there [Kivalina?], people went seal hunting. One time our dogs, I don't know how many, could not pull when the wind was from the inside. My father put up something so we could sail. We always just rode, we always sailed. It always got really slippery, and the wind always blew us along. And those people, *Panikpiaq's* and *Quŋisiq's family*, we always were together. And then his kids, like John Stalker, and I were like sisters and brothers. I didn't have a mother, so I always stayed with them. When my two grandmothers died, my father's mother and mother's mother, I stayed with people like that. But when these two Selawik people, *Nauyaq* and *Tanyaq*, wanted to adopt me, my father did not say yes to them. I would have been a Selawik person now had my father given me away [then]. My girl friend *Naaġaayiuraq* is down there [Kotzebue?]. She is like me, but she is smarter because she is usually alone. She didn't live by herself, but her husbands always died. She and I always played toys together. *Qatuk* usually didn't care for us, but she did not really hate or despise us. She always said, "Those two girl friends!" Me, I always pretended and packed a piece of rock as my baby, and my girl friend packed what I guess was wood (that was why she doesn't

have any kids, too). Whenever I moved the rock upward, it would hit my back and make loud, hard noise and *Qatuk* always heard it. My friend always led us into everything even though I was scared because we might get scolded. It was scary, but we weren't afraid. She led us sourdock picking back there at the graveyard lake; at that time there were no graves back there. Her friend had taken her sourdock picking before. There were no houses then because it was too far away. We filled our calico parkas. We pressed them down and started packing them. When *Qatuk* woke up, she didn't scold us. She just started cooking the sourdocks.

One time when Deering people moved here [Noorvik], they brought along their reindeer. They brought their reindeer through that big river down there. And when Noorvik had that big beach down there in front of Noorvik, they always slaughtered them. Their little reindeer fawns were just cute. While they were killing them, we always watched them. And then through there, they would drive the reindeer back afterwards. They don't do that nowadays. I don't know where they take them now. Maybe they quit because their herds died off; or maybe they sell them to Nome again.

There were not many people at that time. One time *Aktuq* transported some of her things closer to her camp. She let me follow her because she was a big girl and I was a young girl. She took her stuff down there. I didn't know that was going to be our river. "It is very far," I thought to myself at the time. [That is where their camp is now and probably where her Native allotment is, too.] To the last part, farthest away, she took her belongings.

When we got back, they were playing football on the river. After they had played a while, a person from over there started hollering; it was *Nalikkak* who broke his leg. He broke his leg in the springtime. They always put a splinter of wood to the broken leg, almost like a cast, wrapped it and tied it, and it healed like that. Back there in that lake, they always played a lot of football. We used to play a lot of games a long time ago. When *Aktuq* and I got there, they said when a person's leg broke, it made a noise. I did not follow *Aktuq* again because it was too far. But, after I had started getting used to going over there, it was no longer far. When we went muskrat hunting, it seemed close. We always went muskrat hunting for food.

Long ago people did not have twine nets, but instead they made the ropes for nets from willow bark. And they also made seining nets. Right now, no one has any bark nets. In the wintertime, in the springtime, or when the bark was easily separated from the trunk, they always went to get the willow bark. And when winter came, they soaked the bark, stripped them, and then braided them. Some of the twines were always weak. It seems that willow barks have different strengths. The funny barks always break easily. This was what they made for catching fish with, willow skins or bark.

When there were no traps, people used wood. One stood up the poles and put meat on the inside, making it possible for the game animal to touch. When that wood was touched, it squeezed and trapped the animal. That was how they tried to catch animals in those days when there were no traps.

People boated and made boats out of skin, caribou skin. One time *Ikkaayutkuk*, those two Kotzebue people, had a kayak with fur on it. They put the skin part on the outside, and it was really good and warm. But when they used it all the time, the fur probably rotted and pulled off, especially at the place they sat because it was always wet from the bottom on the outside. They also used caribou skin to make houses when they had no other materials [cloth]. Needles were then made of bones. Their thimble was made out of sealskin, [which was also] used for making mukluk bottoms. This was before they had iron needles, and before they had any contact with the Whites. They made thimbles out of the sealskins that were thick. Their ulus were made of jade. Flint was hard, so they always used it to make knives and weapons, and also used it to start the fire.

Susie Barr Remembers

Susie Barr was 70 years old and living in Kiana when she gave this account in 1975. As Kiana's only surviving resident of the abandoned *Aksik* settlement between Kiana and Noorvik, her recollection provides glimpses into the *Aksik* and Kiana ways of life as she experienced it.

I was born December 25, 1905. Since that time I started living and am still making my living. I am going to tell about my parents' way of life. When I became of that age, knowing what was happening, my parents were making a living. When spring came in the last part of April, the people always prepared to go to their muskrat camps. They used dogs, sleds, and brought along their boats close to the muskrat camps. When they had some food, they brought their Eskimo food and supplies closer to the muskrat camps also. They always prepared and gathered their belongings, and during those days, they had a lot of hardship. I never really understood and realized how much hardship my parents and the Eskimo people were going through. My brothers, Johnny and Duffy Smith, were the ones left when all the other brothers died. Now I am the only one left.

After we settled over there, we began fishing. My mother took her nets out. They were made of flour-bag cloth and the upper sides of gloves. When she made the nets by winding and weaving them, I used to help her after I was through with playing. I did not do everything well, but my mother was always working along with me.

After camping, living over there some place, they always returned to their winter camp called Village. Around June, people always returned to their homes on their lands. Around that time, the parents got the young men ready—those young men who could keep up with the trip. Their fathers took them out hunting around the areas where the caribou were. Kobuk people went out hunting

by walking. At times they took along the dogs with packs and went way up towards Noatak. After they had left, their wives always worked, gathering the fish and the berries. They gathered all they could for their winter use. Their caches were filled with dried fish. After they had fished for a length of time, the women went berry picking. The seal pokes were always filled with berries. Cranberries were hard to bust, so they were put into the flour sacks. The women picked all kinds of food like rhubarb and sourdock. So, while the men were out hunting, the women prepared and gathered the food that they would need for the winter.

In late September the men returned home in the rafts. They returned to their winter camps with half-dried meat that they packed. When the men returned home, it was called "homecoming." When the men got close to the village and the villagers could hear them, they would shoot into the air. On hearing the rifle shot, the villagers would know that the men were coming. The villagers would return the shot, and the men coming home would know that all in the village were all right. Another shot was returned by the men to tell the villagers that all who had gone out hunting were coming back safely. The home return was a joyous occasion for all. The men always returned home in the moonlight.

When I understood what was going on, that was the way my people lived. During those days, people used little of white man's things. They were very cheap then. At that time not many people worked, and they did not have the welfare checks either. That was why they worked hard during those days. They did not have the snow-travelers or Evinrude motors—only dogs. When they saw a boat with an engine, they would get excited and say, "Everybody come—a steam launch." [At this point Susie thanked the Lord for the love he gave the Eskimo people.]

When fall came, people began fishing through the ice. They had a different method and equipment for catching the fish. They called the equipment [a] fish trap. That was how hard people worked in those days. They used the candles for light. Among those with the gasoline or kerosene lamps, their homes would be bright. And so candles were not used as much now that we have a machine that can brighten the darkness in the homes. We don't live the way our people used to live in those days.

After working hard fishing during the summer, when winter came, some men, and possibly a few women, would start making plans and traveled to the next village, *Aksik*. During those days people played football *[aqsrautraq]*. Men from Village would play against the men of *Aksik* and tried to win so that they could return to Village with the ball. Then, *Aksik* men would come to Village to try to win the ball back.

I had witnessed my parents and *Mulluk* preparing Jack Porter and my older brother, Johnny Smith, to play the ball game for Village. If, after playing against *Aksik* people, the Village people won and brought the ball back home, they always had a good time. After a while, the *Aksik* people would come to play Village to try to win the ball back. When we saw the *Aksik* people coming, we would holler. Lots of people would play in front of Village. The playing ball was set on the Squirrel River. From Village to the line, for the Village people, would be about a mile long. The line of the *Aksik* people would be about a mile down the river. I witnessed one *Aksik* man and three Village people going after the ball. They were fast runners and they worked hard at it. After playing all day, they gathered in the evening at a meeting place, at the *Atoruks'* home because they had a big house. They would gather together to have Eskimo dances. The singers would sit together along with my father *Qupilġuq*, his brother, *Matulik*, [and] *Aaquaksrauraq*. The *Aksik* people would come in dancing in the middle. They would be shouting also. I saw Mary Curtis's husband who considered himself an *Aksik* man. So, he would dance. I wish now we could watch [the] singers and dancers again. I grew up with this knowledge of my parents and their people. I am going to sing this song even though I make mistakes:

Those up there are going to welcome me.
Those rich people are going to welcome me.
Aa-yaa-ŋaa-naa. Arigaa-yai.
We can't find songs that are good.
Aa-yaa-ŋaa-yai.
With something on its chin.
Yai—real good now!

Beatrice Mouse *(Anausuk)* Remembers

Beatrice Mouse was 74 years old when she talked to us. She is a resident of Noorvik. Her recollection describes aspects of subsistence living and illustrates some traditional *Kuuvaŋmiut* beliefs.

I am going to talk about long ago, and about things I learned while I was a child. I am going to talk about what I learned while I was growing up.

I remember that in the falltime people made winter houses by digging into the ground. My mother and brothers got sod blocks for the house and packed them home. A frame was made and then covered with sod to make a cozy, warm house. The window was up on the roof. Inside the house, a log was put by the bedding to prevent it from sliding. The level of the bed was usually higher than the floor, and people could sit on it. The entrance of the house faced the river. They put the flooring on and started to build a fire.

There was firewood of cut tree trunks *[kipniqutat]* which were split in half. When the house became dirty and smelly, the belongings were carried out of the house, then my grandmother would clean the house with hot water. I remember also that there was no "meal," that is, no soap. There were only grass ends brought upriver from the coast. My mother used these to scrub dishes when I first became aware of it.

We lived through the year and the winter without knowing the cold. In the big sod house, we slept against each other.

I cried when my mother went out to have her baby, the one before my youngest brother. The weather was then very cold, so they built a fire and put grass around the edge of the house. I was told that my mother had that baby with only a caribou skin as the mattress. In the old days, they built a big snow house for pregnant women. They had the house ready before the baby arrived. When we children played, grownups did not like us to go inside the snow house. The children could not go in because they did not want the snow house spoiled by the kids since it was made of snow.

After the baby came, my mother crawled in, taking along her clothes into the house that was well lighted for her. They put in there her honey bucket and other things she might need; the entrance was closed with ice. There was also an ice window on the roof. The seal-oil lamp that was put in the house made nice, big flames since there were no drafts inside. The house was warm from the seal-oil lamp as if there were a real fire. My father and grandfather said that my mother always did all right in the snow house. After four days, she would wash herself and then return home. She had water. That's how people had babies in the old days.

Young girls were not to eat bear meat when they were getting big and almost became a woman. It was the devil's law *[tunngaq*—originally "divining spirit"—later adopted as the word for devil], and people believed it. The devil did not want the bear meat eaten by young girls. That's how we were brought up.

When we went downriver, we always tried to get oil from the seals and walruses. After we obtained a large quantity of it, we would go back upriver again to the end of the Kobuk.

Now there are houses way up the Kobuk. The houses nowadays are half the size of the houses we used to live in in the old days. Our houses were situated further in.

One time when we went upriver to seine, strangers came to our carup. My mother, who could not walk, and we children were at the camp. My father was collecting all the salmon together when suddenly I heard people.

I called to my mother: "Mother! Father! They are coming!"

"My pretty one, let them come. We will cross to the other side."

I immediately went down to the boat, and when they docked, I told my father, "Father! Strangers [Indians] are back there! They are making cracking sounds. They sound as if they are whispering. I heard them."

"Let the food stay there. Get something for your bedding. Pull with rope from the shoulder, and someone steer the boat. Let Mother crawl to the boat."

She crawled to the boat, and they put her in. We did not know the place we were going, but the place was there all right. We crossed to the place with a lot of willows, moored our boat, and made a shelter covered with leaves so that we would not be seen. We burned the tree fungus that was broken into pieces. I cannot remember how many tree fungus fires we made to smoke the place; there were a lot of no-see'ums [black flies] around there. My mother did not want the children to make any noise. A watch was kept outside. We saw our fire on the other side of the river tampered with. It burned brighter and bigger. I started listening because I was scared. My mother asked me to carry some water, and I heard people from the other side while I got the water.

The whole night, the Indians on the other side did not cross over because they did not have any boat. When we fled over to this side, we had already started to fish and had stored the fish in a big cache *[ikiggaq]*. We were fishing when the Indians came and frightened us. We spent the whole night on this side of the river. The Indians did not bother us.

After seeing the Indians' camp, my grandmother said. "Take me across there. I will go to see them." The Indians *[aŋuyaich]* do not fight with women. My mother wanted to go with her, but she was not physically strong, so she followed her in spirit.

"If the Indians are there, I will cover their mouths," she said. They took my grandmother to the beach area where she would be able to see the Indians. She would wave like this [gestures]. If they were gone, she would wave instead of shouting.

They said my grandmother did wave her arms. Afterwards, they got us, and we were told to take our bedding. The Indians took our food, then left. They left, following each other up the river.

There was always a lot of fish during the seining season. People seined a lot of them and put them into big boxes when they went downriver. This is where I will end this part of my life.

Do you want to hear the scary part of my life?

At one time in Kotzebue when I was getting a little bigger, we children were going to play when my mother stopped us, saying some people were going to perform a shamanistic ritual *[aŋatkuaq]*. Around there if those people passed us, they would kill us through their shamanistic act. We started for home fast because we were very frightened.

Then my mother spoke, "My *ataata*, let's push off in the boat. People are killing each other through evil means. They are already possessed

[ikiliguqtaanikrut]. They don't know that they've already killed some people. I dreamed so. Let's leave!"

When dusk came, we left for the point of *Tikiġayugruaq* to the other side of *Apqugaaġruk* and camped when it became too dark to travel. There was a lot of fish around there, also a lot of ducks and berries. We were safe there. We set our nets, and in the morning I went to pick salmonberries which were ripe and red. I can't remember how many small buckets I filled while the adults were preparing to leave, carrying all our belongings to the boat. We went to the mouth of the *Ugrivik* and camped. One of us, my mother, got a bad cold. She started coughing and she should be in a warm place, but we had not thought about it.

My mother must have looked straight forward when we left, for she said, "There may be a bearded seal or some sea mammal *[niqsaq]*. It was on top of the ground." We went toward it and my younger brother, who had a shotgun, shot it. It was a bearded seal all right. We cut it up, and while we were cooking, *Iraillak* and his family arrived coughing. We left the place again.

"Back there, there was food for you. We got a young seal," we told them. We left because they were sick. We lost sight of them after they went ashore. [Here the researcher asked, "Why were you afraid of them?" "I don't remember being afraid," Beatrice answered.]

We camped again at the point or the end of *Paalagik* where we could set the nets and catch some fish for our meal. We did catch enough pike. The next day it rained hard, and the people we left behind did not follow. The following day the weather improved; the rain would stop once in a while, so we left again.

The wind was at our back when we went across to *Kanaaq* area and passed *Aġviġiuraq* to where there were rocks. We camped there about a week. At that time, we did not know that my brother got a brown bear back there. *Iraillak* and his family barely made it; they ate the fat of the bear. My mother was barely alive then. At the end of our trip, we met another group of people whom we had not known before.

They told us, "*Paniaġruk's* adopted child died at *Tikiġayuatchiaq*. At *Napaaqtusrugruatchiat*, *Aumatchiaq* and *Uqummiġayauraq* also passed away." That must be the work of the devil as my *aaka* dreamed. By the two lakes, *Maayyuk* also died. At the place called *Kiksraq*, inside of the *Ugrivik* on the side of the *Aulliñgani* in *Tikiġaaġruk*, *Saliaksraq* [*Maayyuk's* husband] died. When *Saliaksraq* died, *Anuqaaq* and them left him there. When they came out of the *Ugrivik*, when they went through the two bends, they left *Qayaq*. After going through another big bend, they left *Qalhapak*. Thirteen people altogether died there because of the devil [evil spirit]. Young people nowadays do not know about this, so they usually say, "I don't care."

The people who work for God [missionaries] got rid of these frightening things. However, we can see them still once in a while. Outside anyone can see, for example, the snakes that crawl on the ground. Long ago people saw a lot of animals with scales. When the missionaries came to Kotzebue, people wanted

to pray, but they did not know how. Our missionary used to be the husband of Carrie Samms. People talked to each other that they would like to do away with shamanism because it was frightening. They became converts. When a person is converted, he is washed with the water brought down from up there [heaven]. When he is sick, he wants a mixture of this water to wash his sickness away. People believed and became converts. Robbie said Christianity is stronger than shamanism. He started jailing the people who practiced shamanism because he was afraid. Those who practiced shamanism tried to work with things that do not exist. They made a mistake, and people were frightened by it.

At another time when I was still a girl, my family went downriver to visit an old man and his wife at their summer camp. I cannot remember how many people were there. There were *Kivvaaluuraq* and his wife, *Agnaqhauq* and his wife, Pauline. *Putyugialuk* was married to the old couple's only daughter, and she died while they were out in the Arctic cold. Her mother cried and cried when the clothing belonging to her daughter was given back to her. Then, just when we were about to eat, she put a curse on her son-in-law. She was angry, so she put a curse on his berries with the intention of killing him. Although *Putyugialuk* knew it, he took a spoonful. He thought, "She wants me to eat the berries, so I'll eat them no matter what will happen to me."

My family was there when it happened. We were about to eat when all of a sudden we heard the noise. *Putyugialuk* was possessed! He started taking off his clothing and his teeth turned into frightening dog's teeth. He bared his fangs and jumped on top of the fire. Then he smashed the sleds, biting into them and throwing them around. We could not eat; we were so scared. He was flowing with red blood and he had no clothing on. *Kivvaaluuraq*, his father-in-law, bowed his head to avoid seeing the plight of *Putyugialuk*. He did not want that to happen. We were all very frightened but we could do nothing. *Putyugialuk's* brother named *Kutchuq* was also there. He followed *Putyugialuk*, taking along his top parka or it could have been another piece of clothing. My mother took us to our boat and covered us. I cannot remember how many of us, brothers and sisters, were there then.

It was the devil's stupidity that went into *Putyugialuk*. They thought my *aaka* might get some of the curse, so they wanted us to take her home. In the boat, she started talking about the devil. "Talk to her calmly. Hopefully, she will go home. We will not live in peace with shamanism like this." I heard the old woman, *Putyugialuk's* mother-in-law, talk. Back there it is said she is still singing and walking around. She was not afraid to put the curse on her son-in-law.

Nowadays most people have not seen shamanism. Me, I have seen so much of it in Kotzebue that I am scared of it. When I received Christ, I did not have even one friend. When they said I was a sinner, I wanted Him to come into my heart. When I gave myself, even when they threw me out of the church, something in my heart wanted to go to church. I became very brave, and when I went to the door, they would open it. All year long, whenever I gave any offering, they would return it. Another time, in fact a couple of times, they told me not to go to church, but I still went and they opened the door

again. A person should not give in. The Comforter, the Holy Spirit, opens the door for him, lets him come in, and will lead him. A person by himself does not have the strength, only Jesus can help.

[At this point, Beatrice spoke generally about shamanism.] When a partner was sick, the other partner used to go to see the shaman with the gift of his belongings, hoping the shaman would be able to save his partner through his shamanistic power. If the sick person could not be saved, he would get his belongings back. [Question: "What did they do to the shaman then?"] Nothing. People only took back whatever was given as the payment. When someone was practicing shamanism, one was not supposed to use the curved knife [ulu], drink water, eat, or become frivolous. Anyone who did, even during the night, would die. That's why shamanism is dangerous. One should not even think of attending the shaman's ritual. When you think of shamanism, it is better to look at it in a different light. I am ashamed of it and was not going to talk about it. And that poor woman! Her husband used to give her to the shaman. The shaman used her even though she did not want it. But the husband who was sick wanted to live; he always got better after the shaman used his wife. It was frightening to be a woman or an ignorant person whom the shaman could kill. When a young girl was disobedient or bad, the shaman killed her. This information is for you to help you. Old people are not to be talked back at. Old men are not to be yelled at. Anyone who did that did not go very far; he always died. I know that as fact.

A lot of people in Kotzebue practiced shamanism. We used to go downriver to the coast to Kotzebue. People should not be egotistical because the shaman would want them through the devil. When a person was prejudiced, talked back to old people, he or she died. I don't know how many people were killed by the shamans in Kotzebue. The bodies of the dead were taken and left without any coffin at the place beside the lagoon where the ground was high. Sometimes the sealskin was used to wrap the body. Those who were poor used old blankets. I had seen a lot of unhappy people. At one time when a woman's husband died, no one gave her any help. The wife had to pull the body of her husband in a blanket to that high place by the lagoon. Had she used the sled, it would have to be left with the body. People were afraid of contamination. It was the same way even if the dead person was a young child. How sad it was when one had to "throw away" one's own child.

In church I always try to be truthful. I am also beginning to understand the preacher who says things from deep down in his heart. I should be singing the translated church songs to my grandchildren, nephews, and nieces, but unfortunately, I cannot sing well any more.

People in the old days worried a lot. The person who had no container to drink with would go to another person's house, and the host or the hostess would let him drink by holding the container over his mouth so that the container would not be touched. When food or *unaqsiq* was given to someone whose relative had just passed away, the person who gave the food felt insecure afterwards because it was believed that relatives of the dead per-

son were also contaminated. The relatives were even afraid of using their own clothing; they kept changing, throwing them away, and washing themselves with the snow every time they changed. Women did this also during menstruation. After one had washed, the contamination period was considered over. Although people had to make a living and did not care for what they had to go through, they had to do it.

Now when I saw a young girl trying to look pretty, going out in the evening without much clothing on, I was immediately reminded of the past. Long ago, the shaman would have wanted to kill the girl or the boy she went to meet. The *agatkuq* or the devil himself would have killed him or her.

When a young man wanted a girl and wanted to get married, he stayed with her and helped her parents work. If her parents liked him, they gave her to him. There was no formal marriage; they did not know about it.

We also did not know the English language. When I first saw white people, I kept looking at them. When I went to school, all year long my parents had to hold my hand. And I had a pencil like a rock! While we were playing outside, an Eskimo who understood some English taught me. He said if a white man said, "Come on," he was saying *qaġġaiñ*. And if he said, "Sit down," he was saying *aqiivittin*. But, when a white man said, "Come on," I heard something like "kam-mak," so I drew a picture of *mukluk* (Eskimo boots). And when he said, "Sit down," I slid down ["to slide" in Eskimo is *sisuuhaaq*]. I thought I understood a lot of English! And when I went back to the Kobuk where no one knew any English, I started to teach them English the way I understood it! Nowadays children are born into the period when English is spoken. In the old days people could hardly speak English, but we tried, and barely could understand each other. We pretended to dance, eat, carry the water, and did all kinds of things as if we understood each other in English.

When we went upriver and got a lot of fish this last winter, we had a lot of fresh fish *[aiparuq]* to eat. When the ground froze and there was no snow, we went berry picking. Sometimes we even stayed overnight. I am not sure how many sealskin pokes one filled up with berries. During winter the berries would be got by sleds. For caribou hunting during the summer, the men would go to the mountains. Sometimes during summer and fall, they had to go back and forth four times, backpacking the dried meat, skins, and the fat of the animals (marmot, sheep, caribou) they got during the summer. They went back and forth, finally loading them on the raft. We really had a hard time, always walking all summer. After we dried lots of meat and skins, we would be secure with our winter food supply. Some men were very good at hunting marmots. In winter when caribou came, the men would hunt the caribou.

When spring arrived, we started drying the meat. After the meat was half dried, we cooked it by boiling. People who had seal oil dipped the cooked meat in the

seal oil. The dried meat was kept wrapped in the fall caribou skin. We also cracked the end bones of the caribou and boiled them until the marrow and the fat settled on top. These were then put into the stomach container, and when we wanted something to mix with our food, we used this marrow and fat.

When fall came, we began to store the berries in the ground. It's like a freezer; the berries would not spoil or ferment fast. We always had berries in the ground cache covered with willow twigs to allow ventilation. The hot air would go out through the hole. We even had a dried fish storage place [*siġluaq*, a ground cache]. We dug a hole in the ground, put a pole in the center of the cache, and rested other poles around it. When it rained, the water did not leak through because we put the moss *[ivruq]* that we gathered from dry lakes on top. We always made food storage places like these before we had the freezer.

We ate meat or fish cooked over the fire *[qauraq]*. We ate meat and other things from the coast. A salmon cooked on a flat, thin rock near a fire cooked very fast. We could also make biscuits in the same way. We made biscuits after the flour came in.

Our cooking pot was made of birch bark with split willow on the rim and sewn with willow roots. Rocks were heated in the fire, and the tongs for picking the rocks *[kigilġutaq]* were made from two sticks. The rocks had to be red hot before they were put into the basket filled with water and meat. The water and the meat would boil. When the water turned cold, the cold rocks were taken out and red hot ones put in. When the fish, fish intestines, or the cooked meat was done, it was taken out. [Here the researcher asked: "Did they put the rocks in twice?"] Sometimes three times when the meat, fish, caribou, rabbit, or duck was cut into big pieces. We usually cut the fish in half when we wanted it to cook fast. When we cooked the meat, we put both the meat and the bones in.

When we first had the white man's cooking pot, we called it "bucket" *[atausriqsuatuaq]* because we did not have another word for it. Other white man's things like frying pan, kettle were at first called differently. After calling all kettles "teapot," we started calling it *unnaqsiivik*, meaning a container used for heating.

The people of *Suluppaiġaqtuuq* never heard of boats. People from around here [lower Kobuk] used to go upriver to get strings of dried fish. When they cleaned the boat, they would turn the boat over and hit it to make the dirt drop off. When upper Kobuk people first heard that lower Kobuk people were arriving in that boat, they were frightened and ran back into their homes. *"Siḷa qaaqtuq! Siḷa qaaqtuq!"* they cried. Lower Kobuk visitors had to explain to them that it was just a boat. Upper Kobuk people only had small boats made of birch bark. They did not know that boats could be made with walrus skins. Me, I grew up at the time there [were] hardly any bark boat[s] left, but I remember having seen a few of them. One should not go into shallow water with the bark boat, for it would tear. Let me end here.

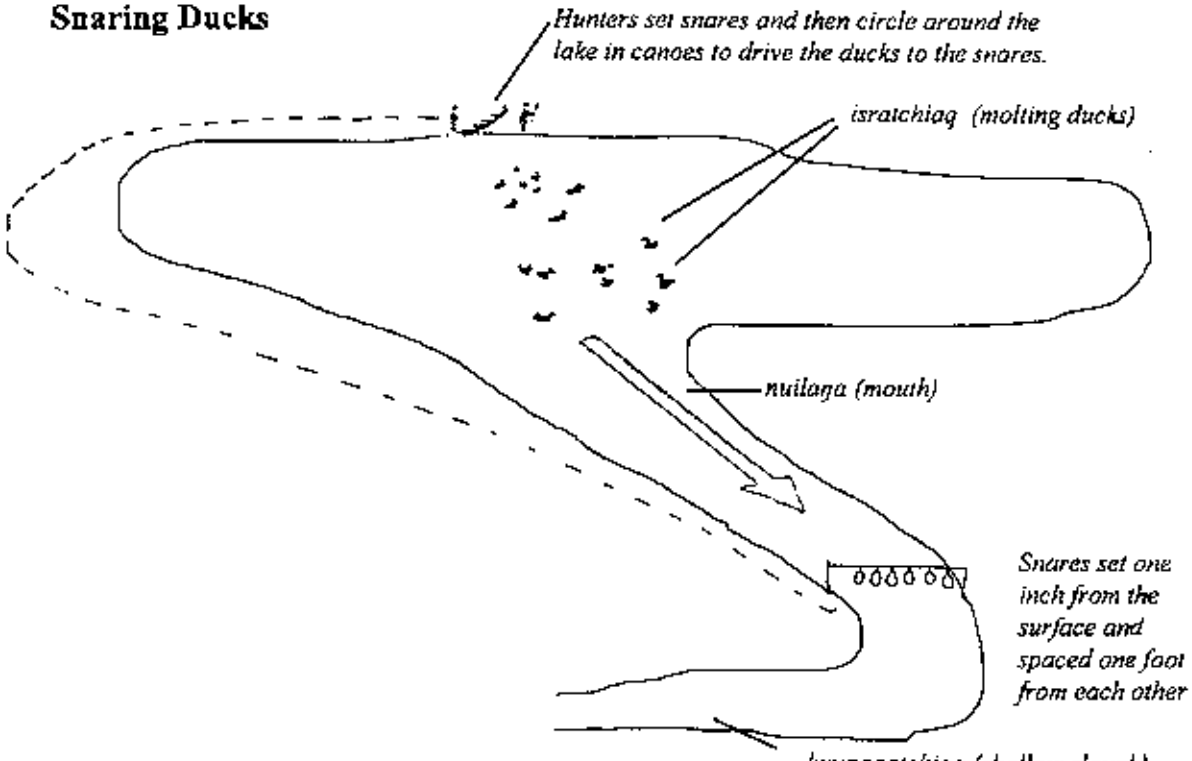
Jenny Jackson *(Masruana)* Remembers

Jenny Jackson was born at Kobuk village in about 1893. She provides a detailed account of life on the upper Kobuk River around the turn of the century.

> My name is *Masruana* and I am going to talk about my childhood days with my grandfather and about our lives during spring, summer, and winter... I was born at *Suluppaugaqtuuq* in upper Kobuk. Tom Baldwin told me the year I was born was 1893. He is one of the first white men.
>
> After we lived through spring on the back part of our summer place at *Utuayukpak*, my grandfather always took us down to the inside of Mauneluk River to a creek called *Avaaraġaat* after the ice went away. We stayed there about one month. My grandfather's name is *Sapiqsuaq*. He always put a duck snare across the creek or the slough out there. In his box was his duck trap... We always ate ducks that were snared from the top of the water. My grandfather always snared the loons also after springtime.
>
> When a slough had not much water, my grandfather always put in a fish trap. We then started having the big whitefish and the pike that he trapped for our meals. The fat, big whitefish that really jumped was really a good kind of fish.
>
> After the men went away to hunt the marmots [*siksrikpak*], my grandmother, grandmother's sister, and I were always left alone. My grandfather always went hunting. Sometimes he took his sons along to hunt the squirrels. We always spent our summer at *Avaaraġaat*. After staying there for a while, when the ducks started molting and salmon were almost there, we would move upriver. We always moved out of Mauneluk River then. While going upriver, if we ran into molting ducks, we would catch them and we had ducks to eat. Even our dogs back there knew how to kill molted ducks. We ran, trying to catch them while my grandmother would canoe around. When she speared a duck, she always made a sound (like a dancing sound "oiui") to indicate she got a duck. We always hollered or made some noises. After the duck hunt, we usually camped and cooked the ducks. Then, we would continue on our trip upriver again.
>
> We traveled past the original place of the *Paa* people, went around the bend, then went to *Saġvaqsiġiaq*. There we stopped to spend our summer like other years. "The salmon will be late in coming," they said. *Saġvaqsiġiaq* was the place where the Indians used to pass through in the summer and in the springtime. We stayed there with our kayaks and boats. The men would then search for the bark inside of the *Saġvaqsiġiaq*. They tried to get new bark for the canoes and boats. The old bark was taken off and new bark put on

while we were there. The boats were sewn with willow roots. Willow and tree roots were used as thread, and spruce gum was used for plugging up the seams. We did not have the corking material. We melted the pitch, using birchbark as a pot or container. We melted the pitch slowly in a campfire. We used the spruce pitch on the seams after putting on new bark. We always put a new bark cover on the kayak before the salmon fishing.

Snaring Ducks



The snares could be made out of salmon skin or the early spring willow bark (about June when they have a great deal of sap). At this time (before the willows have leaves), the bark came off easily. They stripped the white inner bark off from the outer bark, then let it dry a little, but not so long that the bark would harden and cut the fingers when being braided together. They used this bark for making nets and also rope.

We ate fresh fish and ducks. We also ate rhubarb and sourdock which we mixed with our food. Sometimes we had no seal oil, but we had oil from the marmot, and also, the fish oil we made at *Avaaraġaat*. That was the way we lived, and that was how I was raised with my grandparents. When we wanted friends, people followed us to *Avaaraġaat*.

Just before the salmon came, we used to go to our original summer camp at *Utuayukpak's* broad river, back there on the side of *Anauliġvik*. When the ice

broke up, it broke the ground cache and tore apart our summer camps, but we made them over and stayed there again. We covered our house and ground cache with tree barks, and it did not drip. Anyone who wanted to come to spend the summer came with us. At the end of a long stretch of river, there were my grandparents, and *Kituq* and his wife. My father's aunt, *Quŋuyuk*, was *Kituq's* wife. *Kituq* was an Indian. He was adopted from the Indians when he lost his parents over there [Indian country]. To us he was our Indian. We knew him as far back as I can remember, back to the days in our original summer camp. But I did not learn how to speak Indian. My great uncle, *Kituq*, said that when he went to the Indian country, he spoke Indian. My grandfather, *Sapiqsuaq*, couldn't speak Indian at all, but he probably could understand a little.

After we fixed the boats, the fish came. We worked really hard to catch salmon. We caught so many that sometimes we didn't have the time to finish them all. Sometimes they caught sheefish, too. The men went to the headwaters of the river and then up into the mountains. They went up to hunt mountain sheep, and if they found caribou they would hunt them too, to get the skins for clothing [parkas]. They also hunted marmot for their bedding [blankets]. After the men left, the women that stayed behind worked on catching a lot of fish.

In the falltime, which is now known as September, the men who had gone up the mountains would come back to my grandfather's place, which was a bend away. They came back to camp with my grandparents, *Kituq*, and *Quŋuyuk*; they came back because they *uliqqa-* [when one is being annoyed by Indians or strangers who are thought to be Indians]. The Indians were not seen, but they could be heard, whistling, making noises in the bushes, and they stole anything they could without being caught. They tried to avenge the Eskimo-Indian wars. Another reason they were around was that they wanted to mine for gold.

We were brought up with having to *uliqqa*. We were always afraid. We couldn't play outside even when the day was long. Before the sun set, the adults always made us return to our summer houses. They didn't want us to shout or holler because they were afraid that would attract the Indians to come close to our house. And right as soon as it got dark, the Indians would kill them and the children that were noisy. Those who didn't watch out or be careful were always killed in those days. Long ago when they fought, people always said, "We are scared all the time." After waking up, people were scared and didn't want us children to be taken by the Indians. When we went berry picking, we took along old people so we could be protected from being hurt by the bears or being taken by those people [*Itqiliq*–Indian]. The old people always followed.

We were raised to that type of life. We had the type of life in which people were always afraid or fighting. How scary! The adults didn't want us to die, and they also didn't want to die. Sometimes all the summer campers were killed. That's why the summer campers in that area went to *Kinuq's* camp in the falltime. When we saw those Indians, my grandfather *Kituq* always went

and talked to them. *Kituq* was Louie Commack's grandfather, his real [blood] grandfather. His mom was *Kituq's* daughter.

When fall arrived, we went up the river to the inside part. We always went there to get fresh fish for the winter. When the cold started coming, the sheefish were very good. We tried to get all kinds of fresh fish like whitefish (small sharp-nosed whitefish and big round-nosed whitefish). We also picked berries from there. It was really cold when we seined. In the falltime, we children didn't have time to play. When I was lazy, I didn't want to pull the seining rope. My grandmother would then tie the rope around my waist and make me pull the rope. That was why right now I can pull the seine. I used to tell my grandmother that she would not be able to make me pull the seine any more when I grew up.

We got fresh sheefish, which we didn't bring downriver with us, but we put it into boxes to prevent the bears from eating it. The men didn't like the women to be scared of the bear, so the men would go and get the fish. They even spent the nights where women left the fish. Sometimes the men even caught or killed some bears there. Even though we had seen bears before, the men didn't like us to be scared. When we were going upriver or downriver, we would see them back there on land. They just turned to look at you. They went around the back part of the camp. Although we were scared, they didn't bother us. The adults didn't want us to run away, or make any noise. When adults scolded us, we tried to obey them. The old people, our parents, our uncles, and people like *Aqattuluuraq*, were stern. They were even afraid themselves, but right now they aren't any more.

We always called the family *Iqsiñġaich*. *Kanuaq* and some coastal people who were called *Sakonalich*, such as *Ulugaagruk* and his family, always ended their trip camping downriver from us on the *Paa* River. They camped at the *Paa* at that time when no one went upriver, and before the time people started going to *Aqusriugvik*. As far as can be remembered, there have always been people at the *Paa* River. People called them "the people of *Paa*." The mouth of *Saġvaqsiġiaq* empties into the *Paa* River. The *Paa* people lived on the side of the *Paa* River. They lived about 15 miles away from where we camped. It was further away than 10 miles. When they came upriver, after they went downriver for seal oil, we could hear them. *Naatagnaq*, uncle of *Anausuk* [Beatrice Mouse], always came to us immediately. He also brought us seal oil. Everyone realized that the people who went to the coast went there to get seal oil. They took with them dried fish or other things and traded them for seal oil.

When the river froze up or when it was nearly frozen up, people came home. Those who went up the mountains to hunt always had a meeting at the beach of *Uqaq*. My grandfather and grandmother, those two Indians (they are referred to as Indians even though she is not, only her husband is), stayed there at the end of the Ikpik cliff, *Saakithutaana*. *Kituq* gave those two places *[Uqaq* and *Saakithutaana]* Indian names. *Uqaq* was the original summer camp of *Kituq* and his wife.

There at *Uqaq*, they dug into [the] packs that the men brought back from the mountains. After that, people would spend the winter there. They wanted to

spend the winter where they would not be bothered by the Indians any more. The men then went to check their summer camps where their food was. They always went to check on them before it froze up. And while there was no ice in the river, we gathered fresh fish that would be eaten frozen. We all got ready for the coming winter. We ate a lot when the men who went up the mountains came home. When the river froze up, we cleaned our winter houses. Some made new winter houses. Then winter came, and we again spent our time there.

When the ice was smrdy enough, the men always started making mudshark [burbot] traps; they made them to catch mudsharks. We ate the mudshark with other food—their fresh livers are delicious. That was how we were raised, and that was our way of life before we were really affected by the white people. That was how the Eskimo people upriver, the ones I grew up with, lived. We also gathered berries, *masru* [Eskimo potato], and anything else that grew. The men also hunted for bears. When they went to the mountains, they always came home when the river froze up and before it snowed. They always walked by the side of the river. They always put the food away in the cache so that in the wintertime they would be sure to have food to eat. When they wanted the food, they would just go to get it from the cache. That was how we liv ed.

When winter came, we would catch fish by using fish traps. And then all winter long, we used the snare to catch ptarmigan, and rabbit if there were rabbits around. When the days got longer, suitable for going out, the men went to neighboring areas, past *Allakaket* to *Naataq* and then toward Anaktuvuk Pass. They always went hunting for caribou. When they had it, they would eat caribou. They went with the dog sleds, but they didn't take too many dogs. I went with them about three times on a hunting trip like this. One time was with my parents. They always went to this side of Anaktuvuk Pass and also to Barrow because there were no caribou around here at that time. But right now when the caribou start to [come around] here, people do not go any more. They used to go to hunt caribou at places far away.

[The interviewer asked: "Why did they stop having caribou?"] I don't know. The *Uqaliq* [the word, or a prophecy] said that long ago, and that was how it became. ["Who said that?"] It was said that God or Jesus said that in his Bible, and that was why it became like that. Long ago people had food, but still there were some who starved when there were no caribou. And when there were no ptarmigan and no rabbits, they used to starve. Also when they didn't get enough fish. That was why people worked hard at getting food.

The nets that were used to catch the fish were made of willow bark. We used the bark for salmon nets and other kinds of net. The seining nets were also made by braiding the sinew of caribou or seals. The people who went down the coast to trade got the sinew from the walrus. They tried to get the sinew for making their nets. We had no nylon nets before the white man brought theirs. We also made other nets from threads of cloth that came out. But we were raised with bark or sinew nets for fishing. The sinkers were tied with spruce roots. We also used sinew or skin to tie the sinkers, but they wore out

easily. The spruce roots were hard to wear out. We used all these to tie sinkers when we made the net or the seining net.

In the wintertime, women would go to get willows with good bark. They packed them on their backs, carried them home, and then took the bark off and braided it in wintertime. That is what I remember of that type of net. There was then no place to buy things for nets. They had to make them from roots and from things that grow. Pitch was also used for corking. The people worked very hard. Beds were not there, but they had skins for beds, and for parkas; they had skins they had brought back from out there [to the north].

The men who went out there [to the north] brought back caribou or other things they traded with the people from Barrow and Anaktuvuk Pass. The original name for the Anaktuvuk people was *Naqsraq*. They always called a place with no mountain *naqsraq*. Those people lived in that area, but when the white people came, they named it Anaktuvuk. The place was named *Naqsraq* from time immemorial. There were mountain sheep, and people used to stay there. They started staying there, the people of *Naqsraq's* land. This was a mountain sheep country since time immemorial.

When spring came, we went to the fish camps. But, the people who went downriver to the coast to get seal oil wanted to catch walrus and seals. They would load their boats when the ice was gone. These were the *Paa* people: *Iqsiñġaich*, my uncle and his family, and the family of *Aŋarraaq*. And me, I was raised with a family that didn't go to the coast. When I got bigger, I always wanted to go with *Kanuaq* and his family, but my grandmother did not like me to go, not even with my uncle *Saġliaq* and his family, even though they wanted to take me to *Allakaket*. So I always ended up staying. One time when the people that went to the coast left us, I started wanting to go with *Suġunuuquuŋuraq* and his family. Even though they did not want me to go, I went. The year 1913 was my first trip downriver to Kotzebue. I was 12 or 13, or maybe I was 16 or 18 years old. I got married when I was 16. I went downriver with *Suġunuuquuŋuraq* and family. The white man came way before that time, and 1913 was my first trip to the coast.

Kiana in 1909 or 1910 already had white people after they started mining in Klery Creek. We started going downriver, *Suġunuuquuŋuraq*, his wife, and I. *Uliqik* and his son also went with *Suġunuuquuŋuraq* . They were from *Laugviik* [Kobuk village]. They took their son, *Qauliik*, to the doctor; his hand had got infected and was swollen. We left them in Kiana and our group left. But a white man joined us. He went downriver. *Paŋalik* and *Umilġusuk* showed us the way because none of us knew the river. He told us to go through the right side all the way, following the cliff. He told us to go downriver, and when it looked like we passed the cliff, we were to watch for a river. It was the mouth of [the] *Ugrivik*, and that was our river. Ahead of us were other people who were also going down to Kotzebue. There were *Putyugialuk* and his family, and *Kanuaq* and his family. ["Who was *Kanuaq*?"] Your grandfather—*Anausuk's* father. Cranes and ducks were flying at the mouth of the *Ugrivik*. We traveled down the *Ugrivik* a little distance and then stopped to camp. We

started to feel sleepy at the mouth of the *Ugrivik* for we had been paddling for some time. There was then no law against hunting cranes or anything else.

On this side of the lake, in *Allutunittuq*, there was a tent. In it were *Nasruk* and others. *Nasruk* was the father of *Aġnauqlugaq*. Everyone was warm and comfortable in his tent. *Nasruk* had a boat made of wood, and he and his wife had sheefish drying outside. ["Where were *Nasruk* and his wife from?"] They were from the Kobuk and were on their way down to Kotzebue. They told us there were eggs to be found around there, but we did not have time to look for them. We wanted to catch up with those who went ahead of us. *Nasruk* told us that we would catch up with them on the other side of *Qalugaaġruk* where they were trapped by the still-frozen river ice. There was no opening, the old man said.

We left after we finished eating. The sun was rising. We found that the people who went ahead of us were trapped by the ice on this side of *Qalugaaġruk* . They had pitched up a tent on the river bank and had pulled their boats up. If the ice had jammed them in, I don't know what would happen to them. Someone recognized the danger and therefore decided to camp.

We reached them and camped with them. We did not sleep—simply lay down for a while. Then we all waited for the ice to open up. The wind started blowing, and the ice began to move. It moved very fast and cracked halfway up *Tikiġayuk*. With the river ice in that half-cracked condition, we left, and others left with us. We followed them and boated along the bank all the way down to Kotzebue. It was far. When you traveled all through the sloughs, it was far.

In Kotzebue we set up camps. There were hardly any people, but the stores were already there. Tom Peary was there too. Those who came to hunt seals went to where there were good catches. They went there, those people who came down from the Kobuk. As for us, *Suġunuquuŋuraq* let us stay there. He said in a "it didn't matter" attitude that he didn't have to try to hunt seals. That was my first trip down, and that was my first time seeing people from down there. Those who hunted seals at *Qallivik* had good catches. They also hunted beluga and other sea animals. But then, they wanted to go back to fish. They left the ocean, and I got in [with] *Putyugialuk* and his family. *Suġunuquuŋuraq* and wife went up the Kobuk River, too, but I left with *Putyugialuk* because I wanted to go with the people that went upriver first.

While in Kotzebue, they wanted me to work for the schoolteachers. I worked for them for a while, washing clothes. They wanted to take me outside [the lower forty-eight states]. I really wanted to go, but when I told *Konuaq* and *Sailauraaġruk's* family, *Kanuaq* did not want me to go. He was afraid that I wouldn't come back home. He was scared of my grandmother. He said if he said yes, but my grandmother said anything else, he would be scared of her. He knew she didn't like me to go anywhere. But I used to stay with them [at *Kanuaq's*] since I was small.

We started back upriver again in order to fish in the upper Kobuk. They said, "It always freezes up fast," so we did not want to get caught downriver when

it froze up. After the people danced all summer in Kotzebue, the river could freeze up on them. ["What did they do when it froze up on them?"] They went to the *Aksik* people. The river was easy to freeze. They always spent the winter in *Aksik* or any place else if the river froze up on them. But sometimes they went by dog sled and went back home up the Kobuk. ["Did they take their dogs when they went downriver?"] Yes. They always went up there. That's the way we lived. But when we went upriver that time, it didn't freeze up on us.

We worked hard, trying to fish. We worked hard. At that time, I was older, and my grandmother used to get sick. We went to the *Qala* people who put poles in the river and blocked it. They caught fresh fish to be used as frozen fish. *Anausuk*, people from *Paa* River, and us went to the *Qala* people's. That's how we lived when we started living in *Laugviik*, the present Kobuk village. We went upriver from *Laugviik* to fish for fresh sheefish, and we put them in boxes. The Indians must have worked hard, too, because like us, they didn't have store-bought food. We started having white man's food when Kotzebue had a store. In Kiana, the store came in around 1909 when Klery Creek opened for mining, and people had money. In 1910 and 1911, even in *Isiŋnaq* [Shungnak] people had money.

People started having an easy life when they ate store-bought food or white man's food. I grew up at the time people started to use flour. Because *Kuukpak* [Yukon River] and Barrow first had white men, people from *Kavraqutaq* and other places started to get and use flour. People started eating white man's food when white men came in looking for money. But, those of us who lived in the summer camps had nothing. My uncles from both sides of the family liked me. They used to give me a little flour.

I am talking about nothing, but I am talking about things I have not forgotten. I don't want to tell stories. I don't want to miss or skip any part.

Louie Commack *(Aquppak)* Remembers

Louie Commack was born in the upper Kobuk area and grew up around Ambler and the Hunt River. He has been an active hunter and trapper all his life. His recollections provide descriptions of traditional *Kuuwaŋmiut* hunting and fishing techniques.

I am going to talk about the way I was raised on the Kobuk. I was raised in Kobuk village, and also by the headwaters at the end of the Kobuk River. I've traveled as far as Allakaket. Long ago when I was small, my grandmother, *Ullaaq*, my father's mother, used to always talk about people starving. They had no food, that's how she always talked. In *Qala* they used to make a living for us. My

grandmother, *Ullaaq*, always fished for us. When I was small, they used to fish. The fishing places were *Kigvalluat*, *Tirravak*, and *Maniilaq*.

Long ago when the weather was bad in the wintertime, and people didn't get any food, they always starved. When days got longer and it was stormy and hard to travel, they always starved. I also was raised at the place called *Ivisaappaat* [Ambler], and also on the Hunt River. The people before me hunted; they tried to get food so that they could eat. When game got scarce or hard to get, they always suffered on the Kobuk long ago. Even right now when the fish don't go upriver, or when they are slow in coming, the Kobuk people—the people of Kobuk, Shungnak, and Ambler—always get hungry.

But now the white people are going to take hold of the place we live. Us older people won't be able to live long on it, but the young people, our grandchildren, nieces and nephews, and our children are going to live off it right now. When things get hard, they are going to have to live off it. I want the land that I know to stay open. There at *Maniilaq* and *Sulukpaugaq* are fishing and berry-picking places. People lived off it; when there was no fish or when the berries didn't grow much, that's when they starved.

If the white men take hold of the land, we will really suffer. If our children have no place to hunt, they will suffer. Some of our children can hunt, and they know how to live. In this land they hunt in the spring and fall. From here they go to hunt or fish; they hunt caribou, bear, or anything else eatable.

Long ago, before the contact with the white people, the *Kuuvak Iñupiat [Kuuvaŋmiut]* depended on food they hunted and gathered. In wintertime, when days get longer and the weather is stormy and unbearable, traveling becomes difficult [and] there is a possibility of famine. Many *Iñupiat* are victims of a harsh environment when there is lack of food. During starvation periods, when food is hard to get or out of reach, many people are forced to areas they don't usually go to. There was a family who lived in the mountains near Anaktuvuk Pass; when their father passed away, they moved to the Kobuk area. They fled to safety, to where there was more abundance of game. Their dogs were dying off one by one from lack of food.

There are a lot of situations like these that have scared a lot of my people, but survival was greater. From these experiences of the elders, even though they themselves may have been spared, the stories have been passed on to them from their ancestors as to what happened and can happen when one is hungry. Even if a person literally throws himself away, men travel miles in search of caribou.

Comment on the Narratives

The following comments are by Nita Sheldon Towarak, who conducted and translated the interviews:

Even today people suffer when fish are late in coming and the berries do not grow much. That is why village people utilize everything. They don't throw anything away. For instance, caribou: They eat the meat fresh, frozen, or dried. The bones are used for various tools such as scrapers, fish scalers, and handles for ulus or anything else. The stomach is used for a container; the fur is used for clothing, mukluks, or bedding; the heart, liver, and intestines are eaten. Even the hooves are stored away and saved for later use. When food is scarce, the hoof is boiled till the outer black part comes off, and inside there is gelatin substance. Even today, the hooves are sometimes used when making beans. In this present day the villagers are just beginning to use only the choicest part of the caribou. They do not go to the extent of saving sinew for later eating for there is no fear of starvation.

Along with the introductions from the western world came canned food. Although this type of food may be essential, the older people do not feel like they have quite eaten until they have Eskimo food *[niqipiaq]*. Although today the people may not go to the extent of saving and eating the whole caribou, it is still one of the main foods of the *Kuuvaymiut*.

People who are not familiar with village life might get the impression that the Eskimos are killing all the animals and catching all the fish. Knowledge of the animals is very important. When hunting, the men look for only the fattest caribou. The skinny ones and the young are left alone. No one shoots a pregnant muskrat; only the head and rear end can be seen when a pregnant muskrat is swimming. A person has to know what weeks, even days, to go out duck-egg hunting. When seining, all fish are not taken; they throw the bruised and small fish back into the water.

Although the elders may not be able to speak English fluently or do not use modern dress, they have what is most important to them: the knowledge of their environment. Their laws might not be written, but they are given in another sense. The taboos that have been passed on work as well as the laws that are written in books for other societies. Their knowledge of weather is also vital to the people. One has to know the conditions of the weather before going out hunting or fishing; otherwise you may never be seen again.

I have learned a great deal from the elders I have talked to in Noorvik. They were sincere and willing to pass on information about the type of life they led and what their parents have told them. Many commented that the young people today are lazy and don't even bother to find out about their past history. I, too, would have neglected to learn

and gather the information that soon may be dead. From listening to the people, we learn that life was hard, but they had their identity and sense of usefulness that we young people are losing our grips on. Although old people have traveled miles and labored hours for their food, the looks on their faces when talking about the past life proves how much life meant to them. They are hard workers, knowledgeable, sincere, strong, stern, patient, and wise.

This may not sum up all the qualities of all the long-ago Eskimos, and life may have been hard for them, but they have everything that we don't have. Yes, we have the stores to ease the starvation, movies to keep us from boredom, alcohol to take us away from our problems, running water to save us from many trips to the river, and schools to help us teach one another about the American heritage which sometimes does us no good in the village. But most of all, we still have those people to show us how to fish and hunt and to tell us about our culture if we are only willing to listen.

Part 4
The Harvests

Chapter 7

Travel

The *Kuuvaŋmiut* homeland is in the transition between boreal forest and tundra, so they have adapted to both of these environments. As hunters and gatherers, their livelihood has depended on having mobility at all seasons, on widely differing surfaces, and under all conditions of weather and terrain. Available raw materials and technology have also strongly affected their means of travel and the way travel integrates with their overall pattern of life. *Kuuvaŋmiut* travel methods fall basically into two seasonal categories: summer and winter.

Summer (Break-up to Freeze-up)

Foot Travel

Viewing the Kobuk country from a summertime plane flight, one cannot help being struck by the extensive marshes and countless small lakes that dot the valleys and lowland tundra. Water glistens in reflected sunlight across the poorly drained landscape, even on the lower portions of mountain slopes and atop alpine meadows. Rivers and sloughs fed by mountain streams of the Brooks Range meander across the low plains and wide valleys.

For centuries, the *Kuuvaŋmiut* have traversed their homeland in summer by hiking the relatively dry alpine areas or by using watercraft to travel the maze of waterways. Well into the twentieth century, the men hiked north into the Brooks Range in early summer to hunt and did not return until just before freeze-up. With the return of caribou into the Kobuk valley, and with the advent of social and economic changes, the summer-long hunting on foot has declined. Most foot travel now takes the men no farther than to nearby mountain slopes that rim the valley.

Several elders who recalled life early in this century explained that men used to begin in the spring to get ready for their summer hunts. For each hunter, the women made several pairs of special sealskin boots *(isigagutik)* with perforations in the soles to let the water drain out. In more recent times, these were replaced by commercially made shoepacks. Other preparations for the journey included making "saddlebag packs for the dogs and gathering supplies such as dry meat, seal oil, salt, sugar, tea, and matches. Other items carried by each man included:

a rifle	extra socks
ammunition	gloves
a tarp	a warm jacket
a slicker	a mosquito head-net

a knife	a few nails
an ax	a sewing kit
a sharpening stone	binoculars
a file	a sleeping robe (rabbit skin or wool)
one or two pots	a cup
rawhide line	eating utensils

To save on ammunition, a few men would take a small hand reloading tool and a supply of gunpowder, caps, and slugs.

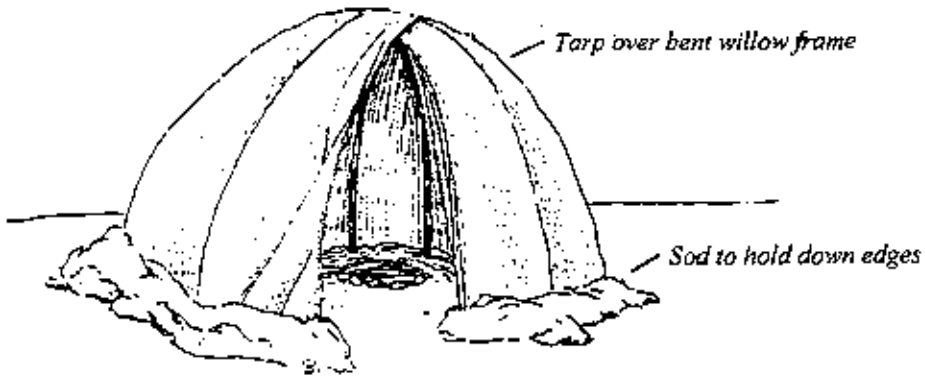
Small parties of hunters usually left their village around July 10, although those who planned to hunt in the Colville River country might leave in June. Each man had four to six pack dogs to carry his load, and he would also carry some gear himself. Younger men were sent ahead to forage for game while the older men and adolescent boys herded the pack dogs along and established campsites.

All of the major valleys extending northward were used as paths. In the upper Kobuk area, the Ambler River was the favored route for traveling to the Noatak River. The *Iñupiaq* name for this river, *Natmaktuġiaq*, literally means "pack it across. In the lower Kobuk area, the favored route was up the Squirrel River and then along the Omar River. Next favored was a trek along the high ground west of the Salmon River.

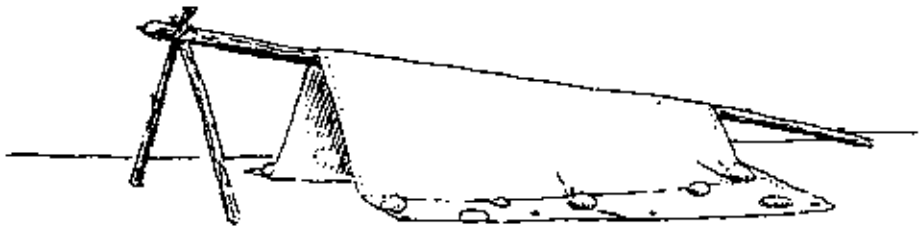
According to two elders, hunters from the upper Kobuk villages met near the divide into the Noatak River valley. Here they discussed where each man would hunt and which route he would probably take home. Often the men hunted in pairs. Some men hiked farther north and west to seek caribou while others went east for sheep and marmot. This system prevented an overconcentration of hunters in any given area and eliminated conflicts that might otherwise result.

Once in the mountains, the hunters had to find or make shelters for themselves. Through many years of using the same territory, they knew of rock caves *(qaŋattaaq)* along the mountain sides, some large enough to sleep five or six persons. With the tarps they carried they could also make a lean-to shelter or an *itchalik*, a hemispherical frame of willows over which the tarp was draped to form a tent. The bottom of the tarp was held in place with chunks of sod. A third style of summer shelter was the *auġayuk*, an elongated tripod of willows with the longest leg serving as a ridge pole for a tarp. The two bottom edges were kept in place with rocks.

As the men moved from one site to the next, they made stone-covered caches to protect the dry meat and other proceeds of the hunt. They picked up these supplies in the fall on their way back to the Kobuk. It was a difficult homeward journey, requiring both men and dogs to carry the heavy loads of dried meat, skins, fat, and other goods. Two or three round trips were usually needed to move the total load from one campsite to the next. Elderly men told of carrying burdens so great that they used a staff to keep their balance as they trudged over the hummocky ground.



Hemispherical shelter made with a tarpaulin.



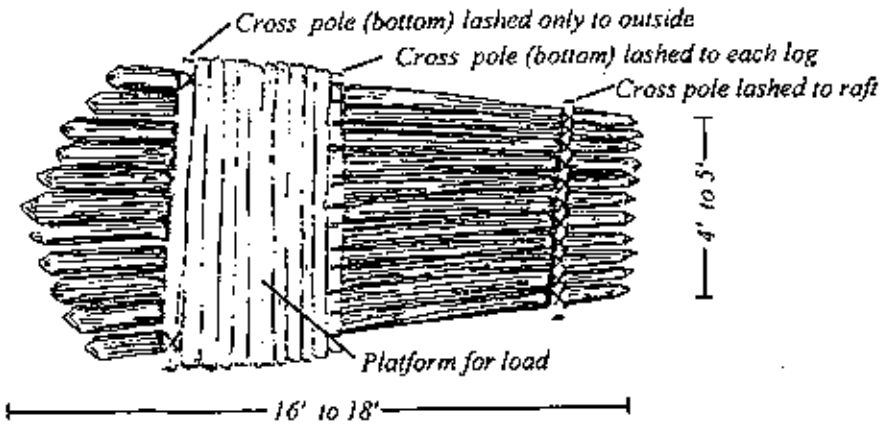
A tripod-type shelter.

Rafting

After they reached the headwaters of major tributaries flowing into the Kobuk River, the men built a special type of raft *(umiagluk)* to carry themselves, their dogs, and their loads down to the Kobuk and home. The first step was to cut down standing dead spruce trees and remove their limbs, to make logs for the raft. These logs were placed with the tips all pointing forward, creating a wedge-shaped craft. A single cross brace was placed atop the bow end and each raft log was lashed to it. Then two poles were spaced across the top of the raft aft of its middle. Only the outer two lengthwise poles of the raft were lashed to these.

A platform of other cross pieces was built between the two aft poles, and meat, skins, and other supplies were placed on it to keep them well above water. Dogs were tied along the edges of the raft in such a way that they could break free easily if the craft were swamped. The hunter stood at the narrow bow of the raft and guided its progress with a long spruce pole. A spare pole was lashed to the raft in case the first was lost or broken.

Raft made with spruce poles.



All the major northern tributaries of the Kobuk were used for rafting home, but each had its own peculiarities that had to be taken into account. The Omar and Salmon rivers are swift, shallow streams for about half their courses, and if the water was low the hunters had to pack their loads several miles downstream before they could begin rafting. The Redstone River *(Ivisaaq)* is also shallow, so the loads had to be carried on foot to the first deep water a few miles downstream. The Ambler River *(Natmaktuġiaq)* is a swift stream with several dangerous crosscurrents that could capsize a heavily laden raft. Usually two men worked together on one raft for this river. About midway down the Ambler it was necessary to cache part of the load for a winter pickup, because the river fanned out in shallow braids and could not float a heavy-laden raft.

The *Quġluqtaq* ("waterfall") River has a rugged canyon with unnavigable rapids seven miles above its mouth. Hunters who used this river had to unload their supplies at this point and pack them across the mountains to the village. The *Maniilaq* River was fairly navigable, but loads had to be portaged over rugged terrain to reach water of the necessary depth. The Reed River was the most popular for returning hunters, and its *Iñupiaq* name, *Aŋilġaġiaq*, means "the going home way." This route offered a relatively short trek from the Noatak valley to waters of navigable depth, the river was not particularly turbulent, and there were no obstacles the entire way to the Kobuk. For the most part, the mountain streams were swift and shallow, so it was important that the *Kuuvaŋmiut* had developed rafts able to maneuver well, withstand turbulent water and bumps against rocks, and still carry a heavy load.

Other Watercraft

The Kobuk people used a variety of other watercraft prior to the 1940s. These included birchbark or skin-covered kayaks, large skin-covered umiaks, spruce bark-covered boats, double-ended plank boats, square-sterned plank boats, and broad shovel-nosed river boats. With the introduction of new boat building materials and outboard motors, the variety of watercraft has been reduced to a few basic designs.

The open-decked kayak (or kayak-form canoe) is still used occasionally on the Kobuk River, but instead of birchbark it is now covered with painted canvas. This very light, portable boat is used for setting fish nets, hunting in lakes and sloughs, and crossing areas of open water during breakup. It can be propelled with a single-bladed paddle or with two rods, one held in each hand, that are used to push against the bottom along shallow river bars. A Shungnak elder recalled that it took him a week of paddling and pushing against the current to travel approximately 95 river miles from his village to the lower canyon of the Kobuk.

Although most adult men still have the experience necessary to build and use kayaks, they are disappearing. In 1974, there were about six canvas-covered kayaks in the upper Kobuk villages, and about the same number in

the downriver communities. Some aluminum canoes have appeared in recent years, most of them acquired from non-Natives visiting the area. About five were in use by upper Kobuk villagers in 1974, mostly for short trips on the river close to home.

A few shovel-nosed (square bow) boats are used, and short, broad boats designed primarily for speed have also been adopted since 1960. However, long river boats are the principal means of water travel on the Kobuk River. Until the late 1930s, these boats were powered by humans, dogs, or wind (Foote 1966:21). When traveling against the current, a line was run from the boat to the dogs or to people who would pull the boats by walking along the wide gravel bars. At least one person had to be in the boat to steer. Paddles and long poles were used to propel the boat where pulling from shore was not possible. When traveling downstream, people simply used poles and paddles to avoid hazards and to stay in the current. On Hotham Inlet or along relatively straight sections of the river, makeshift sails were often set up, using poles, paddles, and canvas to exploit a favorable wind.

Although they now use outboard motors, people also carry poles and paddles in their boats. These are used mainly in crossing short stretches of water where it is inconvenient to use the motor, or in emergency situations such as motor failure. Poling and lining are still used to cross riffles or other water too shallow for an outboard. Outboard-powered boats are used along the whole length of the Kobuk River from the lower canyon to Hotham Inlet. Travel for any distance up tributaries is usually difficult except during periods of high water.

River boats powered by outboard engines range from four to six feet wide at the midship gunwales and up to 22 feet long; they generally have square sterns, flat bottoms, and gently rising pointed bows. Most are locally made and plywood-covered, although a few planked boats are still used. Fiberglass and aluminum river craft are coming into more frequent use, but they accounted for a small percentage of Kobuk River boats in 1975.

In 1940, there was only one outboard engine in the village of Shungnak (Foote 1966:34), whereas in 1975, 34 were counted and an estimated six others were on hand. Among all three upper Kobuk River villages, a total of 83 outboard engines were counted. These engines ranged from four to 50 horsepower; sixty-one percent were in the 15 to 25 horsepower range, nineteen-plus percent were in the four to ten horsepower range, and nineteen-plus percent were in the 30 to 50 horsepower range. During the same year, 38 motors were owned by the 26 Noorvik families surveyed, and 56 motors were owned by the 43 Kiana families.

The fuel consumption for a given outboard varies according to the boat design, load, speed, current conditions, wind, and condition of motor. At the time of this study, fuel prices were $1.00 to $1.25 per gallon. A medium-sized boat with a medium range engine (15 to 25 horsepower) cost about fifty cents per mile to operate, and a larger outfit might cost a dollar per mile.

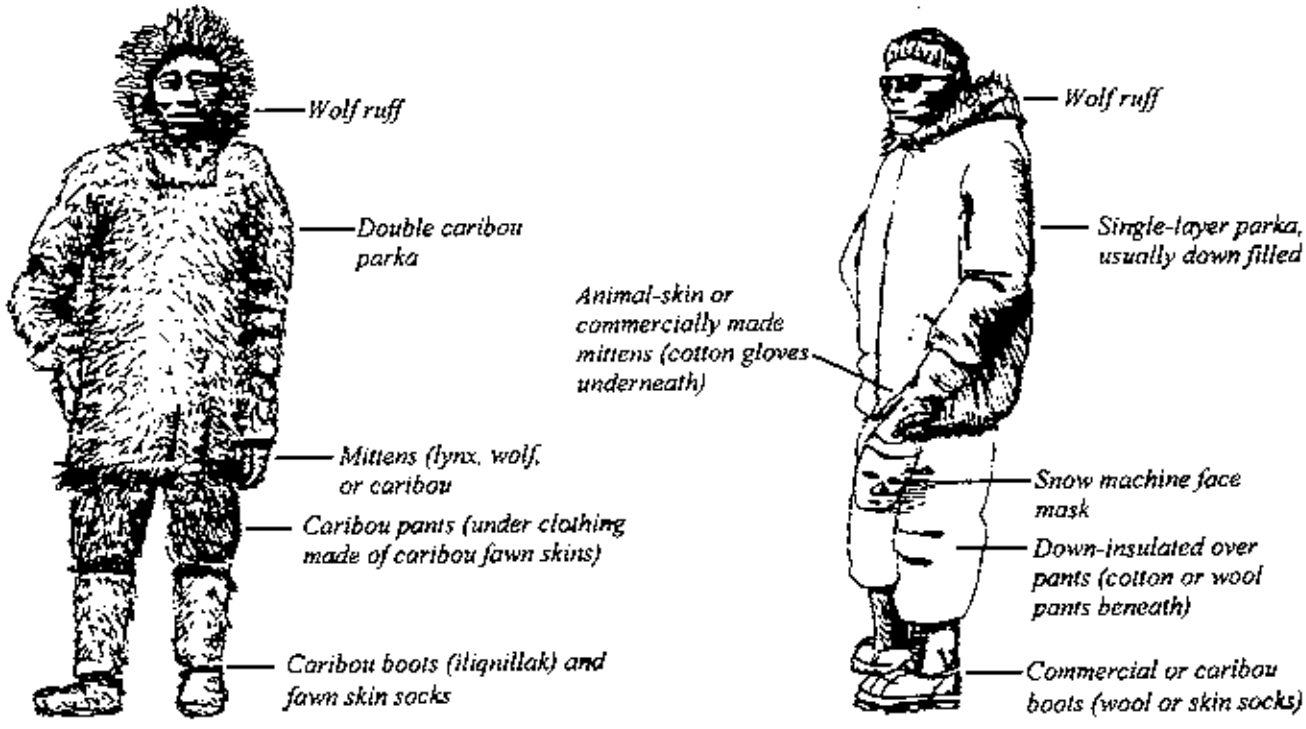
Winter (Freeze-up to Break-up)

During the long north Alaskan winter, mobility attains its highest value as a human survival factor. The land and water solidify as a single unit, snow coats the surface, and cold temperature predominates. The traveler must have clothing and shelter that do not compromise mobility. He must also develop skills in predicting or recognizing significant changes in the weather, variations in surface conditions, and a host of other variables that will affect not just mobility but sometimes even survival. Over many generations, the *Kuuvaŋmiut* have amassed a considerable body of skills and knowledge related to winter travel and survival. The small amount that can be presented here will serve as a representative sample.

Clothing

Suitable clothing has first priority for the winter traveler. To meet the needs of both combatting cold and not encumbering one's mobility, the traditional *Kuuvaŋmiut* made light, loose-fitting fur garments. Today, some of these garments have been superseded by commercial products that meet the same standards as traditional furs. Many villagers, particularly the older men, continue to make heavy use of traditional clothing.

Man's traditional winter garments and contemporary winter clothing.



Weather Forecasting

Before starting any extended journey, the *Kuuvaymiut* traveler first takes careful note of weather clues. It is also important to know that weather conditions in the Kobuk valley are often very localized. The temperature, wind, and precipitation in one area may be very different from that in another area very close by. Thus, a person who leaves home in apparently ideal traveling weather may be suddenly engulfed in a howling windstorm or in extremely cold temperatures. The successful traveler must, therefore, predict and prepare for significant weather changes along the planned route.

The first factor to be noted is sky cover and precipitation. For example, Kobuk people watch for the cloud formation called "mares' tails" *(qayaguq)*, which forewarns of strong winds that may strike within 24 hours. Heavy, dark clouds, especially on the southern or western horizon, are usually a sign of an approaching storm. High, thin overcast with a light snowfall is a sign of relatively stable weather, although it may also result in a whiteout.

There is a peculiar form of precipitation which foretells the onset of a long, intense cold spell. It is not true snow, for it often falls from a cloudless sky. Rather, it is fine ice crystals caused when a mass of intense cold air moves into a relatively warm layer of air, so the surface air cools rapidly and its moisture precipitates out as ice crystals. This falling frost coats the snow with a very dry, abrasive surface and is often followed by temperatures down to -60° or -70° F.

The prospective traveler also takes careful note of the wind. He knows that in certain mountain passes, valleys, and plains there are fierce localized winds that can obscure visibility, create severe wind-chill, and even sweep away a man and his equipment. The following are a few such locations known to the *Kuuvaymiut*:

Shungnak flats to *Pitqiq* Lake—subject to strong easterly gales.

Selawik Pass near the head of Wheeler Creek—subject to extremely violent easterly gales.

Hunt River mouth—infamous for hurricane-force winds that sweep out of the north and may blow for several days to several weeks.

Selawik lowlands south of Waring Mountains—subject to chilling westerly gales.

Kobuk lowlands to Squirrel River mouth—subject to strong westerly winds.

Howard Pass south to the Noatak River—known for sudden violent north winds.

The experienced Kobuk villager carefully notes any signs of swirling snow being carried aloft from mountain ridges by winds. If the horizon appears hazy on a clear day, he knows a gale may be building. Also, a light easterly wind in Shungnak may be expressed as a gale in the upper Selawik

River area or a north wind in Ambler may foretell a strong east wind in Shungnak.

The danger of strong winds cannot be overstressed when considering traveling conditions. In the winter of 1974, a small group of men left the calm shelter of a forested canyon and set out across the broad, shelterless valley of the upper Selawik River. The valley was calm, although swirling snow could be seen on a distant mountain ridge. Suddenly, a gale descended on the valley, blotting out visibility and threatening to overturn sleds and dogs. The chill was extreme, and in crossing snow-free, frozen lakes, the dogs, sleds, and snowmachines were blown sideways out of control. It was only with considerable difficulty and a little luck that they reached shelter in the trees on the far side of the valley.

Temperature is also a major consideration for *Kuuvaymiut* travelers. During the winter, temperatures may range from +35° to -70° F. During periods of intense cold, outdoor activities are drastically, although not entirely, curtailed. In early January of 1975, the village of Shungnak experienced 14 consecutive days when the thermometer never registered above the -50° mark. During this cold snap, travel was generally limited to very short trips for firewood. As soon as the temperatures moderated to -30°, hunting, trapping, and general travel greatly increased. At the other extreme, when winter temperatures rise to near freezing, soft, slushy snow conditions prevail and the ice that covers swift water becomes weak and unsafe. Both dogs and snowmachines become overheated. A winter temperature range of +10° to -20° F is generally ideal for traveling.

Surface Conditions

From an airplane, the Kobuk valley in midwinter appears to be a relatively uniform surface of snow-covered plains, hills, mountains, lakes, and rivers. But to the traveler on the ground, the land is anything but uniform. Snow *(apun)* is the lubricant for winter travel, but it occurs in many varieties, each with a somewhat different effect on transportation.

Fresh-fallen powder snow *(nutaġaq)* creates difficult traveling conditions, as it does not support weight and causes drag on sled runners. It is particularly difficult for dog-team travel, but can also be deep enough to bog down snowmachines. The upper Kobuk country near the Pah River is known for sudden, deep falls of fresh snow. Villagers tell of snowfalls accumulating up to three feet of powder in less than 24 hours, wiping out trails and forcing people to laboriously break new routes on snowshoes. Deep snow gradually settles and becomes more compact, aided by wind and cold temperatures. This makes travel easier as the surface becomes more firm and depth of the snow decreases.

Packed snow *(aniu)* or hard crusty snow *(sitliq)* are excellent traveling surfaces that occur on open, wind-swept terrain or exposed stretches of the river. The *Kuuvaymiut* prefer to travel as much as possible on such snow and may take an indirect route if it takes them over packed snow areas. Trails are

unnecessary across such snow, although markers may be set up for purposes of navigation.

Rough surface snow *(qayuqlak)* occurs in wind-packed snow areas and is caused by strong windstorms. The surface resembles a choppy lake suddenly frozen. The drifts tend to align themselves with the prevailing wind and can help to orient a traveler during periods of limited visibility. The hard, uneven surface is only a minor discomfort for dog team travelers, but it can be a great hindrance to snowmachine travel. The shortness and rigidity of a snowmachine cause a severe pounding of both machine and driver on rough surface snow.

Granular snow *(pukak)* is usually found in a thin layer next to the ground, and because it is overlain with either soft or packed snow it is of little consequence to the traveler. However, in extremely windy passes, the snow crust can be worn away so that only *pukak* covers the ground. Because this snow has no body and will not pack, travel is very difficult in such areas. Dogs, machines, men, and sleds struggle in a sugary quagmire, slip between frozen hummocks, and are being constantly thrown off balance. Tundra grasses are usually exposed, increasing drag on sled runners. Only one who has waded and stumbled across miles of such terrain can appreciate the difficulty it presents to travelers.

Deep, soft snow *(katiqsruġniq)* is found in forested areas, sheltered valleys, and along stretches of the river where vegetation or topography breaks the wind. Although this snow cannot support as much weight as does wind-packed snow, men on snowshoes or lightly loaded snowmachines can usually cross it with minimal difficulty. Dog teams and heavily laden machines, however, are slowed considerably because they sink at least a few inches or more into it. Once the snow has been disturbed by human or animal travel, it will firm up into a hard-packed trail allowing easy travel.

Ground drift *(natiġvik)* is a condition caused by steady wind wearing the snow cover away and blowing fine-grained snow along the surface. It is beneficial because it helps to fill in depressions, creek beds, and other rough ground and creates a relatively even surface for travel. However, it may also build up drifts that cover trails, camps, and equipment. Dogs that travel into ground drift may develop sore eyes or suffer frostbite where their fur is thin.

Glazed snow *(qiqsruqqaq)* occurs in the spring, when thawing and freezing form an icy crust on the surface. It is also caused in the rare event of a midwinter warm spell accompanied by rain. Severe glazed snow can be disastrous for animals like moose and caribou. Snowmachines usually ride easily on top of crusted snow, but it can severely affect dog teams and people using snowshoes. The icy crust is usually weak and shatters into sharp fragments that can injure dogs' feet and wear away snowshoes or wooden sled runners.

Frost crystals are a form of cold-weather precipitation. During periods of calm and intense cold, this frost may accumulate up to several inches deep on the surface. It creates a very abrasive surface that considerably increases friction on sled runners, and it packs into the feet of dogs to form hard balls of

ice. Pulling these balls out will also pull hair from the paws, so the team must be stopped periodically and the dogs allowed to chew them out. If this is not done the dogs' feet will become frostbitten. Accumulations of frost on the surface are quickly blown away when the wind comes up.

Snowdrift cornice *(mapsaq)* is a condition caused by wind carrying drift over a ledge or steep bluff, so it builds a cliff or overhang of packed snow. These formations can be hazardous to travelers in steep, confined mountain valleys or beneath high bluffs and cliffs. When the mass of this formation increases beyond a certain point or when thawing loosens it, the whole mass can crash down in an avalanche (sisuuq). The *Kuuvaŋmiut* try to avoid any area where this potential exists.

Melting or wet snow *(auksakak)* occurs mainly in the spring. This soft, sticky snow slows the pace of a dog team and gives the dogs sore feet. It packs into the moving track of a snowmachine and can cause it to jam. And it soaks the rawhide of snowshoes and packs between their webbing, making them heavy and clumsy. During the spring, villagers usually travel in the evenings and mornings, when cooler temperatures freeze a thick crust over such snow.

Ice Conditions

Ice *(siku)* is the winter pavement that transforms waterways into highways. However, this pavement is subject to variations that either help or hinder the winter traveler. Thin ice *(maptukitchuq)* is a constant threat to the traveler. It is common in the fall before the new ice *(sikuliuraq)* is thick enough to be safe, but it may be encountered throughout the winter. Submerged springs, hidden riffles, whirlpools, and strong currents can all keep the ice from developing normally. A heavy snow cover insulates the ice and further slows its growth or allows it to be eroded. Experienced *Kuuvaŋmiut* travelers know of many locations where thin ice is caused by water action, and they generally avoid crossing such areas.

It is also possible to encounter thin ice where there is little water movement. Beaver lodges often have weak ice surrounding them. Blackfish sometimes swarm around small holes in the ice, causing a larger area of weak ice around them. According to some villagers, salmon spawning sites may also be covered with thin ice. This apparently is caused by the decomposition of dead salmon.

With so many things causing weak ice, it is inevitable that persons who travel extensively will encounter this danger. When they do, the results may range from uncomfortable to disastrous, depending on the water depth, current, air temperature, wind, available shelter, and available fuel for a fire. In the end, survival usually depends on a person's training and skill in meeting such emergencies.

Rotten ice *(auŋniq)* is a phenomenon encountered in the spring just before and during breakup. Once the snow cover disappears, ice on the lakes and rivers "rots" under direct sunlight. Even if it is several feet thick, the ice

will disintegrate into millions of thin, needle-like slivers when subjected to pressure. Anyone who falls through has great difficulty getting back out, because the edges crumble if any weight is put on them.

Hollow ice is often encountered when traveling along rivers, sloughs, and streams. After freeze-up, the water level drops several inches to several feet, then stabilizes and freezes as another layer of ice beneath the first. This leaves an air space beneath ice that is often too thin to support much weight. Snowmachine drivers are especially vulnerable to injury, because they may hit the lip of broken ice as they fall through. Mountain streams, such as the upper Ambler River, are particularly known for such dangers. Also, the swift water beneath hollow ice may not refreeze, thus compounding the danger.

Glare ice is found where wind sweeps away the snow cover from lakes and streams, or where overflow water covers the snow and refreezes. This ice is so smooth that dogs and people easily lose their footing, which can cause pulled muscles, bruises, or broken bones. Snowmachines and sleds may spin out of control and crash sideways into rough ice or hard drifts. A light coating of frost or wet snow transforms glare ice into a superb traveling surface.

Overflow *(siiqsinniq)* is caused by water being forced up through cracks or holes and flooding the ice on lakes, rivers, or streams. It happens when ice freezes down to the stream bottom and dams the water flow, when heavy snowfall presses the ice down until water runs out over the surface, when the water level rises due to warm temperatures, when a spring flows out over the ice, or when a beaver dam breaks and releases its stored water.

Overflow is dangerous to winter travelers because it can occur on any ice-covered waterway and is often hidden beneath the snow. Most winter travelers have suddenly found themselves in water and slush from a few inches to three or four feet deep. Even when temperatures drop to sixty below, there can still be water beneath a layer of insulating snow.

The greatest danger of overflow is the possibility of soaking boots and other clothing, which can cause serious frostbite or freezing. Unless the overflow is unusually deep, a man on snowshoes can usually extract himself without too much difficulty, as can a dog team. But a snowmachine may quickly bog down in an overflow. The slushy snow may freeze immediately on contact with the cold metal. The traveler might have to soak his feet and legs trying to push the machine or to reach dry ground.

The final condition that often affects Kobuk travelers is bare earth *(nuna)*. Stretches of ground and rock are frequently blown clear of snow by heavy winds on the exposed tundra plains, gravel bars along the river, and elevated ridges. The *Kuuvanmiut* can usually predict where this will occur, and they try to avoid it if possible. Bare earth greatly increases the drag, and it may damage sled runners, bruise the dogs' paws, or ruin snowmachine tracks and skis. Nevertheless, travelers cross short stretches of bare ground on most trips in the Kobuk country.

Snowshoes

There are three basic means of winter surface travel: snowshoe, dog team, and snowmachine. Until recent years, snowshoeing and dog mushing were the only means of midwinter surface travel, but today these methods have been largely superseded by the snowmachine.

An important element of the Kobuk valley environment is deep, soft snow that accumulates in many areas through the winter months. To have the mobility which is essential to exploit their surroundings, the *Kuuvanmiut* have long relied on the snowshoe *(tagluk)*. Snowshoes traditionally used by Kobuk villagers are locally made from seasoned birch wood and caribou rawhide. There are two basic designs: *putyugiaq*, the short, sharp-nosed snowshoe used to break trails for dog teams and to walk behind sleds; and *taglupiaq*, the larger, round-tipped snowshoe used for cross-country travel over deep, soft snow. Both styles are similar to snowshoes used by the neighboring Koyukon Athabaskan Indians.

Today the art of making snowshoes is slowly disappearing as men find it easier to buy commercially manufactured types. The sharp-tipped snowshoes are no longer used because men seldom need to break trails for dog-team travel. Nevertheless, about 80 percent of the adult *Kuuvanmiut* men still own a pair of snowshoes. As late as the 1950s, hunters and trappers journeyed extensively on showshoes. Elderly villagers tell of snowshoeing from Kobuk village to their trapping camps on the upper Noatak River, a round trip of over 200 miles. One villager spoke of walking on snowshoes from Purcell Mountain to the village of Cutoff (now Huslia) on the Koyukuk River, a distance of 65 air miles, to get tobacco.

Traplines often crossed terrain too rugged for dog teams, so men set and checked their traps on snowshoes. They usually carried an ax and a small pack containing traps, matches, dry fish, seal oil, rabbit-skin robe, and other miscellaneous items, which sustained them for several days of hiking. Two Shungnak men were flown to Norutak Lake in the 1950s and spent part of the winter there trapping on snowshoes. Late in the winter they walked home through deep, soft snow in temperatures below -50°, carrying no tent or sleeping bags. It took several days of trail breaking to travel the more than 120 mile distance. Neither man considered this an unusual achievement.

Snowshoe travel has diminished since the introduction of the snowmachine. Snowshoes today are worn primarily when men are opening trails to woodyards, going short distances to check traps, or making local hikes for other purposes. Snowmachine travelers usually carry a pair on extended trips, so they can walk home or reach shelter if the machine breaks down.

Dog Teams

The term "husky" usually conjures up the picture of a large, heavily-furred, wolflike dog with pointed ears, curled tail, and masked markings on

the face. In reality, this ideal is seen more in dog shows than in Alaskan villages. Working dogs range in size from 40 to 120 pounds and in color from pure white through rust, piebald, gray, tan, and black. In earlier times, it was common to find that isolated villages or areas had developed their own strains of dogs with characteristic body size, weight, or coloration. Most of these have disappeared through crossbreeding with imported dogs or through selective breeding for traits considered ideal in racing teams.

There are certain characteristics that most working sled dogs share, however. These include a thick undercoat of wool-like hair, a deep sturdy chest, a broad forebody tapering to more slim hindquarters, well-muscled shoulders and haunches, a strong neck, heavy jaws, and narrow eyes. The size and weight of individual sled dogs vary according to sex, age, care, and breeding. Before the 1950s, large dogs weighing 50 to 90 pounds were usually preferred, with an average of 65 or 70 pounds.

Selective breeding was uncommon in earlier days, but isolation and survival to breeding age helped to maintain the necessary standards for working dogs. A bitch in heat might attract several males, but competition between them often weeded out the less desirable ones. When puppies were born they usually lay without shelter next to their mother and competed with one another for milk. As they began to wander about, some might be killed by older dogs. The owner might also kill one or more of the smaller pups or might keep only the larger males, depending on his needs. At six months the pups were chained to a stake where they were constantly exposed to the weather. When the owner began training young dogs, he usually destroyed those unsuited to harness. Thus, through natural and human influences the sled dog was able to maintain certain broadly defined characteristics.

The practical value of sled dogs is determined by their strength, endurance, and speed. In the Eskimo community of Wainwright in 1963, several teams of seven dogs each were observed hauling loads of ice that weighed 1,780 pounds for one mile at roughly 2½ miles per hour. This came to an average of 254 pounds per dog. However, pulling such loads is possible only for short distances. Teams of 9 to 11 dogs commonly pulled loads of approximately 550 pounds over a distance of 100 miles in two days.

An average sled dog weighing 65 or 70 pounds should be able to pull 100 pounds for a distance of 50 miles in 9 to 12 hours if the trail is relatively smooth, packed, and level. Therefore, a team of 10 dogs in good condition should be able to pull a sled load of 1,000 pounds up to 50 miles in one day, again depending on trail and weather conditions. Accounts by Kobuk River villagers of their own dog team experiences support these conclusions.

The greatest disadvantage in owning sled dogs is the amount of food they consume. Dogs are omnivorous and can live on most foods used by people. Their daily food requirements are determined by such factors as physical exertion and environmental stress. Kobuk villagers generally do not build shelters for their sled dogs, so they need plenty of calories to produce sufficient body heat during the winter cold. The energy used pulling a sled signifi-

cantly increases their need. Several writers have studied the food requirements of working sled dogs and have calculated that their intake is from four to seven pounds of meat per day (Spencer 1959:468; Dovers 1957:22). Eskimo dogs are fed as little as one-half pound of food per day in the summer to as much as six pounds per day in the winter.

A conservative estimate of the food consumed by a sled dog each day of an average winter is three pounds. The owner of a working team of 12 medium-sized huskies can then expect to feed his dogs 36 pounds of food per day, 252 pounds per week, and 1,080 pounds per month. These estimates are for dogs used regularly to pull heavy loads and/or to travel long distances under arctic or subarctic conditions.

Fish have been the primary food for *Kuuvaŋmiut* sled dogs. Although all species are utilized, salmon and whitefish are the most important by far. When dog teams were the principal means of winter transportation, a family with 10 to 14 dogs would annually catch, cut, and dry from 500 to 1,000 salmon solely for dog food. In the fall, whitefish, salmon, and some sheefish were piled uncut to freeze for winter use as dog food. One resident of Ambler estimated that his team of three large dogs and four adolescent pups consumed 1,800 frozen whitefish during the winter of 1973-74.

Caribou are also used for dog food and have occasionally been the primary source of food for the teams. A working team of 10 to 12 dogs can consume a large bull caribou in three or four days, or in only two days if the weather is severe and the work is especially hard.

Earlier in this century, when Kobuk people hunted and trapped in the upper Noatak valley, they relied heavily on caribou to sustain their dogs. Hunters usually could haul no more than a week or 10 days' supply of dried fish from home, so they counted on caribou to feed themselves and their dogs. According to several elders, it was not unusual to lose one or more dogs when caribou could not be found. If the food situation became critical, hunters knew of a few places in the Noatak drainage where the water stayed open and trout could be caught with lures or spears. There were also spawning sites where rotted salmon could be obtained as an emergency food. Sheep and other game, and occasionally vegetable matter, were also used to feed the dogs in times of crisis.

Although Eskimo groups used dog traction before European contact, the size of individual teams was quite small until the end of the nineteenth century. Older *Kuuvaŋmiut* said that when their fathers were young, teams of two or three dogs per family were the normal size. A number of factors led to the increase in size of teams: the introduction of firearms, use of cotton fish nets, improved harnesses and sled styles, development of voice-trained lead dogs, the shift from nomadic living to village living, and, most important, the rise of trapping for commercial trade.

It was trapping, more than anything else, that created the need to travel long distances in relatively short periods. The farther and faster a man could travel, the greater his chances to take large numbers of furs—and furs meant

money. According to many villagers, teams of 10 to 16 dogs were common during the 1920s and early 1930s. Although the fur industry fell off drastically after the Depression, trapping was still a major source of income until the early 1940s.

Dog team size did not decline when trapping decreased, however. By this time virtually all families had abandoned their scattered winter camps in favor of permanent homes in the five Kobuk River villages. This meant that large dog teams were necessary for access to resources in the area surrounding each community. Then, in the early 1960s, a sudden decline in dog team use occurred. Snowmachines were gaining wide acceptance, and in an amazingly brief time, dog teams all but disappeared in northwestern Alaska.

At this writing, the number of sled dogs in the upper Kobuk villages appears to be slowly increasing, but it is impossible to say whether this trend will continue. In May of 1975, a total of 320 adult sled dogs belonged to 51 households in the three villages of Ambler, Shungnak, and Kobuk. Although the average per family was just over six dogs, 14 of the households owned 10 or more dogs. The total number these households owned was 217, or 67 percent of the dogs. Twenty-seven households owned fewer than five dogs each.

In the village of Kiana, the total dog population in 1974-75 was 61. Most of the 43 families owned two or three dogs and of the two that owned more, one had five and the other had seven dogs. The 26 families surveyed in Noorvik owned 146 dogs, of which 38 were owned by one family.

In 1974-75, dog teams in the Kobuk River villages were used primarily for racing or for recreational travel. A few people occasionally used dogs to haul firewood, to travel between villages, or to go fishing, but at least 90 percent of winter-spring travel was by snowmachine. Competitive racing, especially among younger villagers, has undoubtedly caused the recent resurgence in dog teams and is largely responsible for the continuation of dog mushing in many Alaskan communities. It has also led to changes in the kinds of dogs that exist today. Villagers say that the dogs have become much smaller and faster than they were some years ago. This has resulted from the introduction of light-boned racing huskies into the breeding stock.

Snowmachines

When people talk of winter travel in northern Alaska today, they are talking about travel by snowmachine. The change from dog teams to snowmachines can be compared to the shift from horses to automobiles in the rest of the United States. The first of these machines to reach Alaskan villages were powered by eight or 12 horsepower motors and were rarely able to travel faster than 10 or 15 miles an hour. Today's machines are streamlined vehicles powered by engines that may exceed 50 horsepower and are capable of speeds of over 60 miles per hour.

The snowmachine revolution came suddenly to villages of the Kobuk River. In 1965, there were only three in Shungnak (Foote 1966:34), and in the

spring of 1975, there were 26, a ninefold increase in a decade. In all, 63 snowmachines were counted in the 51 upper Kobuk households. The 43 Kiana households owned 62 machines, and 26 surveyed households in Noorvik owned 42 machines.

Snowmachines are used in a wide variety of ways: setting and checking traps, hunting, visiting friends and relatives in other villages, hauling fuel and water, carrying garbage to the dump, visiting winter fishing sites, moving building materials, meeting the mail plane, going to the store, packing a trail for a dog team race, and so on. Most Kobuk villagers have come to view it as a necessity rather than a convenience, and few would willingly part with it.

The shift from dog teams to snowmachines has placed a financial burden on village families. In the mid-1970s, a new machine cost from $1,200 to $2,100, depending on its horsepower. A gallon of mixed gasoline costs as much as $1.45, and a large machine might average only eight miles per gallon. Spare parts are also very expensive, and with increasing age and use, repair costs escalate. Few machines survive more than three or four years. Thus snowmachines have become a major expense for Kobuk village households.

Probably the most frustrating aspect of owning and using a snowmachine in remote Alaskan villages is the difficulty in obtaining repair parts. It is often impossible to interchange parts between different makes or models of machines. Small village stores cannot stock a complete supply of parts, so even minor parts must often be mail ordered from outlets hundreds of miles away. Slow service may delay an ordered part for weeks, leaving the owner without transportation.

In the absence of repair services and sources of parts, Kobuk villagers have developed mechanical skills to deal with the frequent breakdowns that occur. Maintenance knowledge and repair innovations are shared with other owners. Several men have also become skilled welders. When visiting a snowmachine owner's home in the winter, it is common to find him tearing down and repairing a machine in the main room.

The machines of even the most skilled mechanics eventually suffer a breakdown that cannot be repaired on the spot. Usually this only means a walk home; but in severe weather or on long trips, a failure can be disastrous. For this reason people often travel in pairs or small groups. Search and rescue organizations that have been formed in most Kobuk River villages are often called upon to find overdue travelers. Villagers also keep contact with each other to be sure that travelers have arrived safely at their destinations.

The use of snowmachines allows the *Kuuvanmiut* to make intensive use of a relatively large area surrounding their home communities. Machines are fast enough so hunters can cross miles of terrain, find game, and bring it home all within a few hours. This new means of travel is also a great equalizer in subsistence activities. In the past, the man with the best dog team or the person who could snowshoe the longest distances had the best chance to find game. Young, inexperienced men or those with substandard teams of dogs were at a distinct disadvantage. Now all men who own machines are on an equal footing in the realm of winter transportation.

Comparison of Dog Teams and Snowmachines: Cost, Upkeep, and Performance

Item	Dog Team (up to 10 dogs per team)	Snowmachine (up to 40 h.p.)
Purchase price	Adult sled dog: $30–$60. Lead dog: $75–$500. Usually obtained through breeding	$1200–$2100, including freight
Required accessories	Sled, harnesses, lines, snow hook, brake, snaps, chains, dog pans	Sled, hitch, spark plugs, drive belts, tools
Fuel	Fish, tallow, caribou, oats, rice, commercial dog food	Gasoline and oil
Fuel consumption	2–6 lbs. of food per day per dog. 10 dogs: 20–60 lbs. of food per day (computed as wet weight, not dry weight).	5–10 miles per gallon depending on horsepower, load, trail conditions, speed; may use 3–8 gallons per day when actively hunting and traveling
Replacement and repair parts	Purchased or bred for new pups; young dogs of minimal use until one year old	Purchased directly from local or distant outlets
Average speed	4–9 mph, 5 mph for distances up to 50 miles with medium load and good trails	15–20 mph with medium load and good trail
Top speed	15–25 mph with light load; only racing teams can sustain such speeds beyond two miles	20–50 mph; can sustain high speeds for duration of fuel, but high speeds increase possibility of machine damage or human injury
Weight pulling	Up to 2,000 lbs. for distances less than five miles, depending on trail conditions; deep soft snow drastically reduces possible loads; dogs have advantage of excellent traction	Up to 1,000 lbs. for indefinite distance providing that the sled can be started, traction is good, and the trail is smooth and level; snowmachines will "spin out" or wear out belts with extreme loads in loose snow or on steep hills.
Possible travel distance in one day at average speed	50–100 miles with medium to light loads (long trips usually limited to less than 70 miles per day)	200-300 miles (long trips usually limited to less than 150 miles per day)
Adverse environmental conditions affecting use	Deep soft, snow, thin crusted snow, warm temperature, glare ice, high winds, weak ice	Overflow, white-outs, strong winds, severe cold, steep hills, glare ice, weak ice

(continued)

Item	Dog Team (up to 10 dogs per team)	Snowmachine (up to 40 h.p.)
Care when not in use	Requires constant feeding and care	Requires little or no care
General dependability	Generally very dependable within physical limits	Generally dependable for the first year and decreasing dependability thereafter
Average service life	9–11 years	2–4 years
General strong points	Dependability; may be fed from local resources; self-reproducing; long service life; may be eaten or fed to other dogs in emergency situations	Fast; not subject to tiring; covers long distances; requires no care in summer; handling skills easy to acquire; highly maneuverable; may be replace through simple purchase
General weak points	Subject to diseases and injuries; may run away; requires care when not in use; must be trained; possible fighting; relatively slow; requires considerable fishing and hunting to be fed; dogs become bored and difficult to handle if continuously driven on the same trails for a long period of time.	Subject to unpredictable breakdowns; difficult to handle in overflow or spin-outs in deep snow; difficult to obtain spare parts; expensive to purchase and operate; relatively short service life; dependence upon n on-local sources for materials and fuel; relatively high occurrence of human injuries.

The extensive use of snowmachines is causing a loss of certain traditional environmental skills. Before the advent of the machine, adolescent boys and young men learned subsistence and survival skills by traveling with adult men by dog team.

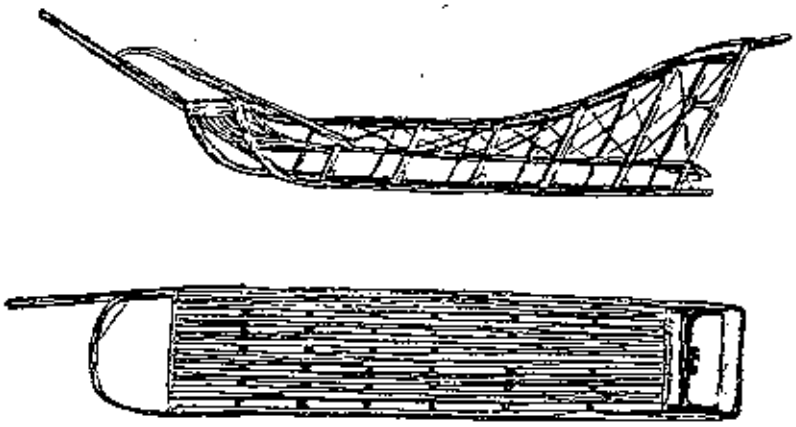
The relative quiet and slow pace of travel encouraged communication between the two generations. Physical features could be pointed out and memorized, and the youths could listen to whatever information the elder hunter passed along. This included training in the spiritual relationships with the natural world.

This "traveling school" has been substantially changed by the use of snowmachines. Speed, noise, and physical distance isolate a driver from his passenger on the sled. Nevertheless, such skills as shooting and skinning game are still taught. When young men are financially able to purchase a machine of their own, they become independent hunters, although they continue to rely upon the advice and guidance of older men.

Sleds

Two basic styles of sleds were used by Kobuk villagers in 1974-75: the basket sled *(qilgich)* and the plank sled *(uniat)*. Sleds are essential for dog team travel and are necessary for hauling fuel, supplies, and game with a snowmachine. It would be extremely difficult to carry out normal winter activities without using a sled.

According to a Shungnak elder, the dog sleds of earlier days were low, flat affairs with plank runners. This style apparently disappeared around the turn of the century, giving way to the more intricate basket sled, which may have been introduced by miners and prospectors.

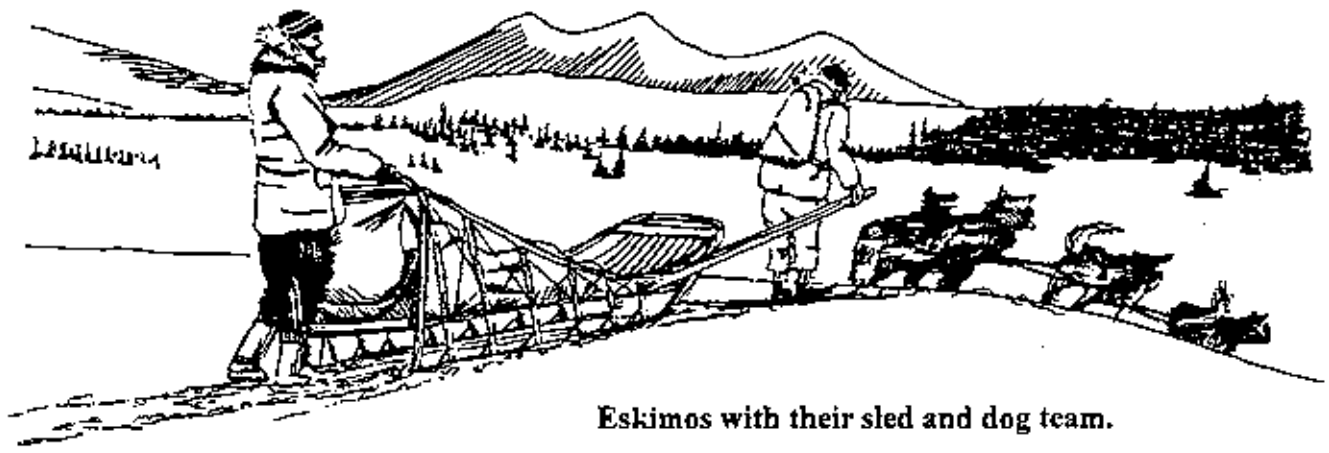


Side and top views of sled with gee pole.

Until the 1960s, *Kuuvanmiut* basket sleds were quite long and narrow, with runner lengths of 16 feet common, and widths of 23 to 24 inches to the outsides of the runners. They were made with locally cut birch, rawhide lashings, and assorted bolts, screws, and nails. Runners were often shoed with strips of green (unseasoned) spruce in cold weather and with iron or steel for the wet surface conditions of fall and spring.

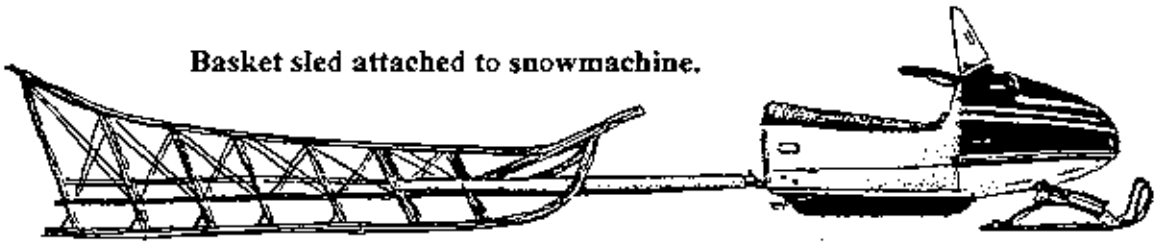
There was often a long "gee" pole lashed to the right side of the sled and projecting upward at a low angle four to five feet ahead of the bow. A man would often walk on snowshoes or ride on skis attached by a bridle to the tow line, positioned between the front of the sled and the rear (wheel) dogs. Holding the gee pole, he could guide the sled around bends and away from obstructions, and keep it from slipping off packed trails into the soft snow.

Today basket sleds are shorter and wider, designed to be pulled behind snowmachines. They are made with imported hardwoods such as hickory or



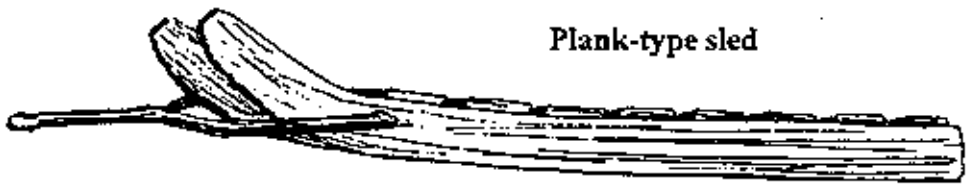
Eskimos with their sled and dog team.

Basket sled attached to snowmachine.



oak, and are usually built to be much heavier and stiffer than dog team sleds. The runners are generally 10 to 12 feet long, occasionally up to 14 feet, and they are permanently shoed with steel. Sleds are as wide as 27 inches, and the greatest widths are preferred especially by people who live near the coast. Foot brakes, gee poles, and brush bows are usually absent. A V-shaped steel hitch hinged to the bow piece or side stanchions connects the sled to the snowmachine. A few basket sleds are still made for dog teams, but unlike the heavy sleds of the past they are now quite small and short, with runners seldom more than 10 feet long and beds up to six feet long.

Plank-type sled



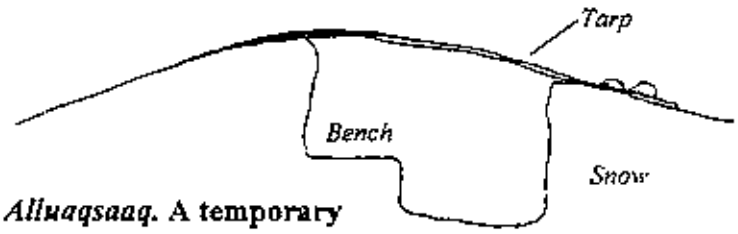
The second type of sled currently used in Kobuk villages, the *uniat*, is a low, rigid, plank sled. This type is simply made by nailing a series of boards across the top of two heavy plank runners. The runners are usually 2 x 8 inch pieces, seven or eight feet long. A V-shaped steel hitch is hinged to the front, and steel shoes are usually screwed or nailed to the bottom of the runners. Plank sleds are made primarily for hauling heavy loads of wood and other freight with snowmachines.

During the spring of 1975, 55 basket sleds and 27 plank sleds belonged to the 51 upper Kobuk families surveyed. Only seven households were without sleds. In Kiana, the 41 families owned 27 basket sleds and nine plank sleds, and in Noorvik the 26 surveyed families owned 22 basket sleds and four plank sleds. Seventeen of the Kiana families and three of the Noorvik families did not own sleds. In all villages, most households without sleds were those of elders, whose children took care of their transportation needs.

Shelters

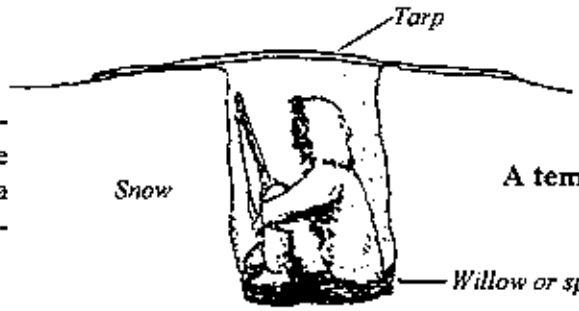
As part of their adaptation to harsh winter conditions, the *Kuuvanmiut* use shelters that can be quickly made with materials at hand and give good protection against cold temperature or strong wind. The following descriptions illustrate some of the shelters used for overnight or emergency camping.

A temporary shelter may be dug into deep snow. Called an *alluaqsaaq*, it has a bench area and is covered with a skin or canvas roof.



***Alluaqsaaq.* A temporary snow shelter.**

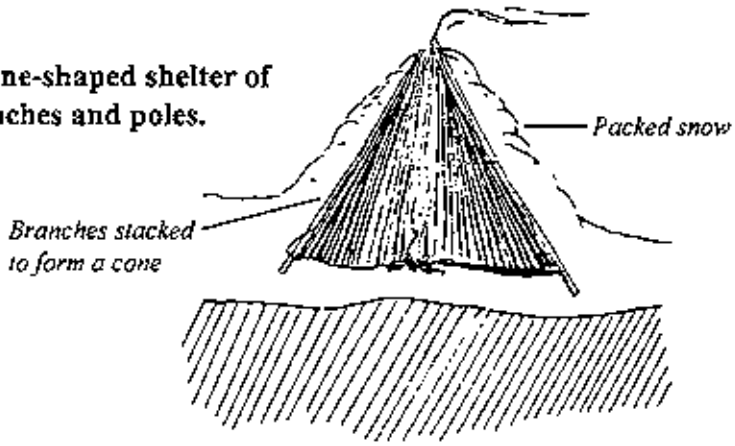
A simpler kind of temporary snow shelter is dug into deep snow and is made just large enough to sit in and pull a cover over. This shelter is used in survival situations.



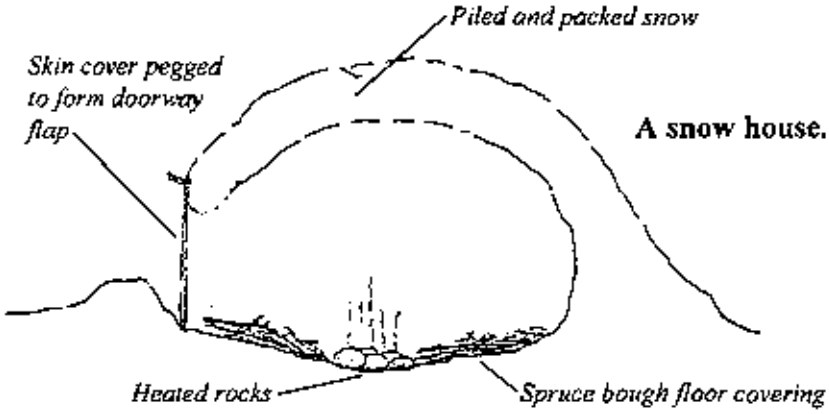
A temporary snow shelter.

Somewhat more elaborate is a cone-shaped structure of branches and poles, with snow packed against the walls. A smokehole at the top makes it possible to build a small open fire inside.

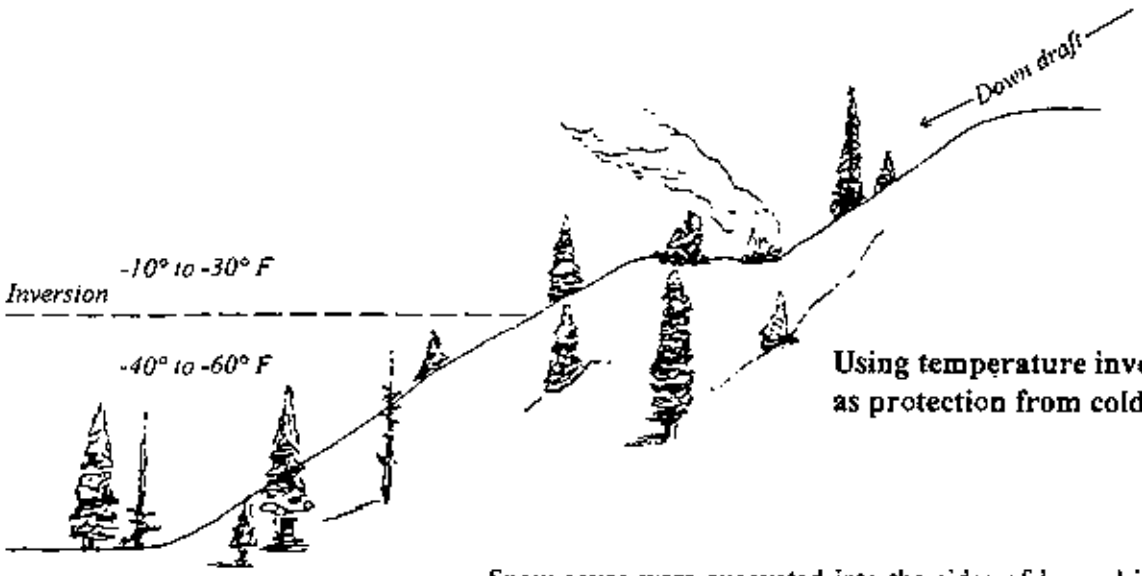
A cone-shaped shelter of branches and poles.



According to a Shungnak elder, the *Kuuvanmiut* snowhouse *(apuyaq)* was made until the beginning of this century. Men used their snowshoes to shovel a pile of loose snow, then packed it down, allowed it to harden in the cold, and hollowed out a room inside. If rocks were available, they would build a fire outside to heat them and then carry them inside with wooden tongs to provide warmth.



A snow house.

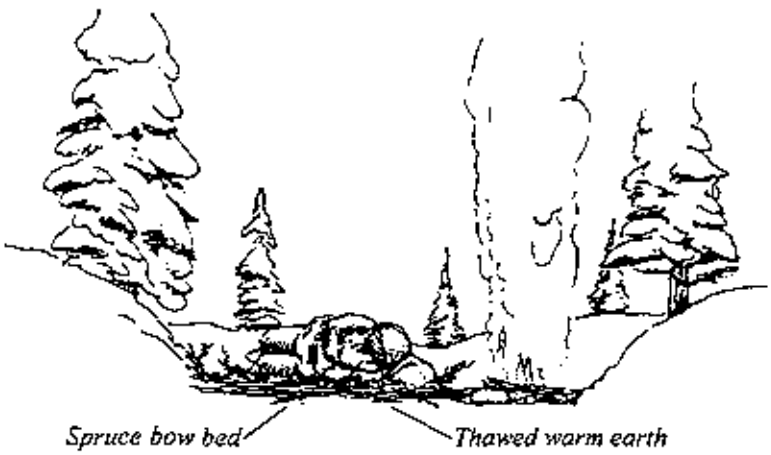


Using temperature inversion as protection from cold.

Snow caves were excavated into the sides of large drifts when wind made it impossible to set up tents or other shelters. An upper Kobuk man told of being caught with his wife and small daughter in a mountain pass when a severe storm broke. He used a shovel to tunnel into a drift so they could wait it out. It blew so hard that he could not leave the cave to feed his dogs for three days.

Temperature inversions can also be used as a "shelter" or refuge from deep cold. *Kuuvaqmiut* travelers took advantage of winter temperature inversions when they were out with minimal equipment in mountainous or hilly country. If the weather was intensely cold (-40° to -65° F), a man would climb a mountain slope until he reached the warm air inversion. He would then find some fairly level ground, stamp down the snow, and cover the surface with brush or spruce boughs. Finally, he built a large fire above his position, so that the evening downdraft carried the heat across his resting spot.

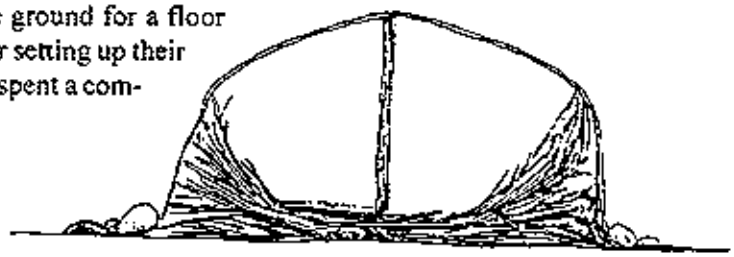
Warmth can also be provided in an open camp by heating the earth. Two men from Shungnak told of spending several days snowshoeing across forested land during intensely cold weather, when they carried no tent or sleeping bags. At night they would sometimes clear the snow from an area with their snowshoes, then build a large fire and allow it to heat the earth underneath. After clearing away the coals, they spread a mat of spruce boughs over the heated ground for their bed. Finally, they built another fire close by to provide added warmth through the night.



Heated earth camping place.

The willow bough shelter is an innovation a Shungnak resident once made to provide a quick shelter. He and a companion were caught by a storm in the Noatak country. Clumps of willow were the only visible vegetation. The two men spread their tent canvas over one clump and weighted the sides down with equipment and snow, then cut out the cen-

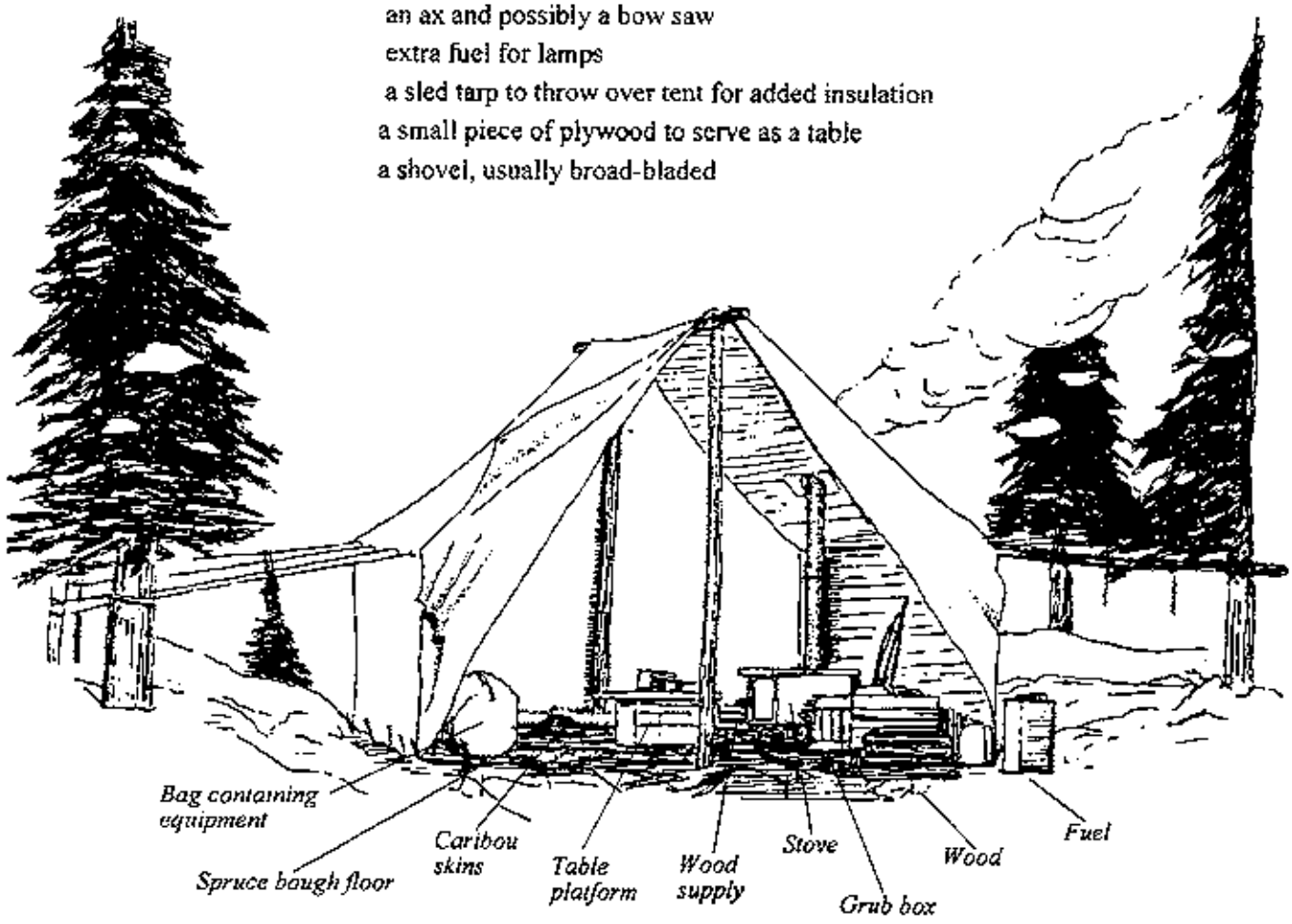
ter of the willow cluster and lay the cut willows on the ground for a floor mat. A single pole held up the middle of the canvas. After setting up their lantern and stove and bringing their bedding inside, they spent a comfortable night.



Willow bough shelter.

Canvas wall tents are now the main shelter used for winter camping. The floor dimensions are 8 x 10 feet or 10 x 12 feet, with the smaller size most popular. These tents are usually bought from local stores. Other equipment needed in winter camps includes:

a sheet-metal wood-burning stove with stove pipe
caribou hide mats
sleeping bags
cooking equipment, including dishes, cups,and silverware
a kerosene or gasoline lamp
food (usually in a grub box)
an ax and possibly a bow saw
extra fuel for lamps
a sled tarp to throw over tent for added insulation
a small piece of plywood to serve as a table
a shovel, usually broad-bladed



Canvas wall tent furnished for winter camping.

When traveling, the *Kuuvaŋmiut* prefer to camp in timber stands or heavy willow thickets, where they are protected from wind and have access to fuel. In tundra areas they also use sheltered creeks and mountain sides, where camping can be done in comfort. When they cross new territory the men seek out timber stands and look for soft snow, which indicates that the site has been well protected from the wind.

Once a site is selected, loose snow is cleared away from the floor area and somewhat beyond the intended edge of the tent walls. The tent is set up with the side walls low enough so their lower edges can be tucked inside and weighted with equipment. Spruce boughs or freshly cut willows are laid to a depth of several inches over the floor. The stove is set up and bedding is arranged. A supply of dry wood is cut, and soon the tent is warm and filled with the smell of frying caribou meat. Tent camps can be comfortably warm, even in temperatures of fifty below zero or colder, as long as the ever-hungry stove is kept well fed with wood.

Trail Systems

The *Kuuvaŋmiut* have historically utilized an impressively large territory for subsistence pursuits. Their travels have extended from the open windswept plains of the North Slope to the forests of the Koyukuk River. Over the generations, they have discovered routes that allow them to travel throughout the surrounding territory with a minimum of difficulty and danger. Most of these trails follow stream courses or cross flat, open country, so that they avoid steep traverses and take advantage of wind-packed snow areas. When possible, trails are on land rather than on rivers, to avoid having to follow meanders and stay clear of weak ice or overflows.

Some of the major trail systems between villages are marked with wooden pole tripods. These markers were set up some years ago with state funding, but many have fallen, leaving gaps of a mile or more. They are especially useful to persons who travel at night or become caught in a storm. Routes presently marked with tripods are the Ambler-Shungnak, Ambler-Selawik, and Shungnak-Selawik trails. This last trail connects with the main Ambler-Selawik trail near the Kugarak River. In the lower Kobuk area, the Kiana-Selawik and Noorvik-Selawik trails are staked.

Marked trails are only a few of the winter routes that have been established by the *Kuuvaŋmiut*. Some trails are of particular cultural importance. These include the one that crosses from the upper Kobuk River over Norutak Lake to the Alatna River. For many generations this has been the line of contact between the upper Koyukuk Athabaskan Indians and the *Kuuvaŋmiut* Eskimos. Early in this century, a group of *Kuuvaŋmiut* established a community called Alatna on the Koyukuk River, directly across from the Indian village of Allakaket. This made the route even more important than it had been previously.

The pass dividing the headwaters of the Selawik River from Wheeler Creek, a tributary of the Koyukuk River, has also been a route of cultural contact. Both the Kobuk River Eskimos and the Huslia Indians still use this

trail to reach Selawik Hot Springs, where they camp and bathe each spring. In the lower Kobuk area, trails that connect Kiana and Noorvik, and Noorvik and Kotzebue have been the major routes of contact with coastal Eskimos. These have been used even more heavily since the introduction of snowmachines.

Trails leading north into and through the Brooks Range allowed Kobuk River people to utilize resources that were not available in their home valley. A few of the major routes include the pass leading from the Redstone *(Ivisaaq)* River to the Cutler *(Anayuk)* River, which is known as *Apqugaaġruk*, literally "the old trail." The pass dividing the Ambler River from Nushralutak Creek takes its name from the Ambler River, *Natmaktuġiaq*, meaning "pack it across." Only the most hardy hikers attempt its narrow canyons, with a climb so steep that men used to pack their loads up the pass and then go back to help their burdened dogs negotiate the slope. *Sisuuksiñivik* Pass, between the *Quġluqtuq* and *Ipnaiḷivik* rivers, is infamous for having once killed a party of *Nunamiut* Eskimos in a spring avalanche. Because of this danger, the *Kuuvaŋmiut* stopped using it, and instead they climbed the steep ridge separating Kutarlak Creek from *Ikniñ* River. Tupilik Pass, between the headwaters of the Reed River and Tupik Creek, is also very steep, but men and dogs made use of it.

Another pass of importance to Kobuk River Eskimos is Howard Pass *(Akutuq)*, which means "whipped fat." It acquired its name from the howling winds and whirling snows that sweep through it. In the pass separating Portage Creek from the Alatna River, Kobuk people long ago fought and vanquished a now-extinct tribe of Indians known as the *Iyaġaaġmiut*, or "people of the rocks."

Place Names and Use Areas

Like English, the *Iñupiat* language has a richly developed vocabulary which includes general terms to describe landscape features such as rivers, mountains, lakes, forests, and tundra. It would be a mistake, however, to assume that the *Kuuvaŋmiut* conceptualize their environment primarily according to these gross elements of the terrain. Rather, they view their surroundings as a complex, interrelated maze of micro-environments existing within more general macro-environmental zones.

Each bend on the river is special. It has properties that set it apart from all other bends. Each slough or lake has resources and/or conditions that make it unique. This uniqueness is often reflected in the use of a name that connotes the type of place, such as a slough or a ridge, and qualifiers that distinguish it from similar places, such as a small slough *(kuugaatchiaq)* as distinct from a large slough *(kuutchauraq)* or a rounded ridge *(qimiġaaq)* as distinct from a stepped ridge *(qimugruk)*. The large variety of such modifiers has given rise to an exceptionally rich vocabulary of place names.

Despite the variety of Eskimo place names, a core of names tends to reappear in each separate area. For example, although nearly every place name

along the lower Kobuk River is distinctive within that area, many of the same names are used for similar features in the upper Kobuk area.

Like all aspects of *Kuuvaŋmiut* culture, the place names have been transmitted orally from one generation to the next. The Kobuk people are closely bound to their environment, so it is not surprising that a detailed knowledge of the land and river has been a vital link in maintaining their cultural continuity. In this case, "knowledge" entails a complex interconnected web of topography, weather, vegetation, animal life, subsistence, history, legend, and a host of other cultural and environmental factors. In other words, to understand the concepts underlying the traditional naming of places, it is necessary to understand the *Kuuvaŋmiut* people's relationship to and dependence upon the land. Also, if *Kuuvaŋmiut* culture is to maintain its continuity, it is imperative that traditional concepts about the environment be transmitted from one generation to the next.

The place names developed by Kobuk Eskimos also designate special features that are important to the people's past and present life. When an older woman teaches her daughter the skills of fishing, she refers to named river bars or eddies where one may set a net or use a seine. When an old hunter accompanies younger, less experienced hunters on their travels, he names the places they pass to help them remember these routes in the future. An old man telling his son how to travel safely from one place to another names the mountain passes, streams, protected campsites, and places known for such hazards as avalanches, overflow, and weak ice. At the end of a trip the travelers often recount the journey to others by naming and describing the locations they have passed. Finally, when recounting the history and legends of their culture, Kobuk people often refer to specific, named locations.

The following is a small sample of illustrative place names used by Kobuk River Eskimos:

I. Historic

Alaqanalik: "Half beaver, half marmot." A site inhabited by a mythical creature.

Iglukisaaq: "To juggle." A boulder at the river edge that is said to be one of the two stones juggled by a giant.

Ilupquaġruuralik: "Somebody with little old underwear." A creek.

Iluvaurat: "Little graveyard." A grave site.

Iñukiłisuq: "Funny-faced man." A place where a white prospector once lived.

Ipliġvik: "Place of drowning." The place where a person died.

Iqsiuġvik: A village site, once the scene of a battle.

Kaŋiġaq: "Caribou corral." A place where caribou were driven into an enclosure with snares.

Malġutchiak Saputiŋik: "Twins' fish weir." A stone formation in the river built by two legendary brothers.

Qargiat: "Their community house." The site of a large shelter built for a meeting between Koyukon Athabaskans and upper Kobuk Eskimos.

Tauqsiġñiaġvigruuraq: "Little old store." The site of an old trading post.

Umiaviuraq: "Little umiak place." An upturned umiak-shaped hill associated with the legend of three men in a boat who were turned to stone.

II. Physiographic descriptions:

Aqiat: "Bellies." Rounded foothills.

Auyuukkaaq: "Always frozen." A glacier.

Igliqtiqsiuġvigruaq: "Old place where arrows were dodged." The site of an old settlement.

Imaġluktuq: "Dark water." Black River, near Ambler.

Katyaak: "Fork in the river."

Kisimmaluat: "Hill by itself."

Nuiļauraq: "Place where the river forks."

Piŋuqsraq: "Future knoll." A hill.

Pututchiaq: "Cutoff." A cutoff of a river meander loop.

Quġluqtuq: "Waterfall."

Saiktuurat: "Rocks standing up." A mountain.

Uumman: "Heart." A heart-shaped mountain.

III. Animal, plant, and resource concentrations:

Isiŋnaq: "Jade." Jade Creek.

Israqaġlik: "Molting place." A lake used by molting geese.

Qalugruaq: "Salmon." The Salmon River.

Qalukpiļiviuraq: "Small place where trout are made."

Qalugriivik: "Salmon spawning place."

Qaluksiuġayuat: "Young osprey."

Tulugaġnat: "Swallows." A high bluff.

IV. Subsistence activities:

Aullaqsruġaitchiaq: "Way to go pick berries."

Itchuġvik: "Goose blind place."

Napaqsraġniaġvik: "Place to obtain birch for sled stanchions."

Pannavik: "Spearing place."

Salliñauraq: "Little seining place."

Siksrikpakturuat: "Place having many marmots."

Uluksraurat: "Little ulu material."

Kapuqqaaġvik: "Fish spearing place."

V. Directional or navigational:

Aŋiłġaġiaq: "The way to go home."

Apqugaaġruk: "Old pass trail."

Itivliq: "Portage place."

Quġġaġiaq: "A trail to Noatak."

Saġvaqsiuġiaq: "Drifting with the current."

Tunuuraq: "Way around the mountain."

VI. Warnings:

Aniuyaaq: "Wind hits hard on south side."

Chiipuuluġaqtiġvik: "Place to use a gee pole."

Nigiqpalugruuraq: "Strong north wind."

Siiqsinniq: "Overflow."

Sisuuktat: "Where there was an avalanche."

Tuqunaqtut: "They are poisonous. They cause death."

VII. Person's names (usually grave sites)

Aġviġiaq.

Aurruk.

Yaġuna. A creek.

Qałhaq.

Saiłaq.

Sattu.

Plotting the distribution of place names known by residents of each Kobuk River village gives a good indication of the area they utilize in their subsistence pursuits. Resource availability, topography, weather, and technology strongly influence people's subsistence range, but cultural factors,

such as ideas about territoriality, are also important. For example, upper Kobuk people know the place names in detail for an area as far downstream as *Tulukkaat*. Below this point their knowledge of the names virtually ceases. This also corresponds to the western limit of their resource utilization, as recorded in our 1974-75 surveys and as indicated by statements about traditional harvest areas given by Ambler, Shungnak, and Kobuk residents.

Similarly, the downriver villagers' detailed knowledge of place names declines sharply for areas above the mouth of the Hunt River, which corresponds to their eastern limits of resource utilization. This is particularly revealing, since most Kiana and many Noorvik residents originally came from the upper Kobuk area. It indicates that people maintain their remarkably detailed knowledge of place names through constant and intense use of an area.

It is important to stress that the Kobuk people's concept of territory differs from that familiar in western cultures. To the *Kuuvaymiut*, a territory is not strictly bounded and does not confer exclusive rights to use. Instead, it is a home area, known in detail, which for various ecological, technological, and social reasons a person tends to utilize more extensively than other areas. When necessary, the home areas of neighboring *Iñupiat* can be utilized with few if any constraints imposed by the people who live there. As a matter of courtesy, someone who wants to use the resources in another group's home area might let members of that community know about it. This can usually be done by visiting friends, relatives, or partners in the village during the trip. But under ordinary circumstances, where only villagers are involved, the formality could be overlooked and few people would give it any special thought.

The southern limit of the upper Kobuk villagers' range of intense utilization, as indicated by knowledge of place names, runs approximately from the Great Sand Dunes to Purcell Mountain, then east to the middle Hogatza River. The eastern limits are approximately from the middle Hogatza River to Norutak Lake and then north to the upper Killik River. This also seems to be perceived as a border with the upper Koyukuk Indians and, to a lesser extent, with the *Nunamiut* Eskimos. From the upper Killik River, the limits extend down the Itivilik River to its junction with the Colville, then to the mouth of the Cutler River, and across the pass leading to the Hunt River and back to *Tulukkaat*.

The intense utilization zone of the lower river *Kuuvaymiut* includes the entire lower Kobuk River drainage and the northern part of the Selawik lowlands. It also includes a portion of the Noatak River across from the headwaters of the Omar River and the coast between the mouth of the Kobuk River and Cape Krusenstern. It overlaps the upper Kobuk peoples' area between the Hunt River and Onion Portage.

The list of place names recorded during this study is undoubtedly incomplete, and as this list grows the outer limits of *Kuuvaymiut* place names may be revised.

Chapter 8

Fishing

Introduction

The *Kuuvaymiut* Eskimos are, first and foremost, people of the river. It is the Kobuk River with its interconnecting web of lakes, sloughs, and streams that provides their most reliable resource: fish. A wide variety of fish species, both migratory and resident, are found in the waters of the Kobuk valley and may be exploited at various seasons. Were it not for the availability of fish, this would be a much poorer environment for human habitation. Caribou, bear, moose, and other game animals are either not abundant enough to sustain a resident population as large as that of modern times, or they are subject to unpredictable migratory shifts and population declines. As a Shungnak elder put it, "We must have fish to live."

For much of the year, rarely a day passes that the average *Kuuvaymiut* family does not have one or more meals in which fish is the main course. Fish and parts of fish are eaten boiled, fried, baked, frozen, aged, and dried. Fish oil, obtained from boiling the intestines and eggs of whitefish and sheefish, is used to supplement a family's supply of seal oil. Fish is food not only for humans but also for dogs. Until recently, the *Kuuvaymiut* depended heavily on dogs for winter transportation and, to a lesser degree, for summer travel. Each year these dogs consumed prodigious quantities of fish.

Fish and fish products have long served as items of economic exchange among the Kobuk River people. An example of this system can be seen in fall fishing practices of the upper Kobuk villagers. During the last week of September, schools of migratory sheefish move into the swift clear waters of the river above Kobuk village. When they arrive, the female fish are fat and full of oil-rich eggs ready for spawning. Villagers from Shungnak and Kobuk catch these fish in gill nets and beach seines, then lay them out on willow mats to slowly age and freeze as the weather gets colder. Such fish are considered a delicacy by Eskimos throughout northwestern Alaska. They are used as a medium of exchange for coastal goods like seal oil, bearded seal skins, and muktuk, or in direct cash transactions. Fish are also bartered and sold within the confines of each village.

Traditional dependence on fish has led to an impressive array of indigenous methods for the harvest, curing, and storage of fish. Well before contact with Europeans, the *Kuuvaymiut* had developed a variety of spears, snares, traps, hooks, lures, nets, and seines used to exploit this rich resource. They had also discovered efficient methods of preserving and storing their catches for future use. Although considerable change has occurred in many subsistence practices since contact with Europeans, a wealth of traditional fishing skills and knowledge remains an important element of local life.

The pervasive influence of fishing extends beyond the economic and technological spheres into the social aspects of *Kuuvaŋmiut* culture. The makeup and organization of seining crews, the division of labor associated with fishing, the systems for sharing of catches, the transfer of knowledge and skills related to fishing, property rights, and so on—all have ramifications throughout the social structure of each community.

A common misconception about subsistence activities is that "men hunt and women fish." On the Kobuk River, women do dominate spring, summer, and early fall fishing activities. They usually manufacmre the seines, hang, place, and check nets, carry out the seining activities, cut and care for the drying fish, and do other related tasks. But the men play an important, if less visible, role in subsistence fishing. Men carve the net floats and sinkers, build the boats and maintain motors, erect the family dwellings, construct the drying racks and caches, and make the fish boxes.

Particularly within the last two decades, men have begun to help occasionally with seining efforts and setting of gill nets. Young boys are often seen taking their mothers or older female relatives in outboard-powered boats to net or seining sites. Men who are too old for strenuous hunting activities often fish to remain productive. Construction of fish traps is a male-dominated activity, as was fish spearing in the past. Today, males are quite active in rod and reel fishing during the summer, and they participate to a lesser extent in ice fishing during the winter.

The focus on fishing as a primary source of subsistence has led to development of a very generalized form of territoriality associated with gill net and fish trap sites. During our research, village people made no overt statements concerning restricted use of eddies, sloughs, and other fishing sites. But we observed a tendency toward exclusive use of certain fishing sites by the older adults of a given village. Rather than "ownership," it would be more accurate to label this practice "first right" or "preferred" status.

An individual who uses a particular site for a net or fish trap over a period of several years seems to anain preferred status in the use of that location. Others in the village tend to defer to this person when placing their nets or traps in the same vicinity. Preferred status has derived more from the placement of fish camps than from actual fishing activities. When a family has used a particular site for its fish camp for two or more years, others usually avoid pitching camp there or sening their nets in nearby eddies without prior permission from the established user. The use of such sites has often passed to the offspring of an elderly couple, and preferred rights have been maintained through continued use. Although several persons may utilize particularly large and productive eddies, most fishing spots are used individually.

A recent complicating factor in Kobuk subsistence fishing practices, and undoubtedly in other activities as well, is the sudden change in land status brought about by the Alaska Native Claims Settlement Act. Under the provisions of this act, most lands along the Kobuk River will become the property

of village corporations, regional corporations, or the State of Alaska, or they will come under federal control as national parks, monuments, or wildlife reserves. To protect established fish camps and other subsistence sites, villagers have been encouraged to file for Native allotments that will give them exclusive legal claim to such sites. This has the effect of "freezing" the fishing activities in place.

Unfortunately, this act fails to account for the dynamic nature of subsistence fishing. All rivers, and particularly the Kobuk, are constantly eating away at their banks, cutting new channels, shifting bars, filling in old eddies, and forming new ones. As the river changes, it becomes necessary for subsistence fishermen to seek out new and more productive fishing sites. This was a prime reason why private property concepts did not develop in traditional times. Now, Kobuk people are forced into the rigid complexities of legal ownership and trespass restrictions; they face increasing difficulty in adjusting to the environment's natural dynamics.

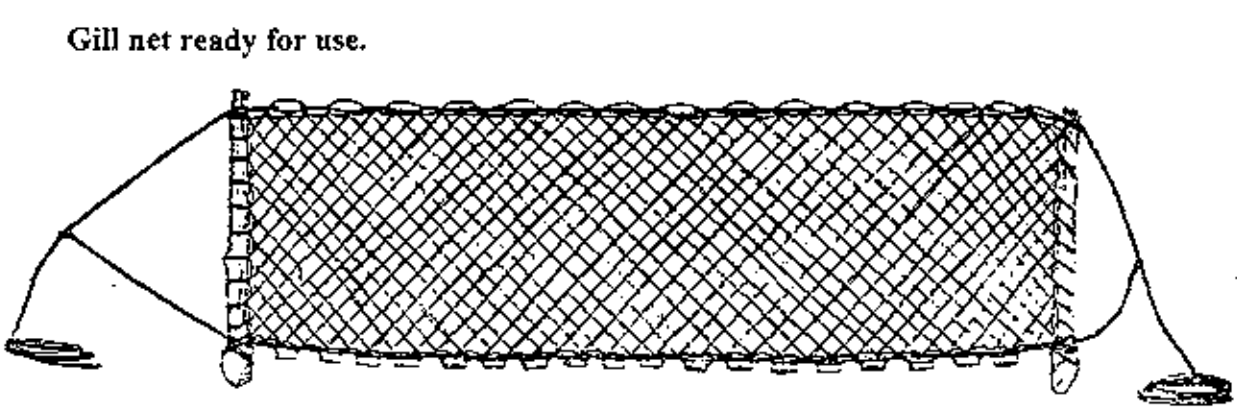
Fishing Equipment

Kuuvaŋmiut subsistence fishing requires a broad array of tools—nets, traps, spears, hooks, and gaffs. Some of these implements are fashioned entirely of local materials, while others are made of imported materials or are purchased from stores. A partial listing of fishing devices the *Kuuvaŋmiut* have used over the past 50 years is given below. A few of the items, such as fish traps, have not been built for several years, so the information is sketchy.

Gill Net *(kuvraq)*

In early times gill nets were made by the women, using braided willow bark and split spruce roots. Today the nets are mostly nylon and purchased from local stores. The popular net types used by modern Kobuk villagers are: (1) *Qalugruaqsiun*. Mesh size 4½" to 5½" (all mesh sizes are stretched measurements); used for catching salmon and sheefish. (2) *Iraġulik*. Mesh size 4"; used for catching large whitefish, large pike, small sheefish, and small salmon. (3) *Aŋuniugauraq*. Mesh size 3"; used for small whitefish and small pike. (4) *Iraġukisuuraq*. Mesh size 2½"; used for catching the smallest whitefish.

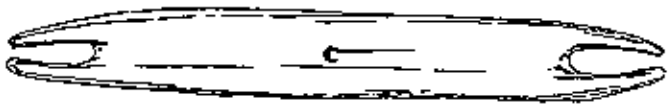
Gill net ready for use.



Most village women continue to hang their own nets, using 5/8" polyline or manila rope for the top and bottom lines. Men carve the oblong net floats from thick cottonwood (balsam poplar) bark or from dry spruce roots. Sinkers are small denim or canvas bags filled with gravel. Wooden spreader bars are attached to either end of the net, and a weight, usually a large rock weighing about four pounds, is secured to the bottom of each bar. A shore line and an anchor line of ¼" rope are attached to the net before setting.

Seine *(qaaktuun)*

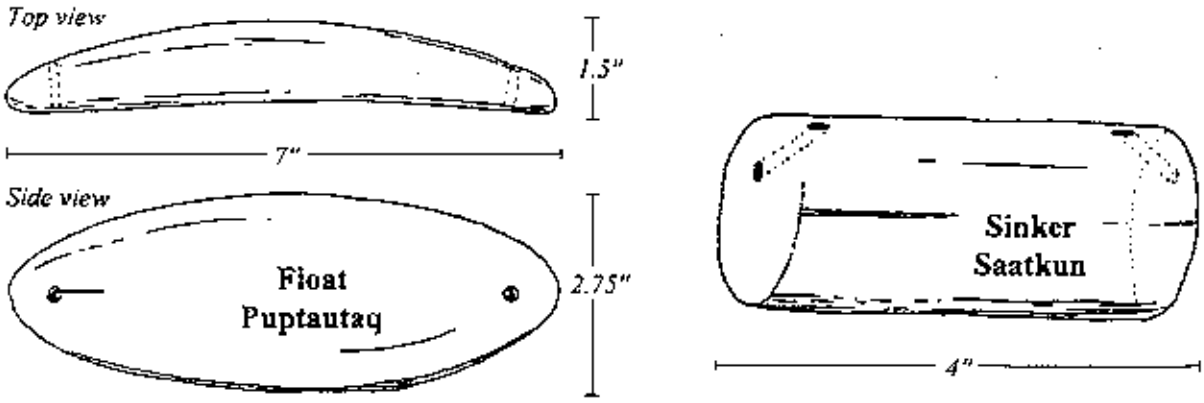
Before this century, beach seines were made, much like gill nets, of woven willow bark and split spruce roots. Today village women continue to manufacture their own seines, but heavy cotton twine has replaced bark and roots. Tools used in seine manufacture include a netting shuttle *(nuvillaun)*, carved from hardwood or ivory.



Netting shuttle

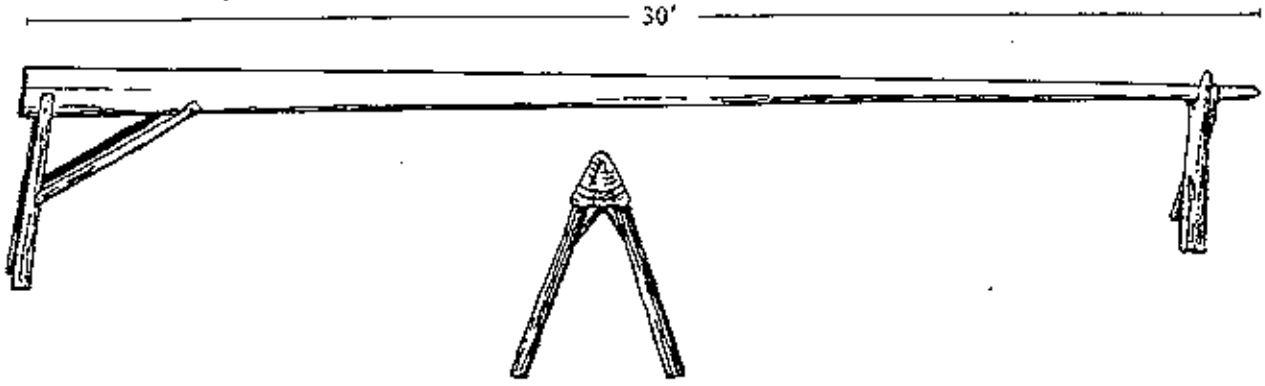
The seines consist of three 40-foot sections joined together. Each year a new section is woven to replace the oldest (three-year-old) section, so the entire seine never wears out at one time. Seines are made and hung basically like gill nets. The chief difference between them, other than mesh size, is in the design of floats and sinkers. Seine floats tend to be elliptical with flat bottoms so they offer minimal resistance to the water when being pulled in. Sinkers are usually cylindrical sections of caribou antler. A beach seine measured at Shungnak in 1974 had 146 floats attached to the top line and 143 sinkers attached to the bottom line.

Seines used in the upper Kobuk usually have a stretched mesh size of 2¼", and seines used in the lower Kobuk have a slightly smaller mesh. The Eskimos of Kiana and Noorvik have a special Least Cisco seine *(qalusraaqsiun)* with a particularly small mesh, about 1" stretched. These are also used for seining small whitefish *(qalusraaq)* in the fall.



Float and sinker used on seines.

Seine drying rack



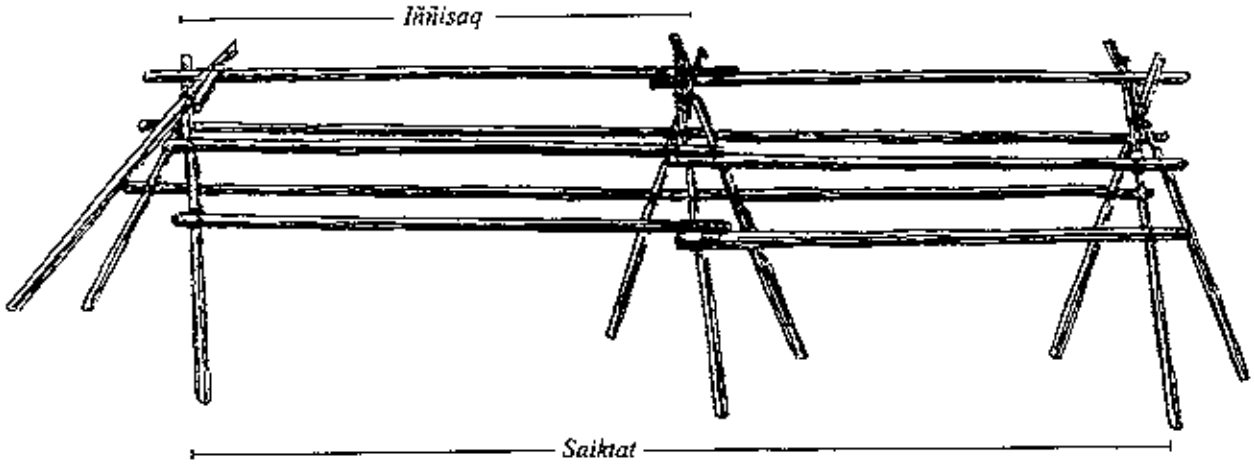
Seine Drying Rack *(Qaaktuutim Iññivia)*

The Kobuk River people have a special rack for hanging their seines between uses. It is made of a long, slender spruce pole about 30 feet long, hewn and bladed smooth in the shape of a rounded triangle. Two permanently attached legs support the heavy end, and when in use, two forked poles are used to support the narrow end

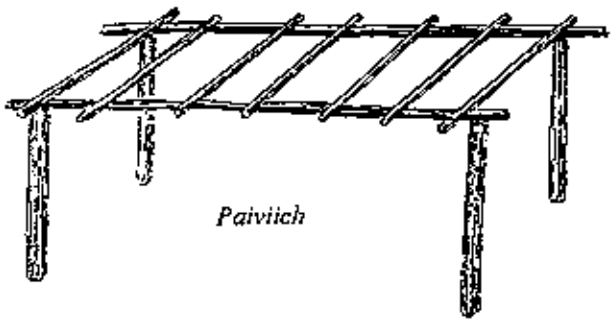
Fish Rack *(Iññisaq)*

Four styles of unroofed racks are used for drying summer-caught fish: (1) *iññisaq*, the most common type, constructed of two tripods spanned by three or more poles; (2) *siaktat*, a series of tripods connected by overlapping poles; (3) *paiviich*, a semi-permanent rack with four strong corner posts supporting a rectangular frame and a series of poles suspended across the frame; and (4) *uuyuraqaġvik*, consisting of a single stout pole suspended between two tripods or pilings. The *paiviich* is used for hanging particularly large, heavy fish, and the *uuyuraqaġvik* is used to support several layers of fish after they have become half to two-thirds dry.

Summer fish-drying rack (Type 1).

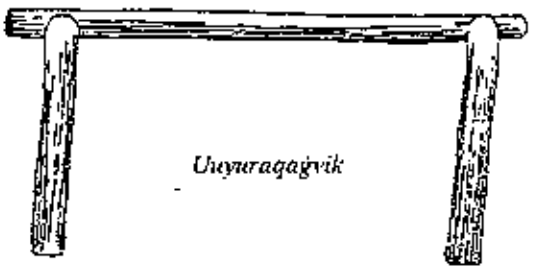


Summer fish-drying rack (Type 2).



Paiviich

Fish-drying rack for fish strung together.



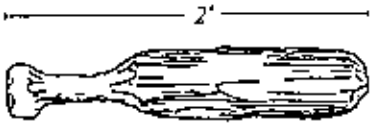
Uuyuraqaġvik

Fishing Pole, Lure

The *Kuuvaŋmiut* have long used the pole and line for fishing. Today open water fishing is usually done with spinning rods and commercial lures. However, most winter ice fishing is done with locally made equipment. Ice-fishing poles *(iḷḷaqtuun)* are generally three feet long. In the past, lines were made of sinew or fish skin, but now nine feet of heavy monofilament line are used with a small commercial or handmade lure having a barbless hook. Lures *(niksiuraq)* may be hand carved from bone, antler, or bear's tooth, and hooks may be of animal tooth, ivory, or beaten metal. For example, one metal lure was made by flattening a brass wood screw into a spoon shape, affixing a small nail to one end so it projected as the hook, and drilling a tiny hole at the other end for the line. Grayling hooks are often baited with part or all of a fish scale or with a small piece of fish flesh. To fish for burbot, the *Kuuvaŋmiut* often use a trot line with a series of baited hooks. This is called a *qaġruqsaq*.

Fish Club *(Niaqqiñ)*

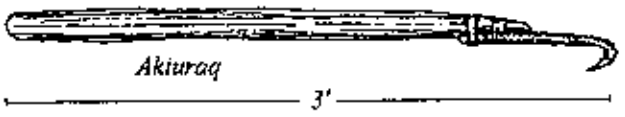
When large fish such as salmon, sheefish, and burbot are caught, people usually dispatch them with a short, stout club. The club is generally rough hewn from spruce or birch.



Fish club.

Gaff *(Aki)*

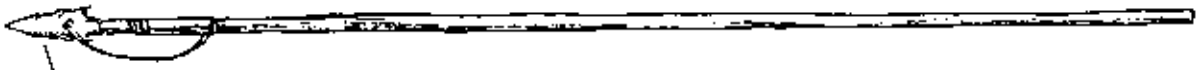
The Kobuk River people use gaffs of two basic types: one *(akiuraq)* is short handled and used in boats to pull in hooked sheefish or to assist in removing fish from a net. The other *(aki)* is long handled and used to hook fish from traps under the ice.



Akiuraq

Gaff.

Fish spear.

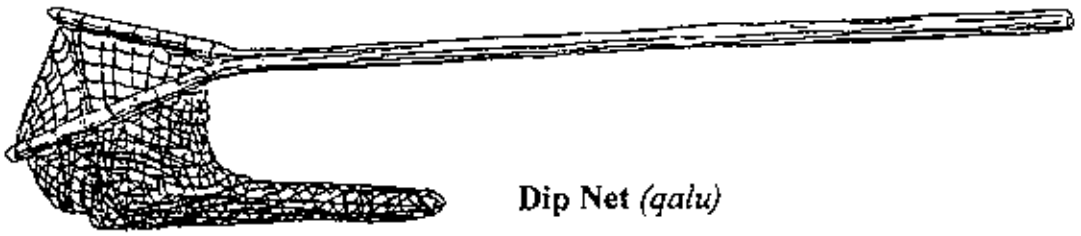


detachable head

Fish Spear

Several different styles of fish spears were used by the *Kuuvaŋmiut* until the early twentieth century, but they have since been replaced by other fishing implements. One of the spears was the *kakiat*, or trident. It consisted of a long rod with a thin center point. In pre-European contact times the point was bordered on two sides by flexible barbed bone rods, but more recently the point and barbs have been made of steel. The other was the *kapuqqaun*, a long pole tipped with a detachable barbed point connected to the shaft by a short line. The *kakiat* was used for sheefish and the *kapuqqaun* was for salmon.

Dip net.



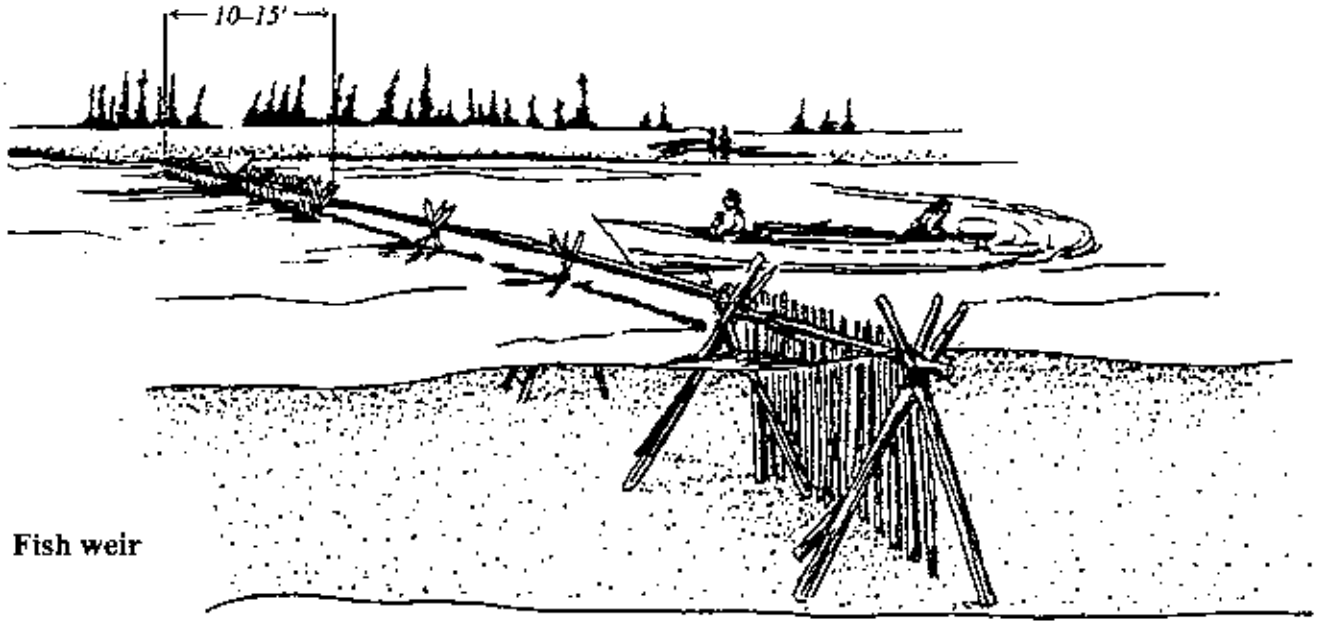
Dip Net *(qalu)*

The Kobuk River people formerly used large dip nets to catch fish at weirs during the fall. These nets *(qalu)* consisted of a long pole with a wide fork at one end. Attached to the fork was a long, tapering net funnel. A lighter, smaller dip net *(qaluuraq)* is still used on the lower Kobuk for catching smelt during their brief summer run. This net has a six or seven foot long handle and an opening 18 to 24 inches across.

Fish Weir *(saputit)*

The *Kuuvaŋmiut* have used a variety of weirs to harvest fall fish runs. One type, called a *paurvich*, was a large weir built across the upper Kobuk River just before freeze-up to harvest sheefish migrating downstream. It consisted of a series of stout tripods extending across the river. Long poles were laid horizontally along the top and smaller poles leaned vertically against these on the upstream side. This made a fence *(saputit)* across the river, blocking the downstream movement of large fish.

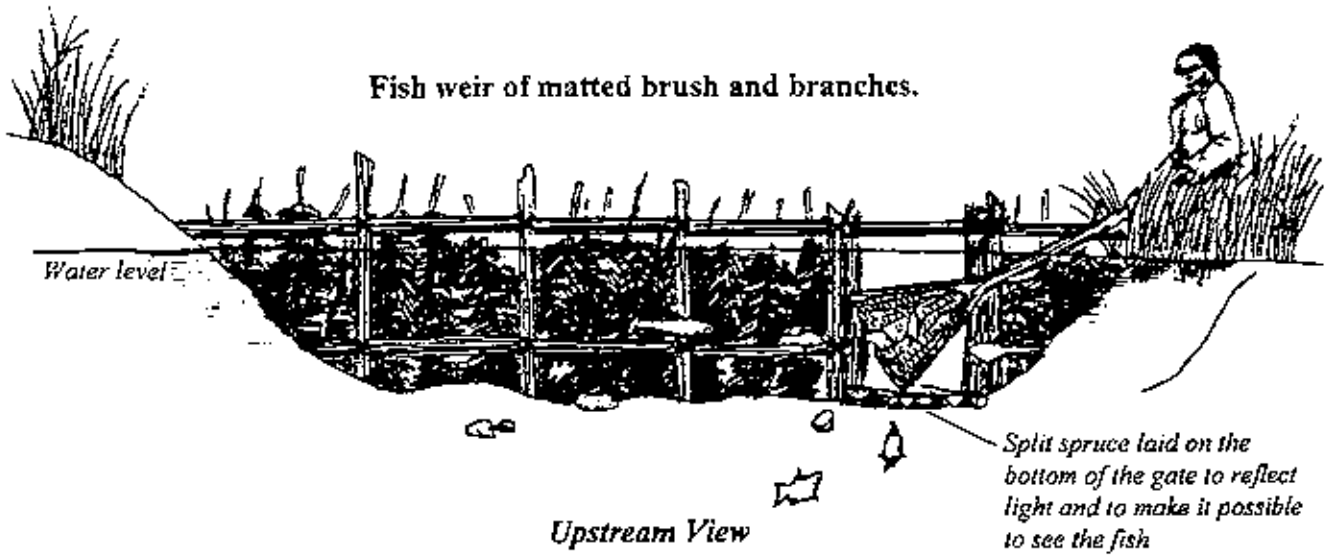
In the evenings, men in boats would pull up behind the weir and remove a small section of the fence so the boats could be anchored directly over the opening. Lanterns were hung on poles from the bows of the boats, and the men speared sheefish as they swam through the openings. While the men were spearing, the women were seining along gravel bars above the weir. A somewhat different version, called *taluyaq*, was also built on the lower Kobuk before freeze-up to catch spawning salmon.



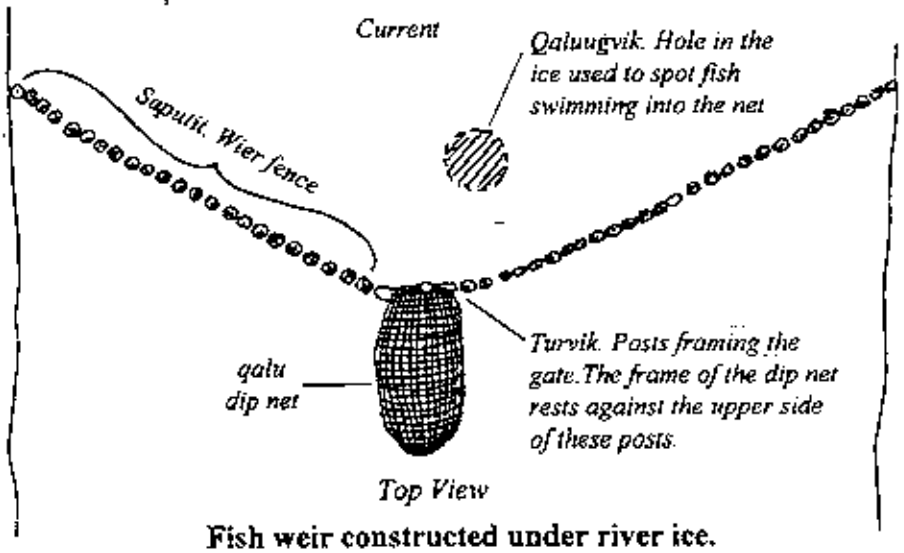
Fish weir

Small weirs were built in the fall to block streams, sloughs, and the outlets to large lakes. These fences were made of close-matted brush and branches. A "gate" near one end consisted of two stout poles driven firmly into the river bottom. Split spruce logs were laid on the bottom under the gate so that fish could be seen passing over the light surface. Then a dip net was put into the opening, with its frame resting against the upstream sides of the poles. The fisherman hid in a blind atop the bank holding the net handle, and when schools of fish swam into it, he lifted them out.

Fish weir of matted brush and branches.



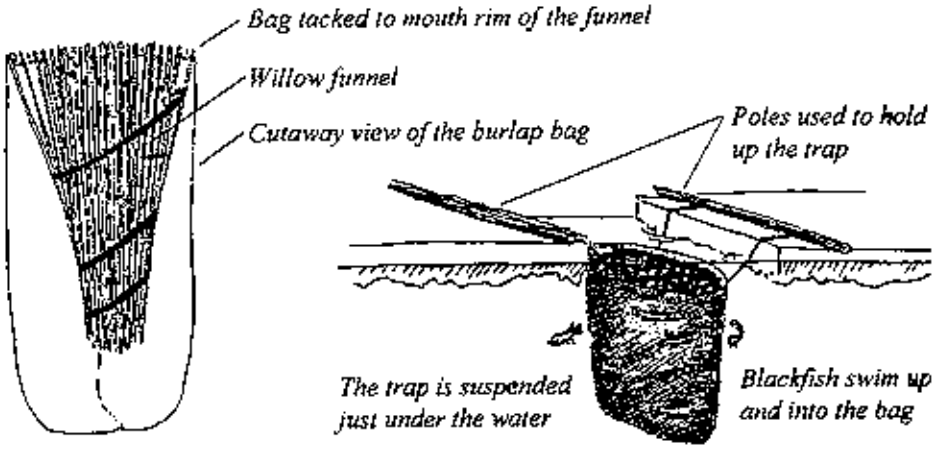
Apparently the most widely used weir was the *kuuvaksiun qalu*, which was built as soon as the fall ice was safe to walk on. This weir consisted of an extensive brush fence which formed a shallow downstream "V." At the point of the "V," two stout stakes formed an opening, and a large dip net was used to cover the opening. This type of weir was made on both the upper and lower Kobuk River, and its use reportedly continued in the villages of Kobuk and Kiana through the 1950s. Weirs like these were built cooperatively, and they were intended to harvest whitefish migrating downstream in large schools after freeze-up.



Fish weir constructed under river ice.

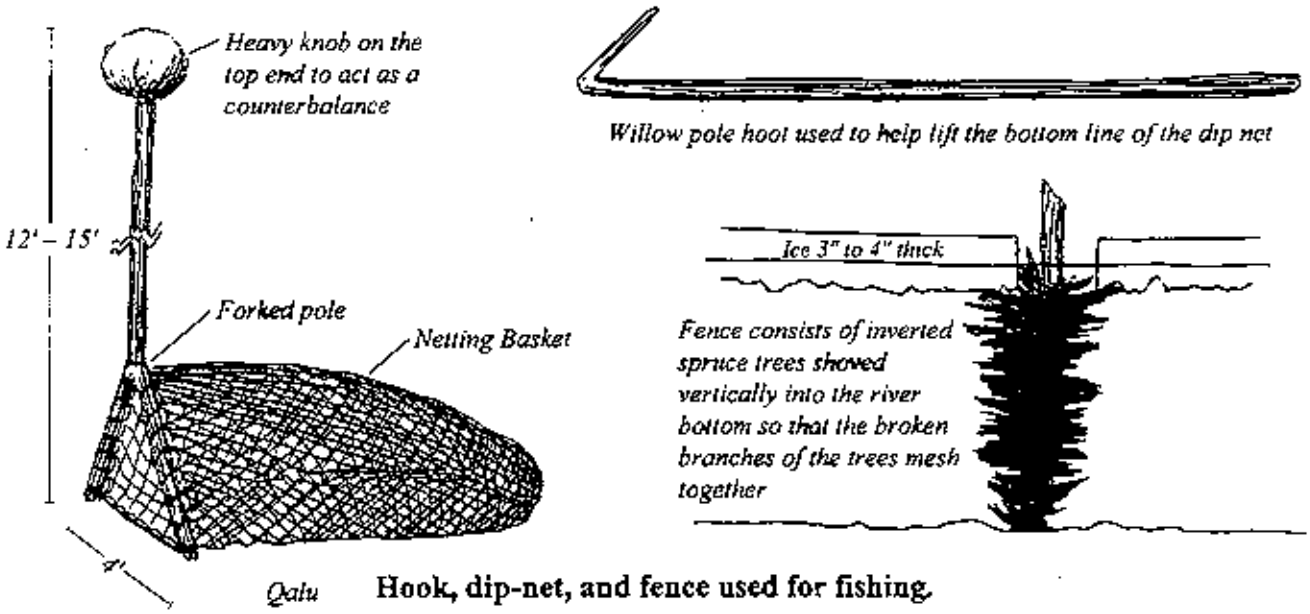
Another kind of fish weir or trap is that still used by upper Kobuk people to harvest burbot in the fall. A full description is given at the end of this chapter.

Blackfish Trap *(Ituuqiñiqsiun)*



Blackfish trap (as described by an upper Kobuk villager).

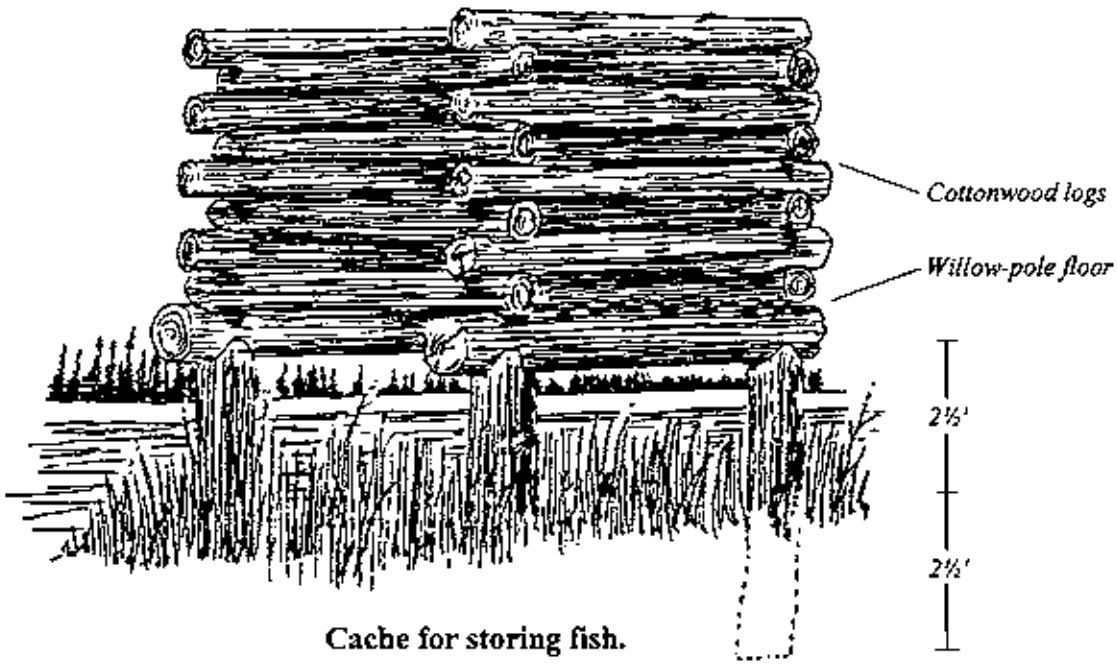
The *Kuuvaŋmiut* use a basket-shaped trap for blackfish, which consists of a funnel-shaped willow wicker open at both ends, set into a large burlap bag and secured to its opening. The device is fastened to poles that are laid on the ice over holes made by blackfish concentrations. The top of the bag is just below the surface of the water, so the fish will swim over the edge and down into it. Those that swim through the willow funnel usually cannot find their way back out through the narrow inverted opening, so they are trapped in the bag.



Hook, dip-net, and fence used for fishing.

Caches

Caches for storing dried fish are an important part of *Kuuvaŋmiut* subsistence technology. Among these caches are: (1) the *saiyut*, a ground-level cache with walls of vertical poles and usually roofed over; (2) the *uŋalut*, a cache consisting of a small house built on pilings; and (3) a box-like cache with horizontal log walls, built on low pilings.



Cache for storing fish.

Spring and Early Summer Fishing

Ice Fishing

Starting in early April, sheefish are active under the ice in the Selawik Lake-Hotham Inlet area, moving around in large schools searching for least cisco (Alt 1969:40). They remain here until breakup, sometime between mid-May and early June, when they begin to migrate upstream. The location of sheefish schools is hard to predict, and making a large catch requires a great deal of searching, hard work, and perseverance.

The areas most commonly fished are off the northern shores of Selawik lake between *Singauraq and the mouth of Makkaksraġiaq Channel*, and in Hotham Inlet around the vicinity of *Imaaġvik*. Because the Noorvik people live closest, many of them come to the Kobuk delta area to catch sheefish. They usually pitch family tents on the ice and camp for a week at a time. Because Kiana people live farther from the delta, fewer of them go down to fish in the spring, and those who do rarely stay more than a day or two. In 1975, Kiana people who caught between 40 and 80 fish were satisfied and did not visit the delta area again. In contrast, a Noorvik family will catch more than 200 fish during the season. The upper Kobuk villagers live too far away to participate in this activity.

People who join this fishing seek out large pressure ridges that form across Selawik Lake and Hotham Inlet, which seem to attract the sheefish. The ice is also thinner and easier to chop through along these cracks and ridges, although it is still five to six feet thick. Fishermen use ice chisels to open holes, taking care to keep the sides straight as they chip downward. This way they do not have to clean the fishing hole after water flows up into it, a difficult and wet job when the water is five feet deep.

When the hole is finished, the fisherman begins jigging his or her lure about three feet below the bottom edge of the ice. The jigging pole is a curved willow stick 1½ to 2 feet long, notched at one end to hold the line. Every few minutes, depending on the air temperature, platelets of ice form on the hole and must be removed with an ice scoop. If no fish are caught after 15 minutes or so, the fisherman moves to another spot and chips out a new hole.

Other fishermen, if they have come in a group, spread out and likewise test for fish. Men usually make the holes, although women will take up the task when they fish by themselves. If the fishermen are unsuccessful they keep making more holes, fanning out over a larger and larger area. Occasionally they return to previous holes and test them again. With perseverance, someone will eventually find a school and will begin pulling in fish as fast as he can remove them and throw the hook back again. Other fishermen will then move near the lucky one. When the fish are biting, one person can catch up to 60 fish in three hours. Often, however, someone fishing only a dozen or so yards from a successful fisherman will catch nothing. At other times several fishermen will make a good haul fishing close together.

When sheefish are removed from the hook they are thrown on the ice to freeze, so they can be stacked like cordwood and hauled back to the village at leisure. Often, a teenage boy will drive down by snowmachine after school to watch the fishing and take back a load of fish. Frequently, full sled loads of fish are returned to the village. Many of these fish will weigh up to 30 pounds.

By mid-May, temperatures in the Kobuk region stay above freezing throughout the day. Many of the sheefish caught at this time are taken to the villages, cut, and hung on

racks. The air is cool, dry, and free of insects—ideal for drying meat or fish.

Before the introduction of commercial hooks, downriver Kobuk people caught sheefish with a special lure carved in the shape of a fish. These have been found archaeologically as early as the fifteenth century, and they have continued with only slight stylistic modifications. A few of them are still used today, but because they are prized possessions people are reluctant to risk losing them. These hooks were usually made of walrus ivory, which is very hard and durable, even when it is soaked for hours. Federal trade restrictions now make it difficult to obtain ivory, and this has been an important factor in the demise of these homemade hooks. People who have used them say they are superior to commercial hooks.

Nowadays the most popular sheefish lure has a triple hook attached to a large (2½" long) red and white spoon. The drawback of these lures is the time it takes to unhook them, an important consideration when the fish are biting. In the last year or so, some Kiana fishermen have tried lures with single hooks, which apparently catch fish well, are much easier to remove. These hooks do less damage to undersized fish that are thrown back. In this respect, the single hook is similar to the traditional hook.

Early Summer Fish Camps

The Kobuk River ice usually starts breaking up and moving seaward sometime between mid-May and early June. This event may vary by two weeks or more from one year to the next, depending on variables like snow cover, ice thickness, and spring weather. Breakup is a progressive affair, beginning first in the swift headwaters and then extending downstream to the mouth. The last flush of ice may pass the upriver village of Kobuk two weeks before it reaches the downriver village of Noorvik.

During breakup, flood waters back up into sloughs, lowland lakes, and wetlands. As the water volume increases its oxygen content rises. This allows whitefish, pike, and other fish to move from deep pools in the main river into the side streams and sloughs, where they feed on submerged vegetation or prey on other fish. After the initial flush of melt water has moved through a given area and the water begins receding, the fish move back into the main river and side tributaries. The open water fishing season begins at this time.

The *Kuuvaŋmiut* recognize two basic types of slough: *kuugaatchiaq*, the shallow, higher sloughs, and *kuugaatchiavik*, the lower, deeper sloughs. Shallower sloughs are the first to be exploited in the late spring because during high water they are the proper depth (six to eight feet) for gill nets. Later in the season these sloughs dry up, and the deeper sloughs now drop to the right depth for nets. Protected river eddies *(qasruniq)* and outlets to large lakes *(iggiatchiaŋa)* are also used as spring net sites, especially in the Kobuk delta, where the current is sluggish and deep waterways into lakes are common.

The great majority of early summer fishing sites are located along sloughs and small, sluggish streams that drain low, marshy terrain dotted with interconnecting lakes. Those currently in use extend from the mouth of the Kobuk

River delta to above the village of Kobuk. Particularly favored areas include the Pah River Flats, Black River drainage, *Kuugaatchiavak* River drainage, the lower Hunt River and flats to its south, the Squirrel River flats, and the Kobuk River delta.

The number of people who establish early summer fish camps depends on many variables, including wage employment, personal health, weather, and river conditions. Before the 1950s most Kobuk families moved into camps at this season. Although the number of participants has declined and some harvest methods have changed, early summer fish camps continue among the majority of families in the two uppermost Kobuk River villages. In the three lower villages, between one-third and one-fifth of the families establish spring camps, and many use them only during the day or for a few days at a time.

Most of the desirable camp sites along the Kobuk are now being used, but occasionally someone needs to establish a new camp. A once-productive eddy may disappear, for example, or a young person may want to set up an independent camp. In these cases, the criteria used to select a new site include the following:

1. Access to productive net sites, such as eddies, sloughs, and lakes.

2. Wind patterns. Windy areas are preferred as fish dry faster and insects are less bothersome.

3. Vegetation cover. Low vegetation is preferred because it does not block air movement.

4. Surface conditions. High, well-drained ground is desirable.

5. Access to firewood, including driftwood.

6. Distance from the village. The factor of distance is compounded if a camp is downstream from the village, because boats loaded with fish and meat have to return against the current.

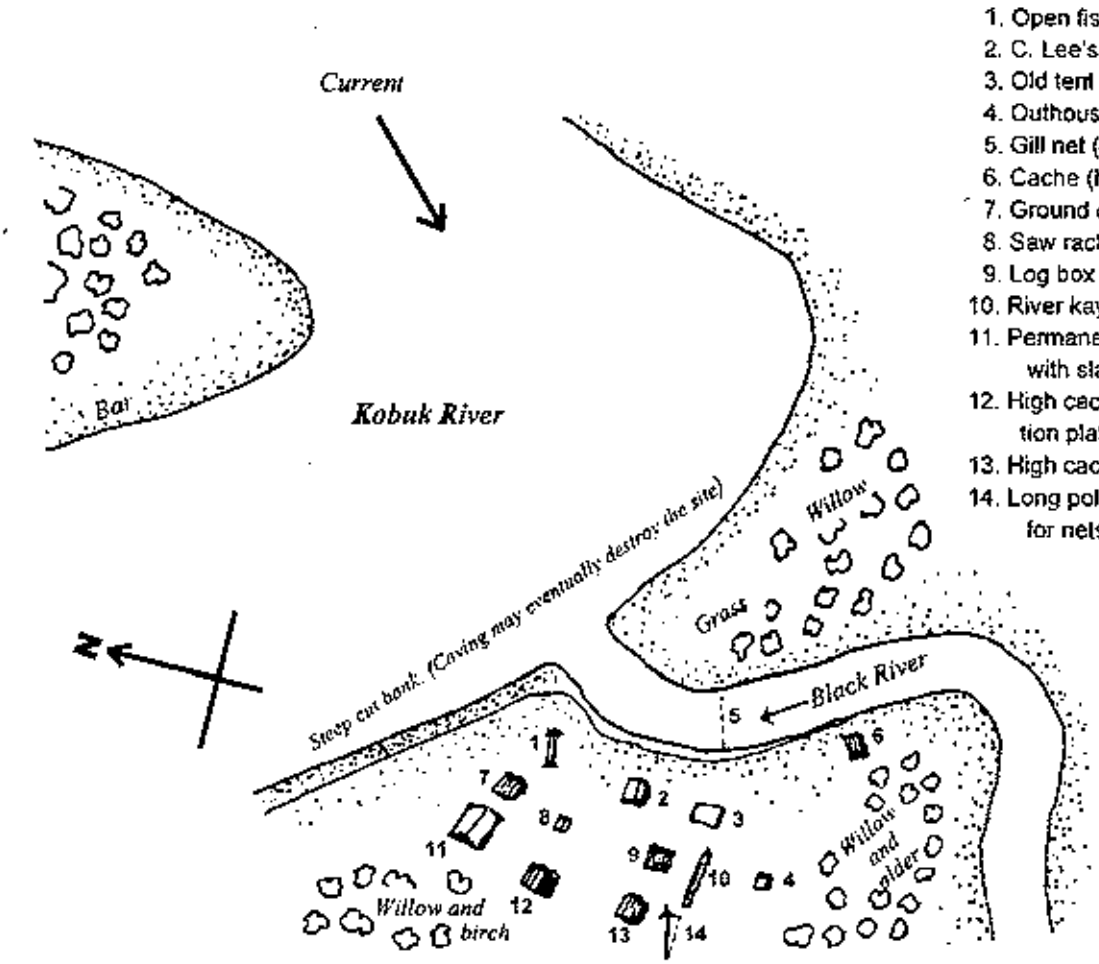
7. Nearness to other camps. It is considered desirable to camp near relatives, but far enough from other camps to avoid competition for fishing sites.

8. Availability of other resources, such as edible plants, birchbark, waterfowl, beaver, muskrats, and other localized game.

One of the better known fish camp sites on the upper Kobuk is at the mouth of the Black River *(Imaglukruq)*. Over the years an array of caches, net racks, fish racks, tent frames, and other structures have been built here. During the spring of 1974, an elderly Shungnak couple camped at this place, and an inventory of their supplies and equipment is given below.

- wall tent
- 1 sheet metal wood-burning stove
- 1 2-burner gas camp stove
- 1 gallon white gas
- 1 hand ax
- 1 double mattress & blankets
- 1 large mosquito net (handmade)
- 1 waterproof tarp
- 1 double-bitted ax

Spring fish camp at Black River.



1. Open fish rack
2. C. Lee's tent
3. Old tent platform
4. Outhouse
5. Gill net (4-inch mesh)
6. Cache (high)
7. Ground cache
8. Saw rack
9. Log box for green fish
10. River kayak
11. Permanent tent (framed with slab walls
12. High cache and observation platform
13. High cache
14. Long pole drying rack for nets

1 large single-bitted ax
1 high-powered rifle with scope & 20 rounds of ammunition
1 .22 caliber rifle & 3 boxes shells
1 grub box (made from Blazo box)
3 drinking cups
2 metal plates
3 shallow bowls
2 sets of eating utensils
1 large wooden spoon
2 small cooking pots
1 large cooking pot
2 comic books
1 periodical magazine
1 large washtub
2 buckets
1 plywood river boat
1 25 h.p. outboard motor
15 gallons mixed gas
2 gill nets
1 small funnel
1 boat paddle
1 poling pole
several pieces of cardboard for tent floor
1 battery-powered radio & antenna wire
1 box of tools: spare spark plugs, assorted screws, nails, wire, drying racks, net drying poles, plastic tarps, etc.
1 ulu
1 hunting knife
1 butcher knife
1 sharpening stone
1 Bible

Food consumed in such a camp:
fish—the predominant food
pilot bread
seal oil
butter
salt
jam
sugar
powdered orange drink
flour
canned milk
syrup
coffee & tea
fruit (canned and fresh)
noodles
cookies & crackers
bread (homemade)

The three basic early summer fishing techniques are gill netting, seining, and dip netting. Hook and line fishing is also done, but on a smaller scale.

Gill Netting

Gill netting is the most common and productive means of spring fishing used by the modern *Kuuvaymiut*. Methods are basically the same in the lower and the upper Kobuk areas, although species and amounts taken vary somewhat. Once the spring flood waters begin to recede, people begin setting their gill nets in sloughs and lake outlets, where fish are coming out into the main river. These nets usually have a three- to four-inch mesh, although larger mesh nets *(qalugruaqsiun)* are often set in sheltered river eddies to catch the first sheefish migrating upstream. Net length ranges from 10 to 60 feet depending upon the width of the slough or outlet for which they are designed.

While the river level is high, most nets are placed either at the mouths of shallow sloughs and outlets or well into the deeper sloughs. As water levels drop, they are moved to near the mouths of deep sloughs and to deeper waters of the main river, usually near the mouths of shallow sloughs. When they block a slough with a gill net, the *Kuuvaymiut* usually keep close check on it. As the water drops, the outward current may increase rapidly, washing debris into the net, or possibly sweeping it onto a sunken snag. Especially along the lower Kobuk River, the fish runs themselves can be so heavy that they place a considerable strain on the net. Beavers and otters are very active at this time of year, and they can damage a net if they become tangled in it.

Sloughs and lake outlets located within a few miles of villages are, of course, the most heavily used spots. Often those who live at home during the spring manage to get a supply of fish by setting one or two nets relatively near the village and checking them once or twice daily by outboard-powered river boats. On June 28, 1974, 14 nets were counted within a two-mile radius of Shungnak, and several others set in the same area were not observed. In the spring of 1975, 10 families maintained spring gill nets within two miles of Kiana, visiting them daily while they continued living in their village homes.

Because of intense competition for available sites near the villages, certain families prefer moving to a distant camp for their early summer fishing. It is usually expensive, both in time and fuel, to maintain nets more than three or four miles from a base. Kobuk River people also place a high value on spending time in the early summer camp. Virtually all adults questioned expressed a strong desire to stay in camp at this season and to participate in the related activities.

The productivity of early summer gill netting varies between different sites and areas. For example, the middle and lower Kobuk are generally more productive than the upper Kobuk, and the Kobuk delta can provide exceptionally rich catches. On June 29, 1974, a single net across the mouth of the Black River caught enough whitefish and pike in 12 hours to fill three-fourths of a large washtub. On the same day a single net at the mouth of a slough in

the delta caught about twice that amount of the same species. In 1975, the second week of fishing at Kiana yielded seven tubfuls of whitefish for two families; but fluctuating water levels the next week reduced the take to nearly nothing. Had the weather held, high yields could have continued for several weeks.

Other fish species caught with gill nets in early summer include trout *(qalukpik)*, grayling *(sulukpaugaq)*, sucker *(kaviqsuaq)*, and sheefish *(sii)*. Sheefish are especially important because of their size (up to 50 pounds) and richness. To catch the early sheefish migration, nets with 4½ and 5½ inch mesh are set in eddies along the river. The best catches of spring sheefish are usually made in the lower Kobuk area. However, catches in the upper river generally improve through June and into mid-July.

Fish netted in late spring are dried, frozen, or used for immediate consumption by people and their dogs. Even though most Kobuk families own or have access to home freezers, drying is the traditional and still most common way to preserve surplus fish and meat taken during the warm months.

The following steps were taken by a Shungnak woman as she cut and preserved her catch of whitefish and pike in late June:

(1) Each fish was scraped with a dull table knife to remove scales, then laid on a grass mat in front of her.

2) When she had finished scaling all of the fish, she held each by the head with one hand and used her ulu to cut the flesh just behind the head and gill plate.

(3) She made a lateral cut along one side of the fish's spine from the base of the head to the base of the tail.

(4) She cut and pulled the flesh back away from either side of the spine, making a broad filet of boneless flesh joined to the spine at the base of the tail.

(5) If the fish was a pike, she removed its head and threw it in a refuse pail, but if it was a whitefish she left its head attached to the spine. Internal organs of the whitefish were discarded; pike guts were placed in a separate container, then later hung on sticks for drying.

After she finished cutting her fish, the woman readied them for the preserving process, as follows:

(1) She tossed the fish in a tub of water and scrubbed them clean of slime.

(2) She hung each fish on seasoned poles suspended between two tripods, turning them inside out for the first day of drying.

(3) She lit smudge pots and placed them so that smoke drifted over the fish racks to repel flies. On windy days and during the nights the pots were not lit, and once the fish developed a dry crust smoke was no longer required.

(4) The drying fish were checked each day and turned so each side received equal exposure to the air.

(5) When they were fully cured (5 to 8 days in dry, breezy weather), the woman took her fish from the racks, tied them in loose bundles, and stored them in weather-tight caches for later use.

In an early summer fish camp, two people (a man and his wife) required between 45 and 55 minutes to remove 9 to 15 pike and 3 to 10 whitefish, from the time they arrived at their net until they left. The woman averaged one minute and 20 seconds to scale, cut, and wash each fish. It took about 20 minutes to hang 25 cut fish on poles. Other camp activities, such as gathering firewood, maintaining smudge fires, constructing drying racks, checking and turning fish, repairing equipment, gathering edible plants, and preparing meals, occupied the camp residents throughout the day. They usually started around 7:00 A.M. and ended between 10:00 and 11:00 P.M. Late evening hours were usually devoted to conversation and relaxation.

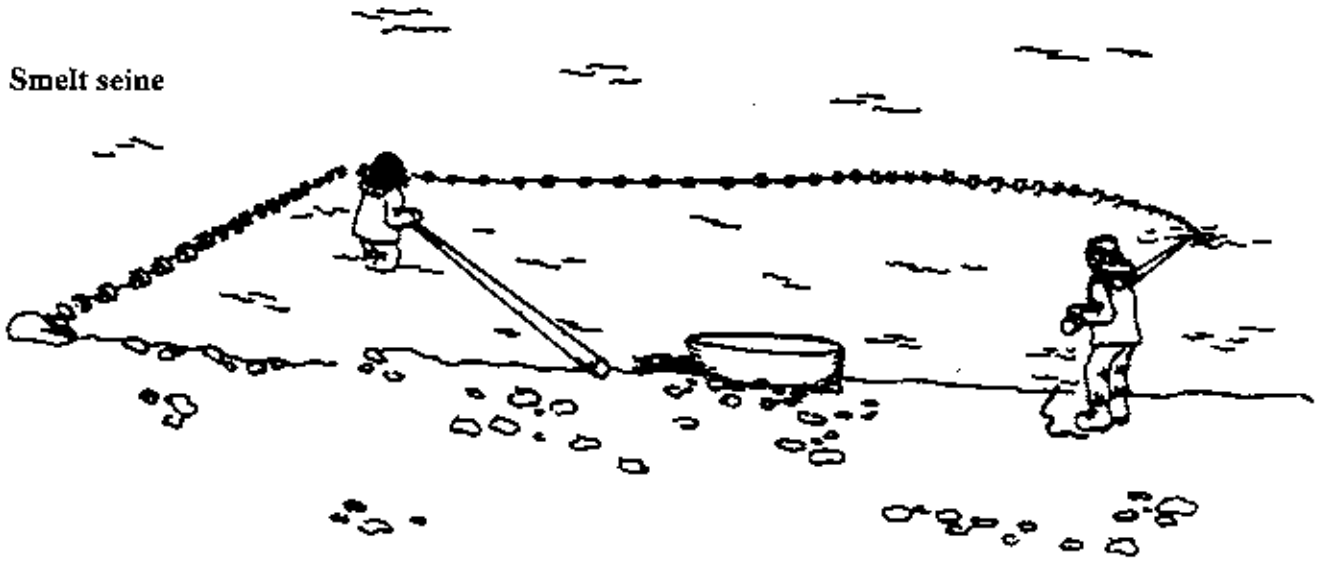
Seining and Dip Netting

Lower Kobuk people use seines and dip nets to catch smelt *(iłhuaġniq)* after the spring breakup. These small fish winter in salt water and migrate up the Kobuk in early June, moving as far as *Kitik*, a calcium carbonate outcrop that extends into the river a mile below Kiana. They spawn for two days—although no one in Kiana has actually observed this—and then go back down. Only twice in the last 10 years have smelt reportedly come as far as the village itself. There is a saying that smelt come upriver to fetch *kitik*, the *Iñupiaq* word for calcium carbonate rock (limestone), and then they go back to the coast. The saying is likely based on the fact that people from the coast used to travel to the outcropping to fetch limestone that was once used for tanning. People also say that smelt always arrive during a wet, stormy period of west winds, and when the run finishes summer weather arrives. This, in fact, is generally true. After the ice goes out at Kiana, but before it is out in Hotham Inlet, there is usually a strong west or southwest wind that is chilled as it blows across the ice. Meeting the warmer interior temperatures, it creates an uncomfortably cold, wet fog that comes in daily until the ice recedes.

Around the first week in June, people start preparing their dip nets and seines. They keep track of the migrating fish by listening to local reports on the radio or by word of mouth. Villagers can estimate how long it will take the smelt to arrive once they start up the delta, and when they get close people boat down periodically to check at *Kitik*. The one who first sees fish there will go to the village to let people know. Within an hour several families will set off to fish at *Kitik* or places downstream as far as *Uqaq* Point.

Slightly fewer than half of the Kiana families own dip nets, although not all are used each year. The net handle is about 10 feet long, and a small-meshed (about one inch) conical net 18 to 24 inches in diameter and about three feet long is attached to one end. Any larger opening would diminish the net's effectiveness by slowing its sweep through the water and causing it to drag on the bottom.

Smelt seine



Only the men use dip nets. The fisherman stands beside the water holding his net roughly parallel to the shoreline, so the smelt will not see it hanging over the water. When a large school swims nearby the fisherman quickly sweeps his net downstream into its path. After making a catch he turns and flips the net inside out, spilling the fish onto the ground. Men ordinarily use the full length of their dip nets to dump the fish well back from the water so they will not flip back in.

The most popular way to catch smelt is with a seine.

Smelt seines *(iłhuagniqsiun)*, which are also used for least cisco *(qalusraaq)*, measure about five to six feet deep and 30 to 40 feet long. The floats are like those used on other seines, and the sinkers are either rock-filled canvas sacks or (in one case) rectangular rocks about 6 x 3 x 2 inches in size, collected on the beach at the seining site. Mesh in the seines and dip nets measures 7/8-inch to one inch. Both ends of the net have four-foot spreader bars *(ayaupiq)*, like those used for gill nets and other seines.

To begin seining, people first tie the net's shoreward end to a rock just above the water line. A spruce pole (16 feet long) is fastened to the top of the net about a third of the way out, and a second pole (about 20 feet long) is tied to the top of the outermost end. This is done while the net lies along the shore with its free (outer) end downstream. A long rope is also tied to the bottom of the outer end, so that the top and bottom can be pulled in evenly.

Once the seine is ready, two people wade into the river, pushing the net out with the poles. When the net is fully extended, they pull the outer end far enough upstream to form a shallow cup. The person handling the upriver pole stands in the water watching for schools of smelt entering the net. Small schools are allowed to follow the net's curve, circle in its pocket, and eventually escape around the shoreward end. But when a large school swims in, the spotter gives a signal and both poles are pulled toward shore. A third person hauls the rope in, to keep the outer end vertical. As the net reaches shallow water, one person holds its lower edge against the bottom and lifts the top edge, so that no fish escape over or under it. Then the catch is jostled into the center of the net and dumped into a tub on shore.

As soon as the net is dumped, it is set again to wait for another good bunch of smelt. If the seiners have no tubs or fill all of those available, they dig a shallow basin by the shore and line it with plastic. Rocks are piled along the edge so that no fish will slip back into the water. A basin like this can hold as much as four or five tubs of fish.

Seines are owned, made, and repaired by the women, but both men and women participate in smelt seining. After the net's owner has chosen where to anchor it and how far to push it out, anyone is welcome to help with the actual seining. A minimum of three people are required. Only the more knowledgeable persons act as spotters, however. When anyone working the net wants a break, he or she can simply go to the campfire for coffee or food, and someone else steps in as a replacement.

In 1975, members of several families worked with each of the two seines being used. After three or four seine loads were emptied into a family's tub, it was taken to their boat. Sometimes additional smelt were taken from the plastic-lined basin on the shore. The 1975 smelt run was considered relatively light, and it took from three to five seine loads to fill a tub. In other years one seine load would nearly fill a wash tub. The total smelt catch for Kiana in 1975 was the equivalent of seven mbfuls for each of the two seines in operation, plus about another two tub loads caught by dip netting. Although only two of the five smelt seines in Kiana were used, they satisfied the needs of the whole village.

Residents of Noorvik did little smelt fishing near their village in 1974 and 1975, partly out of regard for a family that suffered an accident while seining a year or so earlier. Ordinarily they seine smelt just across the river or at the upper end of the village. In previous decades, families camping at *Makkaksraq* caught smelt there with dip nets and seines.

People enjoy smelt fishing as a special outing. Families who participate bring food, tea, and coffee for all to eat. Smelt are a rich food, and the first ones caught are fried over a driftwood campfire to eat on the spot. A large number are also fried at home, and people might eat them for several meals in a row.

Smelt are traditionally dried by stringing them on young willow shoots, which are tied into rings about a foot in diameter. To dry properly, they are strung evenly along the loop, all facing in the same direction. Drying takes about a week in good weather. Partially dried smelt can be boiled and eaten. Fully dried ones are stored and eaten as is. Nowadays, smelt are also kept in freezers, then eaten fresh during the winter or used as bait for hooking burbot through the ice. Fishing for smelt is strictly a downriver activity. Many upriver villagers have never tasted smelt.

Summer Fishing

July is normally a warm month in northwestern Alaska. The snow cover is gone except for a few sheltered drifts in the high mountains and near the coast. The river levels are low because of reduced runoff. Heavy showers

may cause sudden rises, especially in the headwaters; but the streams usually return to seasonal lows in a short time. August, on the other hand, often brings spells of wet and cool weather. The prolonged rains cause higher water levels, and may even result in brief flooding.

As the river level drops in early summer, pike and whitefish move from the flooded marshes and lakes back into the deeper waters of large tributaries and the main river. Sheefish that pass the winter in Hotham Inlet and Selawik Lake begin migrating up the Kobuk in June. They arrive in the upper river in late June or early July. Salmon reach the mouth of the Kobuk any time between the first and third week of July, after the ice has left Kotzebue Sound. They normally begin arriving near the lower Kobuk villages four days to a week later and near the upriver villages one to two weeks later—toward the end of July. Salmon continue to pass the upriver villages through August and into the first or second week of September.

Both the sheefish and salmon migrations are affected by environmental variables. A late breakup of the ice in Kotzebue Sound or Hotham Inlet will delay their arrival in the Kobuk River. Low water can also retard their movement. Kobuk people also say that an extended period of west wind will hasten the arrival of fish migrations.

The *Kuuvanmiut* use three methods for harvesting fish during the summer months: gill nets are first in order of productivity, seines are second, and rod and reel fishing is a distant third.

Rod and Reel Fishing

Fishing with spin casting gear is a relatively new development in subsistence fishing. However, the Kobuk River people have traditionally used a pole, line, and artificial lure to harvest fish. In the past, hooking was done primarily through the ice and by men and women. Today spin fishing gear is used in open water, and mostly by men and boys. Rod and reel fishing was apparently introduced to the Kobuk people around the 1950s, when sport fishermen began coming into the area. They often chartered boats from villagers and hired them as guides. Teachers, clergymen, and traders living in the villages also used sport fishing gear and hastened its adoption. Today, spinning rods and assorted artificial lures are found in most village homes. This kind of gear is used to catch pike, grayling, char, and trout, but the primary target is sheefish. These large fish travel in schools and often strike eagerly at spoon lures.

Kobuk villagers have learned to predict the movements of sheefish with considerable accuracy and are able to harvest significant numbers by rod and reel. Over a three-year period, 26 households in the upriver village of Ambler took an estimated 3,200 sheefish, or an average of 41 sheefish per family each year. The great majority were taken by rod and reel. During 1974, the 43 families of Kiana took about 1,600 sheefish, for a year's average of 37 per family. In this area, however, most were taken by net.

Sheefish tend to school up during the evenings in deep pools, often just below a riffle in the river. Villagers have pinpointed the best of these loca-

tions, and when conditions are favorable they travel to them by boat late in the day. One evening, 20 persons were observed casting for sheefish in a pool several miles below the village of Shungnak. Most were men and women in their teens and twenties, but persons as young as ten and as old as 50 are known to be ardent and skillful fishermen.

Summer sheefishing by hand lasts from just after breakup to the end of July on the lower Kobuk River and from late June through August on the upper river. Some fall fishing is done on the upper Kobuk in September as the fish prepare to spawn and make their downstream migration. Sheefish taken by rod and reel are often distributed freely throughout the village, particularly to elderly people and relatives. Fish not immediately consumed or placed in home freezers are cut and hung to dry on open fish racks.

Seining

Seining activities begin on the lower Kobuk River in late June or early July; and on the upper Kobuk they begin in mid-July and extend through the fall. During July and early August the target is primarily whitefish, and in mid-August it is salmon as their migration reaches its peak.

Seining crews tend to be relatively fixed, usually a core of two or three related adult women and their younger daughters as auxiliary members. Occasionally, husbands or a young son may join a crew, but women are dominant in seining. Crew members coordinate their efforts and perform their tasks with a minimum of confusion and waste of energy. They also have an established, efficient system for sharing both the labors and the rewards.

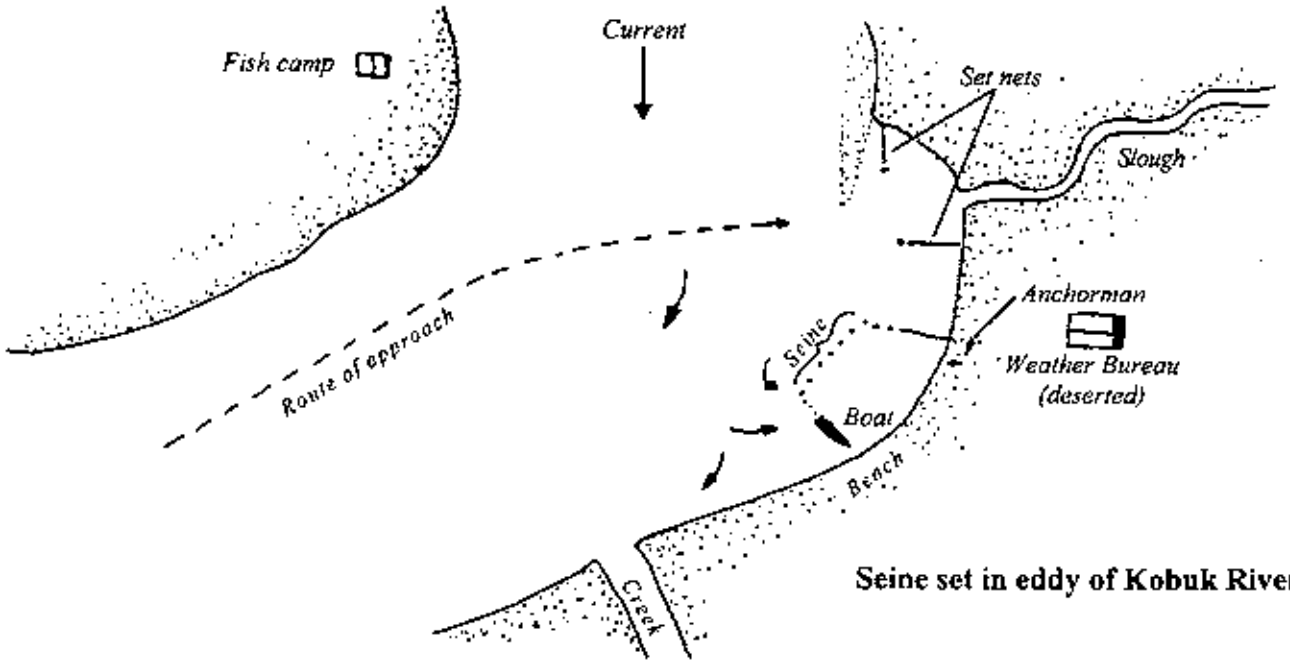
In the upper Kobuk, seining is done mostly during late morning and early afternoon. Shungnak people explain that fish (particularly whitefish) travel in the evenings and mornings. During mid-day they stop to rest in eddies and at the mouths of stillwater sloughs, and this is when they can best be caught. Downriver at Kiana, people say that fish seem to disperse when the sun shines directly above the river, and so their catches drop off sharply during mid-day. Thus, in Kiana seining is concentrated during early morning or late afternoon.

The following is a description of seining activities carried out by a Shungnak crew one day in the summer of 1974:

The crew, consisting of three adult women and one adult man, gathered in front of the village at 9:45 A.M. They first removed the seine from its drying rack and put it in the water. This was done so the caribou-bone sinkers would absorb water for added weight and so the net would be less prone to tangling. One of the older women then loaded the seine into a flat-bottomed river boat. To do this she first pulled in several floats, then lifted the net, made a half-twist of the bundle, and deposited it on the boat floor, repeating this procedure until the entire seine was piled in layers of connected bundles. She then placed a tarp over the seine to keep it from drying.

Other items carried in the boat included two heavy butcher knives, three large washtubs, a large plastic tarp, three paddles, two long poling poles, six gallons of mixed gas, and a light lunch consisting of dry fish, seal oil, a thermos of coffee, and other snacks. The boat was a 21-foot flat-bottomed scow powered by an 18-horsepower outboard motor. Clothing worn by the women included cloth parkas, shirts, trousers, and hip boots.

The first seining attempt was at *Umittaq*, about two miles above Shungnak. The boat was slowed considerably as it came abreast of the site, and it was kept well offshore until just above the intended landing. The motor was then stopped and tilted out of the water while the crew quietly paddled to the beach. These precautions were taken to avoid creating waves and noise that might frighten the fish in the eddy.



Seine set in eddy of Kobuk River.

The man and one woman stayed on the beach to handle the seine's shoreward line while the other two women paddled the boat toward midstream. At about 20 yards offshore, one of the women began to feed the seine into the water while the other paddled the boat downstream in a broad shallow "U" with its opening toward the beach. The last of the seine went overboard as the boat began its turn into the beach. An end line was played out for about 20 feet and then tied with a slipknot to a seat of the boat. Both women then paddled the remaining distance to shore.

On reaching shore, one of the women released the slipknot, jumped from the boat, and ran up the beach holding the seine line. She and the woman who had stayed ashore pulled at one line while the man pulled at the other, drawing the seine inward. The other woman poled the boat along the outer edge of

the moving seine, using her pole to lift the bottom line over hidden snags and to slap the water at either end of the seine to prevent fish from swimming around its edges.

As the ends of the seine touched shore, everyone rushed forward to grab the ends of the sinker line. They held this line underwater and close to the river bottom while they kept pulling in the seine. The slack top line was gathered periodically and pulled onto the beach. The workers spread out along the net, about 20 feet from each other, then grasped both the top and bottom lines to form a pocket in the net. Finally they hauled the thrashing fish up onto the beach and held the lines until the struggles of the fish subsided. The catch was then loaded into the washtubs for transporting back home. Afterward, the seine was pulled back into the water, picked clean of debris, rinsed, and reloaded into the boat. From the time the net began to be played out until it was reloaded required approximately 45 minutes.

One other highly successful seining operation was carried out that day by the same crew, at the mouth of a slough named *Isruqtauraq*, about three miles downstream from Kobuk village. As the boat was being loaded at the last place, several small fish were thrown onto the bank. These were meant for the always-present ravens. It is a *Kuuvagmiut* custom to share one's luck with the raven, because this bird is a prominent figure in traditional belief and folklore.

The total day's catch was 876 whitefish and two small pike. Roughly 700 of these fish were taken at the second spot. Inside the boat, a loose mat of freshly cut willows was placed over the fish to shade them from the sun and to prevent their drying during the ride back to the village.

Salmon seining follows roughly the same procedure as that described for whitefish, with a few exceptions. It is generally done along broad gravel bars rather than in slack water eddies, and it involves considerably more drifting of the net and lateral movement along the beach. Salmon are much more powerful than whitefish, so the work can be considerably harder.

Before starting to seine for salmon, the crew must select a suitable bar. Over the years specific bars have gained a reputation for being especially productive, but certain criteria are followed when people look for new seining places:

(1) The bar must be fairly long with a relatively gentle curve;

(2) the slope must not be so steep that salmon can swim under the net or so shallow that the net will drag on the bottom and roll up around the sinkers;

(3) the bottom must be free of snags and large rocks (this is often checked by drifting over the site and looking at the bottom);

(4) the current must not be so strong that it is difficult to control the boat or so weak that the boat will not drift; and

(5) salmon must pass the bar in enough numbers to justify the efforts.

One of the principal ways of determining the potential of a given bar is to check for "fish trails." River water, even when apparently clear, carries a

certain amount of suspended silt. This silt is deposited in fine layers over submerged gravel, giving it a slightly gray cast. Schools of salmon moving through shallow water create enough disturbance to clean the silt from the path they follow, and schools of salmon tend to follow "trails" created by preceding schools. When the water is clear, people can see these trails and know the paths that salmon take.

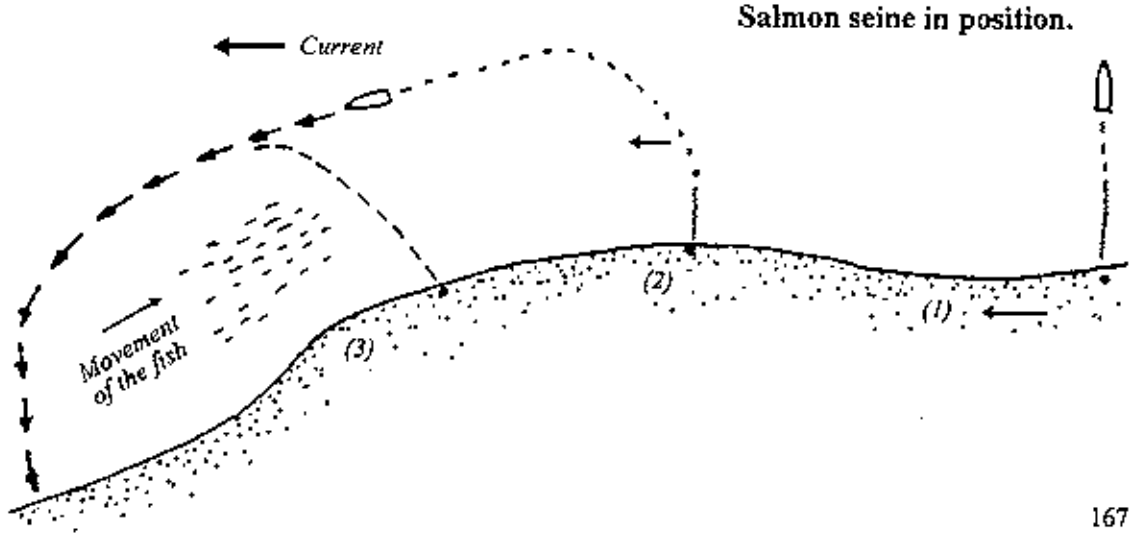
After a promising bar is chosen, the crew positions itself at the upstream end with the seine ready for use in the boat. Crew members wait on shore, while a lookout stands downstream at a place that affords a good view. When a large school of salmon approaches, it will create telltale ripples as it moves through the shallow water. Seeing this, the lookout hurries to alert the crew.

The crew rushes to the boat, paddles out, and sets the seine as previously described. As the seine is set out, the person holding the anchor line must move along the beach at the same speed as the current so the extended net holds its proper shape. Unlike whitefish seining, the "U" is not completed until the extended net has drifted around the salmon school. Then the boat crew turns shoreward, poling and paddling quickly to the beach. The combined force of the current and struggling salmon can make it difficult to control and pull in the seine.

Gill Netting

Gill netting methods used in the summer are the same as those described earlier for the spring. Whitefish netting, which is done exclusively by the women, is the most productive subsistence activity for downriver people in early summer. The weather is just right for drying fish, and the blowflies and other insects are not yet bothersome. A woman can set one or two gill nets and recover one or two tubfuls of fish per day. She can cut and hang this amount in a few hours, leaving her enough time for other daily chores. The fish take about four days to dry, and once the operation is underway a woman will rotate her catch daily—taking down and stringing the dried fish and replacing them with fresh ones.

Salmon seine in position.



Gill netting is practiced by all but a very few Kobuk River families. Whitefish netting continues well into July, particularly along the upper Kobuk. Nets with larger mesh are set as soon as sheefish arrive; but sheefish tend to stay in deep water and travel well out in the channels, so people catch more with hooks than with nets (at least in the upper river). Along the lower Kobuk, gill net catches range up to five or six large sheefish per day during early July.

In upriver villages, it is the annual salmon migration that makes gill netting an important summer subsistence activity. At Shungnak, the first salmon of the 1974 season were caught on July 22, and at that time less than five households had set their gill nets. By August 10, however, 27 nets were counted within two miles on either side of Shungnak.

Competition for net sites near each village in the summer (as in the spring) induces some families to move to distant fish camps. Some of these are in the same places as the early summer camps and others are at different locations. At one time or another, virtually all Kobuk families have occupied a fish camp, and many continue to use their camps, if only for brief periods during the summer. For various reasons (such as weather conditions and wage employment) a camp may be unoccupied for one or more summers; but a productive site is never abandoned.

Fish camps are located at scattered points along the river. One of these, visited in mid-August of 1974, was a well established camp that belonged to an Ambler family. It was located on the Kobuk River about 75 yards below the Hunt River mouth. Two canvas wall tents were set up, one atop the low cutbank and the other at the upper edge of the gravel bar. The larger tent contained a wood stove (made from an oil drum), bedding, mosquito netting, cooking utensils, battery-powered radio, clothing, several books and magazines, a box of food, and other miscellaneous items. There were also several rolls of birchbark, being used to make baskets. The smaller tent was used for extra sleeping space and storage.

Three large fish racks were built along the beach and all were filled with drying salmon. The supports for these racks were drift logs implanted in the gravel. Several other large drift logs had been pulled ashore and secured by a line. These were to be used later for building a more permanent shelter.

Seven grown huskies and one pup were tied to nearby willows. Occupants of the camp included a man and his wife, a teenage daughter, three preschool daughters, and a preschool grandson. At the time of the visit, the husband was out hunting in his boat, and the mother and older daughter were making birchbark baskets. High water had temporarily interrupted their fishing activities.

Successful gill netting requires special knowledge of river eddies and currents. Eddies are formed in various ways, including obstruction of the river current, uneven river-bottom configuration, and the joining of two streams. Each type of eddy has its own peculiarities, but all share certain basic features that are well known to the Kobuk people. Types of eddies and currents include:

(1) *sagvaq*, the main river current;

(2) *argumuksaaq*, the reverse current of an eddy that flows along the shore;

(3) *qasruñik*, the "eddy line," a discernible, undulating line in the water dividing the outer edge of an eddy from the main current;

(4) *iłumuk*, the upstream current of the Kobuk River estuary or of small tributary streams of the Kobuk River caused by winds or floods;

(5) *tilaiñiq*, the current that undercuts a bank; and

(6) *itimniq*, a shallow area where riffles occur.

The potential salmon catch on a particular eddy is determined by several things. Certain eddies are productive in relatively high water but become isolated from the main channel in low water, causing fish to bypass them. An ideal salmon fishing eddy should be connected by relatively deep water to the main channel, should be six to ten feet deep at normal water level, should have no sunken drift or snags, and should be large enough to accommodate one or more long nets (40 feet or more).

Such ideal eddies are rare, especially in the shallower and swifter waters of the upper Kobuk River. Some of the more common adaptations to eddy peculiarities include using shorter nets, angling the nets to cover the greatest area possible, using long shore lines to reach the deepest parts of shallow eddies, and moving the nets to other locations as the water level fluctuates.

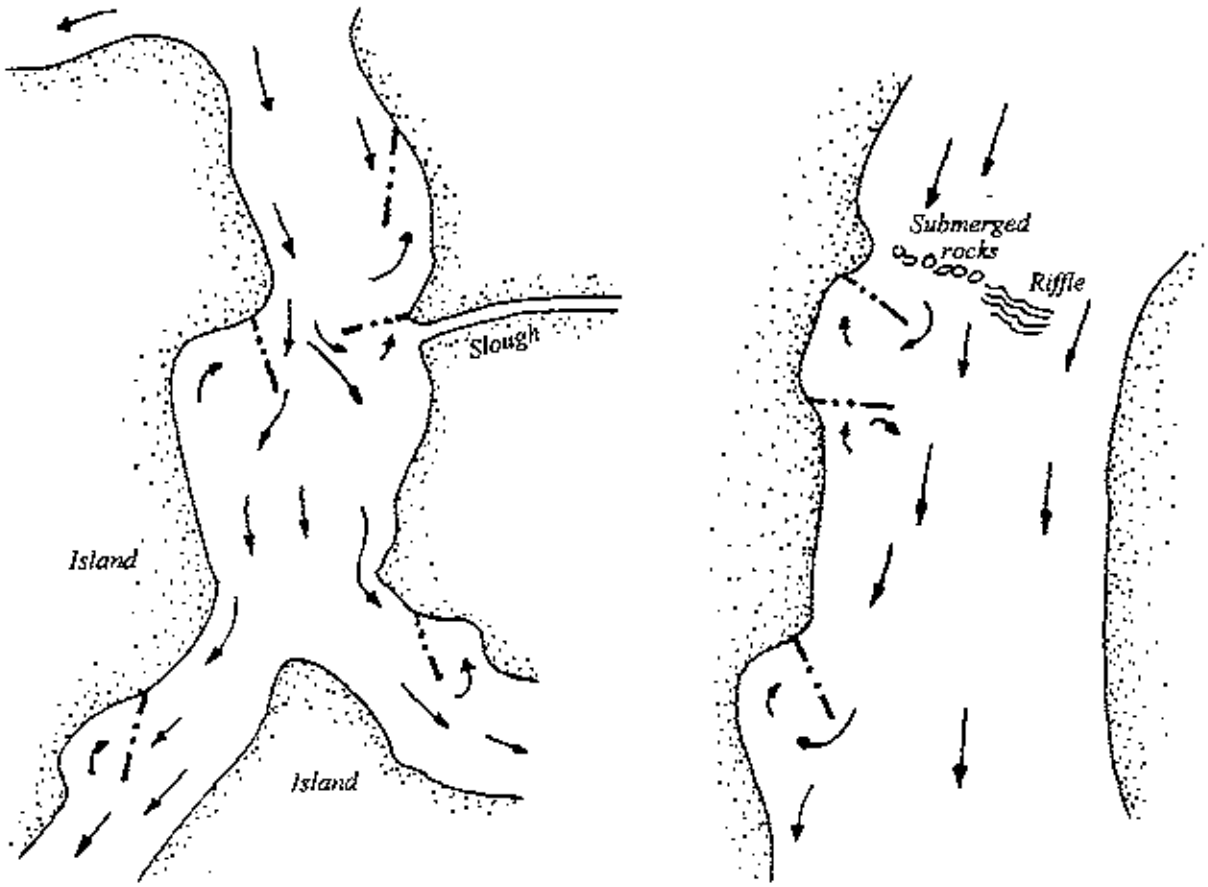
Water flow in a river eddy.

The way a gill net is positioned in an eddy can strongly affect how many salmon are caught. Following the villagers' advice, a project researcher placed a gill net in an eddy several miles from Shungnak. His catch averaged 35 fish for three days. Then a resident suggested that it be moved just inside the eddy line, a shift of less than two feet. The next day's catch increased to 67, and catches remained high for the rest of the season.

As noted earlier, the potential catch at different eddies varies considerably, even at sites within a few yards of one another. Also, when the river rises enough to carry drift or to submerge eddies, all gill nets are removed to await the return of normal water levels.

In August 1974, river conditions near Shungnak prevented any use of gill nets for a total of eight days. Villagers asserted that the lost days and generally damp weather substantially reduced their total catch of salmon. The average number of salmon taken that month was 34 per net per day. Some nets caught as many as 95 in a single day, while others took as few as 15. Of course, catches rose at the peak of the migration and fell when the peak was

Positioning of several gill nets for salmon in the Kobuk River, 1974.

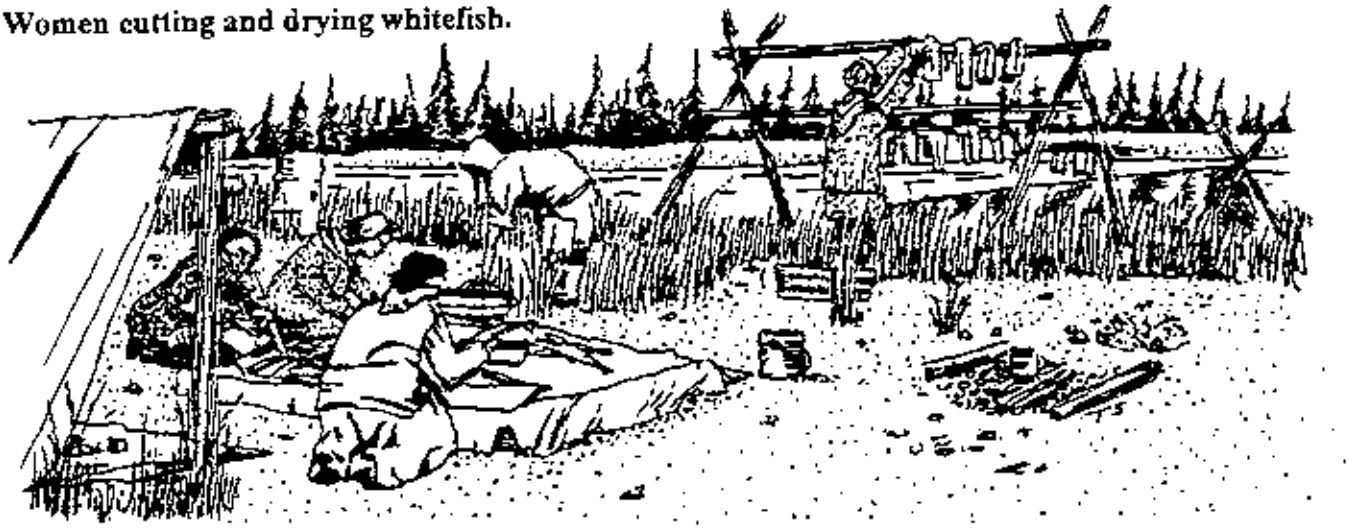


past. Three families in Shungnak estimated their total 1974 salmon catches at well over 1,000 each, while others estimated theirs to be between 50 and 600.

In 1974, the total take for 25 Kiana families who reported having engaged in salmon fishing was approximately 4,000, or an average of about 160 salmon per family. Field counts taken in Kiana between July 21 and August 15 totaled 1,215, or approximately 120 fish per family. The gill nets were not set every day, and the average take per set was 18.5 fish. Whitefish seining is also done sporadically throughout the summer, and some salmon are taken at the same time. However, of the 1,215 salmon taken, more than 1,000 were obtained by gill netting. Each Kiana family tried to seine for whitefish at least once. The take per trip was between 400 and 500 fish, occasionally from just one set of the net.

Salmon fishing was much more important in former years than it is at present. For example, reduced dependence upon dog teams has undoubtedly diminished the need for salmon and therefore reduced the harvests. The resurgence in use of dog teams presently occurring in some Native communities should bring with it a greater effort to harvest salmon.

Women cutting and drying whitefish.



Processing the Catch

Catching fish is, in a way, the easiest part of summer fishing. It is the cutting and drying that requires the greatest time and effort.

During July and August, whitefish seining usually produces an abundant harvest of small, rich fish that can spoil rapidly in warm weather. The *Kuuvaŋmiut* have developed an efficient system of coordinating teams of several people to process these large catches. For example, on July 26, 1974, a seining crew from Kobuk village caught a large load of humpback whitefish *(qaalĝiq or amaqtuq)*. The fish were put in washtubs, carried to the top of the bank, and placed in a low rectangular box with sides made from driftwood logs and a plastic tarp lining. After the entire load had been transferred, the owner of the seine provided the crew with lunch and coffee at her home in the village.

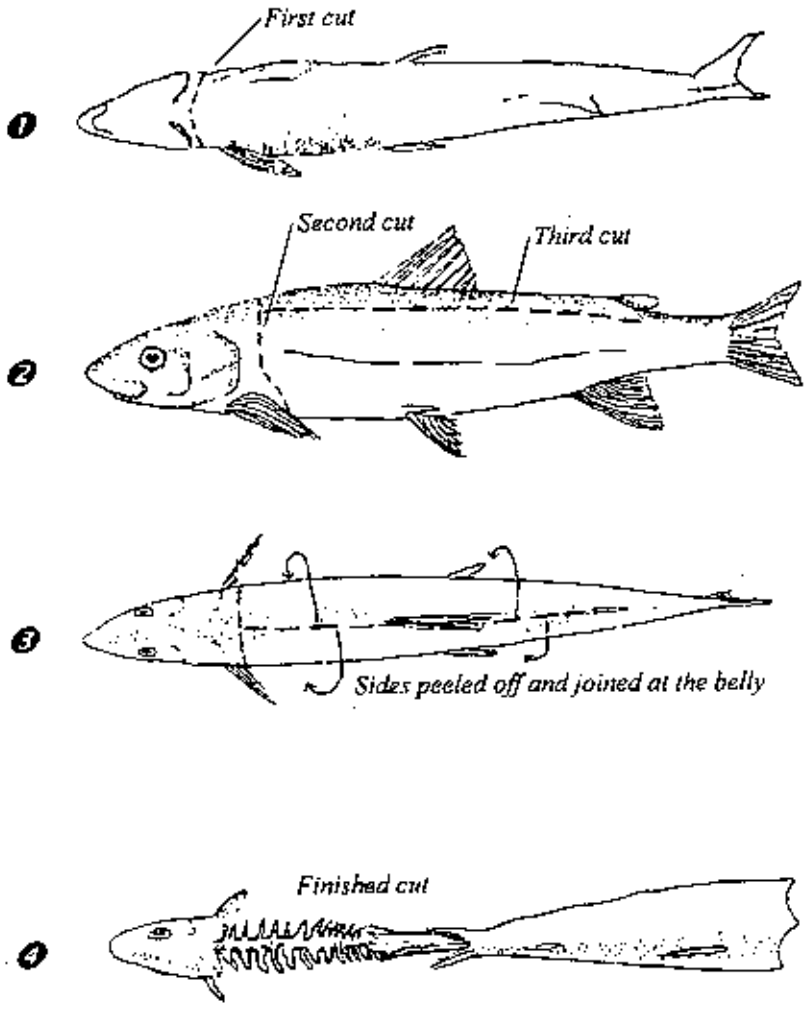
Actual processing began at 3:10 P.M. when the workers assembled at the fish pile. The work crew of eight consisted of the net owner (female, age approximately 38), her three unmarried daughters (ages 16, 17, and 23), a second woman (age approximately 44), and her three daughters (two married and one approximately 17, unmarried). Two small boys (ages 6 and 7, related to the net owner) helped by carrying pails of water from the river.

The crew efficiently divided their labors. Four of the younger girls sat on one side of the pile and scaled the fish with dull table knives while the two older women and one of the younger ones sat together and worked as cutters. Another young girl had the task of washing the cut fish and hanging them on open fish racks.

The scalers rapidly scraped the fish and tossed them into piles for the cutters. The cutters, with deft strokes of their ulus, made three incisions in the fish and peeled the flesh free of the spine. The spine and head were left attached to the flesh near the base of the tail. Fish eggs were tossed into one pan, stomachs into another, and intestines, bladders, and hearts were deposited into a dog pail. It took an average of 20 seconds to scale each fish and 30 seconds to cut it.

Cut fish were rinsed clean of blood and slime in a washtub partially filled with water. Then they were hung over seasoned poles with skin toward the inside and flesh exposed to the air. Six hundred small whitefish were processed during this work session. A sample of 25 fish ranged from 13 to 15 inches long and weighed between two and three pounds. After cutting and cleaning, the average weight was 1¼ pounds.

Cuts made to process whitefish.



Working at a steady, unhurried pace, the crew required seven hours to finish. Throughout this time the women talked and laughed while the children played nearby. Hot tea was kept on hand for refreshment. The older women each took several of the fattest whitefish from the scaled piles to cook at home for their families. These were male fish, as female whitefish containing eggs are lean in the summer.

Once the fish were hung, smudge pots *(puyuq)* were placed so the breeze carried smoke to the racks and repelled the flies. Smudge fires had to be maintained each day and the fish checked for fly eggs. As they dried, the fish were periodically turned to give both sides equal exposure to the sun and air.

If a crew is lucky and the weather remains dry and breezy, the fish will take four to six days to dry. The fully dried whitefish, weighing four ounces apiece on the average, are attached together to form "strings." A hole is punched with a pointed tool in each fish between its gills and tail. The spine, except for a small section near the tail, is removed and later used as dog food. The remaining vertebrae section is inserted into the hole of another dry fish. This is done to four fish, and then two bunches of four are joined to form an inverted "V"-shaped string. These strings are tied together in bundles and hung inside a covered shelter for storage. A slightly different way of making fish strings is to insert the tails into slits cut into body flaps, turning the tail to "toggle" and joining eight fish into an inverted "V" string.

Caring for fish is a seemingly endless chore: Nets must be checked daily. Fish must be removed from the tangled mesh, hauled home, cut and cleaned, washed, and hung to dry. Drying racks must be built and expanded. Fish

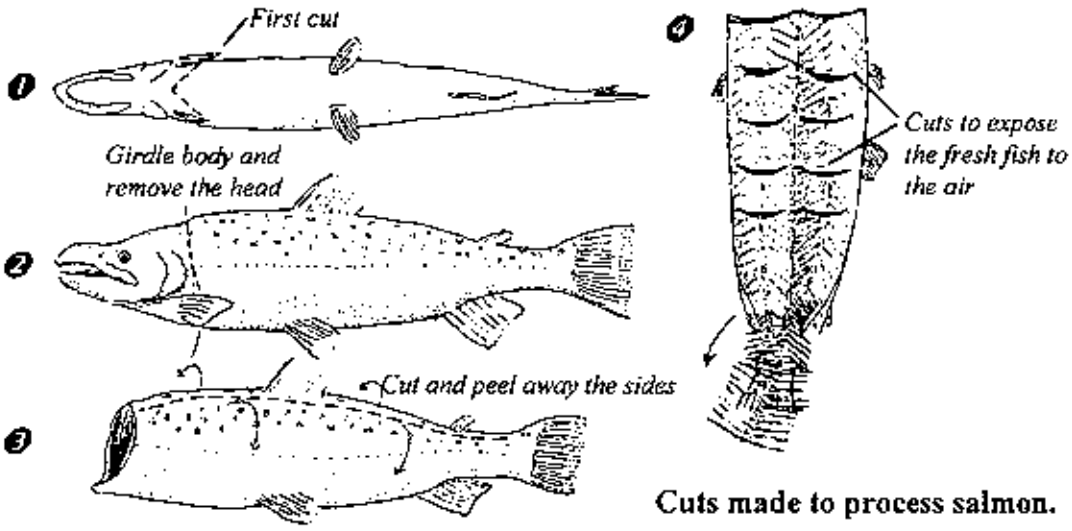
intestines and heads are cooked for dog food. Smudge fires must be lit and checked (they never stay lit). Drying fish must be checked for fly eggs and turned to facilitate drying. All this and related activities consume entire days.

The method of cutting salmon caught during summer is as follows: A woman sits at the edge of a shallow depression lined with willows, grass, or a plastic tarp and filled with freshly caught salmon. She grasps the head of a salmon, flips it onto its back, and with her ulu she cuts down behind its lower jaw. Turning the fish as she works, she cuts around it just behind the head and in front of the pectoral fins. Then with a firm downward chop, she severs the head from the body. Her next cut is along the back, on one side of the spine, from the head end to the base of the tail. She inserts one thumb into this incision and pries back the flesh as her ulu slices down along the ribs. Then she cuts down from the other side, until the two filets (joined at the belly) lay open as a single unit joined with the spine at the base of the tail. She takes out the organs and throws them into a nearby tub, often keeping the eggs to hang for drying. The filets are slashed crosswise to expose their thick flesh to the air. Before they are hung on racks, the cut fish are rinsed clean of slime and blood in a tub of water.

A string of whitefish.

On one August day, an elderly *Kuuvanmiut* woman in her seventies and her adult daughter cut and cleaned 100 salmon. It took them 2½ to 3 minutes to cut and clean each fish, depending on its size and sex.

Cut salmon are hung on open pole racks along the beach and tended much the same way as drying whitefish. Other parts of salmon kept for drying include testes, egg clusters, and heads. Testes and eggs are simply draped over poles. Heads are split from the bottom so that the thin skin at the top holds the two sections together. Several heads may be strung together by passing a willow rod through the gill openings.



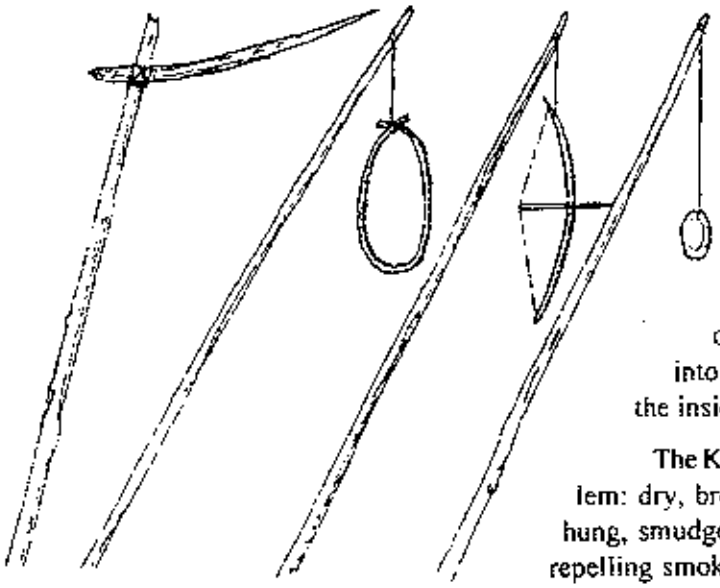
Cuts made to process salmon.

The *Kuuvanmiut* often excavate "fish holes" for the purpose of burying fish heads and fish eggs. One such pit, lined with grass, measured four feet deep and three feet across. Fish heads were placed in the pit and then covered with grass and cardboard. A board was laid over the top and covered with a pile of earth to keep the flies out. These heads slowly decomposed into "head cheese," to be eaten during the winter. Fish eggs were also buried in open five-gallon gas cans. Aged eggs make excellent dog food.

The three major forces that work against the efforts of the subsistence fisherwoman are birds, rain, and blowflies. Birds are the least destructive, but they can cause considerable loss if care is not taken. The most common offenders are gulls, ravens, and gray jays. Gulls, particularly, can cause problems if fish are left exposed and unattended on the beach, but usually they are satisfied to feast on guts and heads dumped on river bars below the village. Ravens, too, can quickly consume large amounts of unprotected fish. However, they are relatively shy and easy to frighten off. Gray jays, or "camp robbers," as they are commonly known in Alaska, are bold, intelligent birds and are persistent when attacking a rack of drying fish.

Devices used to ward off birds.

The principal way to ward off birds is with devices called *nuyuaqsaun*. These consist of mock bows with attached arrows, willow loops, and sharpened willow stakes attached to or suspended from a long pole that leans over a rack full of drying fish. A modern variation is to suspend shiny can lids from poles so they turn in the wind. These seem to be effective in keeping ravens away, but they have limited success with gray jays.



Nuyuaqsaun

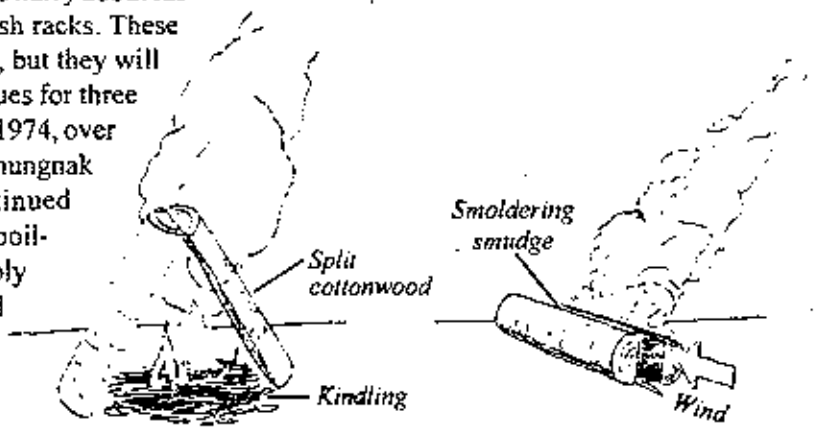
Blowflies *(nuviuvak)* are a constant and often very destructive pest to the fisherwomen. In the summer months, they quickly swarm around any exposed fish, and the females deposit clusters containing hundreds of tiny white eggs. Depending on conditions of heat and moisture, fly eggs hatch within a few hours or several days. Then the larvae (maggots) quickly bore into the exposed flesh and begin consuming their host from the inside out.

The Kobuk Eskimos rely on two deterrents to the blowfly problem: dry, breezy weather and smoke. As soon as fish are cut and hung, smudge fires *(puyuq)* must be kept going to produce insect-repelling smoke. These may be built directly on the ground near the fish racks or in metal cans so they may be repositioned as the winds shift. They must also be "cool" fires that will not heat the fish and cause spoilage. Green or dry-rotted balsam poplar is often used for smudges.

At times, even with the best of efforts, blowflies lay their eggs on exposed fish. If these eggs are found before they can hatch, they may be carefully flicked off with a knife point. Villagers are careful not to accidentally push eggs into the flesh. If maggots are found, the affected fish are hung directly over a smudge fire so they will drop off. The drying flesh may also be broken open to expose any hidden larvae to air and smoke. Fish become safe from maggots when they reach a certain dryness and a protective crust has formed over the exposed surface.

The element over which the Kobuk fisherwomen have no control, of course, is the weather. Rain or damp weather for a period of several days can ruin for human consumption hundreds or even thousands of drying fish.

On days when rain threatens, villagers hurry about fastening canvas or plastic tarps over their fish racks. These will protect the fish from short rainstorms, but they will not prevent spoilage if wet weather continues for three days or more. During the last week of July 1974, over 1,500 drying whitefish in the village of Shungnak spoiled due to rain. Wet weather continued through August and caused considerable spoilage of hanging salmon. Many people simply pull up their nets during a wet spell and await better conditions. Fish that have become spoiled for human consumption are usually kept for dog food. This may be one reason that most households keep a few dogs even if they are not used to pull sleds.



Cottonwood logs used to make smudges.

As the fish dry, they lose approximately two-thirds of their wet bulk and three-fourths of their fresh weight. The shrinkage is especially noticeable in drying salmon. When fish become nearly dry, the women begin piling them loosely on top of one another on single stout poles. This frees space on drying racks for freshly cut fish. The partially dried fish continue to dry as the air circulates through their loose mass, and the bundles are easier to cover in case of rain. Some salmon are taken off the racks and put in an enclosed shelter before drying is complete. These "half dry" salmon *(igamaaqhuk)* are particularly valued for human consumption. Fully dried salmon are also removed and placed in sheltered storage.

Dried fish other than whitefish are stacked flat and pressed down for long-term storage. Stacks are kept separate according to fish species and type of drying. Two villagers stated that in the past, dry salmon were sometimes placed into tightly wired bundles of 25 fish for carrying. Apparently this is seldom done today.

Early Fall Fishing

As September approaches, the weather cools appreciably. Frost can occur any time after mid-August, and freezing temperatures become more frequent near the end of September. Ice may form in the upper Kobuk River any time after mid-September, although it normally does not begin to run thickly with the current until the end of September. Running ice usually begins a few days later along the lower Kobuk. The water level also drops as the weather cools, although sudden or prolonged rain showers can cause it to rise temporarily.

The main body of migrating salmon has passed the upper Kobuk villages by late August, but diminishing numbers are caught in gill nets into mid-September. Aerial surveys and surface observations made in September 1974 indicated that the major salmon spawning grounds for the upper Kobuk River are above the Mauneluk River, with the heaviest concentrations at the mouths of the Selby, Beaver, and Reed rivers. Lower Kobuk salmon spawn-

ing areas are along the Squirrel, Salmon, and Hunt rivers. No salmon were spotted above the Lower Canyon of the upper Kobuk River. The highly productive salmon spawning areas play a vital role in the Kobuk people's economic well-being and in the overall ecological balance of the region.

Grayish-white spots appear on the skin of spawned-out salmon, as they literally begin to decay before they die. At this stage they are called *tuquŋaraaq*. Eventually the salmon become weak and start to drift with the current. A Shungnak villager said that after spawning the salmon begin to grow sleepy. They appear to die a very peaceful death as they drift downstream. By early September, dead and dying salmon are common in the waters and along the beaches of the entire main river.

Sheefish migrate to the upper Kobuk River during July, August, and early September to prepare for spawning. In late September they move from the deep waters into the swift, clear waters to carry out spawning activities. Spawning sheefish were observed in late September of 1974 from the mouth of the *Quglugtaq* River to the mouth of the Pah. According to Kobuk villagers, they also spawn above the Pah. Spawning takes place in the relatively swift main current near cut banks and in mid-channel where the current swings toward an opposite shore (Alt 1969:45). Unlike salmon, sheefish do not die after spawning. They return downstream in late September or early October and winter in the brackish waters of Hotham Inlet.

Whitefish react to the fall drop in temperature and water level by moving from the shallower lakes, sloughs, and streams into the deeper waters of the main river. Large schools of broad whitefish congregate along the Kobuk headwaters and upper tributaries during September, then move downstream as the fall progresses. This downstream migration continues until well after freeze-up.

Other fish found in the Kobuk during early fall include grayling *(sulukpaugaq)*, sucker *(kaviqsuaq)*, trout *(qalukpik)*, burbot *(tittaaliq)*, and pike *(siulik)*. These fish have only minor importance for Kobuk villagers at this season.

Through generations of experience, the *Kuuvaŋmiut* have learned where fish congregate during each season. One such place is *Suluppaugaqtuuq*, at the mouth of the Selby River, where great numbers of salmon gather in the fall. From the accounts of older villagers, it seems that men often traveled here during the latter part of September to secure a supply of salmon, primarily for dog food. They walked to spawning pools in the Selby River or along the nearby sloughs, where they took salmon with long-handled salmon spears and sometimes with long-handled gaffs. Both of these methods were used as late as the 1920s, and salmon spearing may have survived into the 1940s.

Salmon taken in these ways were usually cached nearby. Each man would build a log fish box to hold his catch and then cover it with heavy logs and large rocks. Scavenging bears were always a threat to such caches. Later in the winter the cached fish were either hauled back to the village or used as dog food by men trapping in the area.

The *Kuuvaŋmiut* also made use of a large weir that crossed the entire width of the river at a site a few miles above *Qala*. Several families worked together to build it each fall. The weir would block sheefish from migrating downstream, then gates could be opened by removing some of the poles that formed the barricade. Men used three-pronged spears to take fish at the gates, and women used seines in the open water above the weir. One man reportedly speared 80 sheefish in an evening at such a weir. The weir's useful life was limited, because the first run of slush ice would destroy it.

In the upper Kobuk villages today, people's attention shifts to whitefish and sheefish as soon as the main salmon run has passed. Large-mesh gill nets are set in eddies near the villages, especially Shungnak and Kobuk, in the hope of catching sheefish on their way upriver. The last of the salmon are also harvested at this time. It is easier to process these fish because there are fewer blowflies in the cooler, drier weather. A few smaller-mesh nets are again set near the mouths of tributaries and sloughs to catch the first migrating whitefish and trout. Sheefish are also taken with rod and reel, especially near the village of Kobuk.

Prior to the 1960s, most upper Kobuk families spent early fall in fish camps scattered from the Hunt River to the Selby River. The majority of these camps were above the village of Kobuk. Families would move upriver during August, after the peak run of salmon, and they would remain in camp seining and checking gill nets until just before freeze-up. Lower Kobuk people spent early fall in fish camps scattered along the main channel all the way from the delta to the Salmon River.

Establishing Camp

Moving to a fall fish camp is still customary, but the number of people who do so is significantly less than in times past, particularly in the lower river area. Factors in the reduction include decline in the number of sled dogs, increased emphasis on school attendance, growth of wage employment, and a shift toward dependence on the presently-abundant caribou. Changes in one or more of these factors would undoubtedly affect future levels of fall fishing activity.

In 1974, a Shungnak family established their fall fish camp at *Qala* on September 9. Two other families moved to camps afterward—one at *Qalugriivik* and the other at the Black River mouth. One family from Kobuk moved to *Qala*. At least one Ambler family camped along the middle Ambler River, and other families from that village may also have established fall camps. At least six other families expressed a strong desire to set up fall camps, but were prevented from doing so by health problems, family emergencies, or other circumstances. Women were the main occupants of fall fish camps during 1974, although men were also involved to some degree. The composition of each camp varied from time to time. Residents of the *Qala* camp usually included two adult women (mother and daughter) and two young men in their early twenties (sons). Other relatives also spent brief times at the camp.

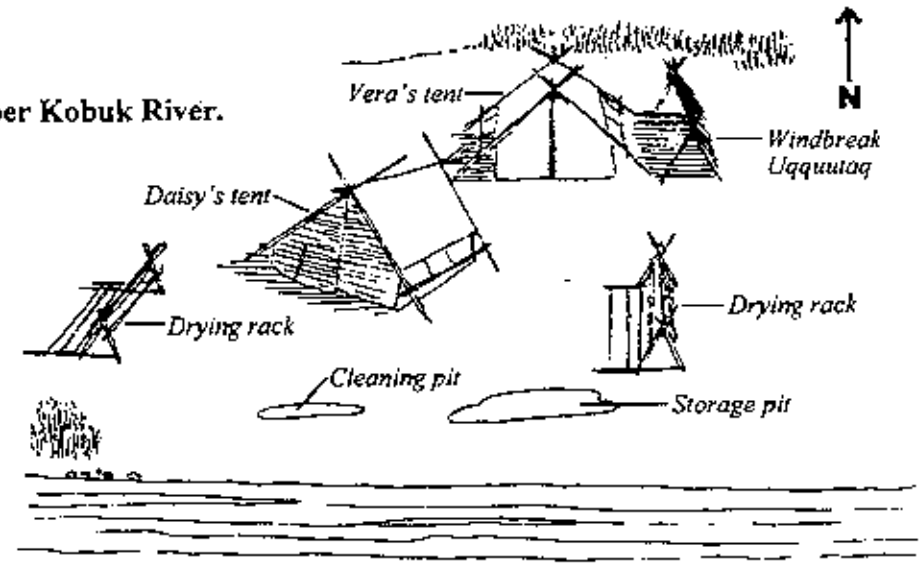
Establishing a fall fish camp is no small matter, considering the necessary investment in equipment and supplies, plus the cost of fuel and parts for outboard engines. The following is an inventory of equipment used in a camp occupied by two adult women and one adult man:

1 10' x 12' wall tent
1 wood-burning stove
1 Coleman stove
1 gas lamp and extra mantles
2 flashlights and extra batteries
1 ax
1 Swede (bow) saw
1 maul
1 sharp-nosed shovel
1 chain saw
1 double mattress and other bedding
2 sleeping bags and air mattresses
assorted pots, pans, and large spoons
assorted dishes, bowls, cups, and silverware
2 water buckets
4 washtubs
1 battery-powered portable radio
1 battery-operated tape recorder
several bags of clothing
3 large cardboard boxes of food supplies (includes seal oil, cooking oil, dry meat, dry fish, rice, oats, salt and pepper, canned fruit, raisins, condensed milk, coffee, tea, powdered orange drink, soup mix, canned vegetables, etc.)
1 Bible
assorted magazines and pocket books
2 wash towels
2 bars of soap
1 thermos bottle
3 large ulus
2 butcher knives
2 hunting knives
several rolls of toilet paper
3 rolls of paper towels
5 gallons of Blazo (white gas)
50 gallons of mixed gas and several gas cans
2 tubes of lubricating oil
1 can of gun oil
1 pair of 7 x 50 binoculars
2 high-powered rifles and 3 boxes of shells
1 shotgun and 3 boxes of shells
1 .22 rifle and 5 boxes of shells
1 revolver and 2 boxes of shells
1 tool kit
assorted nails, wire, screws, and bolts
1 roll of plastic sheeting
1 canvas tarp (12' x 14')
1 sewing kit
2 net shuttles and 1 ball of net twine
several pairs of canvas gloves
3 rain jackets
several boxes of matches
assorted toiletry items (combs, brushes, etc.)
3 pairs hip boots
several hundred feet of 1/4" and 5/8" rope
3 gill nets, 5-1/4" mesh
1 gill net, 4" mesh
1 beach seine
1 river boat with outboard, poles, and paddles

The *Kuuvaŋmiut*, like most village Alaskans, tend to establish comfortable camps for long-term occupancy. After a day out in the wet, cold wind checking nets, hauling in seines, and cutting fish, one soon learns to appreciate comforts of a warm, well-equipped camp.

Fall fish camps that are not presently used can be seen at many places along the upper Kobuk River. Some of these have dry poles stacked nearby for fish racks, drift logs and stakes indicating tent sites, the frame for a windbreak *(akivik)*, and usually a tent ridge pole leaned up against a tree. Minor debris, such as discarded magazines or tin cans, is also scattered about. At least four sites not used in the fall of 1974 showed evidence of usage within the past one to three years. According to several villagers, fall fish camps above the mouth of the Selby River were used as late as the 1940s and early 1950s.

Fall fish camp along the upper Kobuk River.



The following is a summary of a typical day's activities in a fall fish camp:

7:00 A.M. The adult women rise, start the fire, and prepare breakfast.

7:45 A.M. The adult men and younger members arise.

7:50 A.M. Everyone eats, then relaxes and talks.

8:30 A.M. The adult women begin cutting fish taken the previous day (up to September 15, after which most fish are left uncut).

10:30 A.M. Men drive the women in boats to check and empty the gill nets. The catch is deposited in a storage pit.

11:45 A.M. The women prepare the noon meal and everyone eats.

1:30 P.M. The crew loads a seine net into boat and drives to seining sites. Depending on the distance traveled, weather, and number of fish caught, the seining activities take from three to six hours.

5:30 P.M. The crew returns and deposits their fish on the beach.

6:00 P.M. If the fish run is heavy, gill nets are checked again.

6:30 P.M. The fish are deposited in cache pits and the women start preparing the evening meal. Men may collect firewood.

7:30 P.M. The evening meal is eaten, and the remaining time is spent relaxing, doing odd chores, and talking.

10:00 P.M. Everyone goes to bed.

The weather, water level, numbers of fish, and other activities such as hunting and gathering can significantly alter the day's activities. It should be emphasized that rigid schedules are unknown in these camps.

The upper Kobuk people have many favorite bars and eddies for fall fishing. Those located closest to the villages receive the heaviest use, particularly for gill nets. However, both village-based and camp-based crews often travel 10 or 15 miles to reach the best places for seining. Crew members from the camp at *Qala* boated 22 miles upstream to the Pah River to use their seine.

Seining and Gill Netting

Seining is the most productive method of early fall fishing, because the fish gather into large, densely packed schools, and river conditions are generally favorable. The following is an account of one day's seining with a Shungnak crew based at *Qalugriivik*.

> We arrived at Magdaline's camp at 8:45 A.M. Magdaline made a pot of coffee and provided a snack of pilot bread and jam. When Magdaline began pulling on her hip boots everyone took it as a signal to begin getting ready.
>
> The seine had been spread out on the gravel bar to dry. We pulled it into the water. Magdaline stood in the boat and began drawing in the seine. Such a seine requires a fairly strong person to manage it.
>
> We poled the boat up the bar into the dead water of the slough. Magdaline directed two men to pole and paddle while she set the net. Magdaline's son and one of the women held the anchor line on shore, while Magdaline's elderly mother stood by and gave advice.
>
> Our catch was a mass of churning small whitefish. As soon as the net was ashore, the men returned to the tent for coffee while the women placed the fish on long willow rods.
>
> Laura had cut several long pliable willow rods for stringers. These rods were rarely more than ¼-inch thick at their base, 18 to 30 inches long, and stripped of leaves. To insert a rod, the fish was flipped on its back with the hand holding the head and thumb depressing its gill plate. The thick, sharpened end of the rod was pushed through the top of the gill, emerging on the opposite side. An average of 20 fish fit on each rod. Once full, the ends of the rod were drawn together and the thin pliable end was wrapped twice around the butt and inserted in the wraps to form a half-hitch. The fish were lifted by picking up the stringer from two sides. A willow shoot full of 20 fish is referred to as a "stick" *(nuviraq)*.
>
> We filled a total of 25 sticks for an estimated catch of 500 whitefish. The sticks were piled together on the bar and covered with freshly cut willows (leaves on). We then shared a light snack of dry fish and coffee.
>
> The second attempt was carried out 1½ miles above the camp. Our catch consisted of 20 sticks (400) whitefish, 4 large sheefish, and several suckers. Very small whitefish and suckers were thrown

back into the river. Again the catch was piled on the beach and covered with willows.

We drove our boats upriver to a large eddy known as *Tuvaasaq* above the mouth of the Mauneluk River. Before seining we built a campfire on the bank and boiled up fresh tea. We had a snack of dried fish, dried moose meat, seal oil, and cookies. Roughly one hour was spent eating and resting.

Our third attempt followed the same procedure as the first. The catch consisted of 42 sticks of whitefish, roughly 840 fish. These fish were loaded onto a plastic tarp in the center of the boat. The other two fish piles were retrieved on the way home.

Each sweep of the seine, stringing of fish, and reloading of the seine required between one and two hours. Approximately two hours were spent having snacks, and one hour was spent in boat travel. We began seining at 10 a.m. and ended at 2:30 p.m.

As it was late September, none of the fish taken were to be cut and dried.

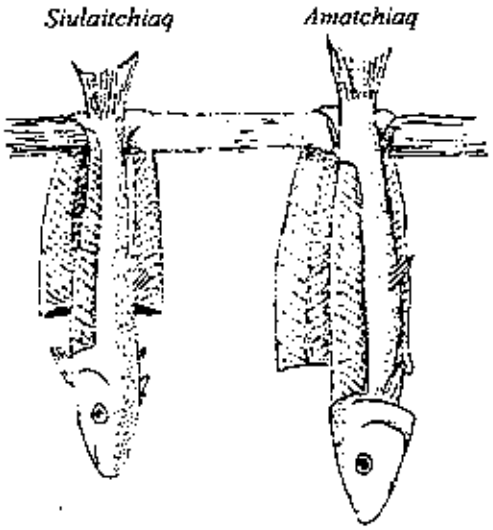
In the lower Kobuk area, fall seining for least cisco (*qalusraaq)* is the major subsistence activity before freeze-up. Here, the best seining areas are close enough to the villages so people can make seining trips from home rather than needing to establish camps. For Kiana residents the best seining sites for least cisco are at *Qalugraitchiaq* and *Alallauraq*. The fish are laden with eggs at this time and are highly prized. Using small-meshed seines, the lower river people can completely fill their boats with fish in a fairly short time. Several villagers recalled with obvious pleasure times when their boats were so full of fish that they had to take care on the way home to avoid swamping.

Toward the end of September, crews based above the village of Kobuk concentrate on seining sheefish. Late evening is best, because at this time the fish gather along the bars, usually just below a swirling and rolling in the water, and a crew may catch well over 100 in a single sweep if conditions are right.

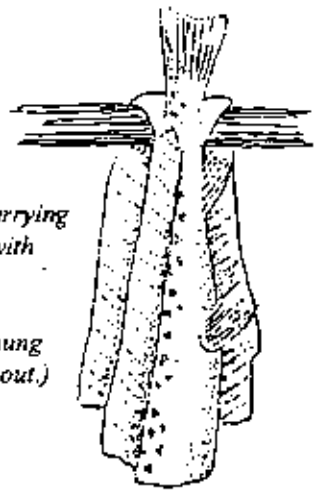
According to an elderly woman, people can predict the downstream migration of sheefish by finding sheefish eggs in the stomachs of grayling. The grayling feed on sheefish spawn and tend to move ahead of them as the migration progresses.

In the fall of 1974, the sheefish migration was late, and rain with resultant high water prevented seining at the prime time. According to upper Kobuk villagers, sheefish "hire" the semipalmated plover to produce bad weather when it comes time for the downstream migration. This prevents the Eskimos from catching them in their seines. The sheefish pay the plover with bright beads. Kobuk River people watch for these birds during the fall, make counteroffers to them, and present them with gifts, hoping to induce them to ignore the sheefish.

The larger eddies near all five Kobuk River villages are usually quite crowded with gill nets during the fall. For example, seven long nets were set



Cuts of fall-caught whitefish.



Aanaalik (female carrying eggs. Fish is hung with belly left in)

Igri (Male. Fish is hung after belly is pulled out.)

Fall cut of salmon.

in the large eddy in front of Kobuk village on September 7, 1974, and eddies as far upstream as the Kogoluktuk Channel *(Quġluqtuq)* contained nets. People reported that many salmon and sheefish were being caught. On September 21, seven gill nets were being tended by three unmarried women near the *Qala* fish camp.

Using gill nets at the mouth of the Mauneluk River, project researcher Ray Bane caught a total of 506 salmon, 155 sheefish, and 35 whitefish during the last two weeks of September, 1974. Daily salmon catches ranged from 96 on September 15 to only five on September 30. Upper Kobuk villagers often keep a close tabulation of their sheefish catches but make little effort to maintain counts on salmon. This is perhaps because Alaska state researchers have done sheefish studies on the Kobuk River and made local people more aware of the importance of this species. Sheefish taken in the fall are also a highly prized food, and this is undoubtedly a further incentive to keep count of the take.

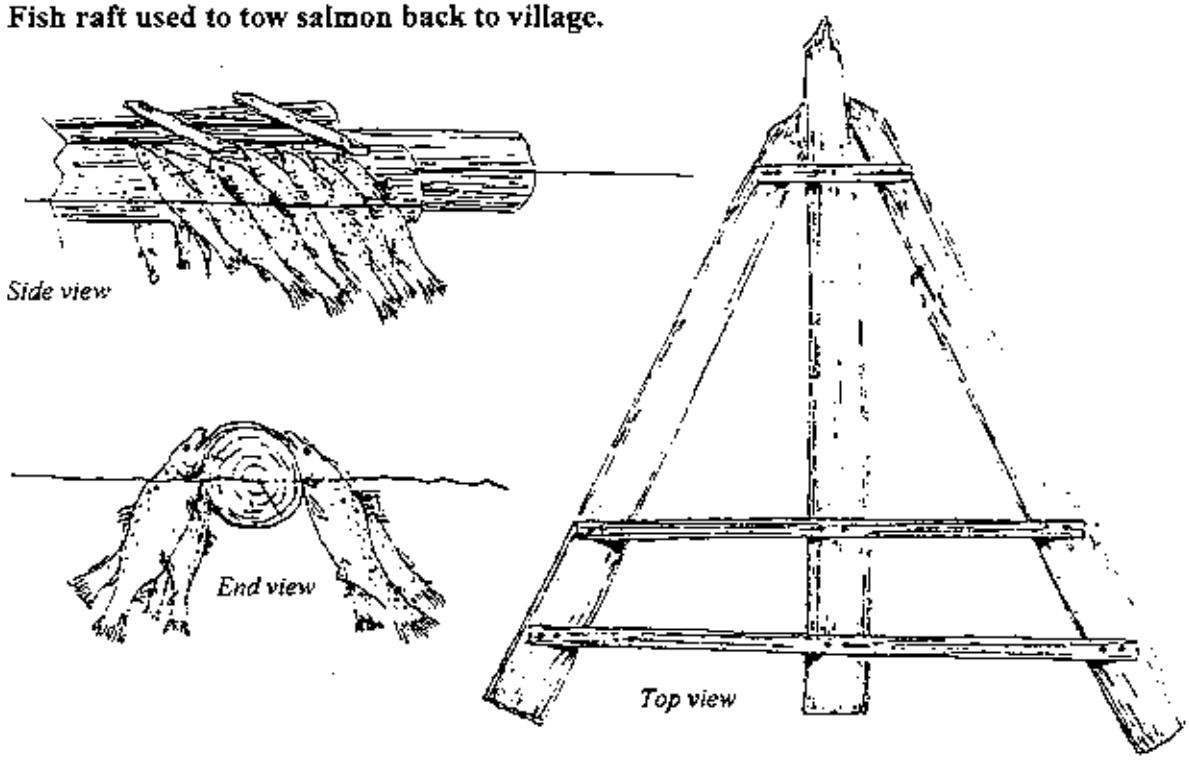
Processing the Catch

Fish taken in the first half of September are cut and hung to dry on open racks. Because of the cooler fall weather, a different cutting method is used, and this provides a special type of food for the *Kuuvaŋmiut*. Whitefish are cut in two distinct ways:

The *siraatchiaq* method involves laying open the side and belly flesh while not disturbing the strip of flesh across the back. The head and internal organs are not removed.

Enclosure for unprocessed fish.

Fish raft used to tow salmon back to village.



The *amatchiaq* technique is done by cutting the flesh over the back open without disturbing the side and belly sections.

Salmon are cut by one basic pattern, with minor differences for males and females. Both sexes have the heads removed and the top flap of flesh peeled back. In males the milt is pulled so it hangs exposed to the air while still attached to the fish. The milt is called *igri*. Female salmon carrying eggs do not have their stomachs pulled forward. These are called *aanaalik*. Each method allows the viscera to ripen slightly, creating a flavor that Kobuk people desire. In one upper Kobuk fish camp, the racks contained a total of 1,059 drying fish, which included 146 *siraatchiaq*, 687 *amatchiaq*, and 226 *aanaalik* and *igri*.

After September 15, the *Kuuvanmiut* usually stop making dry fish and simply begin stacking them on the beach or atop the bank, often inside a three-sided crib roughly constructed of driftwood. Occasionally only a single, braced log wall is used. After a willow mat is laid on the ground, the fish are placed inside, usually in rows with the heads pointing in one direction.

These fish slowly sour and take on a flavor that is much appreciated by Kobuk villagers, especially in the case of sheefish. Sour salmon are also considered excellent for dog food. The fish are left in piles until after freeze-up, then broken free, placed in raised log boxes, and covered with tarps for winter storage.

With the first run of slush ice, everyone rushes about pulling their nets and moving goods to safe ground. Kobuk River people are alerted to the impending freeze-up when they begin to catch whitefish with thick, rough scales.

This is called *atigirut*, or "putting on the parka," and it is usually discovered a few days before ice begins to form.

Before the ice flows people must bring their fish catches and camping equipment back to the village. Today this is done by making several round trips between the camp and village with an outboard-powered boat. In the past, families often made large rafts of dry wood and floated their goods and fish home on these. The wood was used as winter fuel.

A unique method of transporting undried salmon was described by two Shungnak men, who referred to it as a "fish raft." One to three dry, smooth spruce trees with limbs removed were fastened together in a wedge shape and secured with spiked or lashed poles. Salmon strung on willow rods or line were hung across the sides of each pole with loops of supporting line. Each pole is said to carry up to 30 sticks of salmon (600 fish). The raft was then towed by a power boat back to the village.

Late Fall and Early Winter Fishing

Freeze-up may begin along the Kobuk any time from late September through mid-October, depending on air temperature, water temperature, and water levels. If the river is high and muddy it tends to resist freezing, but if it is low and clear, freeze-up can occur with startling suddenness. Falling snow can quickly chill the water and lower the surface temperature to the freezing mark. A cold wind will also hasten the process. The river can be completely free of ice one evening, and clogged with pans of slush ice grinding their way downstream the next morning.

Both whitefish and sheefish continue moving down the Kobuk River through freeze-up and well into November. Humpback whitefish are spawning as they move down the Kobuk, and so other predatory fish such as grayling follow along with them. Apparently, whitefish spend the winter months in deep, quiet pools along the lower river, while the sheefish winter in Hotham Inlet and Selawik Lake (Alt 1969:40). Immediately after freeze-up, large numbers of burbot move upstream from the mouth of the Kobuk to its headwaters. They reach the upper Kobuk from late October into January. By midwinter the females are full of eggs, which indicates that spawning may take place somewhere along the upper river.

Hooking through Ice

Hooking, or jigging *(niksiksuq-)*, is the most widely practiced method of ice fishing among the present-day *Kuuvanmiut*. Villagers of both sexes and all ages do some jigging at one time or another, although the majority are adult females. Elderly women and a few older men are especially active in ice fishing. Hooking begins as soon as a shelf of solid ice extends a few feet out from the river bank, and it continues through mid-November. After this time, severe cold and thickening ice make this activity increasingly difficult.

The first target for jigging is grayling, which congregate in large numbers near the mouths of clear tributaries and in the upper Kobuk itself imme-

diately after freeze-up. They are especially plentiful and active around gill nets set under the ice to catch whitefish. A hole *(alluaq)* is chopped through the ice with a long-handled ice pick *(nuuq)*. Then it is cleared of loose ice with a shovel or hand scoop. This done, the woman or man can start to jig for fish.

A Shungnak man was observed fishing for grayling in mid-October, using the hole at one end of a fishnet set under the ice. After lowering the hook he would give the pole occasional short jerks. When he felt a strike he would smoothly lift the struggling fish clear of the hole, swing it to one side, and let it flop off the barbless hook. Sometimes he would club a particularly large grayling with a stout willow rod, but most died quickly of freezing. He caught 27 grayling in an hour and twenty minutes.

The primary target of fall ice fishing is burbot, favored by Kobuk people for its oil-rich liver, as well as its flesh, eggs, and other parts. Jigging for burbot begins along the lower Kobuk as soon as the ice is firm enough for walking, and somewhat later in the three upper Kobuk villages. By mid-October, people in all five villages are catching these fish. This continues into November and may go on to early December, depending on the length of the fish run, weather conditions, ice thickness, and availability of other food sources.

The equipment used for burbot fishing is the same as that used to jig for grayling, except for the hook. Burbot hooks are usually relatively large spoons with barbless hooks. In the past, such hooks were made of bone, ivory, or beaten metal, but today most people use large, commercially made, spoon lures. These are usually four inches long and may be brightly painted or studded with flashy glass. A piece of fish flesh is usually attached to the hook.

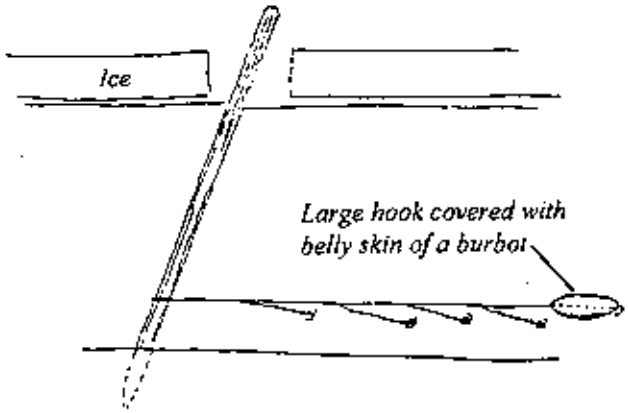
Burbot fishing begins after dark and may last until midnight. The best places to fish are along gravel bars that slope off steadily to a depth of four to six feet and are swept by a gentle current. At such spots the villagers chip holes through the ice and use a lantern or flashlight to see if the film of silt on the gravel has been disturbed by passing fish. If the site looks promising, the person puts down a piece of caribou hide to stand or kneel on, then lowers a hook until it is just above the gravel bottom. Short, light jerks on the pole attract burbot to the lure.

While the ice is still under eight inches thick, people may build a short fence to direct burbot toward a fishing hole. The fence is made of boards or sticks, runs out from the beach at an upstream angle, and ends at the fishing hole. This will guide burbot toward the hole as they swim upstream. For the same reason, people also fish at sites where burbot traps are being constructed, using holes at the end of finished segments of the main wall.

Another variation in burbot fishing is the trot line *(qaġrugsaq)*, a string of baited hooks placed in a fishing hole overnight. The end hook is usually larger than the others and the belly flesh of a burbot is inverted over it and sewn on to resemble a small whitefish. The barb of the hook projects from the rear of this lure.

In the fall of 1974, the number of persons from Shungnak hooking burbot through the ice varied from only two to more than ten, depending on the

Trot line set under the ice for burbot.



weather and fish run. Catches per person ranged from zero to 20 per night. In Ambler, members of 19 households fished for burbot. Total catches averaged just under 40 fish per household, with a high of 180 and a low of three.

Gill Netting

In all five Kobuk villages, gill netting under the ice for sheefish and whitefish begins as soon as the ice is safe enough to walk on and continues through late October or early November, when thickening ice and reduced fish movements make it unprofitable. Some people know of places along the Kobuk River where springs keep the ice thin and allow fishing throughout the winter.

Sites for gill netting under the ice are usually large, deep eddies, often formed at the confluence of two streams or channels. The mouths of large tributaries, or of streams that drain a series of lakes, are particularly favored, because they often disgorge large schools of whitefish during the late fall. One such site is located at the confluence of the Ambler and Kobuk rivers in front of Ambler village. Each fall the people fill this large eddy with their nets to harvest the seasonal run of whitefish. Another site is at the confluence of the Squirrel River and the two channels of the Kobuk River at Kiana.

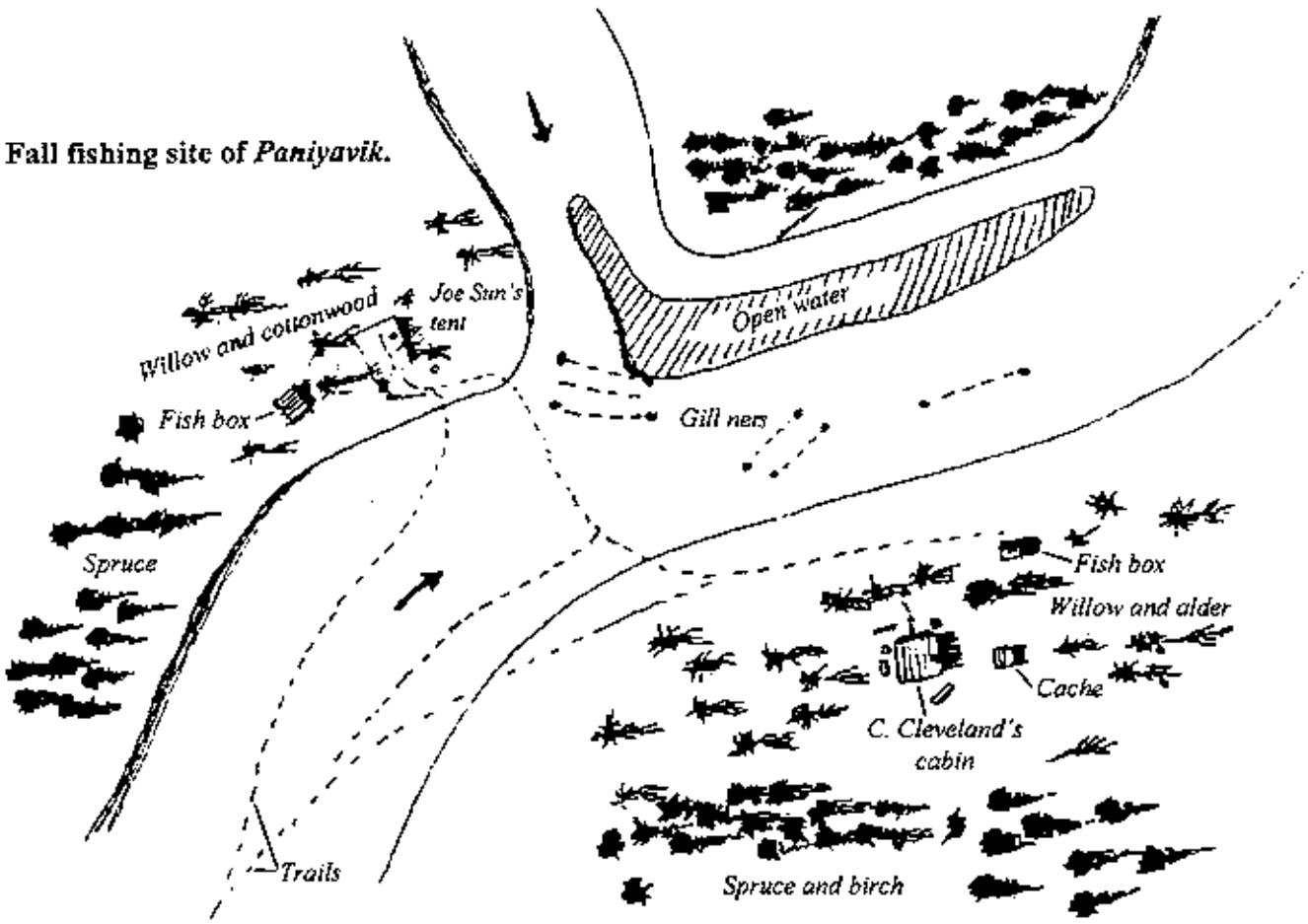
Most late fall netting is done within a few miles of the villages, although in the recent past it was not unusual for families to establish fall fishing camps farther away. As with other subsistence activities, changes in village economic or social conditions could revive these camps. A decline in moose or caribou could also cause an overall expansion of winter fishing.

One of the long-established winter fish camps on the Kobuk presently in use is *Paniyavik*, located eight river miles or six air miles southwest of Shungnak village. Use of this site extends back past the father of Joe Sun, a 75-year-old Shungnak resident. In the second week of October, 1974, Joe Sun returned to set up his tent camp on the river bank at *Paniyavik*, and two other elders moved into a small cabin across the river. Sons, daughters, and other relatives often came to visit or to stay overnight. Other Shungnak families also maintained nets at this site and visited them with snowmachines.

Gill nets used under the ice are basically the same as those used in summer fishing. However, winter gill nets are often longer, occasionally over 150 feet; they also have fewer floats and heavier weights, so they will not float up against the ice and freeze in. The following excerpt from fieldnotes describes gillnet setting by five persons in mid-October, 1974:

> The first step in setting the net was the chopping of a series of holes through the ice. Ernest would use a pick to chip out a hole roughly 1½ feet long by 10 inches wide. He would stop just short of breaking through the ice and move on to the next excavation,

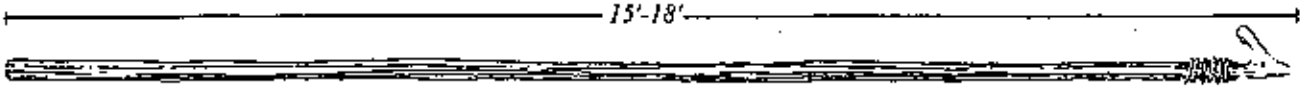
Fall fishing site of *Paniyavik*.



while I followed and completed each hole with the long ice chisel *(tuuq)*. Pansy followed me with a sharp-nosed shovel, clearing the floating ice from each hole. A large oval-shaped hole was opened at the upstream end of the series. The series of holes extended 150 feet, which was the length of the net being set.

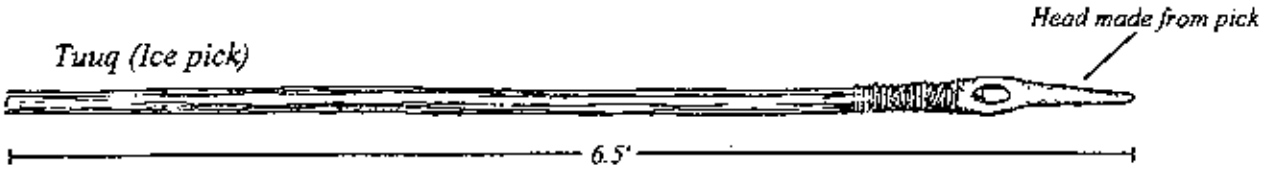
When the holes were complete, the net was piled at the edge of the oval excavation. A rawhide line of *ugruk* skin *(ammun)* with a weight attached was lowered through the oval hole. Another person stood at the second hole and reached under the ice with a long pole tipped with a caribou antler hook *(illaqtuun)*, which was used to snag the *ugruk* line. He then drew the line to him. The other person then came forward and held the line. The hook man moved to the next hole, and the operation was repeated until the line had been passed under the entire length of the holes.

The net line was then attached to the rawhide line. Ernest stood at the far end of the holes and pulled the line slowly toward him while Pansy and Charlie fed the net into the oval hole at the opposite end. When the entire net had been pulled under the ice,



Illaqtuun

Ice pick and hooked pole used to set gill under ice.

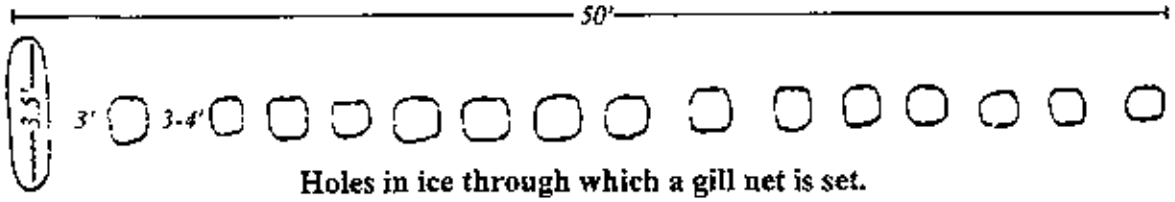


two poles were placed and frozen into the ice at either end of the holes. The poles leaned over each end hole, and the end lines of the net were tied to them so they would not freeze against the sides of the holes.

Nets are usually checked by pulling them out at least once daily. The large oval hole and the far end hole are carefully chopped open to avoid cutting the rope, and then ice debris is shoveled clear. The anached line originally used to pull the net under the ice is now untied from the pole, except that its very end is secured to the stake so it won't slip entirely into the hole. This line uncoils as the net is pulled up from the other end. Any fish are taken from the net, which is piled on the ice beside the hole. The workers occasionally lift and shake it to prevent it from freezing into a solid mass. After all the fish are removed, the net is pulled back under the ice. The fish freeze and are put in piles to be hauled back to the village or stored in fish boxes for later pickup.

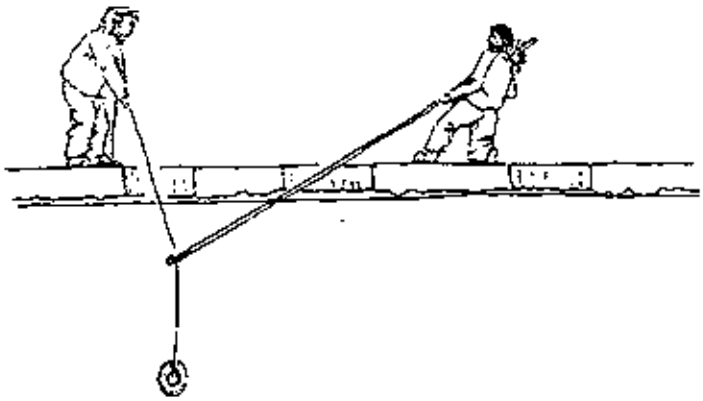
Under-the-ice gill netting is not always possible at traditional netting sites. In certain years the main river will freeze, then break loose and freeze again in a mass of irregular ice. This makes it impossible to set gill nets, as they will snag on rough ice projecting downward.

The productivity of ice gill nening can be seen in records kept over a three-year period for 25 households in Ambler, a particularly active ice fishing community. In 1974, the total harvest of surveyed households was 24,357 whitefish caught in fall nening. This compares to 16,539 fish in 1973, and 19,728 fish in 1972. The average catch for each of the 17 households participating in the 1974 harvest was 1,433 whitefish. In other villages, catches by those who are active in fall gill nening likely average between 500 and 1,000.



Holes in ice through which a gill net is set.

Pulling a line under the ice.



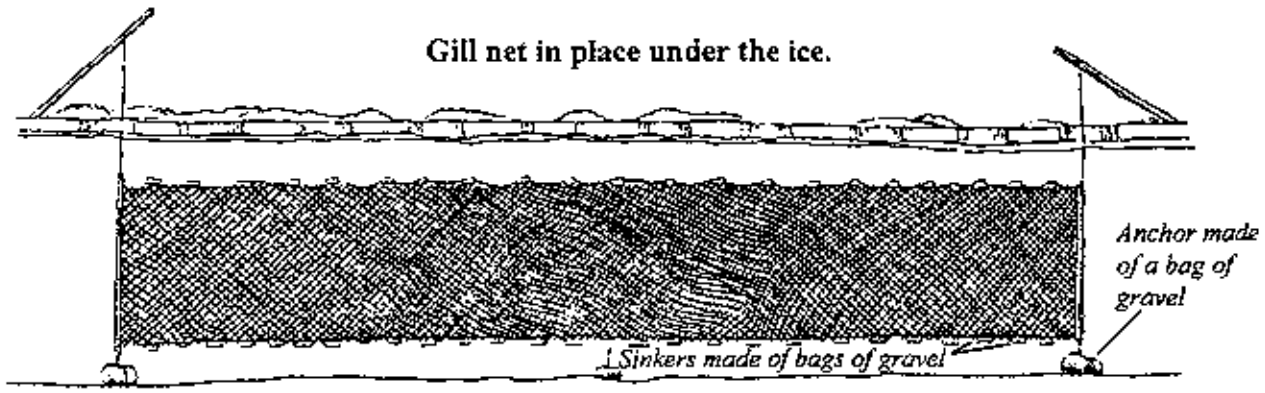
The net line was then attached to the rawhide line. Ernest stood at the far end of the holes and pulled the line slowly toward him while Pansy and Charlie fed the net into the oval hole at the opposite end. When the entire net had been pulled under the ice, two poles were placed and frozen into the ice at either end of the holes. The poles leaned over each end hole. The end lines of the net were tied to them so they would not freeze against the side of the holes.

The Burbot Trap

The *Kuuvaymiut* have built traps for burbot since a time beyond the memory of the oldest living people. Construction of the trap is usually undertaken by the immediate or extended family of a particular household, sometimes with help from close friends. The process of building is mostly carried out and supervised by men, although women may assist. Older men in their sixties and seventies often direct the work or advise on procedures.

According to several knowledgeable villagers, every major household on the upper Kobuk River used to build a burbot trap each year. Persons who spent the late fall in camps usually set out a trap to obtain food for themselves and their dogs. Trap sites were located from the Pah River to below the Hunt

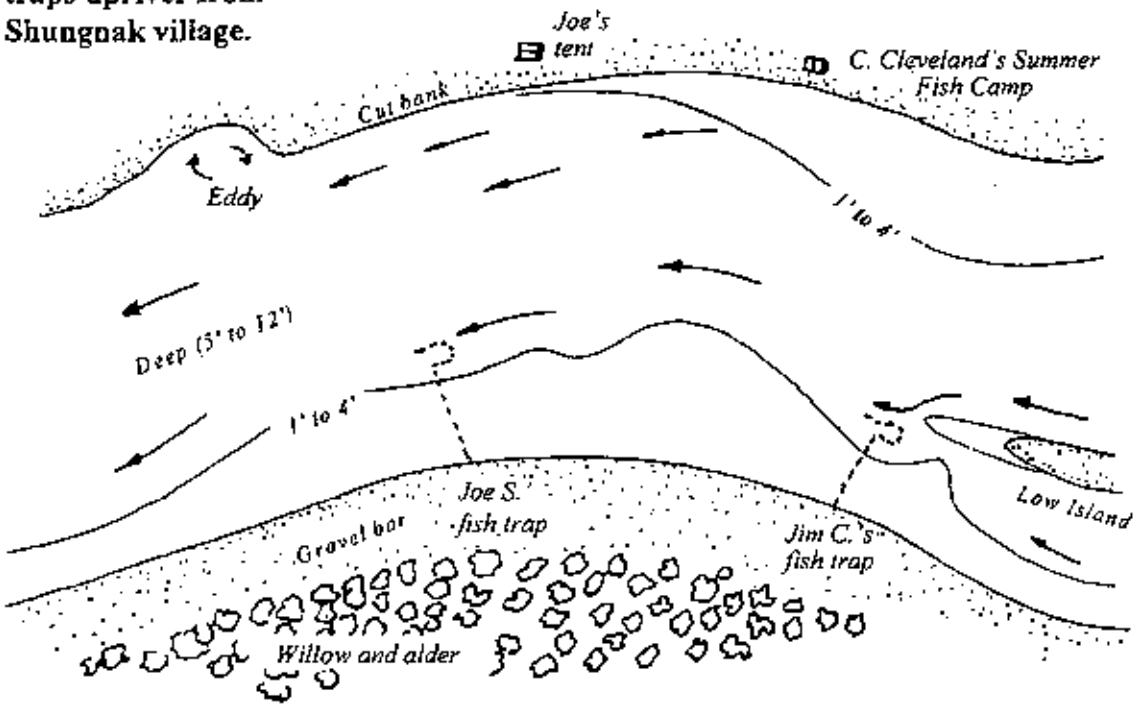
Gill net in place under the ice.



River. Apparently, these traps were not as commonly used by the lower Kobuk villagers, although two Kiana families indicated that in the past they had built them on the Squirrel River.

The use of burbot traps declined considerably during the 1950s and 1960s, and had all but disappeared by the early 1970s. This was a period when both caribou and moose were relatively plentiful in the Kobuk valley. But in 1974 the fall caribou hunting was poor near the villages of Shungnak and Kobuk, and much of the summer fish catch was spoiled by wet weather. This, together with a recent increase in the number of sled dogs, undoubtedly led to the resurgence of fish trap construction during 1974. It is an excellent example of how villagers adapt to the unpredictable nature of their environment.

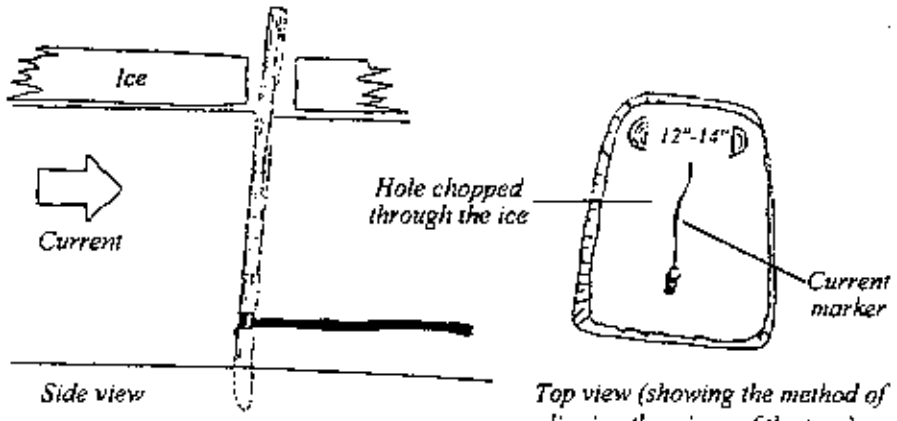
Placement of burbot traps upriver from Shungnak village.



The first order of business in building a fish trap is to locate a proper site. Suitable places are generally well known within a few miles of each village, but the *Kuuvanmiut* also have ways to assess new sites or to determine whether old sites are still usable. Sometime before freeze-up, the men look for smooth, gradually sloped gravel bars where relatively deep water with good current swings close to the beach. Snags, large rocks, and areas of uneven bottom must be avoided. Sites should also be reasonably close to a supply of poplar and willow trees for building materials.

When a man has chosen a fish trap site he waits until freeze-up to indicate where it will be placed. Then he visits the site and sets a pole in the ice to mark his selection. Others, seeing the pole, know the site has been reserved and will not use it. Construction does not begin until the season and ice thickness are properly advanced.

Current indicator and throat poles set into river bed.



After freeze-up, the river level drops slowly until it stabilizes some time in late October or early November. If trap supports are placed too soon, the weight of the sinking ice may break them or throw them out of alignment.

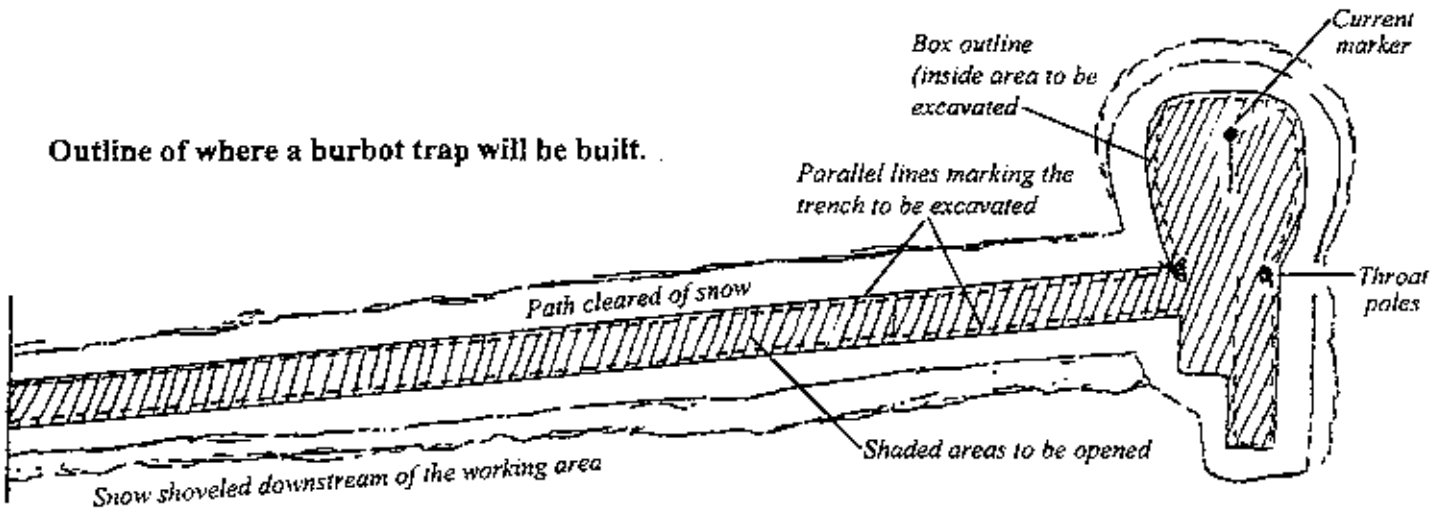
The builder and his assistants start gathering tools and building materials a week or more before they start construction. Raw materials include 20 or 30 straight poplar logs from five to nine inches in diameter, several dozen straight poplar or willow poles averaging three inches in diameter, and hundreds of long, slender willow saplings or branches from ½ to ¾ inch in diameter at the base. Additional materials include twine, small nails, and several yards of chicken wire (one trap made limited use of this material). Tools include axes, ice picks, mauls, sharp-nosed shovels, knives, hammers, and saws. Today, chain saws are also used to cut the ice.

Before starting to build, it is important to determine the correct placement of the trap box. The water must be six to seven feet deep, so thickening ice will not block the entrance or limit the capacity of the box. Once the location of the box has been decided, a large hole is cut through the ice and a rod with a ribbon near its lower end is set into the river bed for a current marker *(nagruk)*. Two gate or "throat" poles (split poplar logs with the inside surfaces hewn flat) are next set vertically into the river bottom at what will be the narrow entrance to the trap box. This opening must be aligned exactly across the current.

A burbot trap consists of several elements. Except for the meticulously made funnel that prevents the fish from escaping, all elements are built in place; that is, they are set through trenches made in the ice and anchored in the river bottom. The four main parts are:

A. The trap box. The left and right walls *(tupiŋich)* are made of split logs set flush against each other. The back wall *(qitñuq)*, also made of split logs, is set close together but not flush. Placed at the front of the box, between the throat poles *(mitliŋniq)*, is the funnel (see D below).

Outline of where a burbot trap will be built.



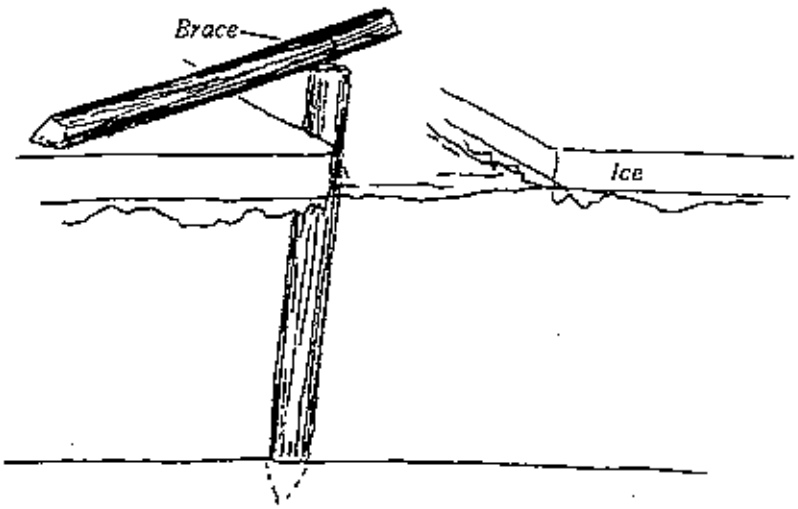
B. The long, shoreward fence comprised of the *kilulliñgich* and the *patinniq*. The *kilulliñgich* is a wall made of willow saplings laid horizontally in a thick mat, held in place between pairs of poles. Its purpose is to deflect fish toward the trap opening. The *patinniq* is a short section of tightly placed split logs at both ends of the *kilulliñgich*.

C. The outer fence *(salliñiq)*. This extends downstream from the outer wall of the trap to prevent the fish from swimming past the trap box and continuing upstream.

D. The funnel *(iggiaq)*. This is set at the entrance of the trap box, allowing the fish to enter but not to leave.

After the current marker and poles for the trap throat are in place, the workers use ice picks to mark the outline of the trap box and the fences. The curving outline of the trap box is determined by eyesight and by alignment with the current. The shoreward fence outline is determined by stretching a rope from the throat poles to the shore, and the outer wing outline is determined by the direction of the current. Now, the workers can start cutting the ice. In the past this was done with bone-tipped poles, but today metal-tipped ice chisels, mining picks, and chain saws are used. Cuts are made along the marked lines with a chain saw, then picks are used to break the ice apart. All snow and ice debris is shoveled to the downstream side of the shoreward fence and to the upstream and outer sides of the trap box and outer fence, to leave a clear work-

Wall log of trap braced in place.



ing space. By early November the ice may be 16 or more inches thick, so the cutting may take from several days to over a week to complete.

While some helpers concentrate on cutting ice, others cut willows, split and shape poplar logs, remove limbs from poles, and smooth them. Willows, shaped poles, and split logs are placed at strategic locations along the opened areas. One man usually does nothing but prepare the walls of the trap box.

Poplar logs for the sides of the trap box are split in half with an ax, each half is carefully hewn smooth, and the edges on both sides are lightly smoothed. One half of each split log is used for the right wall and the other half is used for the left wall, assuring uniformity in the side walls. The worker dresses each split log so it will fit flush against neighboring logs.

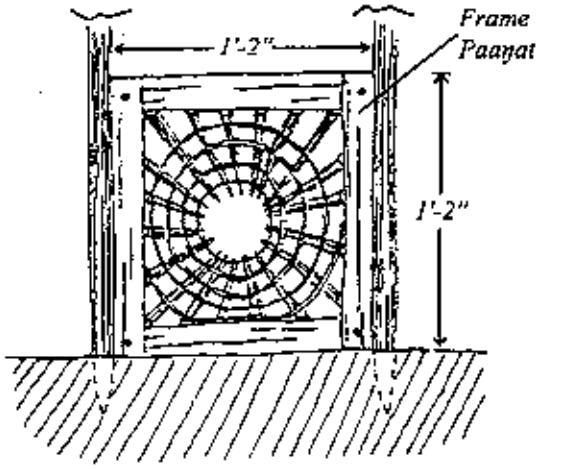
When the logs are ready, the crew very carefully places them in the water to form the walls of the trap box, making sure that they are vertical and snug. One man stands back to direct the alignment as another man sets it in; and the log setter lays down to peer into the water, checking each log. A maul is used to drive the shaped logs into the river bottom, stopping when the upper ends still extend above the ice. Snow is shoveled against each log where it projects above the ice, and then it is soaked with water which soon freezes. A brace is placed on each log to keep it firmly set while the water is freezing.

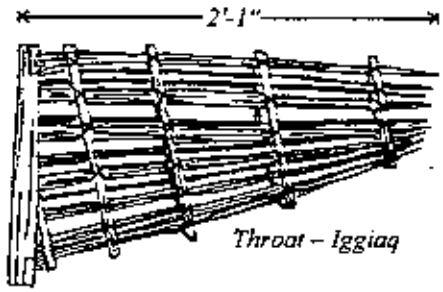
Straight, smooth poles 5 to 5¼ inches in diameter are used to form the back wall of the trap box. Split logs are used to form the two ends of the shoreward fence and for the entire outer wing. While care is taken to keep cracks between these logs to an inch or less, they are not given the same precise workmanship as the side walls of the trap box.

The exacting task of building the trap's entryway is usually done by the head of the project or an elderly expert. The following is a description of this process, as it was carried out by a Shungnak elder in November, 1974:

> Before dark, Joe hiked across the river to a willow thicket beyond the gravel bar. He selected and cut an armload of straight young willows varying in thickness from 1 to 1½ inches, and in length from 3 to 5 feet. These he packed back to the tent and arranged around the stove to thaw. Some he hung lengthwise from the ridge pole. Joe had selected these rods because they were straight and free of knots and branches.
>
> After the evening meal, Joe proceeded to take down the willows and split them lengthwise. He would insert his knife blade into the butt end of a willow rod and carefully guide it along the grain, allowing the blade to act as a wedge. If the rod seemed to be splitting unevenly, he would pry the sides apart by hand, guiding the line of cleavage and skillfully bending and twisting the rod.
>
> The shorter, thicker rods would be used as longitudinals for the trap entrance, while the longer, thinner rods became the wrapping for the entrance. The wrapping required several steps to prepare. After splitting, Joe whittled each half rod to form a thin band

Funnel for trap entrance





approximately 3/16 of an inch thick. These bands were then carefully rolled and tied into small bundles. Later the bands were untied, spliced into one continuous strip, and used to bind the trap.

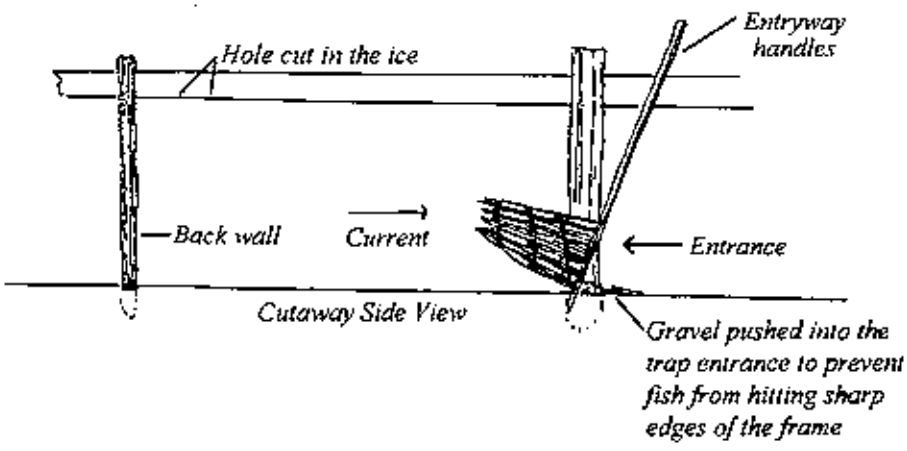
The shorter rods for longitudinals (which were 27 inches long) required less care and preparation. Once split, each half was whittled smooth on the inside only. The narrow end was shaped into a long, tapering point. The butt end was whittled into a round dowel to be fitted into a hole drilled in the entrance frame.

This work carried out by Joe and an assistant, took approximately five hours to complete. Joe said that in the old days a man would place a tarp under him as he whittled. When all parts of the entryway were complete, he would carry the shavings deep into the woods to dispose of them.

The next day Joe hewed out wooden pieces for the frame and joined them with lap joints into an open square. He used a hand drill to bore holes around the back sides of this frame, tightly fitted in the longitudinal withes, then lashed on the spiral wrapping with twine. This done, he tacked two long, slender poles onto the sides of the frame so that each extended three inches below it and ended in a sharp point.

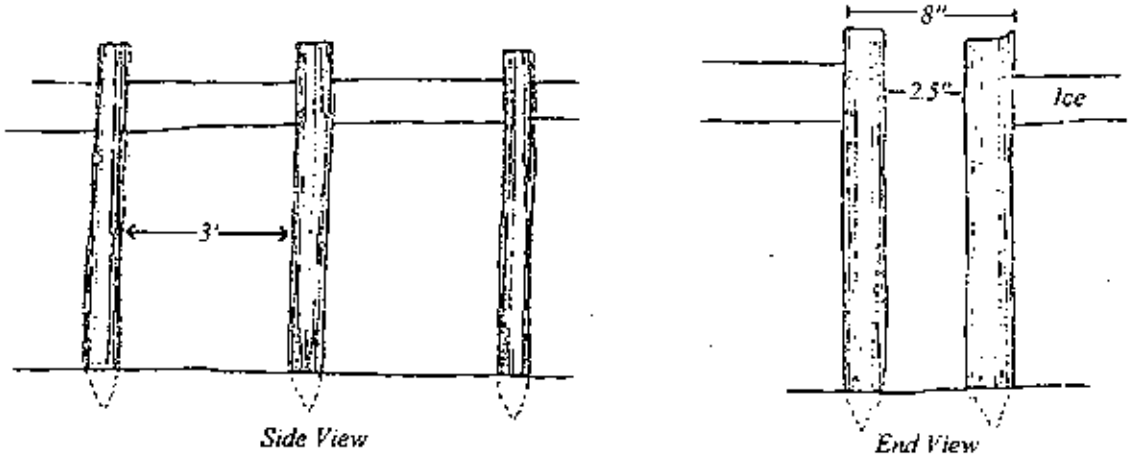
The trap entryway *(paaŋat)* was fitted snugly between the throat poles of the box and leaned so the funnel pointed slightly upward. According to Joe, fish will swim up into the trap entrance, but they do not like to swim down into it. Short poles *(qalusrit)* were placed vertically across the top of the entryway frame, so that the only opening to the box was through the trap entrance.

Side view of throat in trap.



The final phase is to build the willow-filled fence that extends to the shore. This job is usually done on the last day and should be carried all the way to completion, as it involves overlapping and intertwining layers of tightly packed willows. First, the long trench in the ice is reopened, and each side is given a smooth vertical face. The

Poles set to form long, narrow shoreward wing of trap.



water is cleared of all ice debris, and shallow slots are chipped vertically into both sides of the ice trench to receive a series of poles. The poles, which have been smoothed and are sharpened at one end, are set in pairs 2½ inches apart, and each pair is placed three feet from the next. After being pounded into the river bottom they form the two long walls of the shoreward fence.

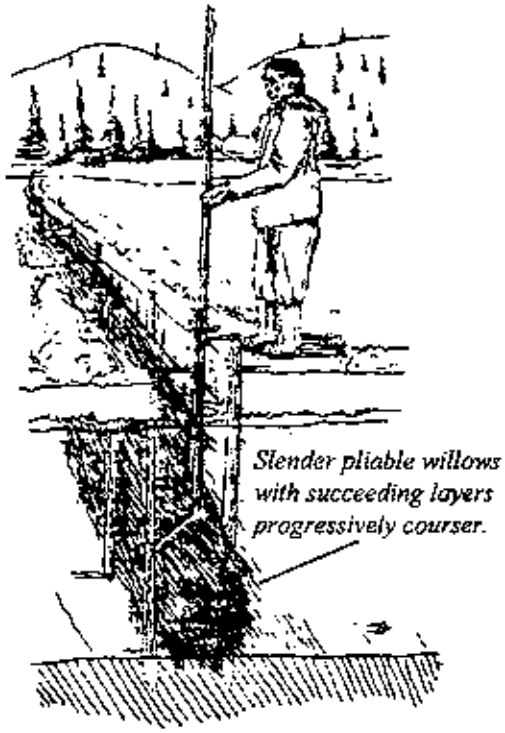
Once the poles have been set, workers begin laying willow branches in the space between the walls of the shoreward wing. First the most slender, pliable willows are placed horizontally between the poles, as these must conform to any small irregularities of the river bed. The first layer of willows is placed so that all the tips point in the same direction and the butts of one bunch overlap the tips of those next to it. After laying a loose mat of willows five or six inches deep between the poles, workers use long forked poles to shove the mat down and compress it.

A second layer of willow branches is placed like the first, except that the tips point in the reverse direction. The second mat is then pushed down and compacted onto the first. This is repeated until the packed willows reach from the river bed up to the bottom of the ice.

When no more willows can be compacted, toggles are fastened between each set of stakes to hold down the springy filling. Usually this takes three men: two who press down on the filling with their forked poles and another who reaches under the ice to place a stout piece of poplar across the top of the willows and under the ice on each side of the trench.

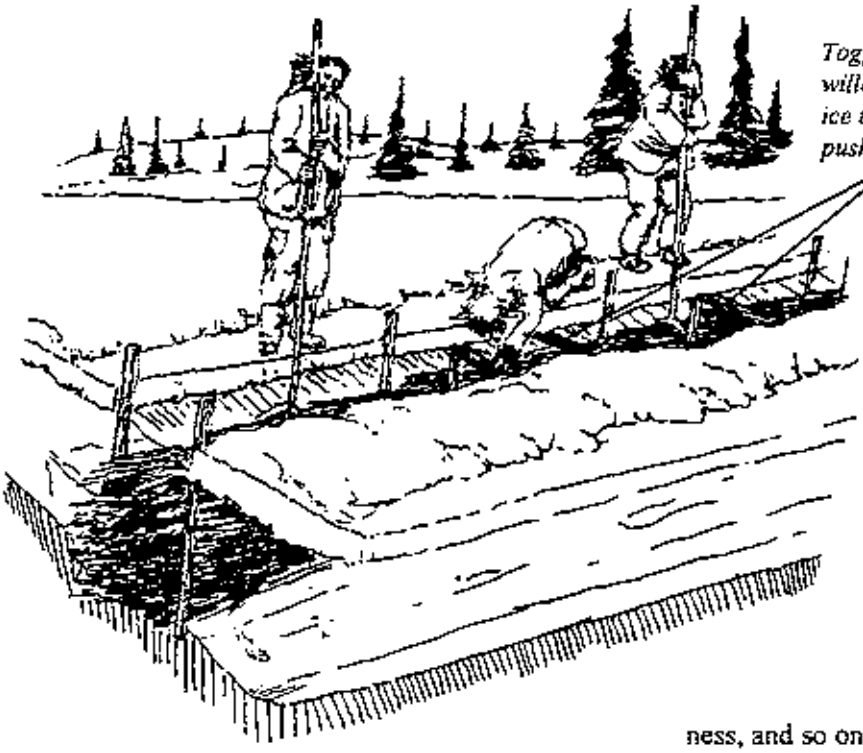
By the time the last stage of building is reached, the ice may be so thick that a man's arm cannot reach far enough to set the wall toggles. In this case the workers impale each toggle on the end of an ice chisel and lower it into place. Joe Sun met this problem by constructing a giant pair of wooden pliers to grip the toggle and maneuver it into place. He used two pieces of alder, hewn flat on the sides and fastened together with a bolt.

The length of the shoreward wing, the depth of the water, and the personal preferences of individual builders all help to make each fish trap unique.



Layers of willow saplings set between the poles of the trench.

Fastening toggles to keep barrier of willow saplings in place.



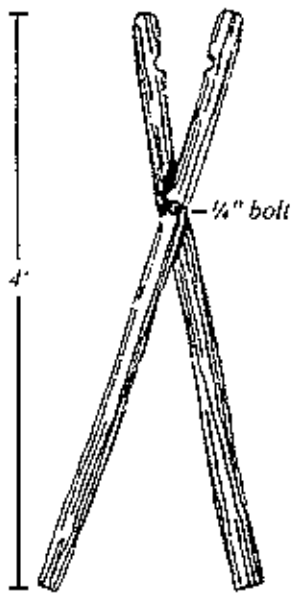
Toggles placed across the willows and beneath the ice to prevent them from pushing back out.

The time needed to make a trap depends on the availability of materials, length of the shoreward fence, number of workers available, weather conditions, ice thickness, and so on. One trap built by a Shungnak family involved between five and nine persons at various stages. It took nine work days to complete, beginning on October 29 and ending on November 15. Several days were lost because of storms and other interruptions such as hunting activities. Three other traps made the same fall took somewhat less time to complete because they were built earlier, when the ice was not so thick.

Building a fish trap requires working on the frozen surface of the river fully exposed to the elements. During the construction of one such trap, air temperatures ranged from about freezing to fifty below zero. Even the warmer days were often accompanied by stiff winds that produced significantly lower chill factors. A tent equipped with a stove, food, and bedding was set up near the trap site. Usually a hot breakfast of meat, fish, seal oil, and hot cakes was prepared for the crew before work began in the morning. A similar noonday meal was also prepared, often by the wife of a crew member. One or two coffee breaks were taken during the day to warm up. Even in the coldest conditions there were no complaints.

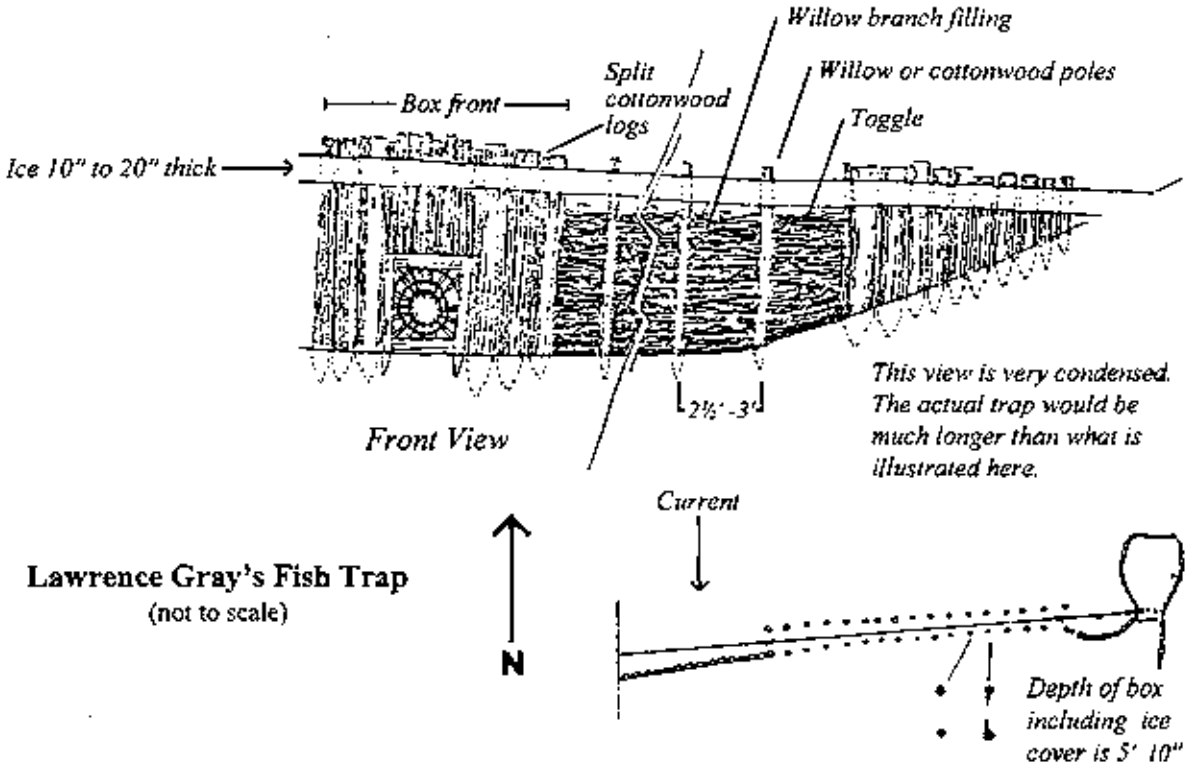
Once the burbot trap is finished, a layer of poles, willows, and a tarp are placed over the trap box to block out the light. Each day one or two persons who helped to build the trap go to the site and chip out the ice over the box. After all ice has been shoveled clear, a crew member uses a long-handled gaff *(aki)* to snag the burbot swimming inside the box. Snagged fish are flipped onto the ice and clubbed. Care is taken to avoid snagging fish in the belly, as this is thought to release an odor that repels other fish. People are also careful not to hook and damage the trap entrance.

Made of alder hewn flat on the sides



Pliers for setting toggles over the willow wall.

Cutaway and condensed view of a burbot trap.

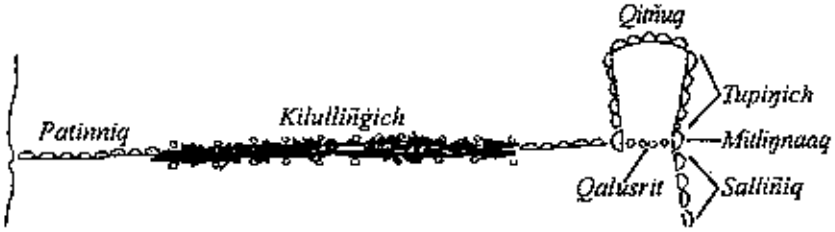


Lawrence Gray's Fish Trap
(not to scale)

After the trap has been emptied, a stout pole is used to stir up the gravel at the bottom of the box, flushing out offensive odors and pushing gravel against the walls to cover any openings caused by trapped fish.

Once the fish have been removed, they are carefully divided into equal piles marked with stakes bearing the names of individual trap workers. No extra share is taken by those who open and empty the trap. After the piled fish freeze overnight, they are pried up and leaned against each stake so they will not be lost under a snowdrift. During the winter of 1974-75, one burbot trap was checked until January third. By this time, low temperatures were producing thick ice overnight, limited daylight made it difficult to see and hook the fish, the catch was much below earlier levels, and ice was slowly blocking the trap entrance.

Burbot Trap
Qargich



Top view

Catch estimates were kept for a trap located approximately five miles via trail from Shungnak. Round trip travel time was about 45 minutes by snowmachine or an hour and twenty minutes by dog team, and the checking took another one to three hours. Daily catches averaged about 100 fish, and the total estimated catch for the life of the trap (November 16 to January 3) was 3,447 burbot. If we estimate the average weight of each fish at three pounds, the total weight of fish caught is 10,341 pounds. This catch was divided into six equal shares, each worker receiving roughly 575 fish, with a total weight of 1,725 pounds.

Three workers who owned dog teams used one-half to three-quarters of their shares to feed the dogs. Some fish were sold to other villagers who needed dog food or wanted burbot liver for personal consumption. All crew members gave fish away to relatives and friends, some being sent as far as Kotzebue.

Chapter 9

Hunting

Just as with fishing, hunting is a vital element in the economy and lifeway of Kobuk River people. In addition to providing food, it is an important source of raw materials for traditional clothing and implements, as well as goods for trade or sale to neighboring Eskimos, Athabaskan Indians, and non-Natives. Hunting is also the catalyst for organizing cooperative activities, formal partnerships, sharing patterns, and many other social institutions whose influence extends through all of *Kuuvaŋmiut* culture. To an important degree, success in hunting is a standard by which men from the Kobuk villages can establish their sense of worth and stature.

Dependence upon something as important as hunting also encourages a continuity in relations between the young and the old, particularly among males. To succeed or excel in the culturally assigned role of a hunter, young men must be tutored by older men. Hunting is thus one means by which the cumulative knowledge and the philosophy of the Eskimo culture is passed from one generation to the next.

Caribou *(tuttu)*

The caribou is a large member of the deer family, widely distributed in circumpolar regions of the northern hemisphere. It is somewhat larger than a mule deer and smaller than an elk. Its pelt varies from very light to dark brown depending on the season. A mature bull caribou *(paŋniq)* weighs 150 to 400 pounds, and a mature cow caribou *(kulavak)* is two-thirds this size (Palmer 1954:303).

By early fall an adult bull caribou is an impressive animal. His body fills out with heavy layers of flesh and fat over a thick-set neck and trunk. A cape of creamy-white fur covers his neck and shoulders. His antlers sweep back and up into a C-shaped curve over the head and neck, with a total length of six feet from the bottom palm to the top end point. A layer of fat develops along the top of the back, often three inches thick over the rump. Cows also fill out during the fall, but somewhat later than the bulls.

The caribou is physically well adapted to an arctic tundra and taiga environment. Its coat is made up of long, hollow hairs that provide excellent insulation against the cold. Its hooves are wide and rounded with a hollow center and sharp edges. These spreading hooves, together with the animal's dew claws, give a large supporting surface for travel on snow and soft earth. The caribou's eyesight is inferior to that of other North American deer, but its sense of hearing and smell are excellent. The highly specialized diet of the caribou consists primarily of lichens and mosses, allowing it to thrive in areas

where other grazing animals would perish. It will also feed on other vegetation, such as green willow shoots, cloudberries, and coarse tundra grasses.

Caribou are gregarious animals, usually found with others of their kind. The size and composition of a caribou herd varies according to the season, weather, available food, predation, and instinctive drives. Herds ranging from a dozen to several hundred are common in the Kobuk valley, but the much-publicized herds numbering countless thousands of animals are, in reality, very brief and localized occurrences. Migrating herds are made up of many small bands, numbering between 25 and 150, all moving in the same general direction and sometimes forced into close concentrations by geographic restrictions. In more open areas migrations may spread over an area of 30 to 60 miles, with one or more miles between individual bands of animals.

Except for a few stragglers, caribou are absent from the Kobuk valley after they move north through the Brooks Range in spring. Then, by mid-August, small bands begin slowly wandering southward into the Noatak River valley. By mid-September the pace of migration quickens, and larger numbers of caribou move across the northern foothills of the Brooks Range. After the first scattered forerunners, the main body of the migration seems to literally burst onto the plains of the central Kobuk valley between late September and mid-October.

The scene of this event may shift widely from one year to the next, although in recent years the Hunt and Salmon rivers have been the main routes into the Kobuk. Archaeological evidence from Onion Portage and other nearby sites suggests that this general area has been the main passage route for thousands of years. Smaller numbers of caribou filter through valleys east and west of the central route, usually reaching the Kobuk River somewhat later than the central part of the herd.

Once through the Brooks Range, the migration pauses briefly as bulls aggressively assemble cows for the mating season. This may be either before or after they cross the Kobuk. The bulls are in prime condition, but they quickly become lean once mating begins. The pause may last for as long as a week, and then the animals once again move south to scatter out across the vast Selawik lowlands.

Some of the caribou remain all winter in small bands from Hotham Inlet to the headwaters of the Kobuk and Selawik rivers. Occasionally loose assemblages of a few thousand caribou will gather temporarily where food is abundant, but widely scattered bands of less than 100 animals are more common. During this period the caribou are in generally poor condition; their meat is lean, dark, and stringy and their hides cannot be used. Cows remain in somewhat better condition than the bulls.

In early spring the mosses and lichens reappear, and caribou start to build up thin layers of fat. Toward the end of March the bands drift northward, where they merge with other scattered groups. By mid-April, large numbers of caribou are moving toward the Brooks Range, often forming long, single-file lines that make deep ruts in the snow. The spring migration does

not seem to be as localized or as sudden as the fall migration. It continues into mid-May, when the bands are virtually rushing to cross the mountains. A few stragglers continue to filter across the Kobuk River into early June. There is considerable variation in the route and timing of this migration. Factors such as snow depth, predators (including man), available feed, weather conditions, and the complex nature of the animal all make caribou one of nature's least predictable creatures.

A grazing herd of caribou is a study in continuous movement. The sparse vegetation rarely provides enough food to allow an animal to remain in one spot, so that with each mouthful of vegetation the caribou takes a step or two forward. A herd usually moves into the wind as it feeds. During cool late summer evenings, caribou often lie down to sleep for short periods with their heads pointing downwind. Eskimo hunters say that this allows the animals to see any danger approaching from downwind, while they can also smell any predators that may be upwind. They tend to sleep in short snatches, awakening every few minutes to search for possible danger; so in a group of resting caribou at least one is usually awake. Smaller bands of caribou are easier to approach because there are fewer animals alert at a given time.

Caribou Hunting in the Past

Summer. Extended summer hunting trips were carried out by the *Kuuvanmiut* from at least the late 1800s into the 1940s. Small parties of men usually traveled and hunted together in the northern mountains, and the general area of Howard Pass and the Itivilik River was especially preferred by upper Kobuk people. Hunters began walking north in mid-July and would arrive in the hunting area as the first caribou began filtering south in early August. At this time the hides are prime for clothing and the meat is most tasty. Before the advent of the snowmachine, summer caribou hunting was considerably easier than winter hunting. Eskimos say that warm weather makes the caribou lazy and less alert. Undoubtedly, the movements and odors of the abundant flora and fauna also help to mask the approach of a hunter.

Caribou taken during summer hunts were skinned so that all parts of the hide were usable. The hides were turned skin side up and stretched on the ground to dry in the sun, then rolled together into tight bundles for packing. The meat was cut into strips and hung from willow bushes to "half dry" so that a little moisture remained in each piece. Back fat and intestinal fat were also hung to dry.

The stomach was removed and cleaned, and marrow from the leg bones was stuffed inside this pouch. Strips of back sinew were removed and dried for thread. Certain bones and antlers were cut into appropriate lengths for later use as tools or handles. Everything was bundled into packs that the men and dogs laboriously carried to the distant Kobuk River. Of these, the fat and items for manufacture were considered particularly important.

Fall. Two caribou hunting methods formerly used by the *Kuuvanmiut* were large, cooperative drives and snaring at river crossings during the big

fall migrations. Elderly villagers said that they had never participated in a caribou drive but that their parents and grandparents had.

The caribou corral consisted of stout sod or rock pillars, or bunches of willows or grass, set in two converging lines, occasionally stretching for miles. Sometimes this funnelled the animals into a circular enclosure filled with snares and hidden hunters; at other times it led them into a large lake or river, where men in kayaks and larger boats paddled among the swimming caribou and killed them with spears.

When the corral method was used, women and children hid along the edges of the funnel until the herd had entered and moved past them. Then they stood up and frightened the animals deeper into the trap. According to a Shungnak elder, they would also put dummies of bundled willows across the funnel behind the caribou to prevent them from escaping. Willow dummies were also used to quickly assemble an entire funnel at a new location.

In certain areas, caribou follow trails through willow and alder thickets along river or creek banks. When they reach these areas, the animals tend to bunch up briefly and then rush through on the trails. In the past the *Kuuvanmiut* would find these paths and hang rawhide nooses across the openings. These snares were about three feet in diameter, the bottom hung about 30 inches above the ground, and they were fastened to heavy brush or small trees. To force the caribou into paths with snares, people would use brush to block the other trails nearby. Kobuk Eskimos practiced caribou snaring into the early years of the twentieth century.

Winter. Before the introduction of snowmachines, Kobuk people traveled either on foot or by dog team to obtain caribou during the winter months. Very little winter hunting is presently done by these means. However, increases in fuel prices, difficulty in maintaining machines, regulatory restrictions on hunting, and personal preferences of individuals could bring them back into use.

Hunting on snowshoes was a standard practice well into the 1950s and early 1960s. If caribou were within six or seven miles of the village or campsite, men often preferred to travel on foot, because dog teams sometimes frightened away the animals. A man on snowshoes would leave home before daylight carrying his rifle, a bag of ammunition, a hunting knife, matches, and binoculars. In a wide bag slung across his back he might carry some dry meat or fish, tea, sugar, a cup, extra canvas gloves, and perhaps dry socks.

Occasionally two men traveled together, but winter hunting was usually a solitary pursuit. The hunter would set a steady pace toward an area where caribou had been sighted or where he felt hunting might be promising. As he went along he was constantly alert for tracks or other signs that might lead to game. He would often stop at the top of a rise or hill to carefully study the terrain.

If he spotted a band of caribou, the hunter carefully studied their position and movements. As in fall hunting, he had to consider the wind direction, route of approach, concealment, and so on. And during the winter he had to take other factors into account. For example, deep, soft snow can make it impossible to approach the animals by crawling, and crusted snow can trans-

mit sounds over long distances to the sharp ears of caribou—particularly in subzero weather.

Hunters on snowshoes were sometimes able to run down a caribou. When the snow was deep and soft, caribou would quickly tire if chased. Or when a crust developed over deep snow, the animals could often remain on top only if they did not run. Some Kobuk hunters recall trotting on snowshoes for several hours, until the caribou they were chasing floundered. In very cold weather—30 to 50 below zero—a hunter who encountered caribou on packed snow could remove his snowshoes and turn his *ruttulik* mukluks (skin boots lined with caribou fur) inside out so he was walking on a cushion of caribou hair. This allowed him to move very quietly. His stalk might take up to three hours before he came close enough to shoot at his prey.

When a concealed hunter fires at a group of caribou, he should not shoot at the closest animals but at others on the far side. This causes the herd to move away from the stricken animal and toward the hunter. If the herd begins to run, the hunter tries to shoot the leaders, so the animals will mill around and perhaps reverse their direction. Skilled hunters can thus selectively bring down the animals they want. Younger, less trained hunters spend considerably more time, energy, and ammunition, with less return, than do the older, more knowledgeable men.

When a hunter on foot killed caribou, he opened their bellies and removed the intestines. Sometimes he ate a piece of raw kidney for nourishment. He might also remove the tongues and put them in his pack. All of the caribou, including the innards, were then dragged to one pile and covered with brush to ward off ravens and jays. After this the hunter hiked home, to return the following day by dog team and pick up his kill.

Hunting by dog team of course gave a man more mobility than he had on foot. He could also carry more gear, but usually kept the load small so there would be ample room for game. The only additional items he carried were an ax, sled tarp, tea pot, and perhaps some extra dried fish to feed the dogs.

Sled dogs served for more than just transportation in such hunts. The dogs could often pick up caribou scent from a mile or more upwind. A hunter quickly read this by watching their tails, heads, ears, and general body stance.

The usual technique was to drive across open, wind-packed areas and stop on rises to scan the terrain. If trees, brush, or large rocks were within a half mile of caribou, the hunter usually took his team there, secured it, and stalked the animals on foot. Most men trained their dogs to keep quiet while they were away, but there was always the possibility of a fight or of a dog's breaking loose to chase nearby caribou.

Occasionally circumstances did not allow tethering the dogs or stalking on foot, so the man drove his team directly at the herd, hoping to come close enough for firing. Some teams ran to within 150 yards of a herd. Just before the animals started to run, the hunter would stop his dogs, anchor the sled, and fire a few shots.

As the caribou ran away, he pulled up the sled anchor and gave chase. Caribou can easily outdistance a dog team. However, they tend to run away at an angle and will stop once or twice to look back, so the hunter could guide his team to intersect their path of flight. The dogs were running wildly by this time, but when the caribou paused, the driver would again stop his team and fire. All of this required a well-trained team and a man who was both a skillful driver and an excellent shot.

To transport several caribou on his sled, the hunter butchered his animals into fairly small pieces. If he had a large load, he could bone out the meat and leave the bones behind with other non-edible parts. A hunter skilled in this technique could load a 12-foot-long basket sled with the meat and hides of six to eight caribou. A dog team often pulled two large heavily laden sleds and would relay loads from one campsite to the next until finally reaching home again.

Before the 1950s, when caribou were scarce or absent from the Kobuk valley, *Kuuvaŋmiut* hunters commonly drove their dog teams to the upper Noatak River valley. Caribou were usually located in the area between the Cutler River and Howard Pass. Hunting was also done as far east as the headwaters of the Killik River. Men who planned to trap in this area usually came here in December. Those interested primarily in caribou might wait until early February to mush north.

Sometimes the caribou were difficult to locate. Several Kobuk villagers told of running out of dog food and being low on their own food supplies before they finally located game. Dogs might become so weak they could not stand up, and some even died. However, once caribou were found, the dogs could recover quickly and regain their strength on a rich diet of fresh meat.

Caribou Hunting in the Mid-1970s

Summer. The *Kuuvaŋmiut* no longer need to hike across the mountains to hunt caribou in the summer. Since the 1950s herds have wintered in the Kobuk valley, within easy travelling distance of their communities. If their migration patterns changed again and suitable game substitutes were either scarce or unavailable, people would likely revive their former summer hunting practices, although in modified form.

Fall. Each September, Kobuk villagers eagerly await the fall caribou migration. Pilots who fly through the area are closely questioned as to caribou sightings. People from the villages of Ambler and Kiana make boat trips to the Hunt River to check on possible caribou movements, and persons staying in fall camps in the area are alert for signs of the southward migration. People from other villages also like to travel the river at this time to look for caribou, but reaching the Hunt River is a longer trip for them and few can afford to buy this much gas.

When they receive news that caribou have descended the Hunt River, villagers, particularly from Ambler, travel by boat to intercept the main herd. Boatloads of hunters from the lower Kobuk villages and occasionally as far

as Kotzebue travel upstream to harvest the fall caribou. This is the prime season for hunting caribou, because they are fattest, and therefore best, before the rut begins in October.

Hunters who come by boat to the main area where caribou are crossing the river will often establish tent camps on the river banks nearby. From there they hike into the surrounding terrain to seek their prey. Most hunting is done within a mile of the Kobuk River. If water levels permit, some villagers boat up the Hunt or Salmon rivers and set up their camps there.

Equipment carried by each hunter, or accessible to him, includes the following:

high-powered rifle with scope
ammunition (2-5 boxes, 20 rounds per box)
hunting knife
sharpening stone or small file
cotton work gloves (2 pairs)
rain jacket
small ax
matches
hip boots or rain pants
heavy jacket
parka
insulated pants
pocket knife with a thin sharp blade
thermos for hot coffee or tea
binoculars

Two-to-five men may hunt together, sharing the expense of gas and the labors of the hunt. After arriving in the general area of the migration, they climb bluffs or low hills and use binoculars to study the surrounding terrain. If the migration is in full swing, they will see numerous bands of caribou scattered across an open plain.

In deciding which group to stalk, they take several factors into consideration:

(1) Size and makeup of the band: very large groups on the move are usually relatively easy to stalk, as are small groups at rest. Before the rut, bands of bulls are preferred as they are larger and fatter than cows and fawns. During and after rut, cows are preferred because the bulls develop an offensive odor and taste.

(2) Route of travel: Bands moving toward the river or coming in the general direction of the hunters are preferred.

(3) Behavior of the animals: If the band appears nervous and rushing along without stopping to eat, it may have recently been frightened by some predator and will be difficult to approach.

(4) Topography: Herds near or moving toward terrain that offers good concealment are preferred.

(5) Wind direction: The hunter must be able to approach a band without the wind carrying his scent to it.

After taking these factors into consideration, the hunter chooses a band he wishes to hunt and finds a concealed route of approach. To reach an advantageous spot often requires running in a low crouch for hundreds of yards over hummocky ground and crawling over marshy areas, always being careful not to move upwind of the animals. If the caribou are resting, the hunter watches their ears and antlers for any movement that indicates an animal is awake and about to raise its head. If he sees movement, he lies quietly until the caribou looks away or sleeps again. He must also watch closely for cows with fawns *(nuggalik)*, because they are much more alert to danger than are bulls.

If the hunter stalks a moving band of caribou, he finds a suitable position along their line of travel and then waits until they come alongside him. Two or more men who hunt together may separate and wait until the band comes between them before firing. Skilled *Kuuvanmiut* hunters do not waste ammunition and game by firing at random into a band. Rather, they pick out prime members of the group and try to place their shots selectively in the neck or shoulder. Neck shots are preferred for quick kills with minimal loss of meat and hide. As described earlier, a knowledgeable hunter can attempt to control the movements of a band by shooting leaders or animals on the far side.

When firing into a band of caribou, it is inevitable that some animals will be wounded. Severely wounded caribou are usually not killed until the initial firing is over. A wounded animal that is able to walk may be driven toward the hunter's camp so he will not have to carry it on his back. Downed caribou are killed either by piercing the heart or by severing the spinal cord at the base of the skull with a knife.

A severely wounded caribou will often stand upright with its head down. This presents the silhouette of a peacefully grazing animal and will reassure other caribou moving nearby (Pruitt 1960:5). Small groups or individual caribou may even be drawn to this animal. A wounded caribou lying with its head up also acts as a calming influence on other caribou. A hunter may allow these "decoys" to live until he can dispatch other animals nearby.

Occasionally a hunter sights a stationary group of caribou in an area that is too open for a concealed stalk. In this case he can take advantage of their response to certain kinds of silhouettes. A low, stalking profile would resemble a wolf or other predator, but the outline of another caribou grazing peacefully causes no alarm. The hunter may extend his arms or two sticks above his head to resemble antlers and then copy a caribou's leisurely, zigzag grazing route as he approaches the herd. If there are two men, one may crouch behind the first to give the appearance of a single animal. A band of caribou is seldom deceived by this once the hunter comes within 150 to 300 yards, however.

Another ruse can be used to attract single caribou within shooting range, especially during the rut. A hunter holds his arms above his head and makes short dashes back and forth, while he also imitates the hoarse coughs of a doe calling its fawn. Both adult and calf caribou may be drawn close by doing this odd little dance.

When alarmed, a caribou assumes a stiff stance with its right rear leg outward and its head turned to face the suspected danger. Seeing this, other members of the band may assume the same position, so the alarm spreads. Hunters know that when this happens they should begin firing before the animals bolt out of range.

The fall migration usually continues well into freeze-up. At the height of the season caribou may be encountered anywhere from just above Kiana to the village of Shungnak, a distance of about 65 miles. Usually caribou do not reach the Shungnak area until several days or a week after they arrive in the Hunt River area. Ice is often running in the river by this time, so many of the animals move east into the open country between the mouth of the Ambler River and Wesley Creek, waiting until the ice is safe enough to cross. Most caribou in the lower Kobuk area migrate through the Squirrel River valley and reach the Kobuk River after those in the Hunt River area.

Several older Shungnak hunters stated that the first migrating bands of caribou should be allowed to pass by the village unmolested, because the forerunners create trails that the others will follow. With this same consideration in mind, people from all Kobuk villages are also very critical of low-flying aircraft that may drive herds away from the area.

In late October of 1974, Shungnak hunters refrained from hunting caribou that were gathering west of their village, hoping that the herd would swing eastward and pass nearby. Unfortunately, the Kobuk River froze and the herd filed across, then continued southward to the Selawik lowlands. When it became obvious that the migration would miss Shungnak, several men traveled by snowmachine over rough, virtually snowless tundra to hunt the remaining caribou. About 70 caribou were taken that month. However, most of them were quite lean or were rutting, which substantially reduced the value of the meat.

At Ambler the migration was somewhat later than usual, and slush ice made boat travel on the river impossible. A few hunters tried to reach the herds by snowmachine, but weak ice and absence of snow made travel both difficult and dangerous. To solve their dilemma, some Ambler men arranged to be flown to the general area of migration, where they spent several days hunting. They took some of the meat home by plane, but cached most of it to pick up by snowmachine when conditions permitted. While this approach to fall caribou hunting is unusual, it indicates how important the fall meat supply is to Kobuk villagers.

After making a caribou kill, hunters quickly and efficiently skin, clean, and butcher the carcasses for transportation and storage. The effort and length of time this takes depends on the size and condition of the animals and the number of workers involved. In the fall, when men often hunt in pairs or

small groups, caribou are usually skinned and butchered by two men working together. Bull caribou are somewhat more difficult to skin than are cows. A pair of skinners can peel the hide off a bull caribou, remove its internal organs, and quarter it in less than 15 minutes. During the winter, this might take a single hunter about 25 minutes.

To process a fall caribou, the carcass is rolled on its back and pulled forward so the neck arches back and the antlers brace the body. The legs are skinned first, beginning with an incision around the edges of the hoof. The foreleg incisions run from the meeting of the two toes along the front and over the "knees," to a joining point at the base of the underneck ruff. The hind leg skins are cut from the rear of the hooves, along the back to a point two inches below the anus. A cut is next made along the underside from the anus to the jaw. The hide is then cut free from the lower jaw around back of the antlers so that the ears are left on the pelt (some skinners prefer to cut further back and remove the ears).

The leg skins are peeled down and the hide is stripped free from the belly and neck. One man then inserts his hand between the hide and the flesh and punches downward to separate the two. The neck skin is then grasped firmly and vigorously jerked backward to finish peeling the hide from the back. When the hide is pulled away, it is laid out with the flesh side exposed and allowed to freeze or dry.

After the hide is removed, an incision is made along the middle of the abdomen from beneath the anus to the tip of the sternum, being careful not to puncture the stomach pouch. An incision is then made down the left side of the abdomen to the backbone. The carcass is tilted to the left while a man pulls out the stomach and intestines, placing the kidneys to one side where they will not be lost. The throat is cut lengthwise to expose and loosen the trachea, the diaphragm is cut away, and then the lungs and trachea are pulled out of the chest cavity as a unit. The heart is removed, sliced along each ventricle, and allowed to drain of blood. If the head is to be kept, the antlers are usually chopped off for easier handling. If the head is not kept, an incision is made under the jaw and the tongue is pulled through to be cut off and saved.

Once the viscera are removed, the carcass is cut apart between the last rib and the pelvis. The skinner deftly inserts his knife blade between two vertebrae and twists to complete the division. Each end is propped up so the blood will drain. Hand holds are made by cutting slits through the back of the neck and on either side of one middle rib. Incisions through the muscles of each leg serve as carrying grips for the hind quarters.

After skinning and butchering a caribou, a hunter may open its stomach and use the contents to clean the blood from his hands and knives. Butchering knives are filed or honed before starting on the next carcass, and the hunter might also take a short break to relax and smoke a cigarette. The younger men of a crew usually carry the meat and skins to the boat. Every two or three hours the crew will take time off to brew tea and have a snack. The entire process of butchering 15 carcasses and then hauling them to a boat as far as

400 yards away might take about nine hours of hard work for a crew of five men.

Fall-killed caribou are particularly valued by the *Kuuvaymiut*. The prime meat is excellent as frozen meat eaten uncooked *(quaq)*. It is also delicious when cooked. The fat is used in many ways, such as making *akutuq*, a mixture of whipped fat and berries. Fall caribou meat also makes a fine gift to share with relatives and friends in other villages or distant cities.

Winter. Caribou hunting continues to be an important activity for men throughout the long winter. It declines somewhat during December and January because of the short days, severe weather, and the fact that caribou are usually widely scattered. The animals also become lean in midwinter, their hair becomes brittle and sheds easily, and they seem to be more wary and difficult to approach.

Today, well over 90 percent of all winter caribou hunting‖and winter traveling as well—is done with snowmachines. Whereas in the past this was largely an individualistic affair, men now prefer to travel in pairs or small groups. If a machine breaks down, which often happens, others are at hand to help repair it or to haul the driver home. Also, under most circumstances, using two or more machines will greatly increase the chances of success in a hunt.

In open areas, hunters generally spread out as they travel but keep each other in view, so they can survey the greatest area possible. When game is spotted the drivers come together and decide the best approach. If the terrain, number of caribou, and number of machines warrants it, one group of hunters circles behind the caribou while the other group moves ahead. Usually this maneuver causes the caribou to run directly across the path of the forward hunters. Another way to hunt most effectively is by having two men on each machine, so the driver can concentrate on maneuvering close to the caribou while the other (who usually rides behind on the sled) can shoot as soon as the machine stops.

When hunting by snowmachine, it is usually easy to catch a wounded caribou that would have escaped a man on foot or on a dog sled. Then too, a hunter traveling on foot or by dog team might have only enough daylight to locate and approach just one caribou band, while a man on a snowmachine could make several attempts. The snowmachine hunter also need not worry about dog fights or the possibility that his team might frighten the caribou away. Some hunters still go out alone in the winter, but they usually stay within a few miles of the village unless their machine is new or in good working order.

Most present day caribou hunting is carried out within a one-day round trip of the village, although tent camps may be used if the caribou are distant or other conditions warrant it. Focal hunting areas differ from year to year, depending largely on movements of the caribou, amount of disturbance by other hunters, and condition of the animals. For example, in 1974-75, caribou near the Kobuk Sand Dunes and south of the Sheklukshuk Mountains were in particularly good shape. Several men explained that these animals were seldom disturbed so they were in good condition. Kiana hunters found that cari-

bou near the Hunt River were fatter than those along the Squirrel River, so they preferred to focus their hunting activities accordingly.

Caribou taken by a group of hunters are shared equally. In one caribou hunt involving eight men from Shungnak, a total of 18 caribou were taken. All of them were brought to one spot and gutted without skinning. Before dividing up the shares, each caribou was cut just over the sternum to check for fat, so that the prime animals could be shared among all hunters first and the leaner ones afterward. Caribou taken by a lone hunter belong to him, but they are often shared with relatives and close friends.

Men with snowmachines usually gut their kills on the spot without skinning, then load them on the sled intact. Several caribou can be placed on the sled side by side in pairs, with the legs projecting upward. Five or six adult caribou are the maximum load most snowmachines can pull.

Occasionally a hunter kills more caribou than he can haul home in one trip, so he piles the surplus carcasses together. To keep ravens from eating the meat, he may cover the kill with cut brush or hang a mock snare over them. He might also set traps around the pile to catch any wolves, foxes, or wolverines drawn by the scent. The hunter tries to return as soon as possible to pick up the carcasses.

The *Kuuvapmiut* have developed rules to designate ownership of caribou carcasses. A wounded animal, for example, belongs to anyone who finds it. A dead caribou with its belly opened is considered private property and will not be disturbed. A dead caribou that has not been gutted becomes the property of the person who finds it. When a hunter sets traps near a dead caribou or its remains, he marks them to warn others. Small traps, such as for fox or marten, are indicated by a single stick poked into the snow nearby. Large traps, for a wolf or wolverine, are marked with crossed sticks placed near the carcass.

The fattest caribou taken in midwinter are used for human consumption and the poorer ones for dog food. Families with dog teams tend to use considerably more than do those who own just a few dogs or none at all. A team of 10 sled dogs can consume a caribou in from three to five days, depending on the size of the carcass. If the meat is cooked as "dog soup," it may last up to a week, as long as the weather is not severe or the dogs are not being worked hard.

Spring. Caribou hunting becomes a major activity during the months of March, April, and early May. Roughly a third of the year's caribou are taken during these months. Long hours of daylight, milder weather, and gathering of migratory herds make this an excellent time to be out hunting, and villagers can cover the full limits of their hunting range. This is also the time when they make dry meat for the coming summer. Because snow remains on the ground for most of this period, caribou hunting is done mainly by snowmachine. Some animals are taken by boat immediately after breakup.

In the spring, caribou are less wary and easier to approach. This may be related to the warmer weather, which Kobuk people say makes the caribou

lazy. Both snowmachines and dog teams are able to approach to within 100 yards of caribou during the spring months, which permits relatively easy shooting.

The fattest animals taken in early spring are buried under the snow near the hunters' homes. In April, women of the household begin digging up these carcasses. They skin and quarter each one, then cut the meat and hang it to dry on pole racks near the house. Rib cages are hung with the flesh attached. Throughout April and into early May, the men haul in caribou and the women stay busy cutting the meat into thick strips to cure in the sun. The most active households may process more than 25 caribou during this time.

The hanging meat slowly dries, shrinks, and develops a hard black crust. Most women lightly salt the meat before hanging it to aid in the curing and to give it added taste. Before the strips become completely dry and brittle, they are removed from the racks, placed in clean burlap bags, and stored in cool dry caches. Dry meat is a staple summer food, particularly among the upper Kobuk people. Some dried meat is sent to relatives and some is traded or sold to contacts in other communities such as Kotzebue.

Moose *(tiniika)*

The moose is the largest species of the North American deer family. It ranks next to the caribou as a source of meat, although the *Kuuvaŋmiut* consider it far less important. Kobuk people over the age of 55 can remember a time when there were no moose in the Kobuk valley, and archaeological evidence confirms the absence of moose for much earlier times. A woman from Kobuk village said that she was a seven-year-old child when she saw her first moose in 1927. The recent arrival of this species is indicated by the *Kuuvaŋmiut* term for moose, *tiniika*, which is borrowed from their Athabaskan Indian neighbors.

Before the 1920s, the *Kuuvaŋmiut* reportedly traveled as far east as the south fork of the Koyukuk River to hunt moose. Considering the distance and difficulty of such travel, moose meat was probably a minor element in their diet. This changed in the 1940s and 1950s, when the animals became numerous. Moose are now found along the entire length of the Kobuk River. Their population has apparently stabilized in the upper valley, but it continues to increase in the lower valley.

During the summer months, moose tend to move toward higher elevations, probably to escape the mosquitos. By August, they have filled out with thick layers of fat and begin to drift down toward the main valley of the Kobuk. As the air cools in September, mature bulls go into rut and crash about in the brush eager to mate or fight. When the snow deepens, moose congregate along willow-covered river bars. In spring, now lean and rangy, the moose again make their way into the higher hills.

Today, most Kobuk village men hunt moose sometime between mid-August and early October. Often this is done coincidentally with the search for bears. Two or three men in one boat travel along the Kobuk and its main

tributaries, watching the bars and banks for signs of moose. If they know of a shallow lake close to the river's edge, they may walk back to check for a feeding animal. They also climb high bluffs hoping to spot a moose on open ground or along a shore. All villagers who travel at this season are alert for moose on the river banks, and many of them are taken in the course of regular travel.

The best moose hunting time is near dusk, when the animals come out onto the river bars to drink and search for mates. The hunters wait in hiding, often for several hours, in known areas of moose activity. When a moose is sighted, it must be shot before it enters the river or lake to avoid dragging 1,500 pounds of dead weight to shore or butchering the animal in the water. The preferred target is the neck, with a shoulder shot the second choice. Most men will hesitate to shoot a moose that is walking directly away for fear of ruining the hindquarter meat.

The following is a description of skinning and butchering a bull moose killed in September, 1974, near one of the upper Kobuk villages:

> Fresh willows were cut and laid about the moose to protect the meat from sand. The front and hind legs were removed without skinning. One person would lift a leg while the other two, using butcher knives, cut away the limb at the upper joint. The limbs were pulled to one side. As the carcass lay on its side the skin was peeled away from the top side. The slab of flesh covering the rib cage was cut away and placed on a willow mat.
>
> The muscles covering the stomach and intestinal area were cut away by an incision that followed the outline of the last rib. The fatty web covering internal organs was gathered and placed in a separate pile. Internal organs were removed, with the liver, heart, and kidneys put aside for use. The internal fatty tissue and fat concentrations were stripped away and placed in a separate pile. The rib cage on the right side was removed as one unit from the spine. The head and neck were cut away. Back-straps were removed from either side of the spine. The pelvis was separated from the spine and split with an ax. The left rib cage was removed and cut into several sections. The backbone was divided into several sections.

When butchering was finished, the meat was divided into four equal piles. Each of the three hunters received a share, and the fourth share was given to the village. Most of the meat that hunters gave to the village was saved for the Thanksgiving feast; the rest was sent around to be shared by each household. The three hunters also shared their own meat with relatives and friends.

Much of the moose meat taken in early fall is either dried or frozen for future use. The drying process is the same as for caribou meat in spring, except that smudge fires must be used to repel flies. Most Kobuk River households now have home freezers, and moose meat is often preserved in them.

Moose fat is rendered into lard for cooking or used in making *akutuq*, fat whipped together with berries. Moose taken in September or early October are simply butchered and hung in small sheds to slowly age and freeze.

Moose may be taken during the winter months by men on snowshoes or using snowmachines, but moose hunting is always subsidiary to caribou hunting. Older *Kuuvaŋmiut* say that the Koyukuk Indians are much better moose hunters than the Eskimos are, but that *Kuuvaŋmiut* are superior when it comes to hunting caribou.

Moose Harvest Statistics for the Kobuk River Villages: 1972 to 1975*

	1972–1973	1973–1974	1974–1975
Upper Kobuk Villages	40 (56)	34 (56)	31 (56)
Lower Kobuk Villages	17 (37)**	28 (67)	18 (63)

*The figure appearing within parentheses indicates the number of families participating in moose harvest activities, and from whom answered questionnaires were received.

** Fewer families responded to the questionnaires on the 1972/1973 moose harvest season than for subsequent years.

From the table above, the number of moose harvested in the upriver communities for 1974/1975 averaged one-half moose per family. This may be compared to the total of 1,306 caribou taken that year by hunters from the same three villages, for an average of about 23 caribou per family. In the downriver villages during the same period, the number of moose harvested produced an average of one-fourth moose per family. These villages also harvested 742 caribou, for an average of 12 caribou per family.

Moose hunting is done throughout the entire Kobuk River valley up to Lower Canyon, which is the limit of boat travel. At least six boat crews went beyond the Mauneluk River for extended moose and bear hunting forays along the upper Kobuk during the 1974 hunting season. Moose are also taken along the Reed, Pah, Mauneluk, Hunt, Salmon, and Squirrel rivers during the early fall.

Black Bear *(iyyaġriq)* and Grizzly *(akłaq)*

Both black and grizzly bears inhabit the Kobuk valley and use the same general range, although grizzlies are more frequent in the higher elevations. According to knowledgeable Kobuk people, black bears avoid contact with grizzlies and will desert an area when grizzlies arrive. Grizzlies are known to kill and eat black bears.

Both bear species spend the long winter in hibernation dens under the snow. They are usually still fat when they leave their dens in April, but their physical condition deteriorates rapidly afterward. Bears are also mischievous and irritable in the spring. Unoccupied cabins, camps, or caches are fair game

to a spring bear. It may rip a door to pieces or even pull a log from a cabin wall to gain entry.

During the early summer, bears wander about feeding on roots, carrion, and whatever game they are fortunate enough to catch. In summer their diet shifts to berries and fish. Spawning salmon are an important source of food to bears along the Kobuk River. By September, bears are normally in prime condition, heavy with fat. In October, when the first snows begin in the valley, a bear may excavate its den into the side of a knoll or slope, or it may choose a natural cavern beneath overhanging rocks or the upturned roots of a fallen tree. After lining its den with grass and dry leaves, the bear crawls inside and plugs the entrance with brush, leaves, and earth.

Bears have long played an important role both in the economy and traditional beliefs of the *Kuuvaŋmiut*. There are many stories about the supernatural, physical, and behavioral characteristics of bears. Hunting these animals is far more than a simple act of acquiring food. It is perhaps the highest form of hunting, and a successful bear hunter attains prestige among his peers. Traditionally, men who hunted bears had to be very brave, but they never bragged about themselves or made offhand remarks about bears. Rather, such men were careful to be modest and respectful toward these animals.

Most of the following information about bear hunting before the introduction of firearms was provided by the *Kuuvaŋmiut* elders Louie Commack, Joe Sun, and Charlie Lee. The hunter used a special stout spear called a *pana*. He would hike the hills until he finally located a suitable animal, then he studied it well before attacking. He knew that there are three types of grizzlies: *aklaq*, the regular bear; the two-humped bear; and *milak*, the great oversized bear. Only *aklaq* was considered safe to attack. The hunter also knew that black bears are dangerous because they can move faster than do grizzlies. And he avoided being downslope of a bear or in a confined area that would restrict his movements.

The man would try to get as close as possible before revealing himself, and then he would rush up to make the bear raise on its hind legs to attack. Knowing that all bears are left-handed, he always avoided the left paw of a fighting bear. He had to be careful that the animal didn't grab his spear or knock it from his grasp. When the angered bear stood up to lunge at its tormentor, the hunter would crouch and brace the butt of his spear against the ground. He aimed the point at a spot near the bear's collarbone, where bones would not deflect it. The bear dropped onto the spear, piercing itself as the man quickly dodged away. *Siqiñiq*, the father of Joe Sun, is renowned for having fought a bear while bracing the butt of the spear in the crotch of his right arm. He had to struggle with the bear while holding the spear this way until it finally died.

In the old days, men cooked and ate bear meat somewhere away from the village, rather than at home. Neighboring Athabaskan Indians of the Koyukuk River still practice a similar tradition, in which men gather outside the community to eat certain parts of the bear.

Killing a bear with a spear.

Kobuk people have also hunted bears in their dens, although not so much in recent years. A Shungnak elder described one such hunt that took place in the upper Noatak River valley. This man was with several others when they discovered a hibernating grizzly bear. He poked a long rod down into the drift covering the den until he felt something soft, then let it rest until he saw it move up and down slightly. One man aimed his rifle alongside the rod and fired, striking the bear, which thrashed and made noise for a few moments.

A rope was tied around the storyteller's waist and he crawled down into the den. Two men held his feet while others stood by with ready rifles. Inside, he found a dead sow bear and three full-grown cubs. He said the cubs did not bother him because bears usually won't fight in their own dens. He tied the rope around the neck of the dead bear and signaled to be pulled out; then the adult bear was hauled out and the cubs were killed afterward.

Today, men travel by snowmachine or boat when they hunt for bears. As the animals begin to leave their dens in spring, hunters in pairs or small parties search widely for tracks on the snow. Usually the animals stay around their dens for a few days, so hunters try to locate and kill them before they move away.

Bears may be taken at any time during the summer, but no intense effort is made to hunt them until late August or September. Fall bear hunting is a major activity among the adult men. In the fall, bears are known to frequent particular salmon-spawning beds, blueberry patches, and concentrations of other food sources. The older hunters choose certain of these locations to visit each fall. Two or three men usually travel together in a single boat, keeping watch along the shore for any sign of a bear, stopping frequently to climb a bank and study the terrain with binoculars. Open mountain slopes are viewed carefully. If a bear is sighted the men will hike several miles to hunt it and then pack it back to the boat.

Many fall hunts are extended affairs in which boat crews spend a week or more traveling, camping, and searching for bears. These hunts often take the men toward the very headwaters of the Kobuk River, where they must pole and line their boats over shallow riffles.

All bears are considered potentially dangerous, for they might attack with or without provocation. In the rare event of an attack, older hunters advise shooting the bear in the left shoulder or left foreleg. According to *Kuuvaŋmiut* tradition, bears are unable to fight without the use of their left arm. They also warn that a head shot may glance off the bear's thick sloping skull without slowing the animal down.

Although black and grizzly bears normally begin to hibernate in early October, individual animals occasionally do not enter a den in the fall or may leave their den during the winter. Upper Kobuk people tell of grizzlies that spend the winter roaming about. These bears, known as *milak*, are large, rangy grizzlies that are so old they no longer develop a thick undercoat of fur. Such animals pose a real threat because they fear nothing. They will even come into a village at night to hunt. People still tell of such a bear that terrorized a Kobuk River village in the mid-1800s until all the hunters were able to surround and kill it.

In November of 1974, a large grizzly was spotted several times roaming near the village of Shungnak. People worried that the bear might enter the village at night and endanger the children, or that a dog team or snowmachine traveler might encounter it in some confined area. Finally the men formed a large hunting party to search for the bear. It was found a few miles from the village, feeding on a cache of caribou meat near the main trail to Ambler.

The men shot it several times before it fell and appeared dead. Then one man approached it, leaned over its back, and touched its eye with his gun barrel to make sure it was lifeless. Bears have been known to fool a man by pretending to be dead until he comes close. This bear was about 6½ feet long and relatively fat, with a well-furred hide that was free of rub spots. Its claws were long and sound, but its teeth were worn to stubs indicating advanced age.

The animal was called *ukiuqtaq*, a bear that comes out of its hole in the winter. One man thought that it might have been forced out when overflow from a nearby stream flooded its den. Such "winter bears" are often very difficult to kill because they swim across open places in the river and then roll in the snow, covering their fur with an icy armor which can deflect bullets.

A bear is skinned by rolling it onto its back and making an incision from the crotch to the throat. Joining incisions are made along the inside of each leg. The hide is peeled away with knives as one unit, including the head skin and the skin of the paws with claws attached.

To dismember the carcass, a cut is made through the abdominal muscles. Then the intestines, stomach, and other internal organs are removed and placed on the ground. The fatty membranes around the intestines are kept, as are the intestines after being squeezed to empty them. The heart and kidneys are also

kept, but the lungs and liver are discarded. The forelegs and back legs are removed, each half of the rib cage is separated from the sternum and backbone, the pelvis is removed, and the neck is cut free of the backbone. Finally, all parts are allowed to drain of blood before being loaded for transportation. A traditional gesture to the bear is made as part of the butchering process, by cutting out a small bit of cartilage just under its tongue and placing it on a branch nearby.

During the fall and winter of 1974-75, 29 black and grizzly bears were taken by hunters from the three upper Kobuk villages and 13 by those of the two lower Kobuk villages. In 1973-74, the total was 44 in the upriver area and 11 in the lower river area, and in 1972-73, the total was 40 in the upriver area and nine in the lower river area. Some villagers say that the numbers of black and grizzly bears are increasing.

A good example of the importance placed on bear hunting by the *Kuuvaŋmiut* occurred in September 1974. Two men and a teenage boy were traveling by boat up a tributary of the Kobuk River when they spotted a bear on one side of the river and a moose on the other. All three immediately chose to shoot the bear.

Dall Sheep *(ipnaiq)*

Dall sheep are widely distributed in the Brooks Range north of the Kobuk valley. They occur on rugged slopes along several tributaries that flow into the Kobuk River from the north, but not along the Kobuk itself. According to old *Kuuvaŋmiut* stories, mountain sheep once ranged as far south as Shungnak village. Most sheep hunted by upper Kobuk people have been taken near the Noatak River headwaters.

Dall sheep may reach a height of 40 inches and weigh anywhere from 125 to 200 pounds. They were once widely used for meat and hides, but sheep hunting by the *Kuuvaŋmiut* declined drastically when caribou began migrating into the Kobuk valley. The last intensive sheep hunting occurred in the 1940s. Only a few men hunt them at present.

Summer sheep hunting in the Noatak valley was done by men on foot. The meat, fat, and skins were dried and transported much like summer-killed caribou. It also seems to have coincided with the time of the caribou hunt, and the techniques used were similar. The number of sheep a given individual could harvest was determined primarily by the amount he could transport. Seven to nine sheep, butchered and dried, were probably a maximum load for a hunter with six packing dogs.

Occasionally sheep were taken in the winter by men who were hunting and trapping in the upper Noatak area. Sheep were apparently used as an emergency food when no caribou could be found. In the winter, ewes were preferred, as rams were too lean at this time. The intestines were fed to the dogs and the meat and hides were hauled back to the camp or village. Winter hunting apparently continued for a few years after men stopped hunting sheep in the summer.

There are many *Kuuvaŋmiut* names for sheep, which denote age, size, sex, and physical condition such as the following:

ipnaiq	mountain sheep (general term)
aŋutisrugruk	adult male sheep
kulavak	female sheep (also female moose and caribou)
ivutuq	sheep less than one year old
tamuutailaq	yearling sheep
avaliiyaluk	two-year-old sheep
navuyaqayak	large ram with horns so long it is forced to break them off so that it can graze
qalutaksraq	ram with one-half curl

In recent years a few men have boated up the Ambler and Reed rivers to search for sheep, but the distance and difficulty of navigating the shallow braided channels has discouraged most villagers from participating in the activity. Dependence on sheep by Kobuk people is directly related to the availability of caribou. If and when caribou become scarce again, the villagers will likely return to sheep as a source of meat and skins.

Porcupine *(iḷuqutaq)*

Porcupines occur throughout the Kobuk River valley, but not in large enough numbers to make them more than an occasional supplement to the villagers' diet. They are usually taken when and where encountered, although they are more valued in the fall than in spring and early summer. They are very easy to run down and may be killed with a small caliber rifle or a club. In traditional times, if not today, porcupines were left somewhat alone so they would be around as an emergency food source in times of scarcity.

After a porcupine has been killed in fall or winter, it is often placed over an open fire to burn the quills off. It may then be cooked without skinning. In the spring and summer, the skin is usually removed because of small developing quills which are not affected by burning.

Snowshoe Hare *(ukalliuraq)*

During the years when they are plentiful, snowshoe hares are found throughout the Kobuk flood plain. Early in the twentieth century, when caribou were scarce, hares were the major source of fresh meat during the winter. Today they are especially important in the spring, when other sources of fresh meat or fish are unavailable. Even in the winter they offer a welcome change of diet.

During the cold months, hares are snared around the settlements, much as the Kobuk people have always taken them. In times past, both men and women set snares made of twisted sinew, salmon-skin strips, or even strips of

baleen obtained from the coast. A willow or bird bone tube *(tuqhuktaak)* was also used as a slide for the noose, to prevent the hare from biting through the line. Nowadays, picture hanging wire is used for snares because it is very flexible, slides easily, and cannot be chewed by the animal. In a good year, two or three dozen hares may be snared within a given quarter-mile area over a two-month period.

In former times, Kobuk people sometimes hunted hares by making drives *(uguraq)*. During the spring, men and women from a settlement would select a long, narrow willow thicket bounded by open ground on both sides. Then they stretched a long net, about three feet high, across one end of the thicket. Acting as drivers, some of the group walked forward in a row from the opposite end hitting the bushes and making noise. Any hares the drivers saw were shot, but most ran well ahead and were caught in the net. Since snowshoe hares normally will not dart out across open areas even when frightened, the people were able to contain them easily in the ever-narrowing thicket. Other women hid themselves near the net, and each time a hare was caught they would rush out, club it, and then hide again to wait for the next one.

Kobuk villagers still make rabbit drives but without using nets or clubs. Two or more of the best shooters will conceal themselves near the end of a narrow strip of willows, while others drive the hares toward them. When fleeing hares emerge from the thicket they are shot. Normally, the drivers do not use firearms so that no one will be accidentally shot during the drive. A successful drive can yield as many as 100 hares, which are divided equally among the participants.

In March of 1973, such a drive took place near the Kiana-Selawik trail. A group of about eight men drove snowmachines to the narrow, triangular-shaped wooded section between the western side of Portage Creek and the tundra. Two hunters were stationed at an advantageous spot and then the hares were driven from the far end to the spot where the men with guns waited.

Hares are important for both meat and hides. To skin a hare, a slit is made along the inside of one back leg—often after cutting off the feet—and then across to the opposite leg. The whole skin is pulled, inside out, toward the head, then cut away from the carcass at the neck. The most important use of hare furs in the past was for blankets. The skins were cut into long strips that were woven together into light, warm blankets. Other uses were for children's inner garments and boots, and for adults' socks. Nowadays the furs are used for children's parkas and trimming.

Muskrat *(kigvaluk)*

Muskrats are especially numerous in the Kobuk River delta and the Pah River flats, but they are found in shallow lakes and sloughs throughout the Kobuk valley. Where the banks are steep, muskrats excavate dens with entrances below the water level. In lakes with low or marshy banks, they make mounds of vegetation and hollow them out for dens. After freeze-up they also make small houses of vegetation atop the ice called "push-ups" *(numaun)*, which

they enter from below and use as feeding places. In March, muskrats become active and forage under the ice. When water forms around the edges of the lakes and sloughs in April, they can be seen swimming in the evening and morning. They are most abundant immediately after breakup, when spring floods drive them out of their dens.

Muskrat hunting and trapping was a major occupation of the *Kuuvaqmiut* from the early 1900s to the early 1960s. Until the 1920s the meat and fur were equally important, but then the commercial value of muskrat hide increased considerably. The fur-trapping era lasted from the 1910s until the 1950s. During these years most families drove their dog teams to "rat camp" in late March or early April. The sled was loaded with a skiff and a small open kayak was carried inside, along with household and camping items. By late April, the villages were virtually abandoned except for storekeepers and teachers. Men and women used camps in the delta area or along upper Kobuk lakeshores as their bases for daily muskrat and waterfowl hunting. The furs were worth more commercially if the animals had not been shot, so people made some effort to take them with traps. Most muskrats were shot, however, because far more could be taken that way.

During a good spring it was not unusual for a single hunter to take 100 muskrats in a night and up to 1,200 for the season. In 1953, a trader took in 10,000 skins from one downriver village alone. Fur prices varied from year to year depending on fluctuations in the world market. Skins from the Kobuk area were generally worth less than skins from Canada or the lower United States because they were thinner and so many had holes from small caliber firearms.

In the last 15 years, muskrat hunting has declined and the skins are mainly taken for home use. The muskrat parka is a popular article for fancy dress. From 50 to 60 muskrat backs are used for a man's parka. The lighter-colored bellies are used for the woman's parka. Muskrat hides are often bartered between families. Prices in the first five years of the 1970s ranged from $1.00 to $1.75 per skin. In 1974, muskrats were scarce, but a few that were sent to Kotzebue sold for $4.00 per skin.

Muskrats are skinned by the casing method. First, a slit is made down the back of one hind leg and across to the other. The skin is then peeled away from the feet with a knife, pulled inside out over the body to the head, and finally cut away from the nose. It is stretched inside out on a long, rounded, triangular stretching board, then placed outdoors to dry. A stick is inserted between the skin and the board so that when the skin dries it will be somewhat larger than the board and easy to slip off. If a family has more skins than drying boards, they put the skins on for only a short while to shape them and allow them to finish drying unframed. In recent years, wire drying frames have become popular. Skins are also hung to dry on a clothesline. It is a common sight in the spring to see a whole line of them hanging and swinging in the breeze.

Fat spring muskrats are considered excellent eating. People enjoy roasting freshly-caught animals. Muskrats are also partially dried and then boiled for eating.

Waterfowl

Approximately 24 species of waterfowl are utilized by the *Kuuvagmiut*. The first spring flights of ducks and geese reach the Kobuk valley in late April. As the snow vanishes and the lakes thaw, flights increase in frequency, until by mid-May the calls of geese and ducks are heard day and night. By mid-June mated pairs have scattered into the marshes and sloughs to begin nesting. In July, families of ducks, geese, and swans may be spotted in virtually every lake and marsh.

As the summer draws to a close, young waterfowl are seen in the skies testing their wings for the approaching fall migration. Flocks begin to gather along the main river during mid-September, although in smaller concentrations than in the spring. Now the cries of ducks and geese are once again heard as V-shaped flights begin the southern migration. With the arrival of freeze-up the land is once again empty of waterfowl.

Waterfowl are an important part of the Kobuk villagers' subsistence regime. In times past they caught these birds with bolas, bird arrows, and snares. They also caught flightless birds during the summer molt. The meat was cooked immediately, hung to dry, or stored in a cool place such as a snowdrift in early summer or down near the permafrost later in the season. Today waterfowl are taken primarily with shotguns, although at least one upper Kobuk woman snared geese during the fall of 1974. People still occasionally preserve waterfowl by drying, but more often they store them in home freezers.

The Kobuk River Eskimos are very effective waterfowl hunters, partly because they know the most productive sites. When hunters describe their waterfowl-hunting activities, many of them list specific places on particular lakes or river bars. They know the kinds of waterfowl that occur in each, and they have learned the best time of day to hunt there.

An Eskimo hunter shooting ducks and geese may use the first dead bird as a decoy. He drives a thin stake down its throat, through the flesh near the breast, and into the ground. This holds the bird's head erect, so it resembles a live goose or duck resting in a marsh or on a bar. Other waterfowl flying overhead are drawn lower by this indication of safety. Young boys and some men can also draw in waterfowl by making excellent imitations of their calls. Observations and interviews in the upper Kobuk villages indicate that an average household consumes approximately 25 ducks and 30 geese each year.

Ptarmigan *(aqargiq)*

Willow ptarmigan are an important source of fresh meat for the *Kuuvagmiut* in the winter, although fluctuations in their population make them undependable. Rock ptarmigan *(niqsaaqtuqiq)* are also found locally but prefer mountainous areas where people rarely have access to them. Willow ptarmigan populations fluctuate in a fairly regular nine-year cycle.

In the fall, ptarmigan are hunted after they have changed to their white winter plumage but before the first snow has fallen, so they can be seen from

long distances. They fly and feed in large flocks. In former times, they were hunted with bow and arrow, but now .22 caliber rifles are used. Ptarmigan taken in the fall are usually targets of opportunity that occur while hunters are engaged in other activities such as fishing, berry picking, wood cutting, or hunting of other wildlife. The hunter keeps his rifle handy in the boat, and may kill a dozen or more birds in the sand bar willows or at the edge of the tundra before the rest of the flock takes off.

From the early snowfalls until late November, ptarmigan remain in large flocks. They stay together in one vicinity, feeding on the dead willow leaves still clinging to branches. Once they are depleted, they move on. Kobuk villagers set snares (*nigatchiaq*, singular) for them in willow thickets along the stream banks. Formerly, the snares were made of twisted sinew or salmon skin tied in loops about five inches in diameter. These were set at ground level across openings in the thickets, where trails in the snow indicated that ptarmigan had passed. Presently snares are made with pliable picture hanging wire. Willow brush is piled up as a kind of fence *(saputit)* on both sides of the snare, out to a distance of four feet or more. Ptarmigan encountering the fence follow it until they see the opening. They are snared as they attempt to dart through.

In the dead of winter, ptarmigan disperse and are rarely seen in large flocks. As during the fall, men seldom go out expressly to hunt them. Instead, they keep a .22 caliber rifle handy in case they encounter ptarmigan while engaged in other outdoor activities. However, adolescent and teenage youngsters often hunt for ptarmigan on the village outskirts during the winter.

In the spring, people frequently hunt ptarmigan and snowshoe hares at the same time, often coming home with both. Ptarmigan gather into flocks again at this season. In former times the *Kauvanmiut* caught large numbers of them with nets. James Wells of Noorvik (1974:29) gives this description of the technique:

> The story is told how the ptarmigan are caught with a net. A man would take his sled and fill it with green willows cut long enough to be used for a net and short willows cut to be used as feed for the birds. He pulls the sled to a lake where the ptarmigan have been flying by. In the morning the ptarmigan usually fly around looking for a good place to feed after the willows have been thawed out by the sun. The man stands up the long green willows in a line on a snowbank out in the open so the birds can land on them to feed. The bottoms of the willows are open. The net is hung up with weights on top. The small willows are then set up on the side where the birds will have a good feed.
>
> The trick the hunter uses is simple. First he hides and watches for the birds to come. He has with him a wing of the bird hawk tied up to a willow stretched out so the ptarmigan can see it when he lifts it out from his hiding place. He has a peek hole where he can watch the birds if they land there. He waits for a good chance to scare them with this bird hawk wing.
>
> Finally a flock of birds, say twenty-five or thirty, land there. For a while they watch the area where they land, but they do not see anybody around so they start to feed. At first they feed on the big willows and then they jump down to feed on the shorter willows. The hunter watches through a peek hole. Finally when they bunch up close to him he pushes out with the wing high and makes a motion as if a bird hawk were landing on them. The ptarmigan get scared and fly under the tall willows to hide away. Then the weight of the net drops down, the birds are covered, they tangle up their wings in the net, and they are caught.

Chapter 10

Trapping

Animals hunted by the Kobuk people are used primarily for food, although skins, bones, sinew, and other parts are also utilized. Trapped animals, on the other hand, are taken principally for their fur, although some are also eaten. Over the centuries the *Kuuvaŋmiut* have developed a variety of efficient trapping methods. Some of these survived until recent years when they were replaced by steel traps and snares. Several elder men recalled using traditional deadfalls and snares to take marten, marmot, lynx, and other fur bearers well into the 1930s and 1940s.

Kobuk River people, unlike their Koyukuk Indian neighbors, do not recognize exclusive use or "ownership" of a given trapping area by one individual or family. While a person may trap in one area for several years, this does not prevent others from running traplines through the same area. Because of this "open use" policy, *Kuuvaŋmiut* trappers tend to be secretive about where they trap or what success they enjoy, for fear of attracting others to their areas. The elders say that in earlier times, trappers never told anyone except their immediate families where they were going when they left the village.

Two natural deterrents to the establishment of established trapping territories are the mobility of fur-bearing animals and their relative scarcity. The Kobuk valley is marginal for trapping when compared to such fur-rich areas as the Kuskokwim River and the Yukon Flats. The major target species—fox, wolf, and wolverine—travel widely in this region according to the availability of food. Also, the distribution of marten, mink, otter, and lynx is spotty. Productive trapping is possible over the long run only if the trapper is free to move around and avoid depleting localized populations.

Oral traditions of the Kobuk people describe a fur trade system between the inland and coastal Eskimos, extending back well beyond the nineteenth century. Skins of wolf, wolverine, beaver, lynx, and other fur bearers were exchanged for such coastal products as seal oil, *maktak*, sealskin, and ivory. This trade continues in modified form today.

During the early nineteenth century, western foreign goods began to arrive in the Kobuk valley. These came through exchange networks that extended far along the coast and culminated each year in the trading rendezvous at the mouth of Hotham Inlet (Foote 1965:108-128). Kobuk people trapped and hunted deep into the Brooks Range, occasionally beyond the Anaktuvuk River, to acquire items they could exchange for foreign goods. They also served as middlemen in the transfer of Russian goods into the Koyukuk River valley.

After trading posts were established along the Kobuk River in the early 1900s, trapping was done more for cash than for barter. Fur prices rose and

trapping activities increased until the early 1930s. In the mid 1930s the market for wild pelts was virtually crushed by the Depression and by increased use of domesticated furs. Trapping remained important to Kobuk village economics into the 1950s, when other sources of income became increasingly available.

During the peak of commercial trapping in the 1920s, the area utilized by *Kuuvaŋmiut* trappers expanded dramatically. Traveling with dog teams, they ranged north to the Colville River, south to the Huslia River, east to the middle Alatna River, and west beyond the Hunt River. These boundaries were maintained into the 1940s and early 1950s.

Exploiting the farther limits of the territory required considerable travel. Trappers found it convenient to journey in small parties with two or three dog teams. It was far easier to open and maintain trails with two teams than it was with one. There was also safety in numbers. It was not uncommon for a man to take his wife and sometimes a child or two with him if he planned to spend an extended time away from the village.

Trapping is still one of the Kobuk people's subsistence activities, particularly in the three upriver villages. However, at the present time most trapping is done within a 25-mile radius of the communities and snowmachines are used for transportation. In the fall of 1974, one man built a traditional sod house well upriver from the village of Kobuk so that he could live close to his trapping area, but he was an exception. A few men continue to set up tent camps at the far edges of their trapping field to be used in case of bad weather or snowmachine breakdown.

In trapping there is a risk of losing game even after it has been caught. If an animal escapes from a trap it can be a substantial loss, especially if it also carries away a valuable trap. To prevent this, Kobuk people will kill an animal they see in someone else's trap. They then either notify the owner or carry the animal back to that person's home. It is customary for the wife of the trap's owner to return this kindness by making a pair of gloves, skin socks, or other gift for the assisting person.

A large percentage of the furs taken by village trappers today are used locally. Some are traded to friends, relatives, or partners in Kotzebue and other coastal villages. A few are sold to distant fur markets. In this respect, trapping has come full circle, back to the same role it had in the *Kuuvaŋmiut* economy before the Europeans arrived.

Red Fox *(kayuqtuq)*

Red foxes are the animal most often trapped by Kobuk villagers. These furs are usually sold, but some are kept for such things as parka ruffs, trim, and mitten linings. Foxes are found throughout the Kobuk valley in all environmental zones. However, they occur most frequently in open or lightly forested plains within broad valleys. They are generally well scattered, concentrating only temporarily around carrion or in areas with abundance of prey such as small rodents.

The Number 2 steel jaw trap is the one most used for foxes. A trap may be set near the carcass of a caribou, beside a pile of animal intestines, atop a small knoll, or near some muskrat pushups. When a site is picked, the trap is put in a small excavation in the snow and covered with a sheet of tissue paper. A light dusting of loose snow is used to conceal signs of disturbance. The trap is toggled to a stick of dry wood, which is then buried in the snow to anchor it. Fish or rotten meat bait may be placed just upwind of such a set.

Wolf *(amaġuq)*

Wolves occur throughout the Kobuk region, although the population is higher in upriver areas than down toward the delta. They tend to associate in groups of two to ten animals and range widely in search of food. They are least mobile from late spring through summer, when they raise litters of pups. During this period their food is most abundant, and they may be spotted near river banks, perhaps feeding on small game or spawning salmon. With the onset of winter, wolves resume their nomadic ways. Caribou, moose, and sheep become their primary prey, although they also catch small game.

The *Kuuvaŋmiut* regard all wolves as potentially dangerous. A well-fed, healthy wolf is considered less dangerous than a thin, old animal that has difficulty capturing natural prey. When traveling or camping, the Eskimos usually have a firearm handy in case they encounter wolves. Until the late 1950s, a bounty was paid on wolves. Kobuk people checked known den sites each spring and summer for litters that could be converted into cash. Summer wolf hunts were also conducted in the upper Noatak valley by men traveling with pack dogs. Since repeal of the bounty, wolves are rarely shot during the summer.

Wolf trapping and hunting becomes important in the late fall and through the winter months, then ceases when the wolves begin to shed in late April. Wolves are considered intelligent animals and are not easy to trap. Because of this, hunters or trappers are most likely to take the younger and less experienced ones.

Wolf trapping is similar to fox trapping except that a much heavier trap and a larger toggle are used. When partly consumed wolf kills (such as moose or caribou) are found, they are used as bait. In forested areas with deep snow, a trapper will often pack down a trail and set a baited wolf trap at its edge. When wolves follow the trail they will be drawn to the trap. The large wolf traps are potentially dangerous to men and dogs, so markers are usually set up nearby to warn of their presence. Wolves are also hunted by snowmachine during the winter. A few men are quite skilled in predicting the behavior of wolves and are able to approach them close enough for accurate shooting.

Wolf pelts are prized for locally made parkas, mittens, and other clothing. From 65 to 70 percent of these hides are used within the village or are traded and sold to people in neighboring communities; the rest are sold to commercial fur buyers.

Wolf Harvests for the Kobuk River Villages from 1972 to 1975.

	1972-1973	1973-1974	1974-1975
Upper Kobuk Villages	65	22	33
Lower Kobuk Villages	6	8	10

Wolverine *(qapvik)*

Wolverines inhabit basically the same terrain as wolves. They are solitary creatures except for brief mating periods and when caring for their young. Although highly mobile, they tend to remain in a given area somewhat longer than wolves do.

Although the wolverine is a relatively small animal, from two to three feet long and weighing 20 to 30 pounds, it is reputed to be extremely strong and fierce. Knowledgeable *Kuuvaŋmiut* credit wolverines with killing both caribou and moose and being able to drive wolves from their kill. Normally, however, the wolverine lives by scavenging on carrion such as the remains of human and wolf kills.

Wolverines are taken occasionally in wolf traps. Also, if a trapper finds fresh wolverine tracks he will usually set baited traps or heavy-gauge snares nearby. These sets must be checked frequently, because a caught wolverine will literally chew off its toes in order to escape. Virtually all of the wolverines taken by Kobuk River trappers are used locally or traded to people on the coast. Their hide is valuable as trim material for parkas, boots, and mittens.

Wolverine Harvests for the Kobuk River Villages from 1972 to 1975.

	1972-1973	1973-1974	1974-1975
Upper Kobuk Villages	43	17	18
Lower Kobuk Villages	6	17	9

Lynx *(nuutuuyiq)*

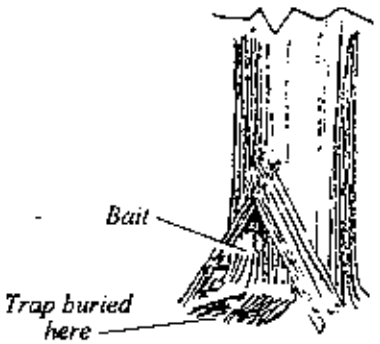
Lynx are primarily animals of the forest, although they are occasionally seen well out on the open tundra. In the Kobuk valley, they are found mostly near willow and alder thickets along the river. They prey primarily on hares, mice, ptarmigan, and other small game. The lynx population varies considerably, often following the same cycle as that of the snowshoe hare.

Kobuk people have a variety of methods for trapping lynx. Snowshoe trails through thick brush are often chosen as good places to bury Number 3 or Number 4 steel traps beneath the snow crust. Sometimes a wire snare is set in a trail and attached to a sapling or small tree. Cubby sets, small shelters

formed of branches and brush set next to a large tree, are also used to catch lynx. A trap is concealed at the front of the cubby, and usually a ptarmigan wing or a piece of caribou hide is tacked to the tree trunk inside the cubby for bait. The entrance is partially blocked with short twigs, which leaves an opening directly over the hidden trap, so the lynx will step into it when investigating the bait. In former times deadfalls were also used for catching lynx.

Unlike other creatures, lynx usually do not fight a trap when caught. They will sit quietly even when approached by a human. The trapper usually kills a trapped lynx by attaching a wire loop to the end of a pole, dropping it over the animal's head, and then pulling it tight. This is a quick operation that causes the least damage to the pelt. After a lynx is skinned, Kobuk people may cook and eat its delicious meat.

Cubby set used to trap lynx.

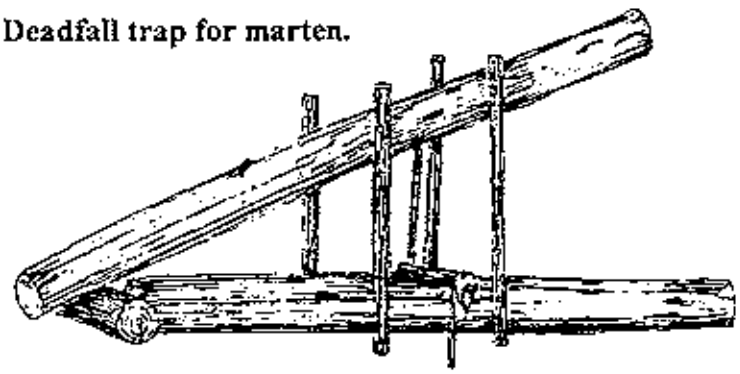


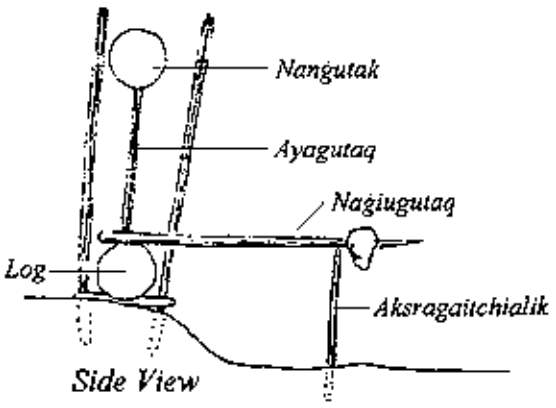
Lynx Harvests for the Kobuk River Villages from 1972 to 1975.

	1972-1973	1973-1974	1974-1975
Upper Kobuk Villages	21	13	12
Lower Kobuk Villages	9	22	13

The diminishing take of lynx in recent years was partially due to a low in the hare-lynx population cycle. Some of the furs were used locally to make mittens, but the majority were sold to fur buyers.

Deadfall trap for marten.





Marten *(qapviatchiaq)*

The marten is a forest dweller that preys on red squirrels, birds, and other small game. The Kobuk valley is the northwestern fringe of marten habitat and so they are not numerous. They were formerly trapped throughout the Kobuk country, but the region above Kobuk village has been most productive. Today marten are trapped in small numbers around Ambler, Shungnak, and Kobuk. In addition to being sold commercially, their fur is used for mitten linings and caps.

Marten are relatively easy to trap and their population can be reduced quickly if the take is excessive. A simple means of taking them is to place a small steel trap on a leaning pole, with a ptarmigan wing attached just above the trap. The trap chain is either wired or nailed to the pole. The marten will run up the pole and step into the trap while trying to reach the bird wing. A second means of taking these animals is to build a small cubby at the base of a spruce tree and bait it with a bird wing or rotten fish.

The number of marten taken during the 1974-75 year was small in the upriver area, and none were reported taken in the downriver area between 1972 and 1975.

Beaver *(paluqtaq or aqu)*

Beavers, North America's largest rodents, are found from the headwaters of the Kobuk River to just above the delta. These animals require vegetation suitable for food and dam building and a stable supply of water. Like the marten, they reach their most northwestern limits in the Kobuk River valley.

According to upper Kobuk villagers, beavers were uncommon in the central valley until 30 or 40 years ago, when they began moving down from the Pah River flats and soon colonized local streams and lakes. Beaver populations are now diminishing in the upper valley and are increasing in the Selawik lowlands.

The *Kuuvaymiut* view beavers with mixed feelings. While they desire their pelts and meat, they also resent the beavers' dams that block lake outlets and small streams. Such dams cut off runs of whitefish and other fish species. Several Selawik people complained that beavers on the Kugarak River were reducing the whitefish run in the Selawik River.

Before the early 1900s, beavers were usually taken by chopping open their houses, shooting them in open water with arrows, or spearing them from kayaks. Since the introduction of firearms they have been shot from a kayak or boat. While a limited amount of hunting is still done for immediate subsistence uses, the small take apparently has little impact on the beaver population.

Winter trapping for beavers became a common practice in the upper Kobuk area with the introduction of steel traps. At best, it is an arduous undertaking. Holes must be chopped through several feet of ice to set traps and bait them, and then re-opened each time the traps are checked. A certain amount of danger is involved because there may be patches of thin ice around an active beaver lodge. If a person who falls through such a weak spot can pull himself out, he still must face extremely cold temperatures in soaked clothing.

Most beaver trapping in the past was done with steel traps fastened to poles and placed near feed piles or runways leading from the lodge. Recently, heavy-gauge wire snares and double-spring connibear traps have become popular. Kobuk people use most of their beaver catch to make hats, boots, and mittens. For the fur market, late winter pelts are desired. Beaver meat is a welcome addition to the daily fare.

Otter *(pamiuqtuuq)*

River otters are found in small streams and lakes throughout the Kobuk region. *Kuuvaymiut* Eskimos regard the otter as "the best hunter." They say that otters kill beavers, mink, muskrats, ducks, and fish, and sometimes blame them for causing declines in the populations of aquatic animals.

Otters are relatively difficult to catch. Traps may be set along the sides of narrow streams, where the animals place their paws as they swim along, or near well-used slides that lead to holes in the ice. Otters are occasionally taken in beaver sets as they try to enter a lodge. Historically, their fur was an important trade item, but today people use it primarily for making items such as boots and mittens.

Marmot *(siksrikpak)*

The hoary marmot is an alpine dweller that lives above the tree line in mountains throughout the Kobuk region. This large rodent can weigh up to 20 pounds. Marmots were once used extensively by the *Kuuvaymiut* especially during the 1920s and 1930s. This has decreased substantially in recent years. The primary reason for this change is that marmots are most abundant in the Noatak River area and were customarily taken there during summer and fall hunts for caribou. If the caribou should again desert the Kobuk valley, then use of the marmot for food could again increase.

According to a Shungnak elder, marmots are found at the heads of steep mountain creeks in bowl-shaped drainages. A certain type of meadow grass *(uŋugraq)* that grows in such locations is a prime food for the marmot. Small piles of rocks in these high meadows are indicators of den sites. The principal harvest of marmots was made between mid-August and late September, when the animals were particularly fat and had prime skins.

Marmots were most commonly taken with a deadfall of large flat rocks constructed at the den entrances. Men who planned to trap marmots in a given area would camp some distance away and avoid firing guns or making loud noises, so the animals would not become wary. If men were simply passing through an area, they would hunt the marmots with rifles. Another Shungnak man said that some years ago he and his father trapped 200 marmots in one summer and sold the skins for a dollar each to a local trader.

When a marmot is killed it is skinned, gutted, and the carcass is hung by the hind legs for partial drying. A willow rod is pushed down the throat and into the chest cavity to help drain any remaining blood. The head remains on the carcass since it too is eaten. The skin is scraped clean of fat and flesh and hung separately on willows to dry. Marmot skins are highly prized as material for parkas and other clothing. In times past, the skins were bartered to people on the coast.

Mink *(tigiaqpak)*

Mink are small, semiaquatic members of the weasel family. They are found in lowland marshes and along the edges of lakes, sloughs, and small streams. Their dens are usually in abandoned muskrat holes, and small, well-used trails radiate outward from them to the nearby terrain. When a mink kills a muskrat or other small mammal, it caches the carcass somewhere nearby to eat later.

A trapper is alert for mink tracks and will try to follow them to a den or cache site. He also tries to locate regularly used trails along the shores of waterways. Once these locations or trails are discovered, he places a Number 1½ or Number 2 steel trap on the runway or near the cached prey. Bait in the form of rotten fish eggs or other decomposed flesh is used to draw the mink to the trap (Nelson 1973:209-15).

In the past, Kobuk people used mink skins for clothing trim. The pelts were also exchanged with coastal and Siberian traders, and later became part of the commercial fur trade. The few that are obtained now are used locally.

Chapter 11

Gathering

The Kobuk River people have long depended on wild berries, vegetables, and tubers to supplement their meat and fish diet. These have all come from plants they gather in the summer and fall and store for use during the rest of the year. Giddings reported conversations with people of the upper Kobuk who remembered traditional subsistence living around 1880, and he summarized their descriptions as follows:

> While some members of the family mend nets, others take digging sticks and hunt for polygonum roots and tubers along the banks of the river and inland on the margins of ponds. Willow leaves are gathered for food early in the season, as is also wild rhubarb and a variety of other green plants. Some greens are eaten raw with fish oil, while others are boiled into the stew with fish or meat. (Giddings 1956:10)

> August is . . . berry-picking time. The women take every opportunity to go out on the slopes of the hills with birch bark baskets and beating sticks to secure quantities of blueberries, some of which can be preserved in oil, some eaten at once, and some allowed to half dry for winter use. Other berries, such as cranberries, black and red currants, and yellow cloudberries, are eaten as they ripen but are seldom kept for any length of time. (Ibid.:17)

The photographer Edward S. Curtis (1930:208), who traveled along the Kobuk River in 1920, likewise described the gathering of blueberries, cranberries, blackberries, salmonberries, and *masru* (Eskimo potato) as part of the people's subsistence activities. *Masru* was crushed and later used "like butter." Berries and *masru* were kept in caches with the meat and fish, or stored in sealskin pokes obtained from the coast.

A Kiana woman born in 1880 remembers the gathering of wild rhubarb, sourdock, and berries when she was young. She says that cranberries, which are not easily crushed, were stored in cloth flour sacks, while the softer types of berries were kept in sealskin pokes. A Noorvik elder also mentioned that people who did not have storage containers dug a hole in the ground to store their berries next to the permafrost. First, the hole was lined with large leaves, then the berries were put in, more leaves were put on top, and finally the hole was sealed with mud.

Shungnak people described two other methods formerly used to store berries. In one, the berries were put into round or oval birchbark baskets *(gallivik)*, then covered with large leaves or immersed in seal oil. The baskets were placed in a deep permafrost hole and covered with moss and earth. In a

more recent method, berries and sugar were layered in wooden kegs, which were then buried in the permafrost. Upper Kobuk people had a good supply of birchbark and downriver people had ready access to sealskin *puut* (pokes) from the coast, so storage methods in the two areas seem to reflect available materials.

Since the mid-twentieth century, canned vegetables and fruits have been available from trading posts and stores. These items have not replaced wild plants gathered by the *Kuuvaymiut*, but provide variety and assure a supply of fruits and vegetables throughout the year. Very little fresh produce reaches the villages, but when it does it is quickly sold out despite very high prices.

All Kobuk families today gather berries and edible plants. As soon as the willow leaves come out in the spring, children are munching on them. Cranberries that have clung to the branches all winter are juicier and sweeter than fresh ripe ones, and the youngsters eat all they can find. Each year the women eagerly await the time when berries and other plants are ready for picking. They worry that a cold summer may damage the blueberries, and they wonder over the occasional poor year for cranberries. When the time comes, they know and seek the places where yields will be most plentiful.

Berries

Special trips are sometimes made to gather berries or other plants, but often this is done along with another activity such as fishing. These outings are anticipated with much pleasure by the whole family. Picking is done mostly by women and children, sometimes joined by relatives or friends who have come along. If the father is free he may accompany his family, especially if the trip involves overnight camping. A young son who has learned how to run the outboard motor might be at the boat's helm.

If the previous winter was exceptionally cold, and light snow has caused the ground to freeze deeply, people anticipate that August will be the most promising blueberry-picking time. Older women take along their birchbark baskets, often inherited from their mothers. Children may carry plastic buckets, or perhaps cloth or plastic bags if they will also pick lowbush cranberries. The older women use wooden ladles to beat blueberries into the baskets, as their mothers and grandmothers did in the past. Even though many leaves fall in with the berries, it is the fastest method. Others pick with one or both hands, depending on their dexterity. Big, ripe, juicy berries are tempting enough so that pickers occasionally pop them into their mouths instead of into the baskets. Every so often the family takes a break to share dried fish or meat, chat and joke among themselves, and compare the amount each person has collected. After the break, picking continues or they move someplace where other berries can be found. Each family keeps track of how many barrels of blueberries and sacks of cranberries it has picked, and members take real pride in their success.

Of all the berries found along the Kobuk River, blueberries *(asriavik)* are the most abundant, followed by lowbush cranberries *(kikmiñaq)*. Plants with lower yields are salmonberries or cloudberries *(aqpik)*, Alpine bearber-

ries *(kavlaq)*, bearberries *(tinnik)*, crowberries *(paungaq)*, and American red currants *(niviŋŋaqutaq)*. Also picked and eaten off the bush are rose hips *(igruŋnaq)*.

Some berries are stored in home freezers today. Lowbush cranberries, which keep well, can simply be put in bags in the family's cache or storm shed. Some women spread them in the sun to dry before storing them in gunny sacks.

The *Kuuvaŋmiut* of 1880 served *akutuq*, a mixture of chopped caribou fat, berries, and seal oil, as a special treat during the midwinter ceremonies (Giddings 1961:135). Today, it is still served for special occasions like birthday parties and funerals, and people enjoy it so much that they are inventing new variations. In one, blueberries are mixed with boiled, flaked fish meat and seal oil, and in another caribou fat is mixed with seal oil and canned fruit cocktail.

Blueberries are also eaten with canned milk and sugar, or they are cooked with cornstarch and sugar and then used as pudding or jam. For a tangy variation, blueberries and/or salmonberries are cooked with wild rhubarb. Kobuk River villagers prefer bearberries and cranberries mixed with seal oil or fish oil. Cranberries fried in oil are said to help cure a sore throat.

When people from Shungnak and Kobuk village were traveling to and from the coast years ago, they would camp at a place called *Qaqlikuvik* (the mouth of Kavet Creek). Until a fire burned the area in 1961, villagers on their way home in the fall would always stay long enough to pick bearberries. In keeping with tradition, each person should do this only once a year, and should carry a willow stake about five feet long. A very straight trail followed the sand dunes along the river's edge, and it was marked by a line of such stakes. At the end of this long line, each person drove his or her stake into the ground, thus extending the trail markers.

Everyone remembered his or her own stakes, because it was said whenever a stake fell the person who put it there would die. So each year people checked their stakes, and presumably those of relatives and friends who could not go that year, to make sure they were stuck well in the ground. The functional aspect of this practice was the automatic maintenance of the trail year after year.

Other Edible and Usable Plants

Although berries are by far the most important edible plants in the Kobuk country, a number of other plant species are regularly used by *Kuuvaŋmiut* villagers. For example, within the recent past, people commonly ate the inner bark of young willows *(natatquq)*. Immature plants, up to three feet in height, were cut in the early summer; then the outer bark was peeled off and the inner layer was eaten by pulling it through the teeth. It was used in season only and no preservation or storage was made. The tips of young willows and spring willow leaves *(sura)* were also part of the Kobuk River people's diet, although they were most favored by groups who lived on the coast. The leaves were picked in the spring and stored in seal oil for later use.

Leaves of the saxifrage plant are eaten with seal oil and sugar, and their nutty taste is considered a good accompaniment to fish dishes. This low-growing species is found on bluffs along the river. It is called *asriatchiaq*, meaning "little berries," the same term used nowadays for raisins. Sourdock or wild spinach *(quaġaq)*, which grows in marshy spots on the tundra and along the river, is picked around June for use as a salad. Along the upper Kobuk, where sourdock is especially plentiful, the leaves are also cooked, covered with a layer of sugar, and stored in barrels. The capped barrels are then buried in the permafrost.

Use of edible plants differs somewhat between villages. For example, sourdock is intensively harvested by Noorvik people, while Kiana residents collect more wild rhubarb. In late June, trips to check the fishnets may include looking for wild rhubarb along the sand bars and back among the willows. The leaves and stalks of this plant are boiled and then sprinkled with sugar.

People from all Kobuk River villages know of the wild chives *(paatitaaq)* that grow along the gravel beach at Onion Portage. The English and *Iñupiaq* names for this place both derive from this plant. Other areas where wild chives can be found are near large lakes and along river banks, especially near the head of the Kobuk River.

Villagers use digging sticks to collect Eskimo potato *(masru)* after the ground begins to freeze in September. These tubers are rubbery and tasteless in the summer, but in fall the cold weather makes them sweet. The plants grow along the upper edge of gravel bars next to willows. The quickest way to gather *masru* is to search for mouse caches, which are often found beneath stands of poplar. Women look for mouse burrows *(sisit)* with mud on top, then test them for *masru* either with their feet or with their digging sticks. If the mice have been industrious, a mound as much as one foot square may be collected from a single cache. Through this labor-saving technique, some women can gather a barrelful by the end of the season.

Masru taken from a mouse cache is called *nivi*. After it has been removed, Kobuk people usually replace the *nivi* with dry fish or pieces of bread, then put dirt back over the hole. They do not want to starve these hard-working mice, because next year they would like to depend again on their good labor. *Masru* was stored in the past by burying the tubers in permafrost. At present, they are kept in a tightly covered barrel inside an unheated shed or hallway, where on occasion the mice steal them back.

A number of other vegetables and plants are used occasionally, including wild celery *(ikuusuk)*, the young shoots of fireweed *(quppiqutaq)*, and the roots of tall cotton grass *(pitniq)*(Webster and Zibell 1970:99). Sap taken from the trunk of the spruce tree was said by Stoney (1900:100) to be drinkable.

Several varieties of grass and moss have also been used by the *Kuuvaymiut* in times past. *Maniq* and *ipiġaksraq* are mosses formerly used as wicks in stone lamps. Another variety of moss called *tunnuuraq*, and the silky tufts of cotton grass, were both used as tinder. Skin boots were formerly insulated with dry grass, and in fall, whitefish taken with fish traps were carried

home in braided sacks or baskets made from grass (Giddings 1961:43). Lacking cloth diapers, mothers in the old days lined their babies' caribou-skin diapers with the sponge moss known as *tininniq*. Nowadays, log cabins along the Kobuk River are still chinked with the sphagnum called *ivruq*.

Willow

Willow has many uses in traditional *Kuuvaŋmiut* technology. For example, before cotton nets were introduced, people made fishnets from the inner bark of willow cut into strips and twisted together. Of all the women's activities, net making consumed the greatest amount of time. Three strips of inner bark could also be braided to make a kind of rope. After whites entered the Kobuk country, people braided rope from two strips of cloth and one of willow bark. For heavy rope they used spruce roots wrapped with willow bark.

Bows were occasionally made from diamond-leaf willow wood, although spruce was the most common material and birch was sometimes used as well. Diamond-leaf willow *(kanuŋŋiq)* is also used for snowshoes, which are still made by a few Kobuk people. This same species was also used to make dog collars in earlier times. There were undoubtedly many other specialized ways to use the versatile willows that grow so abundantly along the Kobuk.

Spruce

Until the first part of the twentieth century, spruce was the most important source of raw materials for *Kuuvaŋmiut* equipment and shelters. To build a house and standing cache at the summer fish camp, men first went to the hills where good spruce trees could be found. They made two cuts about six feet apart around the trunks of large trees and then peeled the bark off. For the house and fish cache, about 15 bark sections were needed.

Next, the men gathered moss and long, straight willows to be used as house frame poles. The poles were set into the ground, then pulled together and tied at the top, with a small opening for a smoke hole. This frame was covered with moss and spruce-bark sections collected earlier. Spruce bark was also put over the cache to protect the fish from rain. Upper Kobuk people occasionally used birchbark for summer house and cache roofs (Giddings 1961:35, 48). Other uses of spruce for traditional items, such as drying racks and fish traps, are discussed in the chapters on fishing, trapping, and hunting.

Permanent houses are still occasionally built at summer fish camps, although canvas tents, with or without a wooden tent frame, are more common. Houses are built with a frame of spruce logs, then covered with siding of commercial lumber, sheet metal, tar paper, or plastic sheeting. Fresh cut ("green") spruce or driftwood is still used for making fish racks and caches.

Spruce is also used to build log caches beside people's homes in the villages. The two most common types are *ujaluuraq*, a gabled log structure on pilings, and *ikiġġat*, an elevated platform. The pilings are approximately

six-foot spruce logs, notched on the upper ends to receive two horizontal spruce poles. Smaller spruce poles span the pilings to form the floor. The irregular logs are ideal for a cache, because air easily circulates through the unchinked cracks. Split logs or lumber may also be used for the walls. Access to an elevated cache is by ladder or ladder-like stairs. Dried fish, frozen meat, furs, and equipment such as fishnets and outboard motors are typically stored inside an enclosed cache, and a platform cache is used for storing large items such as kayaks and long poles. People often nail cross-poles between the pilings underneath their caches and use these as convenient places to hang items like caribou hides.

In the early days, Kobuk women often cooked food in a spruce wood pot or birchbark basket filled with water. Fire-heated rocks were dropped in to heat the water, and then the meat or fish would be added. Spruce pots (*piqtalik* or *igavaun*) were made from the wood of an appropriately grained tree. A thin piece of wood was split out from a log, a groove was made along one edge, the piece was soaked until it became pliable, and then it was bent around a spruce board base which fit into the groove. Occasionally, deep pots were made by lashing a second cylinder of bent wood onto the upper edge of the first. Holes were made with a bow drill where the ends of the bent board overlapped, so it could be sewn with rawhide line or split spruce roots. Spruce containers were also used for storing fat rendered from boiled fish and for storing other foods.

Folded spruce bark containers were used to hold the melted pitch used to join sewn seams on birchbark kayaks (Giddings 1961:38-39). Other utensils manufactured from the spruce tree included wooden serving trays or plates. Older Kobuk people still use wood from natural bends at the base of spruce stumps to make wooden spoons or ladles for serving food and beating the bushes for blueberry gathering.

Thin, pliable spruce roots were used in stitching the seams of birchbark kayaks and lashing the bent spruce pots described above. Split roots are still widely used in manufacture of birchbark baskets. Ideally, people gather spruce roots in July, and they begin by looking for trees with long, straight branches. Roots are easiest to dig if they are in sandy soil, under moss, and close to the surface. Once a good root of the right size, about a quarter-inch in diameter, is located, the soil is dug out in the direction the root runs. Roots are collected in sections about a yard long, cleaned of dirt, folded once over, and tied into a bundle for easy carrying. Sometimes the bundle is thrashed against a tree trunk a few times to clean it more thoroughly.

Spruce roots are soaked in water to make them pliable and soft before splitting. Then two cuts are made into one end of the root with a sharp knife, so it can be split lengthwise into four quarters. If the root tapers, these cuts are made in the larger end. The worker now starts splitting the root in half, holding one side in his or her teeth and the other in a hand, gently working the two pieces apart. Then the process is repeated for each half. The inner section containing the root core is discarded today, but formerly it was braided with willow bark in the manufacture of seining nets.

Birch

Birchbark has been intensely utilized by the *Kuuvangmiut* for making such items as kayaks, baskets for berry picking, drinking cups, and bowls for seal oil. Lower Kobuk people used to travel far upriver on the ice before breakup to reach places where they knew of good birch stands. Nowadays people of the upper Kobuk villages are the principal users of birchbark. They make old style baskets for berry picking and create new, innovative types to sell as folk craft items that provide a source of cash income. A few villagers still know how to make traditional birchbark kayaks, which closely resemble the Athabaskan Indians' open-decked canoe. The last few Kobuk kayaks were made in 1966 and 1967 for museums at Brown University and the University of Alaska.

In former times a man had to make the two or three day trip for bark on foot, taking little food with him and living on whatever game he could get with his bow and arrow (Giddings 1961:36-37). With motor-powered boats, birchbark collecting has now become a pleasant one day outing for whole families. Children may come along with their mother and father, especially if they are old enough to help.

Also, the season for collecting birchbark now lasts from June through September. In June and early July, when the sap is running, birchbark peels off easily and has a light yellow color on the underside. In August and September the bark sticks to the tree and the underside is dark brown. Some baskets are made to create patterns of light and dark, taking advantage of these colors and the white outside of the bark.

The size of birch trees increases and the quality of their bark improves with distance up the Kobuk River. Good birchbark has thin lines on its surface and the white color should not come off when it is rubbed. It must also be free of knots, cracks, and scars. Bark with thick "eyes" tends to be brittle.

It is best to remove bark during the day when it peels off most easily. People still remove it the same way they have for many years. Two cuts are made around the tree trunk, three or four feet apart and then joined by a vertical incision. The collector then works around the tree with a bone tool to pry the bark loose, taking care to cut only the outer layer and not the cambium layer, as this might kill the tree. If the bark is properly removed the tree remains healthy, forming a dark-checked "scab" of new bark over the disturbed area.

Kobuk River people take considerable care not to kill the tree from which they have taken bark, even though this tree will not produce usable bark in the future. As the demand for birchbark products keeps increasing, it will become more difficult to find good quality bark within a reasonable distance. At present, two or three persons in Kobuk village and two or three in Shungnak make baskets for sale. In Ambler, which has a reputation for fine basket making, seven households are involved. They sell their products to school teachers, government personnel, occasional tourists, and any other visitors who pass through the villages. Items are also sent to gift shops throughout Alaska and to people in distant cities and states who appreciate this type of art. Their

repertoire ranges from rectangular and round baskets to model kayaks, sleds, and picture frames. There is also a local demand for the traditional birchbark berry-picking baskets. Birchbark products are not presently made in the lower Kobuk villages.

Firewood

In the nineteenth century, collecting and cutting up firewood was the single most time-consuming cold weather activity. Few winter days passed when some people did not go out after sled loads of fuel. Normally, the men went out several miles by dog team, to cut and haul spruce or alder logs; and the women, particularly the older ones, went out with hand-drawn sleds to collect small alder and willow trees near the village.

As the *Kuuvaŋmiut* moved into the villages after the turn of the century, they continued the old practice of coming downriver on rafts each fall and then using the logs for firewood. Until the 1950s, most families still cut one raft of firewood each season. The major upriver sources of rafted logs were along the main channel of the Kobuk River, up the Pah River, and along the lower reaches of the northern tributaries. In the downriver area, the major sources were along the Hunt, Salmon, *Tuutaksraq*, *Napaaqtuqtuuq*, and Squirrel rivers. Apparently much of the rafted wood for Kiana came from the Squirrel River and for Noorvik much of it came from tributaries farther upriver.

Another source of fuel was driftwood, collected during high water after the spring breakup. Particularly in the lower Kobuk area, large spruce logs from the upriver tributaries floated by with the last fragmented ice, and these could be retrieved by boat and line. The logs were towed to shore and pulled up above the high-water line, where they could be cut and hauled to the wood pile at leisure during the summer. Large drift logs are still collected annually by the villagers, but they are now used primarily for building fish racks.

The two major species of firewood collected in winter were alder and spruce. Birch, willow, and poplar were secondary. When the villages were newly established, alder was preferred because it would burn hotter than spruce. But as the large alders were cut out and chain saws became available, spruce became the most important firewood. Birch is better in some respects, but it is far less abundant than spruce.

Most villagers along the Kobuk River and its tributaries are quick to state that the trees are available to anyone who wants to cut them. In practice, however, the area surrounding each village is informally divided into a series of places where certain families have greater rights than others have. This feeling of use-privilege has been accentuated by the establishment of Native allotments in private family ownership. Outside the allotment lands, access to firewood-cutting areas is varied and informal. Trees themselves may be individually owned only after they are felled. For example, if a person goes to the effort of ringing a tree to kill it and let it dry, he still might lose it to another wood cutter until he actually cuts it down. In the case of driftwood,

once a log is pulled above the waterline it is considered private property, even if the owner has not marked the log by notching.

As in the past, the preferred firewoods are dried alder and spruce because they give a hotter and cleaner fire than other woods. On the other hand, dried wood burns too fast, so green (fresh-cut) wood is usually burned with it to make the fire last longer. Green wood burns poorly alone, creates a lot of soot, and is likely to rust the stove because of its moisture content. Creosote from green wood tends to collect in stovepipes creating the danger of stack fires. Driftwood is also used for heating, as is wood from fire-killed trees in burned areas.

In Shungnak and Kobuk, most houses are equipped with both a wood-burning and an oil-burning stove. In Ambler, Kiana, and Noorvik, a few homes presently have dual heating systems, and most are heated only with oil. Householders that have both wood and oil stoves generally feel that they are in the best position, because they can strike a balance between oil (which is expensive) and wood (which is difficult to obtain). Homes heated solely by fuel oil require from 10 to 18 drums of oil annually. The average is 12 drums, or 660 gallons, which would cost $550 in 1975.

Heating a house solely with wood, on the other hand, requires an average of two hours of wood collecting per day through the mid-winter months. Households that depend entirely on wood are mostly those of older villagers, who often cannot get the wood for themselves. In the past, their adult children would supply it for them, or if they had no children they could buy sled loads from others. But now fewer men go wood cutting and even fewer sell it commercially. A cord of wood sold for $50 in 1975, a high price for an elderly person to pay.

The problem of firewood is compounded by the fact that snowmachines balk and are difficult to use at very cold temperatures, when the need for fuel is greatest. Also, hauling heavy loads from woodlots located well away from the village uses costly fuel and causes heavy wear on the very expensive snowmachines. Nevertheless, villagers increasingly see a need to at least supplement oil heat with firewood, and this trend may become more pronounced in the future.

Chapter 12

Using the Harvest

Subsistence in the Modern Village

People of the upper Kobuk villages still depend on the harvest of wild resources for a major proportion of their food, for raw materials used in the manufacture of clothing and equipment, for housing, and for heat. The only quantitative data on local foods in the diet comes from a survey of 11 rural Alaskan villages over the five year period from 1956 to 1961. This study showed that in Shungnak, over 81 percent of the total per capita intake of protein was from local subsistence foods (Heller and Scott 1961:39). Carbohydrate sources were more varied, with 46 percent coming from local sources and the remainder from imported or mixed sources.

More recent studies of this sort are not available, but locally obtained foods clearly dominate in the upper Kobuk River villagers' diet. In the lower river communities, the per capita harvest of caribou and fish indicate that reliance on local foods for protein and carbohydrates is only slightly less. Imported carbohydrate sources appear to have increased during the past decade, but protein still comes overwhelmingly from subsistence products. In the majority of households, meals without wild meat or fish are not common. Many *Kuuvaŋmiut* have a strong conviction that meals are incomplete without "real food" from the land, and they emphasize that they cannot remain strong, healthy, and contented when they eat only "white man food."

Indeed, preference for Native foods is a recurrent theme in conversations with Kobuk River villagers. The qualities of various kinds of game are discussed, people lament the absence of certain foods when they are out of season, catches of uncommon animals or exceptionally fat ones are events of real importance, and social visits often center around the availability of special foods. Lack of subsistence foods is perceived as one of the greatest hardships in living away from the village. This is why people at home regularly send frozen and dried meats, dried fish, seal oil, and occasionally delicacies like *maktak* (whale skin and blubber, obtained in trade) to their relatives and friends living away.

Caribou and fish, the most common foods, are valued above all others, and people often repeat the saying: "You never get tired of eating caribou." These staples are not only the foods people prefer to live with, they are also the most difficult ones to live without. This is not to say, however, that the *Kuuvaŋmiut* do not crave variety in their diet. People anxiously anticipate the change provided by a new season's animals or plants, and they always make an effort to diversify their meals. In modern times, the imported foods available from local stores allow more variety than ever before.

The strong preference for local staple foods is marked by a provinciality or perhaps a highly refined sense of taste. There is, for example, a conviction that Kobuk River fish are superior to any others. People say that Koyukuk River sheefish "taste funny," and are not very fat. One man who had lived in Fairbanks said that Lake Minchumina whitefish taste "just like mud" to him.

The *Iñupiaq* diet is very different from that familiar to westerners. Some of their most preferred foods, such as fermented sheefish or raw caribou meat, are often shunned by white visitors. This simply illustrates the wide variation in culturally based food preferences. Kobuk people are often aware of subtleties in the taste of game foods which are beyond the outsider's ability to detect. Villagers long for certain traditional foods that they value highly, especially those shared at holiday feasts and other special occasions. It is not unusual to hear a villager say, "I just wish I could taste some of that animal now."

Foods served at feasts in the Kobuk River villages during 1974-75 included the following: stews or soups made with fat caribou or moose meat, vegetables, rice, noodles, and condiments; bear meat; goose stew; boiled sheefish; fermented sheefish; cooked wild rhubarb; blueberries; beluga *maktak* (skin and blubber); and seal oil. At one feast, strips of whale blubber were passed out. This traditional delicacy, obtained through trade from the coast, was so esteemed that the names of those who received it were checked on a list to assure a fair distribution. Another precious food, saved for small get-togethers, is the mixture of caribou fat, meat, berries, and sugar called *akutuq*. The Kobuk Eskimos' appreciation of traditional foods is marked by their association with celebrations and other important social gatherings. Beyond this, traditional foods help to set the Eskimo person apart from all others in an era when the distinction has become somewhat blurred. They are an affirmation of Eskimo-ness.

Imported food is an important but clearly secondary element in the diet. Bread, canned goods, tea, coffee, and sweets have long been a part of the daily fare. But, although the *Kuuvangmiut* enjoy these foods, they do not consider them suitable as a steady diet. There is universal agreement on this point: "No matter how much white man food you eat, you will never be satisfied until you have wild meat or fish." Whites who attempt to live on an exclusive diet of *Iñupiaq* foods find that the same is true in reverse. Whether the dependence on familiar diet is physical or psychological, it is certainly real. One elder man explained his reaction to living on white man's food this way:

> You see me here, what color my face and my fingers look. Sort of brown color. One time I went to Fairbanks to work for a few months, and I eat white man food all the time. Pretty soon my skin was getting pale, like yours, because I eat too much soft food. It's not good for me. When I came home, I had strong food again; my body has to work hard to use it. Then my skin changed color and I'm back to Eskimo. When I eat strong food, it changes my whole insides. I'm sure glad to get back home that time.

Providing food is the first and most essential use of subsistence resources today, but there are other uses as well. Many articles of clothing are still made partially or entirely from products of the land. Animal hides are used for making parkas, parka ruffs, mittens, neck scarfs, clothing trim, and boots. Although manufactured or homemade cloth garments are widely used, traditional designs and the use of fur are valued highly. In fact, wearing Native clothing has symbolic importance—it is a part of *being* Eskimo. From a practical standpoint, some items of Native apparel are far superior to their manufactured equivalents. This is especially true of commercially made footgear, which does not measure up to caribou and sealskin boots for warmth, lightness, and overall comfort.

It is important to note that the principal use of animal hides by Kobuk villagers is for subsistence, not commercial, purposes. Animals such as the wolf, fox, wolverine, mink, marten, otter, and lynx are taken mainly for use of their pelts. Muskrat, beaver, bear, moose, sheep, hare, and caribou are valued for both their hides and meat. Whether these animals are hunted or trapped, their hides are used locally to make clothing or other goods. Most sale of furs is to relatives, friends, or trading partners in the area. For example, hats made from beaver, fox, and marten pelts are worn locally, and a few are sold to buyers beyond neighboring villages. In recent years, the women have begun to make fancy fur parkas, which had nearly gone out of existence, and these are also mainly for family members or for sale to other local people.

Animals provide the *Kuuvaŋmiut* with a wide variety of other useful items. Hides are used to make camping mattresses, sled pads, thermos bottle pouches, ammunition bags, snowshoe webbing, sled lashings, and many other articles. Animal bones, teeth, claws, and antlers also have many uses.

Plants are also used to make everything from pincushions to medicine to dwellings. They are of course an important complement to animal foods and they provide wood for houses, caches, sleds, boats, tent frames, poles, containers, drying racks, and tool handles. Wood also provides heat for human comfort, for cooking, for smoking meat, for preparing dog food, and for making the all-important summer mosquito smudges.

The Trade Connection

The upriver *Kuuvaŋmiut* depend mostly on local resources for subsistence, but they also make considerable use of marine products such as seal oil and whale *maktak* obtained from neighboring coastal peoples. Although they live only a few days' journey from the sea, and although their culture bears strong affinity to that of the coast, people of the upper river do not hunt marine animals themselves.

Exchange networks linking coastal and inland peoples developed long before Europeans arrived in this region. On an early ascent of the Kobuk River, Townsend (1887:87) saw many people wearing garments of piebald reindeer skin, which obviously came from Siberia. Indeed, trading was a fun-

damental element of Kobuk Eskimo life, with a regular position in the annual cycle.

> At the beginning of summer some families followed the breaking river ice down stream. They eventually visited Sheshalik *[Sisualik]*, on Kotzebue Sound, where they traded with Siberian and coastal Alaskan people. . . .
>
> The Kobukmiut made important trade connections with the Koyukuk River to the south, Kotzebue Sound to the west and the Noatak River and central Brooks Range to the north and northeast. They often acted as middlemen in the exchange of goods through inland arctic Alaska. (Foote 1966:15,16)

Although this trade network extended beyond the Kobuk-Kotzebue Sound region, its primary function for the *Kuuvanmiut* was clear. It was the means to obtain precious sea mammal products, which the people felt they could not do without. This need did not change after Europeans arrived on the scene, and so the trade continued. The older generation of Kobuk villagers participated in scores of trading excursions when they drifted down the river, transacted their business on the coast, and then pulled their motorless boats slowly back upstream.

An elderly Shungnak man recounted the extent of his travels—to Kotzebue Sound, the Selawik Lowlands, the Noatak River valley, the Koyukuk River, and across the Brooks Range to the North Slope. Most of these journeys involved trade. Before going to Kotzebue, for example, he always tried to build up a stock of wolf, wolverine, and fox pelts. When he arrived, he exchanged his goods for seal oil, *maktak*, and sealskin. Before returning home he always spent time socializing, and on one trading journey he met the woman who became his wife.

During these early years, the Kobuk people brought more sea animal products home than they could use themselves. The excess was traded to the Koyukuk River Athabaskans, who gave beaver and marten skins in exchange for seal oil, fish, skin boots, or meat. Some of the Indians' pelts were then carried to the coast, where they brought a fine return in goods from the sea.

In time, storekeepers on the Kobuk began shipping seal oil and *maktak* up the river so people could obtain them without traveling to the coast. Next came exchanges of subsistence goods by air freight, the terms arranged by mail if personal visits were not possible. Yet although the mechanics of trade have changed considerably, its intensity has remained much the same.

The modern Kobuk Eskimos still use a variety of marine products obtained from several different areas. The heaviest trade is with Kotzebue people, and the primary source of products is the *Sisualik*-Cape Krusenstern region (where Kotzebue people hunt seals in spring and summer). Upper Kobuk villagers also acquire seal and beluga from Buckland and Deering on the Seward Peninsula, from Noorvik on the lower Kobuk River, from Noatak village on the lower Noatak River, and from Kivalina and Point Hope on the coast.

The methods of trade vary from time to time and from person to person. Most upriver people have relatives, friends, or formal trading partners on the coast who provide a regular supply of trade goods. Some exchanges, especially those made through traditional partnerships, involve only subsistence goods. For example, an Ambler man might send a whole caribou to his partner in Point Hope who, in turn, sends ten gallons of seal oil the following summer. Or, a Shungnak woman might give her Kotzebue partner a pair of caribou skin boots and receive a bearded seal hide the next year.

Although most trade is still carried on through personal friends or relatives today, it is based primarily on exchange of money rather than goods. This means that Kobuk people buy marine products, paying prices determined locally by supply and demand. Some years ago, for example, a fifteen-gallon *puuq* (poke, sealskin bag) of seal oil sold for about $25. In 1975, oil was sold in five-gallon cans for $25 to $30 each.

Seal oil is the most important item of trade, and its price is usually the same among all sellers. Costs for other goods are more variable: For example, an Ambler man bought a five-gallon container of seal oil mixed with dried seal meat and pieces of blubber for $60. A Shungnak woman purchased a one-gallon container of bowhead whale oil and blubber for $25. Prized whale *maktak* may bring extraordinary prices: one man recalled paying $97 for two chunks, each about 18 inches square.

Trade connections between different inland groups are less active today than in the past. Kobuk Eskimos maintain their strongest ties with the Koyukuk Athabaskans, whom they visit sporadically during the winter and spring. Sealskin-soled boots traded from the Kobuk River people are fairly common among the Koyukon. Seal oil is another popular item of exchange. In return, the Eskimos receive Indian footgear and tanned moose hide. This trade apparently never involves money, and it is carried out mainly to solidify friendships.

Seals and Whales

The most important animal involved in coastal-inland trade is the ringed seal, which is abundant on the Chukchi Sea and Kotzebue Sound coast. Seal oil *(uqsruq)*, rendered from the animal's blubber, is the focus of this exchange. Kobuk people use oil with almost every meal, and their per capita consumption seems equal to (if not greater than) that of most coastal groups.

Seal oil is aged until it acquires a fermented smell and tangy flavor. Coastal people usually discard oil or feed it to their dogs when it becomes too strong, but the Kobuk River villagers would never do this. They prefer old oil with a powerful smell and flavor, which has taken on a reddish coloration. As described by an old Ambler man, good seal oil has "plenty of stink in it, and you almost cough when you taste it. This is the kind coast people throw away, but we love it." Seal oil has many uses in food preparation and storage, but it is used most often as a dip for meat and fish. At meals, every person has a small saucer of oil, and each small piece of meat or fish is dipped and liber-

ally coated before it is eaten. This is done whether the food is eaten raw, cooked, or dried.

Kobuk people occasionally obtain whole seals, primarily for the blubber and oil. Strips of blubber, sliced into small pieces and eaten with meat or fish, are considered a delicacy. Seal meat is not highly regarded, however, nor are other parts that are relished by coastal people, such as flippers or intestines.

Ringed seal hides are also acquired from the coast and used for making the upper parts of boots, boot ties, and clothing trim. The larger and very tough bearded seal hides are far more valuable. They are used to make boot soles or cut into strips of thong for snowshoe and sled lashings. Bearded seal meat is also obtained from time to time, but it is not much sought after.

Kobuk villagers are occasionally able to acquire oil and blubber from the bowhead whale or the beluga. These are used in the same way as seal oil and blubber, but they are much harder to get. *Maktak* from either beluga or bowhead whale is occasionally bought or traded from the coast. Most beluga products come from Buckland and, to some extent, from the Kotzebue-*Sisualik* area. Point Hope is almost the only source of bowhead whale products, which may pass through several hands before reaching the upper Kobuk villages.

Finished goods such as parkas, mittens, and skin boots are also exchanged between coastal and inland communities. The upriver people generally trade clothing made from wolf, wolverine, caribou, or beaver hide, in return for items of sealskin. Coastal footgear, made from waterproof sealskin, is especially valued by the Kobuk people. Products such as these are exchanged mainly between close friends, partners, or relatives, and money is usually not involved.

It is difficult to measure the economic importance of coastal-inland trade. Although the volume of materials exchanged is small—a family may obtain seal oil or hides only once or twice a year—this is no indication of its significance. For example, waterproof bearded seal hide is an essential material for the most popular winter footgear used by upper Kobuk villagers. And seal oil is a part of every major meal.

Kobuk River people often speak of the hardship they feel when they run out of seal oil. An Ambler woman said, "No matter how much we eat, we still feel hungry, and without oil our stomachs are always sour." Commenting on the high cost of oil, an old man said that he would simply have to pay the price, regardless of how expensive it might become. "I just have to taste that oil when I eat," he explained. Not surprisingly, of all the local foods sent to people who are living away from the villages, seal oil is considered the most important.

Trade with the coast provides the Kobuk River people with food and other materials that have great value within their culture and community. Although the volume of goods may not be large, their economic importance must still be rated very high.

Traditional Medicines

The modern *Kuuvaŋmiut* rely on various western health care facilities available in the region, but they also follow their own traditional medical practices. Many of these practices involve the use of plant and animal parts. The following information was given by Lulu Geary *(Tuttuġruk)* from Buckland and Lucy Foster *(Akuġluk)* from Noorvik, who was born in Kivalina. It is presented here as translated and written by Nita Sheldon Towarak, following the original narratives as closely as possible:

> Long ago, when people cut themselves they covered the wound with *sargiq* (wormwood). When they had chest pains *(qatiganŋurut)* or an uncomfortable feeling in the chest, they boiled or cooked it and drank the liquid. *Sargiq* is still used, but not as often as before.
>
> They also ate juniper berries (*tulukkam asriat*, "the raven's berries") when they had chest pains. It is said that when they ate them they always got well. They boiled the leaves and stems also.
>
> When a person's blood does not flow right *(auŋa iglilguiññiagaqsipman)* they use Hudson's bay tea *(tilaaqqiuq)* like they drink regular tea. They always get better when they drink this kind of tea. Hudson's bay tea can also be used when a person has food poisoning *(niġġiqługtuq)*. After the person has vomited he is given *tilaaqqiuq*. This is said to cure immediately. Even in the summer, when *tilaaqqiuq* is green, it can be used as medicine.
>
> When a person lost his appetite *(niġitłaiqsuq)* and was having gall bladder *(suŋaq)* problems, he was given cranberries *(kikmiññaq)*. First they were boiled and then mixed with seal oil. A person who lost weight and strength and was not hungry was treated with this type of medicine to help him crave food. This is what they used to help a person who had become weak.
>
> A person who had a toothache *(kigutiŋuruq)* would bite on *sulukpaugaq* (grayling) dorsal fin. After biting on the fin for a while the toothache would go away.
>
> When a person had a sore throat *(iggianŋuruq)* with white patches and nothing could be done, a long, thin strip of blubber was used as medicine. It was held so that a person swallowed it in and out. This was done so he would throw up and get all the dirt out of his throat. He would feel better afterward.
>
> Before tonsils were ever removed in hospitals, people poked them when the tonsils got old and soft. This let the fluid come out. The sick person got well because the tonsil was full of pus before the treatment. But sometimes people died from this.
>
> When a child has sores (white spots) on his tongue *(qaŋġiqsuq)*, and when he starts drooling, you can get young or adult swallows from the nest, kill them, and let them dry after plucking the feath-

ers. Afterward, whenever someone has a sore tongue you rub the dried swallow on it, and the child gets well.

When a child has seizures *(qiluraġaq)*, seal oil can be boiled so the smell is taken away, and then sugar is added to it. After letting the medicine cool off, it is injected into the rectum of the child (enema), and he will get well. The child starts burping the seal oil because it comes up through the intestines. When it goes back down, the child gets hungry. It is like washing him out. When a child gets sick with this kind of symptom he looks like he is dead, and the only thing that is with him is his breath.

A person who has a very bad cold *(nuvaksiqpak)* and cannot smell anything can be treated with fermented salmon. Fish that is so decayed that it is not edible is put on the nose area and the outside part of the throat. When a person cannot stop a cough and he is coughing constantly (*quhiqpauraq*, whooping cough), he is given *tilaaqqiuq* (Hudson's bay tea) to drink. The only way it can be made is by boiling it just right, and it is drunk with no other mixtures.

For a person who has a continuous nosebleed *(auktittuq)* the *Iñupiaq* nurse uses her fingers to put pressure on the bridge of the patient's nose. Another method is to press on the nostrils.

For someone who has a very bad headache *(niaqunŋuruq)*, the skin may be pierced between the eyebrows or on some other part of the head. But you have to be very careful because there is a muscle like sinew above the eyes, and if you poke *(kapi)* it, the skin will fall into the eyes. You pinch the skin up with your fingers and give the poke sideways, not into the skull. This is done so that the old blood will go out. Long ago, people were afraid of going blind so this was practiced widely. It is said everything will get brighter after bloodletting.

When any part of your body is hurting, you can *(kapi)* it. For example, there is a hole in the ankle which is the joint, and you can *(kapi)* straight down into it. This is also done in your kneecap. A poke can also be given on any vertebrae of the back, but it has to be done on the side of the vertebra because of the sinew.

Although bloodletting can be used on any part of the body, there is great danger involved. When a poke is given, one has to watch out, and that is why the thumb plays an important part in bloodletting. It determines where a poke is to be given. You can feel it because of the blood that gathers in the afflicted area. When too much blood stays in the ankle or knee too long it will eat the bone and get pussy. If nothing is done immediately, the pus will turn to water. Traditional doctors suggest that blood be let out immediately. The depth that the *kappun* (instrument used for bloodletting) is poked in depends on the part of body where it is inserted. For example, it is inserted three inches deep in the hip joint. The average *kappun* is about three inches long, and the blade is usually thin and sharp at the tip. Long ago jade was used, but steel blades have replaced them.

When a person has snow blindness *(illuk)*, and he continues to have it despite warnings, he is punctured between his eyes with a *kappun*. This is so blood can be drawn out, because the blood is thought to be old.

Long ago, if a person had snow blindness with a sty, they used lice *(kumak)*. People had a lot of lice then, and they would find one for the patient's eye. The *kumak* was tied with a strand of human hair, then put into the eye, and it would scratch the sty off.

When the center (*iñua*, meaning "it's living being") of a boil *(ayuaq)* is ready to be removed, it can be done by pulling a human hair and using it to take the center out, so it won't grow again. After taking the center off, the boil is covered and bandaged with *sargigŋuaq* (wormwood), so it cannot become infected and leave a scar.

Before there were modern medicines or nurses, if someone had a very bad cut *(killiq)*, warm urine was used to clean it. The urine would stop the bleeding quickly and the cut would not become infected. If a cut would not heal, they bandaged it with *sargiq* (wormwood). People who lived near the ocean used blubber when it was available. The blubber was cut into thin strips and placed on the wound, or seal oil was boiled and used to cleanse and soak the cut. Today, if a child gets a cut his parents or the child himself will put Mercurochrome or iodine around the injured area. If a circle is drawn around the cut with this medicine, people believe it will stop infection from spreading.

If a small child's liver swells up *(tiŋuktuq)*, and his nose begins to quiver and he does not eat, a rabbit skin is soaked in seal oil and warmed, then placed on the child's stomach and tied like a belt. This is done so the seal oil will seep into the liver and make it soft. The child will then become lively again.

A person with a bad appendix was cured by pressing it lightly, working the contents into the intestines, and then draining it to mosses. It takes a long time to drain it. Afterward, the person is given frozen sheefish or anything cold to eat. Sometimes the appendix would burst during this process and the patient would die. A person who died of appendicitis was diagnosed by the blue coloration of skin on his armpits and neck area.

When a woman was to have a baby, her husband built a small framed hut *(uqquutaq)* where she would deliver the child. Although someone brought food for her, she went through the childbirth alone. Afterward, she would go to a snow house, called *anigutyaq*, for four days, because she was very *quŋuq* (contaminated). Then she would go back to the main house.

Long ago, the people did not use soap and water for bathing. At the first part of the month, they closed the smokehole in the top of the house and then spent the whole night sweating. After spending some time sweating, the person went outside to wipe himself with fresh snow, and then he went in and dried. His body felt weak and light afterward. People waited for fresh snow to fall before taking a sweat bath.

The Eskimos of long ago were very knowledgeable people. Broken arms, broken legs, frostbite, or freezing rarely occurred, because they were careful and did not play around with liquor. But after contact with the outside world there was the introduction of liquor where the people lose some of their sense of identity, including social and physical control. Long ago when conditions were hard they stayed at home. No one had to say, "He got frostbitten," or anything of this sort. People always watched to see what type of day it would be, and they were very knowledgeable about weather conditions. They were very cautious people."

Part 5
The Patterns of Change

Chapter 13

Subsistence and Environment

To the passing eye, the taiga environment of the Kobuk River Eskimos is a monotonous repetition of itself. There are uniform sweeps of tundra, expanses of undiversified timber, lakes and ponds, creeks and rivers, all apparently identical and all integrated into a pattern that seems to recur endlessly. Added to this impression of homogeneity is a feeling of timelessness and immutability. It seems that the plants and animals of this land must always be widely scattered, uniformly scarce, and constant in numbers.

In fact, these impressions of uniformity and changelessness are completely incorrect. From the standpoint of human utilization, the dominant characteristics of this environment are uniqueness of specific resource places and variability of resources through time. These two phenomena play a fundamental role in determining the nature of *Kuuvaŋmiut* subsistence.

Localized Nature of Resources

Anyone who observes Kobuk villagers hunting and gathering will be struck by their intimate knowledge of the animals and plants on which they live. Clearly, an understanding of the behavior and ecology of prey species is one key to the hunter's success. But in the Kobuk people's taiga environment there is another key as well. To make a subsistence livelihood they must know every detail of the natural landscape, as it exists during each season and under every condition.

This knowledge of the landscape is essential for two reasons. First, it is the basis of navigation and pathfinding, as people travel widely by land or water pursuing their livelihood. Second, to exploit the resources of this environment, people must know exactly where to find them. The Kobuk valley contains a profusion of specialized resource places, scattered in an unpredictable mosaic across the land. Location of these places cannot be predicted because no two environments or micro-environments are identical, at least not from the standpoint of human use. Every bend of the river, patch of forest, or stretch of tundra, and every valley, pond, hillside, muskeg, or stand of brush presents a somewhat different pattern of resources. Each is unique. Some are devoid of usable resources; some are rich; some are productive according to chance, season, or special conditions.

Thus, Kobuk River people must learn the land's pattern of resources if they are to make a livelihood from it. The *Kuuvaŋmiut* have access to countless generations of accumulated experience in their homeland. Their knowledge of the terrain is continually passed on, enriched, and altered as the

configurations of the natural landscape change through time. And so, their knowledge is a living thing, a part of the culture and simultaneously a part of the land which sustains that culture. There can be no more intimate connection between humans and environment.

Beyond simply recognizing the pattern of localized resources, the *Kuuvaŋmiut* must also know the conditions that will make these resource places productive. Each place is known for a particular species of plant or animal (sometimes several species) found there in a certain season, part of a season, or special set of circumstances. Localized resources are usually time-specific in ways that can be predicted if the place and the species are known well enough. So the Kobuk hunter-gatherers conceptualize the landscape as an arrangement of distinct resource places in a state of continual change, and this understanding is the basis for their daily subsistence activities.

Examples of Localized Resources

The following examples show how animal and plant species tend to be localized in the Kobuk Valley, and the way this affects people's subsistence activities.

Caribou. The caribou is well-known for its tendency to turn up almost anywhere and according to unforeseeable, unpredictable impulses. To an extent this is true, but caribou movements follow some predictable patterns, especially in their migratory routes. During the fall and spring migrations, caribou usually move through certain valleys and low passes in the Kobuk region, such as the Ambler/Redstone and the Hunt river drainages. The most favored specific area, however, is Onion Portage, where caribou nearly always congregate and cross the river in large numbers. Hunters from many villages converge on this place each fall to take advantage of its special attractiveness to caribou.

Migrations are strongly affected by geographic features that funnel animals through certain places. During other times of year it is not so easy to predict where caribou will be found, but the *Kuuvaŋmiut* have learned some patterns. For example, in early January of 1975, Shungnak people needed fresh meat, but no caribou could be located in the immediate area. An elder advised hunters to look along the windswept west and southwest slopes of Rabbit Mountain, where the snow cover would be thin and the land would catch direct sunshine. Hunters went to this place shortly afterward and found caribou exactly where the old man said they would be.

Bear. Certain spots or areas are known for being particularly attractive for black and grizzly bears. For example, the Ambler people know of two areas that are good for bears during the fall. One is along a stretch of tundra between the Hunt and *Nuna* rivers, and the other is a portion of the lower Redstone River, where bears are attracted by spawning salmon and large patches of blueberries.

Wolf and Wolverine. Surprisingly, these two wandering species are more abundant in certain areas than in others. For example, the south end of a long peninsula of tundra near Onion Portage is known as an excellent place for hunting or trapping these animals during winter. People sometimes call this area a "wolf crossing," because the animals pass through here as they move between the Kobuk and Noatak river valleys.

Beaver and Muskrat. These animals favor certain known lakes, ponds, sloughs, and stretches of river. Some of the lakes south of the Hunt River are heavily populated with muskrats, for example, while some others have only a few, and still others inexplicably have none at all. Villagers have to learn a pattern like this through experience; it cannot be known by simply looking at the lakes. Similarly, beavers tend to frequent certain bodies of water (or parts of rivers and streams) and not others. Ambler people single out the *Milugiat* River as having the best beaver concentrations in their area.

Mountain Sheep. This is a highly localized species. Kobuk River villagers know of several mountains or specific parts of mountains where sheep tend to congregate throughout the year, and these places are hunted to the virtual exclusion of all others.

Moose. Certain large stands of willow along the Kobuk River are for some reason especially attractive to moose during the fall and winter. These stands, identified only through years of experience, are recognized and favored by village hunters.

Waterfowl. Ducks and geese have a strong tendency to congregate in certain places at specific times of the year. During the spring, they fly along particular aerial pathways and over certain lakes, and in the fall they are attracted to completely different places. When villagers hunt ducks and geese, they choose from a large number of known places, depending on the season, weather, means of travel, and other factors.

Fish. Hundreds of highly localized fishing places are known along the Kobuk River, its tributaries, and nearby lakes. Some of these spots are used for gill netting during only one season, others are used during two or more seasons, and a few can be used year round. There are places used only for seining, others used for catching certain species with rod and reel, and still others where fish are caught by jigging through the ice. Similarly, people use certain places for a particular kind of fish trap, again depending on the species of fish and the season.

For example, from March until breakup, pike can be jigged through the ice of *Anugituut* Lake, south of the Hunt River mouth. People can take large numbers of them, but only by fishing at one specific place in the lake. Elsewhere in the lake, or in any of the surrounding lakes, a fisherman will catch nothing. In late spring, for a few weeks after breakup, there is excellent gill netting for pike, whitefish, and suckers in a small slough near Onion Portage. This place is named *Siglauraq* because it is a reliable source of food during the lean time after breakup.

Examples of localized fishing places, for particular methods at particular seasons, could be multiplied endlessly. Knowledge of local patterns is essential for this complex of subsistence activities.

Spruce. Although stands of white spruce look very much alike, there are marked differences when it comes to their use by people. For example, in some areas there are many standing dead trees with a straight grain, which allows for easy splitting. These places are strongly favored for firewood cutting. In certain other areas the trees are tall but have an extremely twisted grain, making them unsuitable for firewood because they are hard to split. There are also stands of straight, towering spruce with few branches—ideal trees for house logs. These stands are so rare and valuable that someone who plans to build a house may cut logs as much as 40 river miles away and then raft them down river to the village.

Edible Plants. All species of edible plants grow only in certain places, and their abundance or productivity differs greatly from one spot to another. For example, wild chives are found in many areas along the Kobuk River, but in two spots they grow far more abundantly than anywhere else. One of these is *Paatitaaq*, at Onion Portage, where Ambler people gather almost all of their chives. The other, *Siksrikpaich*, yields more chives but is far from any settlement.

Berries are always restricted to patches or small areas where conditions are ideal for them. Usually a given place is good for only one or two species, and a few people will come there to pick each year. But there is one place, on the upper slopes of *Manuilisat* Mountain (north of Ambler), where blueberries, cranberries, crowberries, and salmonberries flourish. On the lower slopes there are also excellent stands of birch for bark and sled lumber. Like so many other resource places, this one has no distinctive physical features to set it apart, so it is only known through chance discovery sometime in the past.

Wind. Weather has a great effect on the use and availability of resources, and it is strikingly localized in the Kobuk River valley. For example, Shungnak village has stronger and more frequent winds than Ambler, although only 35 miles of flat land separate the two places. An east wind at Shungnak blows as a north wind at Ambler, or it may not blow at all. Ambler people often know that an easterly gale is blowing only by seeing clouds of snow drifting over the tundra south of their village.

The area from Shungnak west to *Pitqiq* Lake (eight miles southeast of Ambler) is known as windy country. From *Pitqiq* Lake west to Onion Portage, winds are usually much lighter. Then, from Onion Portage west to *Tulukkaat* (five miles west of the mouth of the Hunt River), the winds are very powerful. This blows the snow into hard drifts and allows easy winter travel without need for established trails. Westward from *Tulukkaat* is a stretch of calm country, where the deep powder snow makes travel extremely difficult away from regular trails. The area of the Hunt River mouth is a notorious wind funnel, where passing boats have been blown onto the beach in summer, and where winter travelers pass only during quiet weather. Kobuk villagers

must always consider such localized wind patterns as these in planning their subsistence activities.

Localized Resources at Two Traditional Campsites

The Kobuk people usually establish their long-term camps in exceptionally rich places, where many localized resources are found close by and they can do a variety of subsistence activities with minimum travel. The two sites described here are among the richest on the upper Kobuk River, and they have been heavily used for many generations.

First Camp. This site is located at the mouth of a tributary that flows into the Kobuk between Shungnak and Ambler. The tributary flows through a large tundra area and drains many lakes that are well populated with pike, suckers, and whitefish. Localized resources and subsistence activities focused around this camp include the following:

Wind. The camp is open to a fairly steady north wind that blows in this area. This helps to dry the large quantities of fish people catch, split, and hang on open racks here. It is also pleasantly cooling on hot summer days and suppresses the mosquitos, which torment people when it is calm.

Spring gill netting. People set their nets in the tributary and nearby in the Kobuk River for several weeks after breakup. Their catches include exceptionally fat humpback whitefish as well as broad whitefish, pike, suckers, and grayling.

Summer seining. Several good seining places for salmon and broad whitefish are located just above this camp in the Kobuk River, close enough for easy access by boat.

Summer gill netting. Gill nets are set inside the mouth of the tributary for broad whitefish, humpback whitefish, and pike. Just outside the mouth, in the Kobuk River, the nets make good catches of salmon and whitefish.

Summer hooking. Grayling, sheefish, and pike are taken with rod and reel around the tributary mouth.

Fall seining. Least cisco, humpback whitefish, and broad whitefish are seined during the fall, just outside the tributary mouth and at several nearby places up the Kobuk River.

Fall gill netting. Nets are placed inside the mouth of the tributary where large numbers of broad and humpback whitefish, pike, and burbot congregate.

Burbot trapping. After freeze-up, traps can be set for burbot at a place just outside the mouth of the tributary.

Plant gathering. Cranberries, blueberries, Eskimo potato, and abundant wild rhubarb can be found at specific places near this camp.

Hunting and trapping. Migrating waterfowl are taken in good numbers at the mouth of the tributary. Bears are often hunted in this area during the fall, and caribou frequent the nearby tundra at various times of the year. A tower was built here for scanning the flat surrounding country to find caribou. During the spring, muskrats and beavers are taken in a number of large lakes along the tributary.

Second Camp. This is another very rich traditional campsite, located on the north side of the Kobuk River downstream from Ambler, near the mouth of a slough and several miles from a major tributary. Localized resources and subsistence activities focused around this camp include the following:

Wind. Like the first camp, this place is favored by north winds during the summer, though it is partially sheltered by the timber and terrain. Wind is a greater factor here during winter, when it blows with tremendous strength and curtails activities for long periods.

Spring gill netting. The mouth of the slough is an excellent place for netting whitefish, pike, and suckers for several weeks after breakup.

Summer seining. Three seining places are located in the Kobuk River just below this campsite. Catches of salmon and broad whitefish can be made here during June and July.

Summer gill netting. An exceptionally good eddy is located in the Kobuk River at this camp, where salmon, sheefish, pike, and broad whitefish are taken in large quantities. Nets are also set for whitefish and pike inside the nearby slough.

Summer hooking. The offshore eddy here is one of the best sheefish hooking places on the upper Kobuk River. During July, people regularly travel here from Ambler for rod-and-reel subsistence fishing. Pike hooking is done in the slough throughout the summer and fall.

Fall seining. During the fall, sheefish and whitefish are seined in two places located just downstream from the campsite.

Fall gill netting. The large eddy offshore is an excellent place for catching salmon, sheefish, and whitefish in the fall. Nets for pike, sucker, whitefish, and burbot are placed inside the mouth of the neighboring slough.

Early winter gill netting. Whitefish, sheefish, trout, and burbot can be taken with nets set under the ice offshore from the campsite.

Burbot trapping. A traditional burbot trap site is located in the Kobuk River just below this campsite.

Plant gathering. Wild rhubarb, blueberries, cranberries, and abundant crowberries are found in the immediate area of this campsite.

Hunting. This camp is located in what is perhaps the best hunting area of the upper Kobuk valley. Caribou migrations tend to funnel through here in the fall and spring, and the animals sometimes winter nearby as well. Moose are commonly taken along the river in this vicinity. Good stands of willow around this area are excellent habitat for ptarmigan and snowshoe hares.

Waterfowl hunting. This too is exceptional in this area. One of the best hunting places is located just upriver and another favorite shooting spot is within a few hundred yards of the campsite.

Furbearing animals. These are unusually common in this area. Fox, wolf, and wolverine are often taken on the tundra and along the river nearby. Muskrat and beaver frequent some of the adjacent sloughs and lakes.

These two outlines of localized resource patterns at specific campsites should not be taken as typical situations—indeed the opposite is true. They are favored because the surrounding environment creates an unusual concentration of resources. Usually, a given place will have only a few usable resources nearby, with other resources scattered at varying distances in the surrounding area. Even at the two sites described, the hunting, fishing, and gathering places are spread over an area of several miles, and many could be found only by someone who knows the local landscape well.

Dynamic Nature of Resources

The examples given above show that resources are not only localized, they are also available only during certain times of the year. The *Kuuvaymiut* must know both the location of resource places and the exact time when each place will be productive. These conditions are seasonal and predictable: Caribou migrate through specific valleys in September; moose congregate along the river in August; fish can be caught in certain places following breakup. Thus, the abundance or availability of utilized species changes drastically at different times of the year.

But certain other changes in resource availability are more predictable. Some of these changes are short-term, as when a species is absent or difficult to obtain for a year, a season, or part of a season, because of some temporary condition. Other changes are longer-term and often cyclic, so that a species becomes scarce or unavailable for a period of years or even decades. These shifts are not always negative; resources also become more available for various lengths of time. Marked fluctuations in availability affect almost every significant resource utilized by the Kobuk Eskimos, and this profoundly affects the subsistence economy in several ways.

Short-term Variations

Caribou. The availability of caribou changes from year to year according to their movements. For example, if fall snows south of the Brooks Range

are unusually heavy or become severely crusted by a thaw, caribou might stay north of the range or in the mountains. This can temporarily delay the migration and curtail the fall hunts, or it may keep most of the animals north of the Kobuk region for the entire winter, as occurred in 1956-57 (Hemming 1971:13).

In the fall of 1974, caribou did not move into the Kobuk valley until freeze-up time. Hunters were unable to reach them by boat because the river was frozen, and overland travel was impossible because there was no snow. As a result, the fall hunt was poor. Fortunately, part of the Arctic herd wintered in the valley, so the villagers obtained their meat later on.

Occasionally there is a heavy rain during the winter, which leaves a thick crust on the snow. Caribou (and moose) have a hard time feeding, so they move high on the mountains, where lower temperature always prevents winter rain. There they can survive, although they tend to become lean. It is very hard for hunters to reach these animals, which are of poor quality in any case.

Bears. Black and grizzly bears are apparently affected by year-to-year changes in the berry crop. In good berry years, hunters usually encounter many bears, but in poor years they see very few. This fluctuation also indicates the highly variable nature of berry crops, which are themselves an important resource.

Waterfowl. Ducks and geese tend to be fairly stable resources, but some variations do occur. There are good and bad years for waterfowl hunting, depending mainly on weather conditions during the migration that affect both birds and hunters. In some years there are simply fewer ducks or geese than normal, which also results in poor takes.

Fish. Kobuk River salmon runs are quite variable from year to year, so the subsistence take fluctuates a great deal. Catches of all fish species can be curtailed severely when prolonged rains bring high water for part or all of a season, so that gill nets cannot be used. Long wet spells can also ruin a season's catch by causing it to spoil on the drying racks. In 1974, for example, nearly all salmon taken in the summer spoiled because of cold, damp weather. Events like these can drastically affect the local economy and force people to make heavier use of other resources.

The effect of interrelated natural events on subsistence activities was seen in recent years, when whitefish runs diminished in the Black River. An increase in the beaver population apparently resulted in the damming of many lake outlets, so the whitefish could no longer run down the river. Of course decline in a resource like this causes people to compensate by harvesting the same resource somewhere else or shifting toward other resources.

Long-term Variations

Caribou. The history of caribou populations and movements in the Kobuk valley is a classic example of variability and its impact on subsistence activities. Caribou were plentiful in this region during the nineteenth century, a fact substantiated by archaeological evidence and the accounts of *Kuuvagmiut*

elders. The population underwent a period of decline, however, reaching a low point in the 1880s. At this time, the caribou retreated into a core area north and west of the Kobuk and were rarely seen in the valley. Kobuk people were forced to make long, arduous winter journeys into the Noatak valley to find any caribou at all.

Then, around the turn of the century, caribou numbers grew, their range expanded, and wintering animals moved east, west, and south into less crowded areas (Hemming 1971:3,5). By the 1940s, caribou began trickling back into the Kobuk region, first in small numbers and then in ever-increasing numbers as the herd continued to grow. Each year they returned in the fall and remained until spring, as they still do today.

There are indications that the caribou population of northwest Alaska reached its peak during the middle 1960s. It remains very high at present, but some game biologists feel that a period of decline has set in. This pattern is not unusual, since caribou populations everywhere seem to fluctuate constantly. According to some authorities, these changes are cyclic over a period of about 100 years.

Although caribou are now seasonally abundant in the Kobuk valley, there is every reason to expect that they will not always be so. If the population declines the range will probably contract again, and Kobuk people will be forced to enlarge their hunting territory. A *Kuuvanmiut* elder, recounting the long hunting journeys of his youth, saw the pattern clearly:

> I *know* caribou won't be around here some day. Look, where people lived long ago, lots of caribou bones. Piles of them. They didn't pack those bones over from the Noatak! They hunted right here. But then all of a sudden no caribou around here—nothing. I don't know for how long. Then caribou come around again all the time, the way it is now. Some of these days, going to change again and no more caribou. We have to travel then, just like before.

Moose. These animals are common today in the Kobuk valley, but before the turn of the century they could only be found by traveling far south into the Koyukuk River drainage. Old men remember making winter trips to the Hogatza River, where they shot moose and brought home as much as their sleds could haul.

Around 1910, Eskimos began finding moose far up in the Kobuk drainage, around the Pah River flats. Over the next 50 years the animals gradually spread downriver, as they are still doing today. This movement is only part of a dramatic expansion of the moose range throughout the north. It has introduced an entirely new resource into the Kobuk valley, but the villagers do not see this as a permanent change. Many believe that moose have already begun to decline in the upper Kobuk while they are still increasing in areas toward the coast. They interpret this change as a westward movement of the entire herd.

Although the moose range is still expanding in northern Alaska, there is no way to predict whether moose will continue to increase, reach a point of

stability, or undergo a decline. The Kobuk River people, accustomed to living with constant environmental change, feel that the moose might someday be gone again.

Small Game. Ptarmigan and snowshoe hares are very important in the Kobuk subsistence economy during some years, but both species experience sharp changes in population. Ptarmigan numbers vary considerably from year to year, according to snow and weather conditions, and they apparently have cyclic population changes of some magnitude over longer periods. Hares experience drastic cycles with roughly 10 years between high points. During population peaks they are prolific and during lows they are hardly seen.

Beaver. According to Kobuk villagers, beaver populations have undergone considerable change over the last 20 or 30 years. They have apparently declined in the upper Kobuk-Pah river regions, while they have increased in the Selawik-Kugarak river drainages. The *Kuuvanmiut* interpret this change as a gradual westward migration of beaver.

Muskrat. In the upper Kobuk area, muskrats were abundant until a few years ago, but they have suddenly declined to a point of relative scarcity. Spring muskrat catches, formerly large in some areas, have decreased to almost nothing. Muskrats are now found only in the most favored areas, and hunters must travel long distances to make a sizable catch.

Porcupine. In the 1920s, porcupines were very common in this region, but they have become relatively scarce today.

Fish. It is difficult to interpret long-term changes in the number of fish taken. Nevertheless, Kobuk people do believe that chum salmon have cyclic population changes, and that salmon and sheefish have both gradually declined in recent decades (Foote 1966:12).

Whatever the cause may be, it is certain that localized fishing places have marked long-term changes in productivity, caused by alterations in the river and its tributaries. Eddies where gill nets are set can become larger or smaller, appear or disappear, as the river shifts its course, deposits silt, and erodes its banks. A traditional fish camp may become unproductive if the net sites nearby are destroyed. For example, a major communal netting site about a mile above the mouth of the Ambler River was destroyed recently when it became too shallow for nets. This important resource place for the entire village of Ambler was lost, and people are now forced to crowd all of their nets into a single eddy farther downstream.

Even major spawning places for salmon have been known to vanish because of river changes. This happened on the Hunt River, above the confluence of *Nuqaqti* Creek and *Nuna* River, where a well-known spawning area was abandoned.

Changes like these are fairly common, but people can usually compensate for the loss of old harvesting sites by finding new ones. The *Kuuvanmiut* subsistence economy has always been maintained through flexibility and adaptation to new conditions as they occur.

Vegetation. Fires are common in the Kobuk region and can cause major changes in the vegetation over substantial areas of terrain. Most fires kill large numbers of trees but leave them standing, so after about two years the seasoned timber is an excellent source of firewood. A burn near Ambler some time ago created enough firewood to last for many years. Of course, fires cause other changes in vegetation resources, destroying some and creating others through the successional process that follows.

Explanations of Variation and Localization

Long-term fluctuation of animal populations is a dominant ecological process in boreal forest environments like the Kobuk valley. Although broadly cyclic population changes take place over vast areas of the north and have been studied extensively, natural scientists have not found a widely accepted explanation for them. Snowshoe hare and ruffed grouse, and certain of their predators, are best known for rhythmic changes in numbers. But the external cause for these elaborately documented cycles is still a mystery.

The Kobuk River people, from their regional perspective, explain most population changes as the result of movements. Moose became common because they left some other place and came to the Kobuk country, and they are declining again because they are moving on. This same explanation is offered for caribou, beaver, muskrat, hare—any animal that is common at one time and scarce at another. One *Kuuvaymiut* elder repeated what he learned as a youth, that animal populations constantly shift in a circular pattern ("maybe clear around the world"), and that their reappearances in a given area cause cyclic population changes.

Fires are another important cause of long-term changes in resource availability. It is estimated that approximately one million acres are burned by wildfires each year in Alaska (Viereck 1973:170). These fires, which burn forest and tundra, have occurred throughout the Kobuk region. Fire-altered succession greatly changes the vegetation and creates a mosaic of differently aged stands. Fire is so universal that, "with the exception of a few scattered stands, the vast majority of Alaska is estimated to have been burned over the last 200-250 years" (*Ibid.* 470).

The effects of fire on wildlife vary considerably. It probably makes an area unattractive to wintering caribou for up to 50 or 100 years. On the other hand, burned areas become rich in moose forage within several years, remain so for 15 to 20 years, and then decline in value as timber appears. Beavers feed on the deciduous trees that replace brush growth some years after a fire, but when spruce forest replaces these trees the beavers disappear. This sequence seems to be occurring in the Pah River flats, but it might be reversed if a major fire burned the area. Snowshoe hares are also scarce in mature forests but thrive in the brush that develops after a fire.

The vegetation patterns of taiga regions are further complicated by succession along the ever-changing river courses. As the rivers shift their chan-

nels, timberland is destroyed in one area while soil is newly deposited elsewhere. This process, combined with wildfires, prevents a uniform development of vegetation. The diversity and constant change in plant communities strongly affects animal populations, and helps to shape the pattern of *Kuuvaymiut* subsistence activity.

Localization, Variation, and Subsistence Activities

Effects on Subsistence Range

The capacity to move to resource places when they are productive has always been essential for Kobuk Eskimo subsistence. This applies to the use of all plant and animal species, but especially to the main staples: caribou and fish.

> The flesh of the caribou furnishes the natives with their chief means of subsistence during the winter, and in hunting they are compelled to follow them hundreds of miles, from place to place, over the vast tundra plains in their restless search for food (Cantwell 1889:79).

During aboriginal times the Eskimos had no large or permanent settlements; they lived in camps that could be moved whenever the need for resources demanded it. Because transportation was limited—dog teams were very small and boats were propelled by hand—their ability to travel long distances and then bring back hunted or gathered goods was limited. In order to survive, they had to be nomads who stayed near the herds of caribou wherever they might be.

Arrival of the Europeans began a period of accelerated cultural and technological change. Villages grew up along the river, dog teams were enlarged to provide greater mobility, and boats were powered by engines. But the dynamics of the environment remained the same. When caribou vanished from the valley, people were still forced to follow them, traveling north into the Noatak valley. During winter they used dog teams for these journeys, and in summer they took boats up the tributaries, then crossed the mountain divides on foot. Whatever they could haul on their sleds or their backs was brought home to the new villages. The pattern and technology of subsistence changed, but the imperative remained the same—the geographic range of activities was determined by the location of resources. Hunters went to the game.

Then, as caribou herds increased, the animals spread south again, and trips to the Noatak became a rarity. The territory used by Kobuk people grew smaller as the need for distant trips diminished. At the same time, declining fur prices led to a decline in trapping activity, and this further lessened the need to exploit vast tracts of land. Other resources in the valley, such as moose, also increased. During this period of concentrated resource wealth, people remained mobile as always, but within a more restricted area. Again, the range of activities was determined by the imperatives of the environment.

And so it will remain in the future. Hunters will go to the caribou, and the location and size of the herds will determine the villagers' subsistence range. If caribou are found only in one area of the Kobuk valley, villagers will hunt there; if they remain in the Noatak country, villagers will hunt there. Thus, Kobuk people may have to expand their territorial range in the future, as environmental dynamics require. "It should be remembered ... that changes in land utilization patterns will probably follow closely any future changes in the distribution of caribou" (Foote 1966:49).

Although fish are restricted to the waterways, they are still not uniformly available. The ecology of fishing in the Kobuk region is very complex and has considerable bearing on the villagers' subsistence range. Kobuk people point out that the tributaries which drain the mountain country north of the river are all swift and clear, and these are used by salmon, sheefish, trout, and certain species of whitefish. Tributaries draining from the tundra flats to the south are discolored and slow, and these are used by pike, lake whitefish, suckers, and burbot. These streams originate in the tundra flats. Thus, successful subsistence fishing requires access to resources from both the north and south tributaries of the Kobuk.

In addition, the fishing places are highly localized and time-specific for each species. With the passage of seasons there is a constantly changing pattern of fish resources. During breakup, for example, fishing is done at particular sites that may be used at no other time. In summer, different places are used and different species are taken. The same is true in the fall and in the early winter, as conditions follow their regular cycle of change.

Subsistence fishing demands that the villagers not only understand this changing resource pattern, but also have the mobility to fish anywhere along the entire Kobuk River or its tributaries as conditions dictate. In fishing, as in caribou hunting, the range of subsistence activities is extensive, variable, and determined by the imperatives of environment.

> The two most important bases for survival were the fish and the caribou. Success in the quest for these assured a comfortable existence. A bad salmon season, or a year in which the caribou varied their migration might, on the other hand, bring about hardship or even starvation (Giddings 1961:128).

Despite their mobility and their use of all available resource places, Kobuk people have known times of food shortage. Most adults in the villages can speak of these times from personal experience. When food shortages occurred, hare and ptarmigan became the staple winter foods. In former times caribou, moose, and beaver were scarce in the Kobuk country, so these small animals were essential for meat. Fish was summer food; small game was winter food. People caught thousands of hares and ptarmigan each year when they were available. But of course, the same limitations apply to these animals as to any others. In some years there were almost no hares and ptarmigan were also scarce, so the *Kuuvaqmiut* were hard put to find food. Today, of

course, store-bought foods eliminate the threat of physical starvation, but they do not prevent the hardship of dependence on a foreign diet.

Effects on World View and Land Concepts

Kobuk people live in an environment where nothing is ever certain. Perhaps this explains why they often avoid committing themselves to long- or short-range plans. An inexperienced outsider may become frustrated by this reluctance, until he realizes that it is a practical adaptation to the realities of life here.

"Will you go hunting tomorrow?"
"Maybe."

"Will you stay in your fish camp this summer?"
"I don't know, I might try it."

"Will you build a new house in the spring?"
"Possibly."

Plans are usually left open this way because a person can never be sure about the animals or the weather. Carrying this recognition of uncertainty to its logical extreme, *Iñupiat* people who are asked if they will do something several months or a year from now sometimes reply, "I might, if I'm still alive."

This same noncommittal attitude applies traditionally to the use of specific places or land areas. The *Kuuvaŋmiut* are basically nonterritorial, though they tend to focus their activities within certain areas to avoid competition for resources. For example, the Ambler people usually hunt and fish no farther west than the mouth of *Anuġituut* Creek (a few miles west of the mouth of the Hunt River). Beyond this stream lies the range of the Kiana people. This restraint is not a strict territoriality; it is simply the normal limit of the subsistence range. Within this range, people move anywhere according to familiarity and preference, but if times are lean they go beyond it without compunction. If there are no caribou east of *Anuġituut* Creek, Ambler hunters travel farther downriver until they find some.

Along the same lines, certain families are oriented toward using specific parts of the village's range. Some Ambler families hunt and fish primarily downriver, others tend to go upriver. These patterns result from years of experience which have led to a deeper familiarity with the localized resource places of a given area.

Certain families also tend to use specific fishing sites, camps, and snaring places for hare and ptarmigan. This loosely defined "ownership" is maintained as long as the site is used regularly by the same family. Apparently the idea is not so strong that access would be denied to anyone. All families have used many different places for fishing, camping, and snaring over periods of years. People do not claim inviolate rights to specific areas, because this would eventually cause a self-defeating restriction of everyone's essential mobility and flexibility.

Private property rights granted to individuals under the 1906 Native Allotment Act have begun to affect this traditional land ethic. Under this Act, many *Kuuvaŋmiut* villagers have claimed land, up to the limit of 160 acres, based on a family history of use for camps or other purposes. Once ownership is granted, immobile resources such as timber cannot be removed from an allotment without permission, nor may another person camp or build there. Because the plots are poorly marked, and because people are accustomed to free access to land, violations of these exclusive rights have been frequent and bad feelings have resulted.

Some villagers now feel that the individual land allotments were ill conceived for an area such as this. While they give people a right to some land, they also bind them to specific places and subvert the basic patterns of subsistence living. The idea of the allotment was based on a sedentary, agrarian pattern rather than taking a fundamentally nomadic lifeway into account. Thus, individual land allotments undermine the Kobuk people's customary pattern of communal land use and de facto ownership of the entire surrounding territory. "How can we choose one piece of land for our own?" an Ambler man asked. "We can't say we use this one place, or some other place, all the time. It doesn't work like that."

The Open Land Concept

In effect, the Kobuk Eskimos use all of their territory some of the time, but none of their territory all of the time. Each person has potential claim to every part of the land used by the community. This open land concept is manifested constantly in the Kobuk villagers' approach to subsistence.

A non-Native settler lived in the Kobuk valley, away from any of the villages. Near his home there was a porcupine, which he enjoyed seeing and never disturbed. When an *Iñupiaq* visitor learned of it and wanted to take it for food, the settler would not tell him where to find it. His refusal was incomprehensible to the visitor, who did not share the settler's interest in animal watching. But more than this, the settler was denying him access to game, a necessity of life, and violating the *Kuuvaŋmiut* people's ethical code. The villager protested, in extreme frustration, that one person *must* always tell another where game is located, and that anyone could take game at any time, regardless of where it may be found.

The contemporary villagers clearly feel that everyone living within a given region should have equal access to the land's resources. A person should not claim these resources for private use, should share his harvest among others, and should not use unfair advantage to obtain more than anyone else. These feelings are evident in the villagers' attitude toward anyone who lives permanently outside the settlement. Now that permanent communities exist and people are committed to them, no one should reside out in the bush. Doing so gives the advantage of easy access to local resources, which are not as readily available to those in the village. This interferes with the basic right of free access to all land, since people feel that they cannot hunt or fish very

near such an outpost. Having all of an area's residents within a village gives everyone equal and unimpeded access to all surrounding land.

The relationship between Kobuk River people and the land is based on these concepts of freedom and equality. Villagers can range across the terrain unfettered by boundaries, unrestrained by foreign laws, unaffected by the decisions of distant governments. Ethics and rules derive from their own culture and economic system, and they are most viable in a world remote from the distant outside. Perhaps nothing is more valued by the villagers than their identity as *Iñupiat* and their inviolate freedoms on land they consider to be under their guardianship.

These freedoms are primary elements of daily life in Kobuk communities. The land remains open for village people to use as custom dictates. Decisions of when or where to travel and what activity to pursue are made according to season and need. When a person travels, he is turned aside by no barrier except a natural one. When he camps, he stays where he finds resources and leaves when he has taken enough. And when he hunts, he kills what is necessary without fear of judgment by anyone other than his village peers.

Freedom on the land has succeeded for the Kobuk people because their needs have not gone beyond the ability of the environment to produce. Proof that this system is successful can be seen in the Kobuk valley today, where the land is undamaged, no species of animal has become endangered or extinct because of local overuse, and a viable subsistence economy remains very much intact.

Subsistence Range—Present and Future

While subsistence has remained the Kobuk people's economic mainstay, the geographic extent of subsistence activities has fluctuated considerably during the past century. Over the past several decades, the subsistence range has become increasingly concentrated within the Kobuk valley and near existing settlements. Caribou have reached a peak of abundance and have become easily available near the villages. At the same time, moose populations have reached a high point, commercial trapping has declined severely, and fish and small game have remained fairly plentiful.

In short, the present-day Kobuk villagers are experiencing the greatest abundance of natural resources known within memory or legend. This allows them maximum access to game with minimal need to range over large expanses of land. The addition of imported foods to the Native diet has further strengthened this trend.

But what of the future? As long as the land provides in abundance, Kobuk people will probably continue intensive use of a relatively limited range, mostly within the Kobuk and adjacent Selawik river drainages. But there is little chance that resources will stay at their present high level indefinitely. Caribou may have already begun to decline, and if their range shifts the villagers will surely move farther afield to hunt them. Moose populations could drop at

any time, small game will undoubtedly become less abundant, and the availability of fish will periodically decline. Chum salmon are now fished commercially in Kotzebue Sound, and are therefore subject to the same decline that has struck salmon elsewhere.

These changes might occur separately or in concert. They might be gradual or they might take only a few years. The one certainty is that changes in resource levels will happen and that they will affect the range of *Kuuvanmiut* subsistence activities.

If resources should decline, the villagers would be forced to travel more widely for hunting, fishing, and gathering. Resources would remain localized, as always, but specific resource places would yield less, so people would need access to many more of them to maintain the same level of productivity. They would also increase their use of species such as snowshoe hare, ptarmigan, mountain sheep, and the less preferred kinds of fish. Again, this change would lead to a more intensive and extensive approach to subsistence, increasing the need for an open, unbounded access to the surrounding land. Limitation to the present range of utilization or to a portion of it would have a serious detrimental impact on the subsistence economy.

If subsistence species should experience natural declines, tighter regulation would be established on legal harvests. This might be combined with growing competition from outsiders for the resources, as Alaska's human population is increasing and becoming more mobile. Thus, Kobuk people could find themselves subsisting under the pressure of diminished resources as well as limited access due to legal regulations. This would create the need for a greater subsistence range, to allow maximum access to resources during times of availability, as determined either by physical presence or open seasons. In other words, as the resource base diminishes, the need for mobility over larger areas and free access to all parts of the subsistence range will increase.

Subsistence Activities and Kobuk Valley National Park

In 1980, a large area near the center of the *Kuuvanmiut* homeland was designated the Kobuk Valley National Park. This area is still extensively utilized for subsistence by Kobuk River villagers and neighboring people from the coast, as it was for thousands of years before the park was established. Its overall importance for subsistence activity cannot be measured precisely because this varies for every resource every year. In a given period of time, people might depend on this specific region for many resources, then at another time they might focus more on the neighboring terrain. The main points of access to one extremely important subsistence resource—caribou—are located within Kobuk Valley National Park. Major routes for spring and fall migrations are inside the boundaries, as are portions of the wintering range.

In a specific year, most of the caribou taken by upper Kobuk residents may come from national park land in the Hunt River-Onion Portage area. During 1975, for example, the fall caribou hunt was sharply curtailed by a

late southward migration, and by mid-winter the Ambler people were low on meat. But wintering caribou appeared in the Hunt River area, and since the animals were not being harassed by wolves they were in excellent condition for human use. Villagers took their meat supply from these herds for several months and were spared the hardship that would have come otherwise.

If this region had been closed to subsistence access, the villagers would have been forced to live without caribou meat, their most important daily fare. Fall rains had spoiled much of their fish catch, so what remained of it would have been depleted quickly. Neither hare nor ptarmigan were available in enough numbers to compensate for these shortages. Scattered wintering moose could not make up for the lack of other resources. It would have been a long, difficult winter. But the caribou were there, and people had open access to them.

As long as Kobuk villagers follow a subsistence lifeway, the territory they use cannot be confined within artificial boundaries or cut into sections with permanently assigned uses. The nature of subsistence resources is incompatible with such limitations. Any part removed from a subsistence range may be its vital core during a given time. Each portion of the terrain is an integrated element of an ecological system that includes a human population. This system is like an organism—it cannot function with an essential organ removed. And in the Kobuk River valley, the land that has become a national park is an essential part of the system.

If access to land within the national park is important today, during these times of relative abundance, it could become far more so in the future. When major resource species such as the caribou decline in numbers, the Kobuk people will have to use all of their subsistence range and harvest some species that are little utilized now. This means open access to land will be essential as the environment undergoes normal processes of change.

The *Kuuvaŋmiut* regard all of the land they have traditionally utilized as their own. They have had free use and unbounded access to it—in effect, ownership of it—for many centuries. Now, in the passing of a few years, they find it being divided into parcels and removed from their "control" (though it was never controlled, because there was no reason to think of land in that way). The freedom they have known on this terrain has been abruptly ended, and the land has been claimed by people from another place.

A Kobuk valley resident observed that outsiders consider this region a wilderness. In fact it is not a wilderness, and it has not been for millennia. It is an occupied land, sustaining a people and a culture that have grown out of it. To the *Kuuvaŋmiut* the Kobuk valley is a thoroughly known, elaborately named mosaic of recognized places and features, each with a long history of human occupancy, utilization, and associations. It may appear to some as an unknown wilderness, but to the Kobuk Eskimos it is as familiar as the streets and buildings of an outsider's home town. It is their land; they are a part of it; it is a part of them.

Chapter 14

The Present and the Future

Although they have experienced profound cultural changes over the past century, the *Kuuvaŋmiut* remain deeply involved with living on and from the land. Every day of the year, some village residents are involved with subsistence or related activities—hunting, gathering, fishing, trapping, camping, traveling, woodcutting, or making and repairing equipment. The topics of daily conversation also reflect the dominant place of subsistence in people's thoughts.

But the Kobuk villagers' interest in subsistence goes far deeper than the purely economic, because the patterning of their entire culture and society is deeply rooted in subsistence living. Relationships among people are closely bound to the need for cooperative endeavors and sharing the wild harvest. Traditional modes of child rearing, education, and recreation are directly related to the hunting and gathering livelihood. Attitudes, ethics, and personality are all partly outgrowths of this way of life. And in recent times the course of change in *Kuuvaŋmiut* culture has been strongly influenced by the imperatives of subsistence living.

Subsistence and Cash Economics

Subsistence is still the economic mainstay of Kobuk Eskimo villages. Kobuk people obtain large amounts of their protein and carbohydrates directly from the land. Most meals are dominated by Native foods, while imported products are used mainly as a supplement. There is a generally held opinion that strength and health can be maintained only through use of wild meat and fish.

In addition, about half of the people own dog teams (and nearly all families have a few dogs), which are supported almost entirely from the land. Many homes are fully or partially heated by wood cut from surrounding forests. And the raw material for traditional clothing and other locally made goods is provided by subsistence.

To meet these needs, a large harvest of wild game, fish, and plants is made each year by Kobuk River villagers. Needless to say, if the people had to purchase an equal amount of imported food and other materials, it would cost millions of dollars each year. Since few steady sources of cash income are available here, the economic burden for supporting this population without subsistence would rest primarily on the government. In other words, the present alternative to subsistence is public support.

A viable cash economy does not exist now in the Kobuk region. Most wage employment is seasonal and temporary, lasting for a few weeks to sev-

eral months each year. Villagers often find themselves living with a boom-and-bust cash economy, which is considerably more fickle than the natural resources that have traditionally supported them. The Alaska Pipeline, for example: many Kobuk villagers have found temporary jobs during the construction phase, but when the pipeline is completed few will be hired to operate and maintain it.

Villagers rarely know much in advance when they will find work, where it will be located, and how long it will last. Most jobs are in construction, forest fire fighting, and commercial fishing, which are all concentrated in the summer and of unpredictable duration. These jobs are usually located in distant places like Kotzebue, Fairbanks, Anchorage, or the North Slope, so men must leave their wives and children to earn money. The disruptive impact is made greater by the large size of many families today, which creates a real physical hardship for the parent left behind. Added to this is the emotional difficulty of repeated separation.

Village people feel a need for cash income, which affords them basic items such as radios, motorized transportation, or household appliances. But considerable sacrifice is necessary to secure an income. For this reason, jobs that take people away from the village are sought only as often as necessary and short-term positions are definitely preferred. The few jobs available locally are sometimes a source of divisive competition. One solution is to shift these positions around among the people so different families can enjoy the benefits of local employment.

The disadvantages of wage employment tend to affirm the villagers' commitment to a subsistence economy. It is important to point out that this is not the easier option—it is not a "lazy man's way out." Subsistence living means constant hard labor and long hours at work. Few people who have grown up in a more urban setting are physically able to meet the demands or are psychologically prepared to tolerate the discomforts of such a life. By most standards it is a very hard life indeed.

Kobuk people often point out that subsistence is the only reasonable option for them, since jobs are not available and their source of support is the land. They also believe that natural resources are more reliable than money. If prices climb higher and money becomes scarce so the villagers cannot afford to buy goods from Outside, they still have all the necessities here. One resident of Ambler said:

> As long as I have the land and nobody tries to stop me from using it, then I'm a rich man. I can always go out there and make my living, no matter what happens. Everything I need—my food, clothes, house, heat—it's all out there.

A woman, also of Ambler, pointed out:

> Eskimo people have no money in the bank; not like you white people. Many times we even have no money in our pockets. We have few ways to make money, so we *have* to make our living from this country. That's something the people Outside don't un-

derstand. And another thing too. If we have nothing of our Eskimo food, only white man food to live on, we can't live. We eat and eat and eat, but we never get filled up. Just like starvation.

Competition for the Resources

Because the Kobuk River people depend on the land for their livelihood, they are concerned about its well-being and sensitive about competition for the resources it provides. Territorial feelings exist among the villages. Each tends to use a specific region and to avoid incursions into regions used by neighboring settlements. Although territories are not inviolate, they help to prevent competition for resources in a given area.

Fall caribou hunts are one activity that takes place irrespective of territorial considerations, because hunters must go wherever the caribou might be. Often this means that people from Kotzebue, Noorvik, Kiana, Ambler, Shungnak, and Kobuk converge on the Onion Portage-Hunt River area during the fall migration. Upper Kobuk villagers sometimes resent other *Iñupiat* who come from afar to hunt these animals because they feel that the numbers here are limited.

Related to this territoriality is a general attitude that the upriver villages are large enough now. *Iñupiat* or non-*Iñupiat* from other areas should not move here, because they will put too much strain on the resources. The villagers are aware that game is sparse near large communities and cities: "If we get lots of people here, same thing will happen. No more animals then."

A general attitude favoring establishment of the Kobuk Valley National Park has been largely based on concern for the future of subsistence resources. People have been assured that traditional uses of wild resources would be allowed within the park, while these resources would be protected from depletion by outsiders. Kobuk people feel that through involvement with park administration they could help to oversee the welfare of their own land, and this is of paramount importance to them.

Concern for well-being of the land is also reflected in the Kobuk villagers' strenuous opposition to roads being built through their subsistence range. Roads would bring increased competition from outsiders, they feel, and would almost surely damage the environment they depend on. People are also fearful that roads might affect caribou movements and disrupt tributary streams used by spawning fish. In addition, roads could bring new settlement within their traditional homeland, and the villagers universally oppose this.

Kobuk people are becoming increasingly aware of outsiders' interest in their land, and they fear the consequences that any development or exploitation would have on their livelihood. A leader of one upper Kobuk village expressed his anxieties, as paraphrased here:

> Too much is happening to the people. Too many outside pressures are forcing in on us. Changes are coming too fast, and we are being pushed in all different directions by forces that come from some place outside.

> People thought that the land claims settlement was the end of our problems, that it meant the future was secure; but it was only the beginning. Even before the lands were all selected, the government wanted pipeline easements and road corridors right through our territory. These would take away strips miles wide, cutting right across our land. Instead of open access to the land, the Eskimos might be surrounded by huge pieces of country that are declared national resources for "all the people." Land that has always belonged to the Natives is being parceled up and divided among the takers.

An old Kobuk Eskimo put the same feelings differently and more succinctly:

> I tell the people here, Eskimos should make laws for those people Outside. That would be just the same as what they try to do to us. We know nothing about how they live, and they know nothing about how we live. It should be up to us to decide things for ourselves. You see the land out there? We never have spoiled it.

Culture and World View

The Kobuk River people's intimate dependence upon the environment and their direct communion with it are the wellspring from which their entire culture has developed. *Kuuvanmiut* society and culture cannot be separated from the land in which it has evolved. This intimacy, apart from the basic need to survive, is why the Kobuk people are so firmly committed to their subsistence lifeway. It is what they are.

The Kobuk people's personality and view of themselves in relation to the world have emerged as an element of the hunting-gathering life in a difficult environment. They place great emphasis on knowing the land in detail and learning the methods of harvesting its resources. As a result, adults and elders are acutely knowledgeable about the intricacies of their environment, and they are highly skilled in the methods of living from this land. They describe the land in a complex, specialized vocabulary; they perceive its subtleties with a trained and masterful eye; and they relate to it in a familiar and personal way that stems from knowing each place as unique unto itself.

The *Iñupiat* are a highly imaginative and profoundly resourceful people in an environment that demands constant creativity and cleverness to assure survival. They have learned to emphasize cooperation so that people can work smoothly together and share equitably in the proceeds of their efforts. Because their surroundings are harsh and unforgiving, the *Iñupiat* have developed a perseverance and toughness that helps them to cope effectively with the difficulties of daily life.

These qualities are attributes of successful members of *Kuuvanmiut* society, and they have been important for the long-term survival of this cultural community. At the same time, the Kobuk people maintain traditional values that give social rewards for excellence in subsistence pursuits. They regard

their own hunting-fishing-gathering lifeway very highly and consider it superior to all others. Individual community members are measured according to their success at subsistence. A man is esteemed if he is an excellent hunter, trapper, boatman, traveler, or craftsman. Similarly, a woman achieves status through her skills in fishing, skin sewing, and other domestic industries.

The Kobuk people opt for a subsistence livelihood, not just because it gives them the food they most desire or allows them to live where they most prefer, but because it permits them to be what they value most as human beings. Their identity as Kobuk River Eskimos is fundamentally tied to living as hunter-gatherers. Not surprisingly, they feel a strong emotional commitment to this way of life. It gives them satisfactions that they cannot find in other places. Most of the people show these feelings only through the intensity of their outdoor activities, but a few also verbalize them.

An old man, now in his seventies, vividly described his travels over vast areas beyond the Kobuk valley. "That was the way to live," he said, "the only way for people to be healthy and satisfied." He spoke of the freedom, the look of the land, the wandering, and the goodness of making a livelihood through use of his body and his cleverness. He did not praise the beauty of the country so much as the beauty of living within it. "I'm too old for all that now," he lamented, "but if I could do it again I would be out there every day."

The Kobuk peoples' attachment to the land is partially an esthetic one, but not in a way that is familiar to the non-*Iñupiat*. They do not seem to view their surroundings with a detached eye, as a living piece of natural art. The beauty that they perceive derives more from the land as a nurturing source of life and livelihood. When a village hunter looks over the terrain and sees that it is rich—caribou moving across the tundra, waterfowl migrating in profusion, or fish running and the drying racks heavily laden—he feels a sense of beauty through the wealth and goodness of his surroundings.

Beauty is perhaps a universal human concept, but its sources vary from culture to culture. An empty landscape can be full of beauty for one who comes from an urbanized agricultural society; it holds no immediate spectre of starvation. But for the *Kuuvaŋmiut*, beauty comes less from the artistry of the landscape than from its richness and promise of bountiful activity, its ability to reward the quest for food. Land is not just something to be viewed in the abstract, it is a place to pursue the activities that people love. Generations of *Iñupiat* have reflected on this pragmatic beauty, a beauty that has become the soul of their attachment to the land and to their way of living on it.

The New Technology

The nature of *Kuuvaŋmiut* subsistence began changing when the first Europeans made their way inland less than a century ago. Little by little, elements of western technology displaced traditional Eskimo implements. The old weapons were given up, sod houses fell to the ground, fur clothing

was used less frequently, and traditional campsites were occupied for shorter periods of time. Subsistence took on different aspects as the people shifted from old to new ways of doing things.

But do these changes mean that subsistence is vanishing and will soon be abandoned entirely? Does the use of modern technology indicate that subsistence has already been replaced by a different economy and life style?

> As a boy, he rode inside an open kayak with his father who hunted waterfowl with a throwing board and bird dart. Today, his own son rides behind him on a snowmachine while he hunts with a high-powered rifle. (Ambler field notes, 1975)

Visitors are often impressed by the modern elements of life in contemporary Kobuk villages. People travel with snowmachines, live in substantial houses, wear manufactured clothing, listen to radios, hunt with rifles, and fish with nylon gill nets. Romantics are likely to feel disappointed. They might even conclude that *Kuuvaŋmiut* culture has been lost in the transition, and that the traditional relationship to the land has vanished.

But anyone who remains in a Kobuk River community long enough to see beneath the surface, who lives in some degree as the people do themselves, will perceive the life of the villager in a very different way. Romantic notions are replaced quickly by practical understanding as the realities of village life become clear. *Kuuvaŋmiut* culture is very much alive, just beneath the veneer of adopted western ways. The patterns of personality, world view, language, social interaction, and relationship to environment are all overwhelmingly *Kuuvaŋmiut*.

An outsider who resides in a Kobuk village also recognizes that modern technology has not altered the basic facts and nature of subsistence living. Hunting, fishing, trapping, and gathering are still the principal source of people's livelihood, regardless of the technology involved. Whether a man hunts caribou on foot, with a dog team, or with a snowmachine, using a spear, bow and arrow, or rifle, he is still pursuing a subsistence lifeway when the game provides him with food and clothing. The vital question is not how the resources are obtained, but for what purpose they are obtained and what role they play in the person's overall life. If a family needs a certain number of caribou per year for their basic subsistence, the way they are taken means far less than the fact that people need them.

Kobuk villagers have opted for what they judge to be the best methods of obtaining needed resources. As new technology became available, they experimented, then selected the tools most effective for their needs. This same readiness to adopt technologically superior tools, which has characterized Eskimo culture for thousands of years, demonstrates an enduring commitment to pragmatism. For example, the villager feels no anxiety over the noise of his chain saw. His overriding concern is obtaining firewood to heat the house that shelters his family. Looking back, the same pragmatism determined that bucksaws should replace steel axes, which originally replaced stone axes. The same amount of wood reached his stove whether he chipped at a

tree slowly and laboriously with an ax or cut it quickly and easily with a chain saw. The choice was clear.

There is no perception of inconsistency when a Kobuk villager uses modern technology to obtain necessary resources. An outsider who participates in this way of life comes to understand the reasons quickly. Subsistence living often involves enormous physical labor and long days outdoors in extremely uncomfortable conditions. Even with chain saws, rifles, and snowmachines, it is still a very trying way to live. The fact that village families are often large places a great burden on their providers. Devices that save time and labor are therefore accepted as a matter of common sense.

One such implement, the snowmachine, has won overwhelming acceptance since its introduction to the Kobuk valley about 10 years ago. People have shifted from complete dependence on dog teams to an almost total reliance on machines. Dogs cannot approach the power, speed, and convenience of snowmachines. Mechanized hunters can travel farther, increase their chances of finding game, hunt more effectively, haul larger loads, and decrease their time away from home and family. The machine's disadvantages—noise, high cost, and susceptibility to breakdown—are hardly enough to offset its advantages. A snowmachine hunter still needs the same amount of game (or less, since he may have fewer dogs to feed), but he can get it more efficiently.

The snowmachine and dog team illustrate a basic fact of life in Native Alaskan communities: technology is always changing, but the need to make a living from the land remains a constant. It is important to distinguish the means from the end.

The Next Generation

It is impossible to measure the Kobuk people's overall commitment to subsistence. Each individual and family approaches it in a different way, and dependence on the land varies from time to time. The head of a family might have a long-term job one year, greatly diminishing his subsistence take; in another year he might have little or no employment, so his subsistence take is much greater. Such are the chronic instabilities of life in village Alaska today. Certain generalizations can be made, however. Most important, the diet of Kobuk Eskimos is dominated by foods from the land. Regardless of technology, wage employment, or time devoted to harvesting activities, this alone demonstrates the continuity of subsistence living here.

Aside from this economic dependence, there is a cultural commitment to subsistence which can only be judged subjectively. In the upper Kobuk villages, for example, most older adults are fully involved with subsistence; it dominates their lives and takes priority over all else. There is more variation among the younger adults. Some are heavily committed to subsistence, some only partially so, and others live mainly by wage and other income. In the younger age groups the balance swings increasingly away from subsistence, especially among those who do not have families as yet. Some of these people

will move toward a subsistence livelihood as they grow older, but it is impossible to predict how many or to what extent.

Many *Kuuvaymiut* parents express a desire that their children learn their own language, live in their own culture, and acquire subsistence skills. There are great differences in traditional learning from family to family. Nevertheless, nearly all school age boys are enthusiastic about hunting and fishing, and they spend considerable time at these activities.

> During their visit, the two boys (aged nine and eleven) talked almost exclusively of hunting. When they played Eskimo-English word games, testing each other's knowledge, all of the words were for animals. The eleven-year-old boy said he killed his first caribou this fall. It was divided up according to custom, and the largest portions sent to two old women. In celebration of the occasion, the women sent him small gifts of money. Clearly, it was a major event in the boy's life. (Ambler field notes, 1975)

Until very recently, children stayed in their home villages (where they had plenty of opportunities to learn subsistence skills) only up to high school age. Then they were sent away to boarding school far from home, where they were completely detached from their own traditions. After four years in these schools, some had little interest in subsistence, although it sometimes reemerged later on.

In recent years, regional high schools have been established, so children stay close to home and continue to be involved with their own cultural surroundings. At the same time, interest in Native culture and traditions has grown within the schools themselves. Young people now value their own way of life more highly, retain greater knowledge of their Native language, and develop a greater interest in subsistence living. It is too soon to know what effect this will have or what direction village economies will take, but there are strong indications that subsistence will continue when today's adults are too old to carry it on.

It is most likely that the number of people who depend on subsistence will remain fairly stable. Many young people are opting or will opt for a wage-oriented livelihood, either in the village or away from it. These persons will be involved only partially, if at all, with subsistence. At the same time, village populations will probably increase slowly or remain fairly constant, as the natural increase is balanced by out-migration of the educated young.

Subsistence and the Land

The most immediate threats to subsistence in the Kobuk valley are changes in the status or the natural condition of the land. The village people feel that developments such as roads, mining, and population increases could endanger their livelihood. Such disturbances could change game migration routes, reduce animal populations through overexploitation, damage fish spawning areas, adversely change the Kobuk River waters themselves, or seriously alter important local resource places.

The Kobuk villagers are also concerned that subsistence activities themselves might be curtailed, either because of new restrictions on harvesting game or because of changes in status of the land. If subsistence is to be viable over the long run, people must have access to their entire traditional homeland. Also, land use policies and game take regulations should continue to give subsistence the highest priority among uses. It is important to note that present subsistence activities do not adversely impact the environment. Indeed, of all potential uses for this environment, subsistence at contemporary levels is perhaps least detrimental to its pristine qualities.

If land planning and policy did not support the continuation of subsistence, in recognition of its long history and its importance to the indigenous people, there could be far-reaching effects. A viable, active hunting and gathering lifeway, one of the last remaining on earth, could dwindle and vanish from existence. With its foundation and the source of its essential being gone, *Kuuvagmiut* culture would move more swiftly toward extinction.

> The old Eskimo, *Siqiñiq*, was among the last to hunt bears in the traditional way. This was usually done with a long-shafted spear, tipped with a lance-point made from a bear's foreleg bone. The bear was approached by stalking it, waiting along a trail, or walking up as it fed, then kicking it or throwing a stick at it. This would provoke the animal to attack, which it often did standing on its hind legs.
>
> As the bear approached, the hunter planted his spear shafr in the ground, bracing himself and holding the tip so it would pierce the descending bear's chest. The animal impaled itself as it lunged downward toward its intended victim, and a thick ring of thong behind the lance-point prevented the weapon from passing cleanly through. This way the bear never reached the hunter. But the man had to be powerful enough to hold his spear up, so that the animal remained on its hind feet until it collapsed.
>
> *Siqiñiq* killed a grizzly this way, but he held the butt of the spear in the crook of his arm instead of planting it in the ground. Then he stood holding the animal up until it died. This incredible feat of strength made him legendary among the Kobuk Eskimos. When the old man heard young hunters bragging of their exploits, he waved them brusquely aside. "Don't talk to me about hunting," he advised, "until you have felt the strength of a bear." (Shungnak field notes, 1975).

Appendices

Appendix 1

Orthography and Pronunciation Guide by Lawrence Kaplan

The language of the Kobuk River valley is Alaskan Iñupiaq, the northern branch of the Eskimo language group spoken from Unalakleet, Alaska, north and east across the Arctic to Greenland. More particularly, the Kobuk dialect is part of Malimiut Iñupiaq, which together with the North Slope dialect, makes up North Alaskan Iñupiaq one of two important Alaskan Iñupiaq dialect groups. The other is Seward Peninsula Iñupiaq.

Kobuk Iñupiaq is spoken in the Kobuk villages as well as in Selawik. Slight linguistic differences are present between the speech of the upper and lower Kobuk villages. The dialects of Buckland and Deering are very close indeed to the Kobuk dialect.

The writing system used in this volume is the standard orthography in general use throughout Alaskan Iñupiaq; it was developed in the late 1940s by Roy Ahmaogak, a Barrow Iñupiaq, and Eugene Nida, a linguist with the Summer Institute of Linguistics. The writing system succeeds in representing consonants phonemically, but loss of distinctness between certain pairs of Kobuk vowel clusters has created difficulties in representation of vowels for this particular dialect. The solution has been to sacrifice the close identification of written symbols with surface phonetic forms in the interests of preserving a measure of uniformity throughout Alaskan Iñupiaq writing.

Alaskan Iñupiaq has three short vowels, *a*, *i*, and *u*, which are pronounced with their cardinal phonetic values. All vowel sounds may be modified somewhat by surrounding consonants, most notably by uvulars which produce lowered variants of adjacent vowels. There are also long vowels; these are written double as *aa*, *ii*, and *uu*. As this written difference indicates, short and long vowels contrast phonemically.

Generally in Iñupiaq any two short vowels may occur in a cluster, giving six possibilities: *ai*, *ia*, *au*, *ua*, *iu*, and *ui*. In the Kobuk dialect, however, phonological changes have resulted in some vowel clusters no longer being distinct from others.

Ai and *ia* are pronounced identically as [e:], something like the vowel in English "say." For example, *qiaruq* ("he is crying") and *pairuq* ("he stayed behind") have vowel clusters which are pronounced the same.

Au and *ua* are also the same, having the sound [o:], approximately like the vowel in English "so." The words *qauq* ("forehead") and *quaq* ("fresh frozen meat or fish") are thus pronounced identically.

Iu has come to be pronounced like the long vowel *ii*, for example, *Kuuvaŋmiut*, where the last syllable sounds as if it contained *ii*. The only true phonetic vowel cluster is *ui* as in *ui* ("husband"). Although there are lost phonetic distinctions among some vowel clusters in the Kobuk dialect, all six are still represented in the writing system.

The consonant phonemes in the Kobuk dialect are basically the same as those in Iñupiaq in general. Using the symbols of the standard orthography, the following chart displays the consonant inventory of the *Kuuvaŋmiut*:

	Labials	Alveolars	Palatals	Velars	Uvulars	Glottals
Stops	p	t	ch	k	q	'
Voiceless fricatives		s		kh	qh	h
Voiced fricatives	v		y	g	ġ	
Voiceless laterals		ɬ	ʎ̥			
Voiced laterals		l	ʎ			
Nasals	m	n	ñ	ŋ		
Voiceless retroflex		sr				
Voiced retroflex		r				

As with vowels, consonants also occur long—except for the voiceless fricatives, ' (glottal stop), and *sr*. Long consonants are written double, for example, *mm* represents long *m*; *ch*, however, is written *tch* when long. When next to a voiceless consonant, *v* sounds like [f], which is not a symbol in the orthography: for example, *Fiisrvilat*.

English speakers will note that the phonetics of Iñupiaq are quite different from English even though the sounds are represented by symbols from the same Roman alphabet. The vowels are similar to English: *a* (ah), *i* (ee), and *u* (oo), but there are also long vowels (*aa*, *ii*, and *uu*) as well as vowel clusters.

Many of the consonants, such as *p* and *t*, are very close to their English counterparts. Sounds which are written differently from English or are unfamiliar to speakers of English are:

q an uvular *k* pronounced back in the throat
' a glottal stop, as between the syllables in English *uh uh* for "no"
kh sounds like *ch* in the German word *ich*
qh sounds like *ch* in the German word *ach* or the Scottish word *loch*
ġ a back g, like a French or German r
ɬ a voiceless *l*
ʎ a palatal sound, like the *ll* in *million*
ʎ̥ a voiceless, palatal *l*
ñ a palatal sound, like the *ni* in *onion*
ŋ sounds like *ng* in the English word *singer*
r sounds like an English *r* or like the *z* in *azure*
sr a voiceless *r*, sounds like the *shr* in the English word *shrink*

This brief explanation is intended to present the essentials of the Iñupiaq orthography, making it possible for readers to understand the written representations of Iñupiaq found in the text. For detailed information on Kobuk Iñupiaq phonology, see Kaplan, *Phonological Issues in North Alaskan Iñupiaq*.

Appendix 2

List of Animals and Plants Used by *Kuuvaŋmiut*

The list that follows names all of the plant and animal species important for subsistence to the Eskimos of the Kobuk River. Undoubtedly there are some omissions of birds and plants that are infrequently used, although some rarely used species are included. For most purposes, however, the list is complete.

Mammals

English name	Scientific name	Eskimo name
caribou	*Rangifer arcticus*	*tuttu*
moose	*Alces alces*	*tinmiika*
Dall sheep	*Ovis dalli*	*ipnaiq*
black bear	*Ursus americanus*	*iyyaġriq*
grizzly bear	*Ursus arctos*	*aklaq*
wolf	*Canis lupus*	*amaġuq*
red fox	*Vulpes fulva*	*kayuqtuq*
red phase	*Vulpes fulva*	*kavviaq*
silver	*Vulpes fulva*	*qiaṅġaq*
cross phase	*Vulpes fulva*	*qigñiqtaq*
marten	*Martes americana*	*qapviatchiaq*
short-tailed weasel	*Mustela erminea*	*tiġiaq*
mink	*Mustela vison*	*tiġiaqpak*
wolverine	*Gulo gulo*	*qapvik*
river otter	*Lutra canadensis*	*pamiuqtuuq*
lynx	*Lynx canadensis*	*nuutuuyiq*
beaver	*Castor canadensis*	*paluqtaq, aqu*
muskrat	*Ondatra zebethicus*	*kigvaluk*
porcupine	*Erithizon dorsatum*	*iluqutaq*
red squirrel	*Tamiasciurus hudsonicus*	*saqalataayiq*
arctic ground squirrel	*Citellus parryi*	*siksrik*
hoary marmot	*Marmota marmota*	*siksrikpak*
arctic hare	*Lepus othus*	*ukallisugruk*
snowshoe hare	*Lepus americanus*	*ukalliq, ukalliuraq, ukalliatchiaq*
harbor seal	*Phoca vitulina*	*qasigiaq*
ringed seal	*Phoca hispida*	*natchiq*
bearded seal	*Erignathus barbata*	*ugruk*

beluga	*Delphinapterus leucas*	*sisuaq*
bowhead whale	*Balaena mysticetus*	*aġviq*

Birds

common loon	*Gavia immer*	*taatchiŋiq*
yellow-billed loon	*Gavia adamsii*	*tuutlik*
arctic loon	*Gavia arctica*	*malġi*
red-throated loon	*Gavia stellata*	*qaqsrauq*
horned grebe	*Podiceps auritus*	*suġliq*
red-necked grebe	*Podiceps grisegena*	*suġlitchauraq*
white-fronted goose	*Anser albifrons*	*kigiyuk*
Canada goose	*Branta canadensis*	*iqsraġutilik*
snow goose	*Chen caerulescens*	*kaŋuq*
brant	*Branta bernicla*	*niġliġnaq*
old squaw	*Clangula hyemalis*	*aahaaliq*
shoveler	*Spatula clypeata*	*aluutaq*
pintail	*Anas acuta*	*ivugaq*
mallard	*Anas platyrhynchos*	*ivugasrugruk*
greater scaup	*Aythya marila*	*qaqhukpalik*
lesser scaup	*Aythya affinis*	*qaqhutuuq*
green-winged teal	*Anas crecca*	*qainiq*
bufflehead	*Bucephala albeola*	*nunuqsiġiilaq*
American widgeon	*Anas americana*	*uggiihiq*
harlequin duck	*Histrionicus histrionicus*	*saġvaq tiŋmiaq*
white-winged scoter	*Melanitta deglandi*	*killalik*
surf scoter	*Melanitta perspicillata*	*tuungaaġruk*
common scoter	*Melanitta nigra*	*uviññauyuk*
red-breasted merganser	*Mergas serrator*	*paisugruk*
willow ptarmigan	*Lagopus lagopus*	*aqargiq*
rock ptarmigan	*Lagopus mutus*	*niqsaaqtuŋiq*
spruce grouse	*Canachites canadensis*	*napaaqtuum aqargiq*
ruffed grouse	*Bonasa umbellus*	*ituqtuuq*
sandhill crane	*Grus canadensis*	*tatirgaq*
lesser yellowlegs	*Tringa flavipes*	*tiŋmiam qipmia*
American golden plover	*Pluvialis dominica*	*tullik*
semipalmated plover	*Charadrius semipalmatus*	*qurraquraq*
mew gull	*Larus canus*	*nauyatchiaq*
glaucous gull	*Larus pyperboreus*	*nauyasugruk*
Bonaparte's gull	*Larus philadelphia*	*aqargigiaq*
arctic tern	*Sterna paradisaea*	*mitqutailaq*
great gray owl	*Strix nebulosa*	*naataq*
horned owl	*Bubo virginianus*	*nukisaġaq*
snowy owl	*Nyctea scandiaca*	*ukpik*
osprey	*Pandion haliaetus*	*qaluksiuġayuk*
tree swallow	*Irodoprocne bicolor*	*tulugaġnauraq*
rusty blackbird	*Euphagus carolinus*	*tulukkam ituq*
pine grosbeak	*Pinicola enculeator*	*qayuuttaaq*

gray jay, camp robber	*Perisoreus canadensis*	*kiiriq*
common raven	*Corvus corax*	*tulugaq*

Fish

sheefish	*Stenodus leucichthys*	*sii*
chum salmon	*Oncorhynchus keta*	*qalugruaq*
whitefish	*Coregonus sp.*	*qalupiaq*
humpback whitefish	*Coregonus pidschian*	*qaalġiq*
broad whitefish	*Coregonus nasus*	*qausriłuk*
least cisco	*Coregonus sardinella*	*qalusraaq*
round whitefish	*Prosopium cylindraceum*	*quptik*
arctic grayling	*Thymallus arcticus*	*sulukpaugaq*
arctic char	*Salvelinus alpinus*	*qałukpik*
lake trout	*Salvelinus namaycush*	*qałukpik*
northern pike	*Esox lucius*	*siułik*
Alaska blackfish	*Dallia pectoralis*	*iḥauqiñiq*
longnose sucker	*Catostomus catostomus*	*kaviqsuaq*
burbot, mudshark	*Lota lota*	*tittaaliq*
pond smelt	*Hypomesus olidus*	*iłḥuaġniq*

Plants

white spruce	*Picea glauca*	*napaaqtuq*
black spruce	*Picea mariana*	*napaaqtuq*
common juniper	*Juniperus communis*	*tulukkam asriaq*
willow	*Salix sp.*	*uqpik*
diamond-leaf willow	*Salix planifolia*	*kanuŋŋiq*
paper birch	*Betula papyrifera*	*urgiliq*
American green alder	*Alnus crispa*	*nunaŋiak, nunagiak*
balsam poplar, cottonwood	*Populus balsamifera*	*ninŋuq*
quaking aspen	*Populus tremuloides*	*piŋuqsraatchiaqmi ninŋuq*
prickly rose, wild rose	*Rosa acicularis*	*kakitłaġnaq*
rose hips		*igruŋnaq*
crowberry, blackberry	*Empetrum nigrum*	*paunġaq*
Alpine bearberry	*Arctostaphylos alpina*	*kavlaq*
bearberry, kinnikinnik	*Arctostaphylos uva-ursi*	*tinnik*
lowbush cranberry	*Vaccinium vitis-idaea*	*kikmiññaq*
bog cranberry	*Vaccinium oxycoccus*	*qunmun asriaq*
highbush cranberry	*Viburnum edule*	*uqpiŋñaq*
nagoonberry	*Rubus arcticus*	*tuunġaum asriaq, ivgum asriaq*
bog blueberry	*Vaccinium uliginosum*	*asriavik*
cloudberry, salmonberry	*Rubus chamaemorus*	*aqpik*
American red currant	*Ribes triste*	*niviŋŋaqutaq*
Labrador tea	*Ledum decumbens*	*tilaaqqiuq*

Eskimo potato, wild potato	*Hedysarum alpinum*	*masru*
wild rhubarb	*Polygonum alaskanum*	*qusrimmaq*
sourdock	*Rumex arcticus*	*quaġaq*
wild celery, seacoast angelica	*Angelica lucida*	*ikuusuk*
fireweed	*Epilobium angustifolium*	*quppiqutaq*
wild chives	*Allium schoenoprasum*	*paatitaaq*
cotton grass	*Eriophorum sp.*	*Palliksraq*
grass, sedge	*species unknown*	*ivgich, panaq*
Common wormwood	*Artemisia tilesii*	*sargich*
four-angled cassiope	*Cassiope tetragona*	*ikkuġutigiksut*
cordate-leaved saxifrage	*Saxifraga punctata*	*asriatchiaq*
Parry's wallflower	*Parrya nudicaulis*	*aiġaq*
peat moss	*species unknown*	*tininmiq*
sphagnum	*Sphagnum sp.*	*ivruiyaq*
mosses	*various genera*	*manaq*
		ipiġaksraq
		tiŋauraq
		ivruq
reindeer lichen	*Cladonia rangiferina*	*niqaaq*
birch fungus	*Fomes ingniarius*	*avaatchiqiq*
white bracket fungus	*species unknown*	*tunnuuraq*

Physical Environment

lake	*narvaq*
lagoon	*tatchiq*
oxbow lake (or any long, narrow lake)	*taksruk*
slough connecting a lake to a river	*kuugaatchiaq*
confluence of two rivers; outlet of a lake	*nuiḷaŋa*
lake outlet	*iggiatchiaŋa*
stream connecting two lakes	*atanġat, ataniq*
the end of a lake opposite the outlet	*qitñuq*
mouth of a river or slough (literally "the entrance")	*paa*
river ("Kobuk" comes from kuuvak)	*kuuk*
tributary stream	*kuugaq*
island	*qikiqtaq*
point of land	*nuvuk*
water (drinkable)	*imiq*
water (undrinkable)	*imaq*
mountain	*iñġiq*
valley between two mountains (literally "where there are no mountains")	*iñġiiḷġuq*
small ridge	*qaugruk*
ridge	*qimiġaq, qimiġaaq*
land	*nuna*
sand	*qavia*
mud	*maġġaq*
rock	*iyaġak*
flint, chert, firestone	*akmaaq*
jade	*isiŋnaq*
iron, metal	*savḷhaq*
ocean	*taġiuq*
beach	*taġium siñaa*
sky, heaven	*qiḷak*
sun	*siqiñiq*
moon	*tatqiq*
star	*uvluġiaq*
northern lights	*kiuġuyat*
thunder	*katluk*
clouds	*nuviya*

Appendix 3

Compilation of Resources Used

The following is a detailed compilation of the ways Kobuk River people use wild plant and animal species. Taken as a whole, this listing and the brief explanations demonstrate a tradition of utilizing nearly all parts of game animals rather than just the meat and a few organs. The methods of preparing Native foods are only hinted at. *Kuuvaŋmiut* people have an elaborate repertoire of traditional and modern recipes, which involve many combinations of animal parts and preparation techniques. The methods of preparation mentioned below (such as "boiled" or "dried and later cooked") are usually incomplete summaries of more involved procedures.

Mammals

Caribou

Muzzle *(umilguq):* This part is eaten after the entire head has been prepared by boiling.

Eyes *(iri):* Eyeballs and the fat behind them are eaten raw or from the boiled head. The eyes are also eaten after being dried by hanging them inside the house or turning them inside out, tying them with sinew, and allowing them to dry.

Ear *(siun):* The tips are chewed like gum after skinning fresh-killed caribou. The base part of the ear is eaten from the boiled head.

Tongue *(uqaq):* This is a delicacy, eaten boiled or dried. It is often cut from fresh-killed caribou and boiled by hunters.

Lower jaw *(agliqquk):* After the head is boiled, the lower jaw meat and tissues are eaten; then the jawbone is cracked and the marrow *(patiq)* inside is eaten.

Lips and mouth tissues: These are eaten from the boiled head.

Head muscles: After the head is boiled, meat is eaten from parts such as the upper jaw, temple, eyes, and back of the skull.

Brain *(qaqisaq):* The brain is removed from the boiled head, mixed with fat skimmed from water in the boiling pot, and eaten with pieces of meat.

Neck *(quŋisiq):* The meat is eaten frozen and raw *(quaq)*, or boiled.

Shoulder blade *(kiasrik):* The meat from the shoulder blade is eaten cooked or raw. The scapula bone itself is used to make a fish-scaling tool, or a fan to cool oneself and keep the mosquitos away.

Foreleg *(taliq):* The upper and lower foreleg meat *(siŋŋich)* is eaten cooked or raw, and is considered very good for making dry meat *(paniqtuq)*.

Sinew *(ivalu)* from the forelegs is dried and used for sewing. It is especially good for making boots.

Marrow *(patiq)* is extracted from the upper and lower leg bones by cracking them open. Lower leg bones are preferred, because the marrow contains more fat. This marrow is eaten raw or cooked, usually with meat. It can also be pulverized and put into a container, preferably a dried caribou stomach. Oil rendered from the ends of humerus and femur bones is then poured into the dried stomach with the marrow. The mixture cools and hardens, and is usually stored, to be eaten (usually with dried meat) at some later time. There are several variations on this recipe.

Foreleg bones are used primarily for making oil *(puiñiq)*. The ends of humerus and femur bones are soaked overnight to soften them, then they are pulverized, placed in a kettle of water, heated to just below boiling for about an hour, cooled to lukewarm temperature, and then the floating oil is skimmed off.

Lower foreleg bones *(sivulliq)* are made into a tool for skinning fur animals *(nauhuun, nauttuq)* and a scraper for preparing hides *(ichuun)*.

Foot bones *(isigaich)*: Cartilage *(nukik)* from around the foot bones is eaten raw, fermented, or after the bones are thoroughly cooked by boiling.

Marrow from the foot bones is also eaten. A bone from the "ankle" of the caribou is made into a whirler toy, with sinew strings.

Hooves *(kukik)*: The black hooves are removed by boiling, then made into small items such as "Eskimo yo-yo" handles, jewelry for sale to tourists, and the traditional Eskimo sun goggles.

Backbone *(kiyipigaq)*: The meat from alongside the backbone *(ivaluliñiq)* is excellent cooked, dried, or raw-frozen.

Sinew from the back muscles *(uliutik)* is dried and used for sewing.

Spinal cord *(qitigaq)* is removed from cut-up backbone sections after boiling, and is considered very good eating.

Pelvis *(kautchiñaak)*: Meat from the pelvis is eaten raw, dried, or cooked.

Tail *(pamiatluk)*: Meat from the tail is eaten.

Hind leg *(mumiq)*: The hind leg meat *(mumiq)* ranks with the hide as the most valuable part of the caribou. It is delicious raw-frozen, dried (cut into thin strips or sheets and hung on racks outside, or sometimes inside the house), or cooked (boiled, roasted, baked, or made into soup with vegetables, rice, and condiments). The lower hind leg meat *(sipgich)* can be half dried and frozen and eaten as *quaq*.

Upper hind leg bone *(anautaksraq)* and lower leg bone *(piamiq)* are cracked open and the raw or cooked marrow is eaten. Marrow is always cooked inside the bone.

Sinew from the hind leg is used for sewing.

Ribs *(tulimaaq)* provide excellent tasting meat, prepared by drying or boiling, or made into a "soup."

Brisket *(sakiagich)*: Breastbone cartilage *(isatigich)* and meat are eaten after drying or cooking. Brisket is considered excellent for making "soup."

Diaphragm *(mulik):* This part makes fine dried meat because it consists of two layers, with tasty fat between them. It is also eaten cooked.

Belly and chest meat *(aqiakluk):* This consists of thin sheets of meat, which are sliced away from the body and dried. It is considered a delicacy, the best of all dried meats, and it is also cooked for eating.

Lungs *(puvaich)* were formerly eaten, cooked and mixed with blood. They are used only for dog food today.

Windpipe *(tuqlu)* is boiled and eaten.

Heart *(uumman)* is boiled and eaten; considered excellent. Sometimes it is dried.

Liver *(tiŋuk)* is usually fried, but sometimes eaten raw-frozen. It is also mashed and mixed with caribou stomach contents, or sliced and put inside a caribou stomach to make *niłukkaq* (see uses of caribou stomach below).

Cecum or "appendix" *(kivviġruaq, kivviq):* This organ is removed, cleaned, stuffed with mesentary fat, then boiled. It is usually eaten with meat and is considered a delicacy.

Omasum or "bible" *(tunusrisaq)* is usually prepared by cleaning and then boiling, though older people sometimes leave the contents inside while cooking. The omasum is also eaten raw after being cleansed in cold water.

Rumen or "stomach" *(kisraġuaq):* Dried caribou stomach is either eaten or used as a container for storing foods.

Stomach contents *(niġukkaq)* are removed from a caribou stomach that has been left inside the killed animal for several days, slowly fermenting in the retained body heat. Then the contents are mixed with sugar and seal oil before eating.

Slices of liver and of the small lower leg muscles are inserted into the contents of an opened caribou stomach, left for several days, then taken out and eaten raw. This is called *niġukkaq*, and is eaten by the old people.

Large intestine *(iŋaluat)* is turned inside out, cleaned, dried, and eaten.

Small intestine *(aminilik)* is boiled, cut into small pieces, mixed with fat, and eaten. (People do not drink cold water after eating this food, lest it solidify the thick grease in their throat and choke them.)

Pancreas *(mapsaq):* Dried pancreas is used as a container to store fat from boiled bones (*puiñiq*), sometimes with bone marrow mixed in.

Kidneys *(taqtuk)* are eaten raw or boiled; they are considered excellent especially when they are fresh.

Udder *(mamautik)* is boiled and eaten.

Blood *(auk)* is cooked with chopped fat to make blood soup *(qayusraaq).*

Fat *(qaunnaq):* Fat of all kinds is considered extremely valuable and excellent eating; it is taken from inside the muscles, along the back, among the organs, and on the mesentary membranes. Fat is eaten dried, raw, or cooked, nearly always together with meat.

Back fat *(tunnuq)* is eaten with meat, or used to make akutuq, a chilled mixture of fat, berries, and sugar. Seal oil, fruit, meat, whitefish that has been cooked and then dried, and sometimes Eskimo potato *(masru)* may also be used in akutuq. This delicacy is often called "Eskimo ice cream."

Mesentary fat *(itchaurat)* is eaten raw or cooked, or stuffed into the cecum or "appendix" like a sausage, boiled, cut off in slices. It is called *kivviq*. It is eaten with seal oil, boiled heart, and the omasum or "bible."

Antlers *(nagruk)* have innumerable miscellaneous uses, but are most often used for making net mesh gauges, handles for knives or other tools, net sinkers, and bark basket handles.

Hide *(amiq)*: Caribou hide is commonly used for making several kinds of boots, for mittens, boot liners, insoles, wristlets, and (infrequently today) parkas. It is also made into skin mattresses, sled pads, thermos bottle pouches, and many smaller items. Hair *(mitqut)* is removed and used as filler in dog harness collars. The hairless skin is cut up for thong, which is used for snowshoe webbing, sled lashings, and many other purposes. During pre-contact times, when there was no suitable alternate clothing material, caribou hide was a more important resource than the meat.

The thin membrane *(mamiq)* on unscraped caribou skin is pulled off, moistened, put onto small cuts, and held in place until it sticks. This effectively stops bleeding.

Moose

The meat and organs of moose are utilized in much the same way as described for caribou, and nearly all anatomical terms are identical. The following list is a summary and should not be read as a complete detailing of uses.

Nose is aged overnight and eaten raw (not frozen), or aged several days and then boiled.

Eyes: The eyeballs and the fat behind them are eaten from the boiled head.

Ears: The tips are eaten after the head is boiled.

Tongue is removed from the jaw, boiled, and eaten.

Lower jaw: Meat from the jaw is eaten after the head is boiled.

Lips and mouth tissues are eaten from the boiled head.

Head muscles are eaten from the boiled head.

Brain is eaten from the boiled head. The brain is also used for tanning hides.

Neck: The meat is eaten cooked or raw-frozen.

Shoulder blade: The meat is eaten raw or cooked. The shoulder blade itself can be dried, then used to attract rutting bull moose by raking it against trees and brush.

Foreleg: All of the meat is used, raw, cooked, or dried. Moose sinew is rarely utilized, because it is considered too thick and difficult to handle.

Foot bones are boiled for many hours (often together with beans), then the bones are cut apart and the flesh and cartilage is eaten. They are considered excellent to eat.

Backbone: Meat along the backbone is eaten raw, cooked, or dried.

Pelvis: Meat from the pelvis is eaten raw, cooked, or dried.

Tail is cooked and considered excellent eating.

Hind leg: The meat is eaten raw, cooked, or dried. Marrow from all leg bones is eaten.

Ribs: The meat on the rib cage is eaten raw, cooked, or dried.

Brisket is usually prepared by cooking.

Diaphragm is eaten cooked or dried.

Belly and chest meat are cut off in a single large sheet and dried.

Windpipe: This is boiled and is considered excellent eating.

Heart is boiled and eaten.

Liver is always cooked before eating.

Stomach: This organ is emptied, washed, and boiled for eating. Moose stomach contents are never eaten.

Large intestine is turned inside out, dried, and eaten.

Kidneys are always cooked before eating.

Fat: Back, body, and muscle fat is eaten cooked, raw, or dried. Mesentary fat is dried. All fat is eaten ordinarily with meat.

Antlers: Moose antlers are preferred over those of caribou for making knife and other tool handles. The large, spatulate portion is used to make a platter for eating cooked fish.

Hide: An elaborate, difficult tanning and smoking process prepares the hide for use in making boot soles and mittens. Skin with the fur removed is cut into lengths for making rope and the heavy part of snowshoe lashings.

Mountain Sheep

The uses of mountain sheep are not detailed here, because these animals are not often hunted at present and because they are utilized in much the same way as caribou and moose.

Black Bear

Head: The entire head is boiled, and the meat, eyes, lips, mouth tissues, and cartilage are eaten. Modern Kobuk villagers follow some traditional prescriptions for proper treatment of bear heads: The lower jaw is never removed; a "wormlike" piece of cartilage is cut out from the underside of the tongue, impaled on a sharpened live willow twig, and left on the spot; the brain is not eaten; and the skull is left out in the woods, either impaled atop a small live spruce or buried (if there are no trees around). Bear heads are never brought home for cooking.

Teeth: Bear teeth are carved into fishhooks.

Muscles: All bear meat is prepared by cooking; it is never eaten dried or raw (except for the fat). Parts used for meat are the neck, back, pelvis, shoulder, forelegs, hind legs, ribs,

brisket, belly and chest, and diaphragm. Bear meat is very highly regarded as food. Women were traditionally prohibited from eating bear meat, but this custom is not followed at present.

Feet are aged about two weeks, then cooked and eaten. They are considered excellent.

Claws are carved into fishhooks which are very good for grayling fishing.

Heart is cooked and eaten.

Intestines: The entire intestines are pulled out, cut into three strips, braided, roasted over a fire, and eaten.

Liver is not eaten.

Kidneys are boiled and eaten.

Fat is taken from the mesentaries, body, and viscera and rendered out for bear grease.

Back fat *(uqsruq)* is eaten raw with dried fish or meat.

Tail fat is also eaten.

Hide: This is used for mattresses, parka ruffs, or mittens (leg skins only), or it is cut into strips for rope. Bear hide was traditionally used for making dog harnesses.

Brown Bear

Brown bear meat tastes different from that of the black bear and is considerably less valued, but it is eaten whenever available. All parts and organs described for the black bear are used in the same fashion.

Wolf

Hide: This is used for making parkas, hats, parka ruffs, and clothing trim. The head skins are used for mittens and ammunition pouches, and the tails are made into neck scarfs.

Muscles and organs are not used.

Marten

Hide is used for making hats and clothing trim.

Muscles and organs are not used today, but were formerly eaten.

Weasel

Hide is used occasionally for clothing trim or as a wiping cloth for binocular lenses.

Muscles and organs are not used.

Mink

Hide is used for making hats, scarfs, clothing trim, and mitten linings.

Muscles: All body meat is eaten, after it is prepared by boiling or roasting.

Organs are not eaten.

Head is cooked, and all the flesh and muscle are eaten, as well as the brain.

Wolverine

Hide: The valuable hide is used for making ruffs, clothing trim, and mittens. The tail is used as decoration for a man's parka belt; the feet for a woman's belt. The head skins are made into ammunition pouches.

Meat and organs are not eaten today, but the meat was used formerly as survival food.

River Otter

Hide is used for making hats and clothing trim.

Meat is eaten, prepared by boiling or roasting.

Organs are not eaten.

Head is cooked, and the tissues, muscle, and brain are eaten.

Lynx

Hide is used for making parkas, hats, mittens, and clothing trim.

Meat is boiled or roasted for eating. It is not dried.

Organs: The heart, lungs, kidneys, and liver are boiled and eaten. The stomach and intestines are not eaten.

Head: All flesh, eyes, muscles, and the brain are eaten from the cooked head.

Beaver

Hide is used for making parkas, hats, clothing trim, and mittens.

Meat: Beavers are taken for the meat as much as for the hide. Meat from all parts of the body is eaten after preparation by boiling, roasting, or half-drying followed by boiling.

Organs: The heart, lungs, liver, and kidneys are boiled together and eaten; they are considered a delicacy.

Beaver stomach is not eaten. It is immediately removed from a killed animal lest it sour and spoil the meat.

Head: All meat, eyes, lips, tissues, and the brain are eaten from the boiled head.

Teeth are carved into fishhooks, which are especially good for grayling. Also made into a tool for cutting ivory or bone.

Tail: Boiled or roasted, it is considered a delicacy.

Castor gland: The whole gland or its contents can be used for bait in trapping other fur bearers.

Claws are carved into fishhooks.

Anomalous organs: Beaver have several unusual parts, which are always removed and thrown away to assure reincarnation of the animal. Anomalous organs include a large gland under the neck, a small "extra" oval-shaped bone in the foreleg, and the top portion of the double claw on each hind foot.

Beaver bones are also thrown back into the water after the meat is used, so the animal will be reincarnated.

Muskrat

Hide is used for making parkas, hats, clothing trim, and lining for mittens.

Meat is eaten, after it is prepared by boiling or roasting; or the entire animal may be hung to dry.

Organs: The heart, lungs, liver, and kidneys are cooked and eaten. The other viscera are not used.

Head: All flesh, eyes, meat, and the brain are eaten from the cooked muskrat's head.

Tail: Sinew from the tail is used for fine sewing around the tops of fancy boots.

Porcupine

Meat is prepared by boiling or roasting, after the animal has been skinned.

Organs: The heart, lungs, liver, and kidneys are eaten from the cooked animal.

Stomach and intestines are not used, except for the last foot of the lower intestine, which is dried with pellets of excrement inside it. One or two of these pellets are removed, crushed, mixed with water, and taken as a cure by a person suffering from diarrhea.

Head: All of the flesh, eyes, muscles, and the brain are eaten from the cooked head.

Feet are eaten from the cooked animal.

Red Squirrel

Hide was formerly used for making clothing trim and children's parkas.

Meat was formerly cooked and eaten, but it is not used today.

Arctic Ground Squirrel

Hide is highly valued for making fancy parkas.

Meat is eaten, after being prepared by boiling, roasting, or half-drying followed by cooking.

Organs: The heart, lungs, liver, and kidneys are eaten from the cooked animal.

Stomach and intestines are not used.

Hoary Marmot

Hide is used for making parkas and hats.

Meat is eaten, after being prepared by boiling, roasting, or half-drying followed by cooking.

Organs: The heart, lungs, liver, and kidneys are eaten from the cooked animal.

Stomach and intestines are not used.

Head: All of the flesh, eyes, muscles, and the brain are eaten from the cooked head.

Snowshoe Hare

Hide is used for making socks, mitten and hat liners, clothing trim, and (occasionally) parka ruffs. Formerly, the hide was woven or sewn for blankets, parkas, mittens, and socks. It is not durable, but is extremely soft and warm.

Meat is eaten after being boiled, roasted, or dried.

Organs: The heart, lungs, blood, liver, and kidneys are cooked and eaten.

Stomach and intestines are not eaten, but may be fed to the dogs.

Head: All of the flesh, eyes, muscles, and the brain are eaten from the cooked head.

Feet were used in previous times for washing or wiping objects.

Arctic Hare

These animals are exceedingly rare and seldom taken. If one is caught it is used in the same way as the snowshoe hare.

Birds

Waterfowl

Meat: All ducks, geese, mergansers, loons, and grebes are eaten, although there is considerable variation in quality. Geese and the larger ducks are most preferred. The meat is prepared by boiling as a soup or thin stew, roasting, or half-drying followed by cooking.

Organs: The stomach and intestines of fat waterfowl are boiled and eaten if they were empty when the bird was killed. Full intestines are not used. The lungs, heart, and other small organs are cooked and eaten.

Head: All meat, cartilage, fat, tongue, and the brain are eaten from cooked waterfowl heads.

Feet are often eaten when waterfowl are cooked as soup.

Fat is eaten with the cooked meat.

Duck or goose fat from inside the body cavity is aged, then rubbed on the torso of a person suffering from a cold. Dried fat, well aged, is also rubbed on rashes or insect bites to stop the itching.

Wings of large waterfowl (such as geese) are used for whisk brooms or fans.

Eggs: The eggs of all waterfowl are occasionally boiled and eaten, when they can be found.

Skin is eaten with the cooked bird.

Loons and grebes may be skinned (with fat left on the skin), then the skin is cut into small pieces and cooked with the bird's meat. Liquid fat is skimmed from the broth, hardened, and eaten with the meat. This is called *qalluaq*.

Loon and grebe skins can be made into waterproof pouches for articles like ammunition. They were also formerly used to make socks.

Down is used to make home-sewn parkas, blankets, and pillows.

Willow Ptarmigan, Rock Ptarmigan, Spruce Grouse, Ruffed Grouse

Meat: Ptarmigan are boiled (to make a thin stew), roasted, or dried (entire birds). Grouse are boiled and roasted, but never dried.

Organs: The heart, lungs, and stomach are eaten with the boiled meat. The contents are squeezed from full intestines, then they are cut in short lengths, dipped for a few seconds into boiling water, and eaten with seal oil. Empty intestines are never used.

The **crop** *(puviaq)* is inflated with the contents inside, hung in the house to dry, and given to children for a toy.

Feet are eaten with the cooked animal.

Head: The flesh, eyes, brain, and muscles are eaten from cooked birds.

Eggs: Ptarmigan and ruffed grouse eggs are boiled and eaten. Spruce grouse eggs are not eaten.

Sandhill Crane

Meat is roasted, or boiled as soup.

Organs: The heart, lungs, and liver are cooked and eaten.

Stomach and intestines are not eaten.

Head: The flesh, eyes, tissues, and brain are eaten from cooked birds.

The **beak** was formerly used for making points, especially fish spears.

Feet are eaten with the cooked birds.

Leg bones: The hollow leg bones are used to make a child's toy blowgun *(suputitagaaq)*.

Marrow from the wing and leg bones is eaten.

Wings are dried and used for a broom or fan.

Eggs are eaten cooked on the rare occasions when they are found.

Lesser Yellowlegs

The entire bird is boiled, and the head, meat, and viscera are eaten.

American Golden Plover

The entire bird was eaten in earlier times, but it is rarely, if ever, taken today.

Gulls and Terns

The eggs of the mew, glaucous, and Bonaparte's gulls, and the Arctic tern, are all boiled and eaten. Mew gulls were formerly cooked and eaten, but this is no longer done.

Owls

Meat and viscera of the horned owl, great gray owl, and snowy owl are boiled and eaten as soup. Owl heads are not eaten, "because they look strange."

Osprey

The meat was boiled and eaten in former times, but the rest of the bird was not used.

Tree Swallow

The body is dried, then bits of meat are rubbed on a person's lips or held inside the mouth to cure sores.

Pieces of nest material can also be put in the mouth for sores, or moistened and rubbed on itchy rashes or bites.

Rusty Blackbird

This species was cooked and eaten in earlier times.

Pine Grosbeak

This species is (or was) roasted or boiled for soup.

Fish

Sheefish

Meat is eaten boiled, raw-frozen, dried, roasted, smoked, aged (fermented), and fried.

Special preparations include aging the fish for about a week and eating it raw, or preparing a fish chowder by boiling the meat with flour.

Eggs (suvak) are eaten with sheefish meat, either cooked, raw, or raw-frozen. The eggs may also be dried, then roasted, mixed with fish oil, and eaten together with the long "air bladder" *(avattauraq)*.

Eggs are also made into a delicacy called ituukpalak, by mashing sheefish eggs and cranberries, mixing them with seal oil and sugar, and whipping the dish to a fluffy consistency.

Fish eggs are sometimes stored in fish oil for later use.

Stomach and intestines: These organs are boiled to produce fish oil *(qaluum uqsruq)*, which is skimmed off the water during cooking. The stomach and intestines are eaten afterward.

Air bladder *(avattauraq)*: The long bladder organ is rich in fat. It is turned inside out and dried or cooked, then put in fish oil for immediate or later eating.

Liver *(tiŋuk)* is not eaten, but is used for dog food.

Testes *(iġri)*: This elongated white organ in the male fish is not eaten, but is used for dog food.

Head *(niaquġruaq)*: The flesh, eyes, brain, and other tissues are eaten from the cooked head.

Heads are buried in a grass-lined hole for about six or seven days during the summer, then are dug up and eaten. The heads of dried sheefish are used for dog food only.

Gills *(masriich)* are eaten with other parts of the fish, regardless of preparation.

Skin (raw is *amiq*, dried is *amigaatchiaq*) is scaled after the fish is caught; then it is eaten with the dried or cooked fish.

Arctic Char and Lake Trout

Meat is eaten boiled, raw-frozen, dried, roasted, smoked, aged, and fried. It is often prepared as a soup with flour (fish chowder).

Eggs are eaten with cooked fish.

Liver and eggs that have been boiled with the entire fish are mixed with blueberries or cranberries and then eaten.

Organs: Only the cooked liver is eaten; the rest of the organs are used for dog food.

Head: All of the flesh and the brain is eaten.

Skin is eaten along with the fish.

Humpback Whitefish

Meat is eaten boiled, raw-frozen, dried, roasted, smoked, aged, and fried. Often specially prepared as a fish chowder. Only humpback whitefish, trout, and sheefish are cooked this way.

Eggs are eaten with the cooked fish.

Cooked liver and eggs are mixed with blueberries or cranberries, then eaten.

Eggs are also made into *ittukpalak* (see sheefish).

Eggs from fish caught through the ice are mixed with snow or ice shavings, stirred together until they are white, then eaten. This is done where the fish are caught.

Stomach and intestines: These organs are boiled, the fish oil is skimmed off and kept, then they are eaten.

"Round stomach" *(aqiaġutchiaq):* The contents are squeezed out, then it is boiled or roasted for eating. This is done only when the organ is not fatty.

Head and gills are eaten along with the rest of the fish.

Skin is scaled, then eaten with dried or cooked fish.

Broad Whitefish

Meat is eaten boiled, raw-frozen, dried, roasted, smoked, and fried.

Eggs are eaten with cooked fish. They are also dried, cooked, and put in fish oil to store, then eaten with fish oil. Eggs of this species are also made into *ittukpalak* (see sheefish).

Stomach and intestines are boiled, the fish oil is skimmed off and kept, then they are eaten.

"Round stomach" *(aqiaġutchiaq):* The contents are squeezed out, then it is boiled or roasted for eating. This is only done when the organ is not fatty.

Head and gills are eaten along with the rest of the fish.

Skin is scaled, then eaten with dried or cooked fish.

Least Cisco

Meat is eaten raw-frozen, aged, and fried. It is also half-dried, then boiled for eating. (This dish, called *iyamaaqłuk or igamaaqłuk*, can be made with any species of fish.) Least cisco is also an excellent dog food.

Eggs are eaten along with the fish.

Organs, head, gills, skin are not eaten.

Round Whitefish

Meat is eaten raw-frozen or boiled only. It is used primarily for dog food, because its taste is considered poor.

Eggs, organs, head, gills, and skin are used only for dog food.

Chum Salmon

Meat is eaten boiled, dried, roasted, smoked, aged, and fried.

Eggs are eaten dried, boiled, roasted, or dried together with the backbone *(aanaalik).* Dried eggs are sometimes mixed with bearberries, which keeps the eggs from sticking to a person's teeth.

Stomach, intestines, liver, and gills are used only for dog food.

Head is cooked and eaten, or buried in a grass-lined hole for six or seven days in summer, then dug up and eaten (called *auruq*).

Skin is eaten with cooked or dried fish. It is also cooked separately after being removed from the dried fish *(patiktitaq)*.

Grayling

Meat is eaten raw-frozen, boiled, dried, roasted, and fried.

Eggs are eaten with cooked or raw-frozen grayling.

"Round stomach" *(aqiaġutchiaq)*: The contents are squeezed out, then the organ is boiled or roasted for eating.

Stomach, intestines, and gills are not eaten.

Head is eaten with the fish.

Skin is scaled, then eaten dried or cooked.

Burbot (Mudshark)

Meat is eaten boiled, raw-frozen (after aging), and roasted.

Eggs are cooked and eaten.

Stomach and intestines are boiled and eaten.

Testes are cooked and eaten.

Liver is fried alone; it is considered a great delicacy.

Burbot is used to make a delicacy called *tiniugaq*, by mixing the liver, eggs, and stomach parts, mashing them together (sometimes with blueberries or cranberries), and boiling them.

Head and gills: The flesh, eyes, and brain are eaten from the cooked head.

Skin is eaten with the fish. The skin was used in earlier times for strips of trim on skin boots.

Northern Pike

Meat is eaten boiled, dried, or roasted. It is also an important dog food.

Eggs are eaten raw, raw-frozen, or cooked and also made into *ittukpalak* (see *sheefish*).

Intestines, stomach, liver, and head are eaten after cooking.

Skin is scaled, then eaten from the dried fish. Pike skin was used in previous times to make bags for storing fish oil.

Northern Sucker

Meat is eaten boiled or dried only. It is also used for dog food.

This is not a preferred fish; but it is the first species available after winter and may be important as survival food in lean springs.

Eggs are eaten boiled, or raw with the intestines.

Intestines: After the contents are squeezed out, the intestines are washed, then eaten raw.

Air bladder is eaten raw.

Head: The flesh, brain, and other parts are eaten from boiled fish.

Gills and skin are not eaten.

Clam

Clams found in certain lakes in the upper Kobuk area are boiled and eaten.

Vegetation

White Spruce

Wood: Firewood is cut from forests surrounding all upper Kobuk River villages and camping areas. Dry, dead wood *(qiruk)* is the preferred type, but it has become difficult to find near the settlements (except near Ambler, where a forest fire killed timber some years ago). Live, green wood *(uummaq)* is therefore used extensively for providing heat.

White spruce is also used in construction of log houses, which have been the most common upper Kobuk dwelling until recently. Stands of large straight-growing, straight-grained spruce are found in a few scattered localities along the river, and these provide most of the house logs.

Spruce is also cut for making boats, hunting canoes, sleds, meat caches, drying racks, and innumerable other small items.

Boughs *(akiġuq)* are used for covering tent floors in camps and for insulative bedding for sled dogs.

Needles *(qisiqsiutit)* are boiled near a person who has a cold or flu, to relieve symptoms and freshen the air.

Bark *(amiġaq)* is taken from live trees to provide roofing for traditional summer shelter, caches, or drying racks.

Roots *(amaaq):* Long, supple roots are dug from around young trees with long, straight roots, then split and used for sewing birchbark baskets. Large roots are carved into dippers, platters, and net floats.

Sap: Soft, clear sap *(suġliaq)* is put on cuts and infections as an antiseptic, or boiled in water and drunk to relieve symptoms of flu or rheumatism.

Dark spruce pitch *(kutchuq)* is chewed like gum or used to caulk boats. It is also boiled in water until pure pitch floats on top, then skimmed off to drink as medicine.

Black Spruce

Larger black spruce may be used for wood, boughs, and roots as described above for white spruce. Usually, however, they are too small for any but miscellaneous uses such as making poles or burning as firewood in camps.

Balsam Poplar (Cottonwood)

Wood is used as firewood, but it is not highly preferred because it leaves heavy ash.

Bark is carved into net floats and was formerly used to make sun goggles.

Seeds: The cottony material around the seeds can be used for emergency fire starting.

Leaf buds are gathered in winter for sore throat medicine or used to make balm of Gilead.

Birch

Wood is used for firewood and for smoking fish. Birch wood is also made into lumber for sleds, snowshoe frames, cutting boards, and boat frames.

Bark is extensively used today for making baskets which are sold or used for various purposes by the people themselves. Birch bark is excellent material for starting fires because it burns regardless of wetness or wind.

Sap is boiled to make syrup; in the past it was apparently drunk the way it came from the tree (Stoney 1900:100).

Alder

Wood: Despite its small size, alder wood is an excellent, hot-burning firewood; it is used fairly often for heating houses and tents, and for cooking dog food. Half-rotten alder is very good for smoking fish and making smudges to repel insects. This wood is also used for making scraper and knife handles.

Bark is still used to make red dye for coloring the leather side of animal hides (for example, wolverine-skin parka tassles).

Leaves are chewed and then applied as a compress on wasp stings and mosquito bites.

Aspen

Wood is sometimes used for firewood or as lumber in sled construction, but it is too soft to be of much value.

Bark: The inner bark is chewed as medicine for constipation.

Willow

Wood is burned for firewood, insect smudges, meat or hide smoking, and dog food cooking. Willow wood is also used for making basket rims, wicker fish traps, withes for stringing fish, traditional shelters and caches (not used today), and endless miscellaneous purposes. Diamond-leaf willow is excellent for making snowshoe frames.

Bark is eaten from young shoots, or entire shoots *(natatquq)* may be eaten. Willow bark was formerly used for making nets and snares.

Leaves: Very small, young leaves *(sura)* are eaten with seal oil and sugar, or mixed with fish eggs and eaten. After early summer, the leaves are too large and taste sour.

Sap: The outer bark is stripped from a willow, then the sweet sap is scraped from the exposed stem with a knife and licked off the blade.

Prickly Rose

Rose hips, fruit of the prickly rose, are gathered and eaten raw.

Crowberry

The berries are eaten raw, or mixed with seal oil for eating or storing. They are fairly dry inside, and can be stored "as is" in a cool place. Juice from the berries is squeezed into the eyes to relieve soreness or mild snow blindness.

Bearberry

There are two species: *Arctostaphylos alpina* is seldom used, but is picked and eaten on the spot when found. *Arctostaphylos uva-ursi* is gathered in quantity from the Kobuk River Valley sand dune areas. These berries are stored in rendered fat (such as bear grease), fish oil, or seal oil, then eaten with the oil. They are also mixed with dried salmon eggs or added to akutuq.

Lowbush Cranberry

The berries are eaten raw, cooked for preserves, or added to *ittukpalak* or *akutuq*. A berry soup is the most common way it is eaten.

Juice from the berries is rubbed on a rash that occurs around the waist area. Cranberries are a common remedy for colds, kidney problems, or for people who have no appetite.

They are stored in cardboard boxes, barrels, and in the freezer. They can be gathered early and left to ripen in a box or barrel. They are also harvested in the spring after the snow melts because they are still edible, although quite sour.

Nagoonberry

This berry is eaten raw wherever it is found. They are gathered and preserved with salmonberries. Even a few cups give the other berries a distinctive raspberry flavor.

Bog Cranberry

This species is eaten raw, usually when and where it is picked.

Bog Blueberry

Bog blueberries are eaten raw, boiled for preserves, or added to *ittukpalak* and *akutuq*. Traditionally the most common berry along the *Kuuvaymiut* area. It is gath-

ered with a *qalutaq*, which is a berry bush tapper shaped like a dipper. The berries are tapped into a basket and cleaned by winnowing in the wind. They are stored in barrels or frozen in freezers.

Cloudberry

Also known as salmonberry, these can be gathered while they are unripe and cooked to make a berry soup. They are gathered and stored in barrels or freezer. They can be eaten raw with sugar and cream or with seal oil or mixed with cooked fish. Many people add them to *akutuq* and, today, some boil it for preserves.

American Red Currant

This species is eaten raw, usually when and where it is found.

Highbush Cranberry

These berries may be eaten raw, but are often used to make jam.

Labrador Tea

The leaves are gathered and used for making tea.

Common Juniper

The needles and twigs are boiled for a medicinal drink used for congested lungs, arthritis, rheumatism, and uro-genital problems.

Single berries are eaten as medicine for a sore throat, cough, and lung congestion.

Eskimo Potato

The roots or tubers are gathered in quantity during the fall and stored underground for winter. They are eaten raw.

Wild Rhubarb

This species is gathered in early summer (until June). The stems are eaten raw. The leaves are cooked, then mixed with fish eggs or seal oil and sugar for eating.

Sourdock

These plants are gathered all summer. The leaves are cooked and eaten, or stored in barrels or the freezer. They are mixed with sugar and seal oil when eaten.

Seacoast Angelica

The stems are stripped of skin and eaten raw. This species is seldom found in the upper Kobuk, but it is common in the lower river area.

Fireweed

The young shoots (six inches tall) are gathered in early summer, laid outside for half a day, then put in seal oil and eaten when desired.

Wild Chive

The plant and roots are sometimes eaten raw, but are usually added to meat or fish "soups."

Chive slices are boiled in fish broth, the fish is removed, and the broth allowed to cool. Fish oil adheres to the chives, which are removed and eaten with half-dried fish that has been boiled.

Grass or Sedge

Unidentified grass-like plants are used for lining the holes for aging fish, for covering roofs of cabins (beneath the sod layer), and for dried insole material.

Common Wormwood

Kobuk villagers often use this plant for medicinal purposes. It is chewed or made into a tea which is drunk for the flu, stomach ailments, or sore throat. The plants are also moistened, then placed on painful arthritic areas and covered by a hot stone.

Sagebrush plants can be burned to keep mosquitos away.

Four-angled Cassiope

This heather-like plant is used for starting campfires, because it contains a flammable substance.

Birch Fungus

A species of bracket fungus (probably *Polyporus aplanatum*) is used as a fire starter in emergencies and burned inside the house to repel mosquitos or drive mice out.

White Bracket Fungus

This soft fungus that grows on birch trees is used for pincushions.

Moss

Moss from timbered areas is used for chinking cabins and covering roofs (beneath a layer of sod).

Peat Moss

Sod from wet tundra and old lake beds is used for chinking cabins, covering cabin roofs, and covering semisubterranean houses. It is gathered during the driest part of summer.

Reindeer Lichen

This is used as survival food for people or dogs.

Earth Resources

Water

The relatively pure waters of the river and its tributaries must be included as a vital resource for Kobuk people. River water is used exclusively while in camps, and part-time in the villages (where wells are also available, but not always functioning). The villagers are acutely aware of the importance of this water in their lives, not only for drinking but also for providing the fish that are an essential part of their livelihood.

Water from the hot springs in Dakli Pass, south of Shungnak village, is another important resource. People visit the hot springs each year in March, April, and May to soak in its medicinal waters. Large containers of water are also brought home for drinking, again because of its medicinal qualities.

Clay

Bluffs along the Redstone and Hunt rivers yield a special red clay that can be used to paint sleds, snowshoes, and houses. It is still occasionally utilized today.

Jade

Kobuk Eskimos have a long tradition of using natural outcrops of jade, which is abundant north of the Kobuk River. In pre-contact times, the mineral was used for making stone tools, but today it is gathered for sale to outsiders. For some persons this represents a significant source of income.

Whetstone Rock

A slate-like rock called *tinaakatiisruuk* is collected at an outcrop on the lower Pah River and is used as a sharpening stone for knives.

Stone

Rounded rocks collected along river beds are used as sinkers for gill nets and seines. Other selected river rocks are used as makeshift whetstones for sharpening blade tools, then discarded afterward.

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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