KIJIK:

AN HISTORIC TANAINA INDIAN SETTLEMENT

JAMES W. VANSTONE

AND

JOAN B. TOWNSEND

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Preface

The present study is the result of the interest of both authors in the culture history of southwestern Alaska. Townsend has been carrying out ethnographic and archaeological research in the Iliamna Lake-Lake Clark area since 1960. Her archaeological work has tended to concentrate on the interpretation of prehistoric manifestations in the area (Townsend and Townsend, 1961, 1964), and she has not, as yet, turned her attention to the historic Athapaskan occupation of the region. VanStone has worked in the contiguous Nushagak River area where his interests have focused primarily on gathering information about the population of the river system from the time of earliest historic contact until the present (VanStone, 1967). The archaeological dimension of his work, at the time the present project was initiated, included an extensive survey of the Nushagak River and its tributaries, as well as the excavation of a nineteenth century Eskimo village in the upper Nushagak region (VanStone, 1968). In addition, he had also taken part in the excavation of the nineteenth century settlement of Crow Village on the middle Kuskokwim River (Oswalt and VanStone, 1967). Both authors, therefore, developed at least a peripheral interest in late regional Tanaina occupations. Townsend's interest developed from a desire to extend her knowledge of culture change and add an archaeological dimension to extensive familiarity with historical source material for the area (Townsend, 1965). VanStone sought to find a basis for comparison with his nineteenth century Eskimo excavations in the Nushagak and Kuskokwim regions. The Lake Clark excavations described in this report extend our knowledge of the period of historic contact in southwestern Alaska to the point where several important sub-areas are now included.

In the course of their separate researches, both authors had encountered occasional references to Kijik in historical sources and, in terms of its size and period of occupation, it seemed to be the most promising historical site in the Lake Clark-Iliamna area for extensive excavations. In the late summer of 1965, VanStone visited the site to obtain a better idea of the problems that excavations might entail.

Although no testing was done at this time, an attempt was made to locate as many structures as possible and to determine if obvious midden deposits were present. As it turned out, the number of structures located then were far fewer than the number eventually excavated. Because of the tall grass and encroaching trees, and the fact that many cabins left little indication of their former location, a number of structures were not discovered until excavations at the site were in progress.

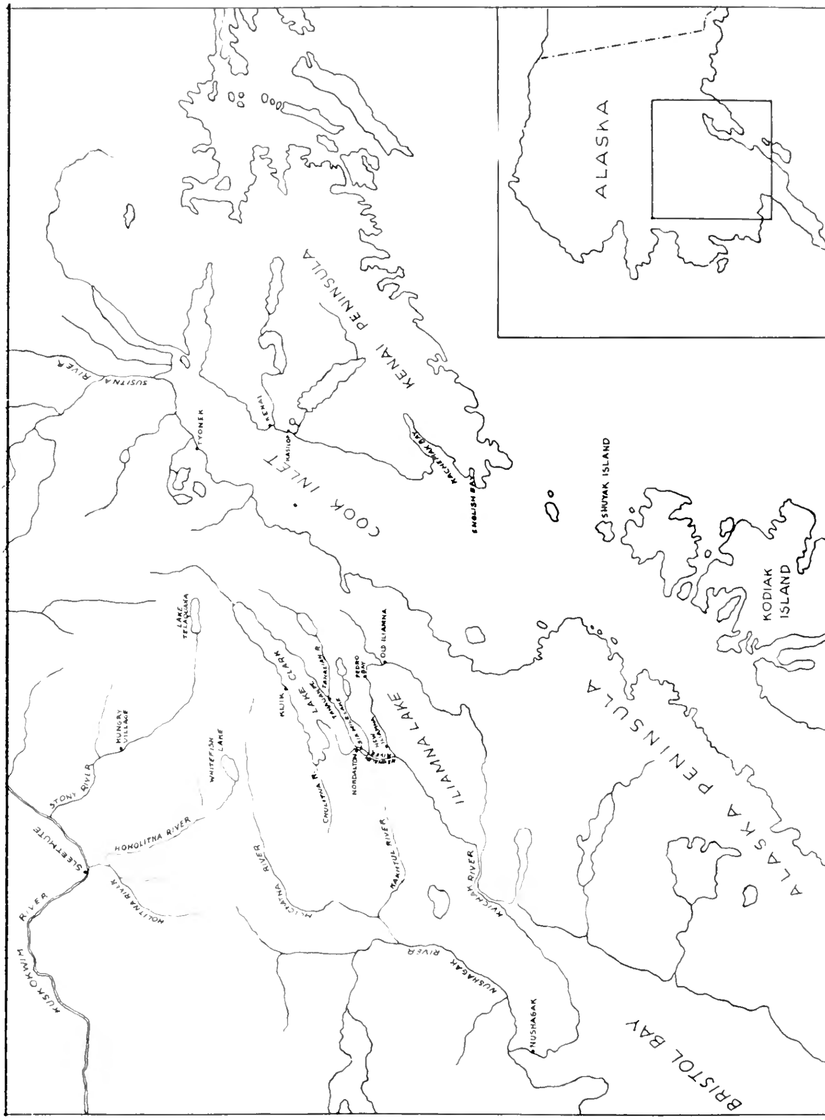
Another important factor in the selection of the Kijik site for excavation was the possibility of collecting ethnographic data concerning the settlement and its inhabitants from Tanaina now living in the village of Nondalton at the southwest end of Lake Clark. These people are, for the most part, direct descendants of the residents of Kijik. Although none of the former Kijik inhabitants are now living, it was nevertheless possible for Townsend to obtain much information, both specifically with regard to Kijik, and generally with reference to Tanaina culture in the area. This material has been incorporated in the following pages.

Excavations at the Kijik site were begun on June 19, 1966 and completed on August 8. As was expected, we encountered what apparently had been a continuous and relatively uncomplicated occupation. Therefore, any changes that had taken place over time in the settlement, both with regard to size and to kinds of material objects utilized, would have to be determined without the usual stratigraphic sequences that are so useful in many archaeological situations. This has, of course, complicated our analysis of the material remains and the structures.

Another situation revealed by the excavations that has complicated our study of the material is the extremely small number and variety of indigenously manufactured Indian artifacts that were recovered. As a result, it has been virtually impossible for us to say anything detailed about Lake Clark Tanaina culture as such. This may not be a particularly serious drawback, however, because, as we shall note later, it is quite likely that when the Tanaina first moved into the Lake Clark area, they had already undergone considerable change as a result of contact with the Russians in Cook Inlet.

The Kijik collection of artifacts, then, is noteworthy primarily for the large number and variety of trade goods included. In fact, these trade materials constitute what is almost certainly the largest number of such objects ever recovered from an archaeological site in

Alaska, and they provide valuable data for comparison with collections from the growing number of historic sites that have been excavated in southwestern Alaska. The report that follows will focus on these trade materials and the information they provide about the mutual impact of whites and Indians upon each other during the nineteenth and early twentieth centuries.



ALASKA
KENAI PENINSULA
SUSITNA RIVER
TYONEK
KENAI
KASILOF
COOK INLET
KACHEMAK BAY
ENGLISH BAY
SHUYAK ISLAND
KODIAK ISLAND
ALASKA PENINSULA
ILIAMNA LAKE
OLD ILIAMNA
PEDRO BAY
TANALIAN R.
LAKE CLARK
KIJIK
LAKE TELAQUANA
HUNGRY VILLAGE
STONY RIVER
WHITEFISH LAKE
HOHOLITNA RIVER
SLEETMUTE
KUSKOKWIM RIVER
HOLITNA RIVER
CHULITNA R.
NONDALTON
MULCHATNA RIVER
NUSHAGAK RIVER
NUSHAGAK
KVICHAK RIVER
BRISTOL BAY

The Historical Dimension

Throughout the entire period of its occupation, the village of Kijik was inhabited by Athapaskan-speaking Tanaina Indians. Cornelius Osgood (1936, pp. 20–21) has divided all the northern Athapaskans into two areal groupings: those of the Pacific drainage which include the Tanaina, and of the Arctic drainage. His basis for this division rests primarily on the fact that the various species of salmon are utilized extensively by the Pacific drainage people and this has permitted them to develop a somewhat more sedentary way of life and a more elaborate culture than those of the Arctic drainage.

Of all the northern Athapaskans of both the Pacific and the Arctic drainage subgroups, the Tanaina are the only ones who reach the sea. At the time of first historic contact, or shortly thereafter, the area which they occupied included the Susitna River drainage, the shores of Cook Inlet, the entire Kenai Peninsula with the exception of the coast line along the Gulf of Alaska, the Lake Clark region north and west to include the upper Mulchatna and upper Stony rivers, Sixmile Lake on the Newhalen River, and the eastern two thirds of Iliamna Lake. In other words, the area occupied by the Tanaina forms a sort of lop-sided horseshoe around Cook Inlet (see map, fig. 1; Osgood, 1937, fig. 1).

On the basis of field work conducted in 1931, Osgood (1937, pp. 14–15) divided the Tanaina into seven subdivisions determined by area of residence. These include the Kachemak Bay, Kenai, Upper Inlet, Susitna, Tyonek, Iliamna, and Lake Clark areas. Of these, it is only the Lake Clark area that is of interest to us here, and it will be immediately noted that this is the only subdivision with a completely interior orientation. This is not to suggest, of course, that the people of the Lake Clark area had no contact with their coastal relatives. But the Lake Clark, upper Mulchatna River, and upper Stony River peoples appear to have formed a distinct interior-oriented group which has continuity at least back to the early historic period. The cultural center of the Tanaina Indians was the Cook Inlet area

FIG. 1. Map of the Tanaina area showing places mentioned in the text.

where the people were oriented toward a maritime economy and, as a result, developed a culture with marked coastal Eskimo overtones. In the interior Lake Clark area, where the economy was focused on salmon fishing and the hunting of large land animals, the Tanaina exploited their environment in much the same way as did the neighboring riverine Eskimos of the Nushagak River and its tributaries.

Although it is likely that even the more remote areas of Tanaina territory were receiving trade goods in small quantities shortly after the middle of the eighteenth century (Townsend, 1961, pp. 48, 50; Bancroft, 1886, p. 144), the first documented contact between Pacific Drainage Athapaskans and Europeans took place in 1778 when Captain James Cook, searching for the northwest passage, sailed into the inlet which now bears his name (Cook and King, 1785, vol. 2, pp. 391–392). Other English navigators who visited and traded with the coastal Tanaina toward the close of the eighteenth century were Captains Portlock and Dixon in 1786, Captain Meares, also in 1786, and Captain Douglass of the Meares expedition two years later. Captain George Vancouver was also in the area in the spring of 1794, but his contacts with the people appear to have been minimal (Portlock, 1789, p. 114; Dixon, 1789, p. 60; Meares, 1790, p. 311; Vancouver, 1801, vol. 5, ch. 5).

In 1786 the Russians settled at St. George, now known as Kasilof, on the Kenai Peninsula. Thirteen years of struggle between various Russian trading companies, particularly the Lebedev-Lastochkin and Shelikov companies, followed. Finally, the Shelikov group succeeded in securing a monopoly and the Russian-American Company was founded in 1799. A highlight of this period was the founding of Nikolayevski Redoubt at the site of the present-day village of Kenai, in 1793. This was to be one of the most important Russian posts in southwestern Alaska until the sale of the territory to the United States in 1867.[1]

The date of the first Russian penetration into the Lake Clark region cannot be determined with any degree of certainty. In 1791 Dmitri Ivanovich Bocharov, a naval officer acting under orders from the famous Alexander Andreevich Baranov, then manager of Shelikov's company, explored some of the northern part of the Alaska Peninsula, making efforts to establish friendly relations with the inhabitants in the interest of the fur trade. It seems possible that

[1] This brief statement on exploration in the Cook Inlet region has been summarized from Townsend (1965, ch. 2) to which the reader is referred for a more detailed account.

Bocharov reached Iliamna Lake and perhaps also the Nushagak River (Zagoskin, 1967, p. 335). While there is no reason to believe that Bocharov ever saw Lake Clark, it seems likely that from this time on, the Russians were at least aware of the lake's existence. Trade relations with the Tanaina of this area are certain to have been affected by the struggle for supremacy being waged by the Shelikov and Lebedev-Lastochkin companies for control of the Cook Inlet region. Members of the latter company, in 1792, reportedly plundered Iliamna and Nushagak villages which had been friendly to Bocharov and, if Kijik was in existence at that time, the settlement doubtless also suffered, if only indirectly, from these hostilities (Bancroft, 1886, p. 340).

Apparently the Russians had established a small trading station somewhere in the Iliamna area, for in 1800, after much mistreatment, the Indians are supposed to have attacked and wiped out the post killing all the Russians stationed there. Bancroft (1886, p. 392) and Davydov (1812, p. 134) give the Russian version of the occurrence. The Tanaina preserve their version, in their oral traditions, of what most likely was the same battle. The story has several variants, but the main theme seems to be that the Russians were dealing unfairly and were mistreating the Indians. After much provocation, the several Tanaina villages in the Iliamna area banded together to destroy the Russians. Only one boy, the son of the Russian leader, is said to have been spared (Townsend, 1965, pp. 54, 318–319). It was not until about 1821 that the Iliamna Tanaina again permitted a Russian trading post to be established in their midst.

Considering the amount of exploration and trading activity going on in the Cook Inlet area during the last two decades of the eighteenth century, it is surprising that the Lake Clark area should have remained relatively unknown for so long. The lake itself, although present on some maps of the Russian period, is more often absent. When it is shown, it is either unnamed or designated as Lake Ilima. On maps until 1845, the modern Iliamna Lake was called Shelikov Lake and this change of name, together with similarity between the names Iliamna and Ilima, frequently creates doubts concerning which lake is being referred to in the literature (Townsend and Townsend, 1961, p. 55; Townsend, 1965, p. 44). Writing sometime prior to 1839, Wrangell refers to the present-day Lake Clark as Kyzzhakh Lake, presumably an attempt to designate that body of water by the name of the most important village located on its shores,

Kijik (Wrangell, 1839, p. 56). Petroff (1884, p. 17) followed this lead on the map which appeared with the Tenth Census and there is reason to believe that the name Kijik is a rough English approximation of the Tanaina name for both the lake and the village. At any rate, it seems clear that the Lake Clark area was well known to the Russians but remained off the beaten path, so to speak, because of its location to the north of the major routes from Cook Inlet to Iliamna Lake and Bristol Bay. It is not surprising, therefore, that the lake was "rediscovered" in the last decade of the nineteenth century, not from the north or east, but by a party traveling up the Nushagak River from Nushagak village.

Although it is possible that the lake which is now called Lake Clark was visited by Charles L. McKay, a U. S. Army Signal Service observer at Nushagak, sometime between 1881 and 1883 (Osgood, 1904, pp. 25–26), the first documented exploration in the American period took place in 1891. In January of that year a party under the leadership of Alfred B. Schanz and sponsored by *Frank Leslie's Illustrated Newspaper* left Nushagak with the intention of exploring the upper tributaries of the Nushagak River and passing over into the Iliamna drainage north of that lake. This expedition, which consisted of Schanz, John W. Clark, agent of the Alaska Commercial Company at Nushagak, Innokente Shishkin, a creole from the post, and six Eskimos, left Nushagak on January 29 and ascended the Nushagak River taking the census of villages along the route for the Eleventh Census. They then proceeded up the Mulchatna River to the Kakhtul, ascended that tributary, and, making a portage, reached the Chulitna River which flowed into a large lake which they named Lake Clark.

> On that memorable Sunday (February 15, 1891; the day the party reached Lake Clark) we wearily trudged over the ice in search of inhabitants, for, through days of delay caused by snowstorms and blizzards, we were sadly reduced in supplies both for ourselves and our dogs; in fact a number of the latter had already starved to death. Clark and I had no idea of the kind of people we would find but naturally supposed that they would be outposts of the coast Eskimos. When eventually, by a strange piece of good fortune, we were discovered by a native who had been looking after his traps and rushed to meet him, we found a handsome, well-built, athletic-looking young fellow, with fine, velvety black eyes and a laughing, rosy-cheeked, reddish-brown complexion. He was extremely vivacious, gesticulated a great deal, and addressed us with wonderful volubility in a strange language. None of our party could understand a word of his tongue, although I recognized a strong resemblance in the language to that spoken by the Tanana Indians, a language akin to Tanaina.

I was surprised most, however, by the fact that our new friend contrasted very favorably with our Eskimo. His dress consisted of a curious but sensible combination of jeans and furs, and looked clean and neat. With his lively disposition he did not spend much time in palaver after he found that we could not understand him, but started off on a graceful run ahead of our dogs evidently to show us the way to his village. Sure enough a brisk dash of a couple of miles over smooth ice, a short turn into the mouth of a river, and a helter-skelter climb up a low bank brought us into the very middle of a typical Alaskan Indian village. It was indeed a surprise, and I almost imagined that I had been miraculously transferred to the shaman's village on the Yukon. A score or more of fine-looking young men, with their inborn native courtesy, bade us welcome, at the same time, like children, examining our persons, our clothing, and our sledges and weapons with the greatest curiosity. It took us only a few minutes to ascertain that the chief of the village knew a few words of Eskimo and a few of Russian, so that with the aid of considerable pantomime we managed to make ourselves approximately understood.

The headman of the village wore cowhide top-boots and blue swallow-tailed coat with brass buttons, probably many years ago the dress uniform of some Russian officer. A number of others who received us also had one or two articles of civilized raiment. The houses and fish caches were neatly built of hewn logs and planks, the houses having windows made of tanned skins of mountain sheep intestines. The whole village bore an air of respectability and cleanliness almost startling to one accustomed to the filth of Eskimo mud huts. This impression was further advanced when, upon entering the chief's house, we found it floored with carefully hewn planks and heated by an old-fashioned Russian box stove with four holes for cooking. The chief had also built himself a bunk for sleeping, a table and several benches. Soon the teakettle was singing on the little stove, and before long we were stimulating ourselves with an infusion of fragrant tea, which the chief personally had served in some fancy china cups, of the possession of which he seemed very vain. His squaw also laid before us some excellent dried salmon, very clean and of a delicious flavor. All these surprising circumstances contributed much to our astonishment. We afterwards learned that these Indians have been accustomed to secure articles of civilized comfort and luxury through intertribal commerce from the trading posts on Cook Inlet. The chief himself had repeatedly visited posts on the inlet, having even gone as far as the store on Kinik Bay. (Porter, 1893, pp. 94–95.)

Schanz and his party were told that this village was called "Nikhkak." They remained there for two nights and a day, but were forced to cut their visit short because of an inability to obtain sufficient provisions for themselves and their dogs. They took the census at Nikhkak and also at a village called "Kilchikh" which they were told was located about nine miles up the river from Nikhkak but which they apparently did not visit.

After leaving the settlement which he so graphically describes, Schanz and his party reached the Newhalen River by the evening of February 17 and the expedition returned by way of Iliamna Lake,

the Kvichak River, and around the coast to Nushagak (Porter, 1893, pp. 94–95; Schanz, 1891, p. 208).

It seems certain from the lengthy quotation just given that the Frank Leslie expedition visited the village of Kijik and yet the references made by Schanz to Nikhkak and Kilchikh have created confusion about the name of the settlement and the problem of the existence of a second village that to this day cannot be adequately explained. In the Eleventh Census population figures are given for Nikhkak but not for Kilchikh, in spite of the fact that the enumerator specifically mentions collecting census data for that settlement (Porter, 1893, p. 95). On a map accompanying Schanz's account in the newspaper which financed the expedition, both communities are shown; Kilchikh is located about ten miles above the mouth of the river which is today called the Kijik River (Schanz, 1891, p. 208).

A village called Nikhkak on Lake Clark, undoubtedly the same one referred to above, is noted by the geologists G. C. Martin and F. J. Katz who conducted a geological survey of the Iliamna region in the summer of 1909. At that time the settlement was abandoned (Martin and Katz, 1912, p. 21). Five years later, in 1914, another geologist, Philip S. Smith, worked in the area and, to add to the confusion, a village called Kijik is shown in the correct location on a map accompanying his report, but the river flowing into Lake Clark at that point is called the Nikhkak River. In the text, however, it is referred to as the Kijik River (Smith, 1917, map, pl. 1).

In the late summer of 1965 and again during field work in 1966, the authors attempted, without success, to locate a second village up the Kijik River in the approximate location described by Schanz. An additional search directly inland in the vicinity of Kijik was prompted by reports from informants at Nondalton that another, older settlement was located on a small pond almost due north of Kijik at the base of Kijik Mountain. The Tanaina believed that this site was the earlier location of the Kijik settlement and was inhabited before the people moved down to the shore of Lake Clark. The pond on which this village was located was said to have a creek flowing out of it which joined a small stream that in turn emptied into Lake Clark about 5 km. northeast of Kijik. Informants further noted that this settlement was called Kamuk, meaning fish pond village, and that there was a trail leading to it from Kijik. Although we did not learn the size of this village, it was said to have consisted of semisubterranean houses rather than the above-ground type

characteristic of Kijik and the late Tanaina villages on Cook Inlet described by Osgood.

On the strength of the above information, a careful air reconnaissance was made over the area between the mouth of the Kijik River and the base of Kijik Mountain, but there was no sign of the Kamuk settlement. At one time there were a number of ponds in this area but they have now largely dried up. In addition, beavers have dammed the streams, obliterating trails and changing the topography considerably. It is possible that a small site exists in this area. If Kamuk was somewhat older than Kijik, it is now likely to be completely grown over with birch, willow, and spruce trees. In this case, it would not be visible from the air, and would be extremely difficult to find on foot. This is particularly true for the season during which our search was made. We learned of the possible existence of the site in August when brush growth is at its peak and when water levels in ponds and swamps are high. If such a site exists, we would have to be led to it by someone who knows the exact location, or conduct an air survey in early spring.

During discussion with informants concerning the Kamuk site, one important fact did emerge that may have bearing on the Kijik-Nikhkak confusion. The word Kijik, when pronounced by a Tanaina informant, sounded very much the same as Nikhkak. Thus Schanz may have thought that his new acquaintances were speaking of two villages when, in reality, they were referring to only one. This would also account for the Kijik River being labeled the Nikhkak River on Smith's map (1917, pl. 1). It is also possible that the two villages (Kijik and Nikhkak) refer to the winter village on the lake and the summer fish camp located along the banks of a small tributary of the Kijik River about 5 km. above the latter's mouth. According to informants, however, the main village and the camp did not have the same name (see Appendix 3). In any event, it is at least possible that an error on the part of early explorers in understanding the Tanaina names may explain the occurrence of two distinct villages in the literature.

As noted above in the quotation from Schanz, the residents of Kijik, at least toward the end of the nineteenth century, traveled to Cook Inlet to trade at the various posts located there. This was probably true during the Russian period as well and there is no reason to doubt that the Tanaina of Lake Clark and the surrounding area were in close contact with their Cook Inlet relatives and with Russian trading posts from the time the settlement was established.

By 1821, as we have noted, and perhaps even much earlier (see Zagoskin, 1967, p. 79), the Russians had a post at some location on Iliamna Lake, probably at Old Iliamna, and it presumably continued to function until the sale of Alaska to the United States (Tikhmenev, 1939–1940, p. 376; Townsend, 1965, p. 56).

At the time of the sale, the assets of the Russian-American Company were purchased by Hutchinson, Kohl & Company of San Francisco, a firm that, within a year or two, was reorganized to form the Alaska Commercial Company. This company continued the post at Kenai (old Nikolayevski Redoubt) and maintained subordinate stores at English Bay, Tyonek, Knik, and Old Iliamna. The Western Fur and Trading Company, a rival concern, also opened posts at each of these locations (Porter, 1893, p. 251) and continued as a competitor of the Alaska Commercial Company until 1883. There is some indication that the Alaska Commerical Company post was located at Iliamna Bay on Cook Inlet about 12 miles over the portage from Old Iliamna itself.

In the first decade of the twentieth century, trading activity in the area increased as the upper Mulchatna River region was opened up to gold mining. At this time there were three stores at Old Iliamna (Martin and Katz, 1912, pp. 20–21) and trading establishments in other villages along the lake area. The Severson trading post at New Iliamna appears to have begun operation about 1900 and, according to informants, residents of Kijik traded there as well as at Tyonek and Old Iliamna in the closing years of the settlement's occupation. Trading trips to Cook Inlet are said to have taken place in March and April but visits to the closer posts on Iliamna Lake doubtless occurred at more frequent intervals.

Missionary activity in the Lake Clark region is closely associated with the name of Father Yakov Federovich Juvenal, as this pioneer Orthodox priest was the first to bring Christianity to the interior Tanaina and was apparently martyred at some village in the area, possibly Kijik, in 1796 (see Townsend, 1965, pp. 36–53). Father Juevenal seems to have been killed because he preached too vigorously against polygyny, although doubtless other factors were involved.

Perhaps as a result of Father Juvenal's martyrdom, and certainly because of continued hostility between the Russians and Tanaina, there seems to have been little missionary activity in the area until after a mission was established at Nikolayevski Redoubt in 1845.

In the next two years Hieromonk Nikolai, who was in charge of this mission, visited all the Tanaina villages and converted a large number of people (Tikhmenev, 1939–1940, pp. 303–304). It is certain that visits to Kijik were made by the missionary or his representative at this time since the settlement is mentioned in the vital statistics of the Nikolayevski mission (Alaska Russian Church Archives, vital statistics, Kenai). After 1853, the Iliamna, Lake Clark, and Mulchatna regions were transferred to the jurisdiction of the Nushagak mission and villages in these areas were visited by the priest or lay reader stationed there.

Kijik is not mentioned frequently in the Nushagak statistics until the middle 1870's. A few baptisms were performed at the village (or perhaps these involved Kijik residents who were visiting in other communities) in 1872 and 1876. Little religious activity appears to have taken place at Kijik village, however, until 1877. On August 14 of that year, the priest from Nushagak recorded 32 "newcomers" added to the Christian congregation at the village. The following day seven marriages were performed. Apparently the priest or a lay reader was in the settlement at this time converting the Tanaina. Little more appears in the vital statistics records concerning Kijik until March 19, 1881 when 21 additional "newcomers" were added to the church membership. Again, the following day four marriages were performed. This information suggests that Russian Orthodox churchmen were not very active at Kijik until 1877. It is possible that either this year, or 1881, marks the date of the building of the church at the settlement, remains of which are still partly standing. Subsequent to 1881, Kijik residents appear regularly in the baptism, confirmation, marriage, and death records of the Russian Orthodox Church, but there are no more listings of "newcomers" identified by their old "heathen" and new "Christian" names (Alaska Russian Church Archives, vital statistics, Nushagak).

Although all the Tanaina were apparently converted to Orthodox Christianity, it is unlikely that church beliefs had any real influence in their lives. Travel into the area continued to be long and difficult throughout the period of occupation at Kijik and the Nushagak churchmen were seldom able to visit the outlying villages in their area of jurisdiction more than once or twice a year under the best of circumstances.

It cannot be said with certainty when the Kijik settlement was first established. Elderly informants at Nondalton maintained that in the late eighteenth or at the beginning of the nineteenth century,

some Tanaina from the Cook Inlet region moved inland to the Lake Clark-upper Mulchatna area in order to escape from the Russians who were quarreling and fighting among themselves and harrassing the Indians in the Inlet. When Portlock and Dixon came into Cook Inlet to trade in the summer of 1786, Dixon reported a number of recently deserted huts, especially in the Graham Harbor area (Portlock, 1789, p. 107). This apparently was not long after the Tanaina and several Eskimo groups including the Shuyak Island Koniag had been defeated in uprisings against the Russians. The latter were swift to make reprisals against the native population (Petroff, 1884, p. 99) and these unfortunate contacts with the Russians may have given impetus to a Tanaina migration inland to the Lake Clark-Mulchatna region. Supposedly, it was also at this time that villages were established at the mouth of a small Mulchatna tributory called Moose Creek (the first creek downstream from the Chilchitna River), on the Stony River above present-day Hungry Village, and on Telaquana Lake. In fact, Kijik may have grown later at the expense of these other settlements since Lake Clark was much more accessible as far as trade contacts were concerned.

The earliest population estimates for Kijik are derived from the vital statistics of the Nushagak mission. A study of these records between 1875 and 1885 reveals a population of at least 101 for the settlement (Alaska Russian Church Archives, vital statistics, Nushagak; Townsend, 1965, p. 87). This figure may be somewhat on the conservative side since when the priest at Nushagak visited Kijik in 1883, he stated that 140 persons received communion and holy rites (Alaska Russian Church Archives, Box 454, item c). Another population figure for approximately the same period is given by Bailey (1880, p. 26) who examined church records at Nushagak in the fall of 1879. He lists a figure of 78 for Kijik and it should be kept in mind that the total would probably vary considerably, depending on the time of year when the data was collected. The Tenth Census, data for which was collected in 1880, lists a population of 91 for Kijik (Petroff, 1884, p. 17). Thus we have a series of four population estimates for the settlement covering a 15 year period between 1875 and 1890. Allowing for seasonal variations, it seems likely that the village supported a maximum population of from 150 to 175 individuals throughout this period.

In the winter of 1891 when Schanz was enumerating in the area for the Eleventh Census, he noted a population of 42 for the village which he called Nikhkak (Porter, 1893, p. 4). This figure seems low,

even allowing for the fact that Kijik was nearing the end of its period of occupation. The figure seems particularly suspect when compared with a listing of 106 in 1898 (Elliott, 1900, p. 740). There seems little reason to doubt that Kijik maintained a relatively stable population throughout the latter part of the nineteenth century and no marked decline occurred until the settlement began to be abandoned not long after the turn of the century.

Contacts between Kijik and Tanaina settlements on the Mulchatna and Stony rivers seem to have been maintained throughout the nineteenth century. An important trail in the area, known as the Telaquana Trail, leaves the shore of Lake Clark at Kijik and leads northwards across several stream valleys to Telaquana Lake. As late as the early 1930's, this trail could be followed without difficulty for approximately the first 20 miles (Capps, 1931, p. 137). In 1914, after Kijik was largely abandoned, a trading post called Kongollon was said to be situated on the Stony River north of Whitefish Lake, the headwaters of the Hoholitna River. This post was in the charge of a creole trader who obtained most of his supplies at Sleetmiut on the Kuskokwim. Kongollon was apparently visited by Indians from the Lake Clark area, probably primarily from Nondalton on Six Mile Lake. This suggests another source of trade goods for the area but it is unlikely that it played a very important part in the life of Indians at Kijik except, perhaps, toward the very end of the period of occupation.

People began to move away from Kijik in 1902 but the abandonment of the village appears to have progressed slowly. Informants at Nondalton said that one old man stayed at Kijik, or at least in the general area, and died in 1935. Although W. H. Osgood makes no reference to the village during his work in the area in 1902, the map accompanying his report indicates a stop there (Osgood, 1904, map). Martin and Katz note that the village was abandoned when they were conducting their field work during the summer of 1909 (1912, p. 21). Most of the inhabitants moved to Old Nondalton, although a few went elsewhere. No one now living remembers the Kijik village when it was occupied. Informants stated that the log structures were dismantled and moved to Old Nondalton which was located slightly north of the present village of that name. Only two houses and the church were left standing. The move to the present Nondalton, just around a bend to the south of the old village, took place in 1940.

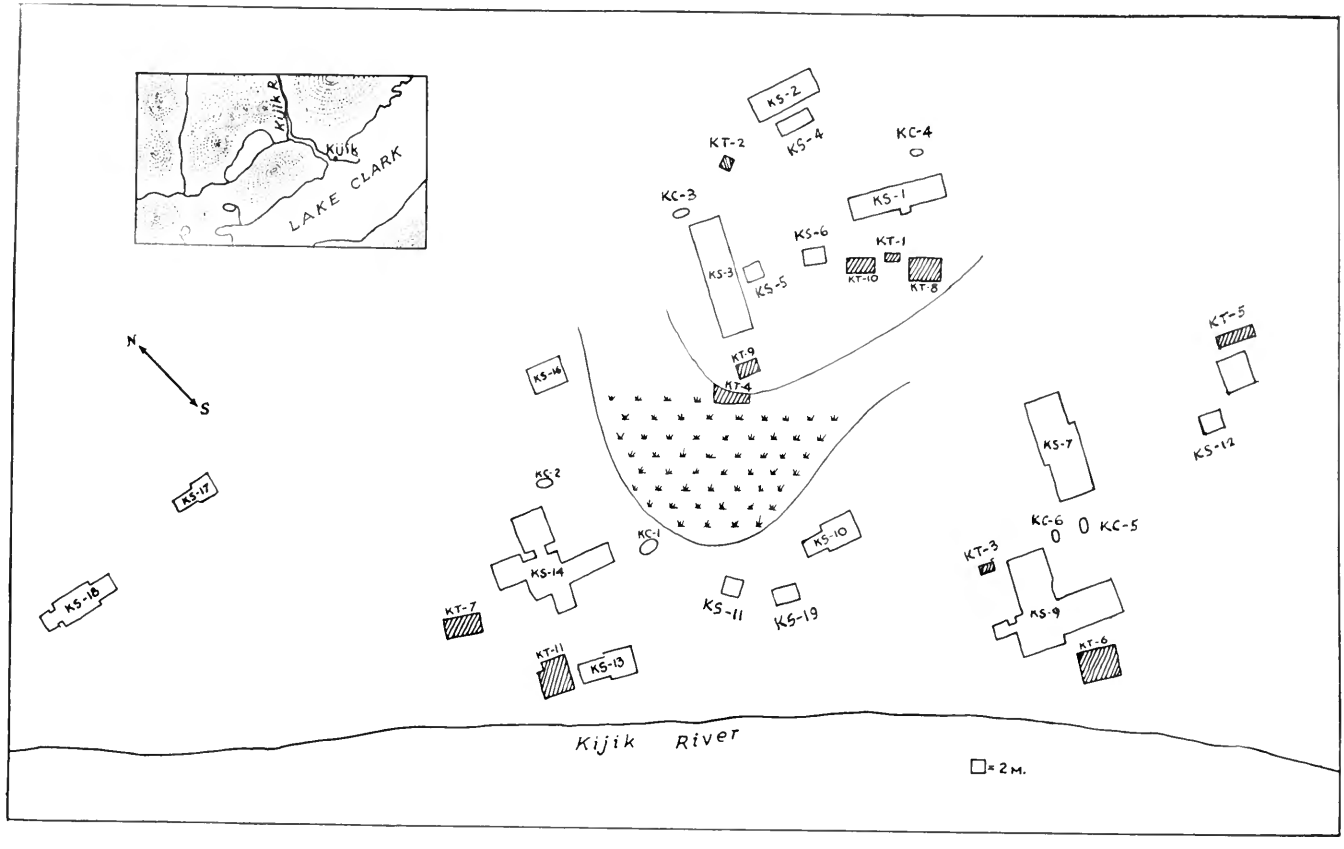
It seems clear that Kijik was eventually abandoned primarily because it was too far from the trading posts on Iliamna Lake and from the canneries along the shores of Bristol Bay which became increasingly important in the early twentieth century. However, an elderly white resident of the area mentioned that a measles epidemic in the village shortly after the turn of the century had depleted the population and this doubtless also provided an impetus for the move. The Tanaina villages on the Mulchatna and near Telaquana Lake appear to have been abandoned about the same time. Thus, not long after 1900, all inland Tanaina in this general area were concentrated at the north end of Iliamna Lake and at Nondalton.

Informants reported that although white men visited Kijik frequently in the closing years of the nineteenth century, they only remembered one who stayed for any length of time. Today no one remembers his name, but he had a mine in the area and taught a few people how to read and write during his residence in the village. The vital statistics of the Russian Orthodox Church at Nushagak record that on March 10, 1906 an American, Brown Carlson, aged 31, married a Tanaina woman at Kijik. Perhaps it is Mr. Carlson whom the people recall. We think that we may have identified the structure occupied by this individual and more will be said on this subject in later chapters.

As part of the field work in the summer of 1966, an air survey was made of the entire shore line of Lake Clark in the hope of locating additional sites which might have been contemporary with or earlier than Kijik. Unfortunately, no sites similar to Kijik were discovered; that is, sites plainly visible in the form of large cleared areas covered with tall grass. Thus it would appear that there were no other nineteenth century settlements on the lake. Evidences of earlier occupations would very likely be completely covered with willows and spruce and thus not visible from the air. Even recent houses, like those at Kijik, are, when covered with wooded growth, sometimes difficult to locate on the ground. In order to find earlier sites in this area, it would be necessary to investigate closely the mouth of each creek that enters the lake and perhaps walk some of the old beach lines particularly along the southwest shore. The only major streams to enter the lake on the north shore are the Chulitna and the Kijik rivers. On the south shore there is Current Creek and the Tanalian River; the latter flows into Lake Clark at Tanalian Point. It may be that there was no permanent population on the lake prior to the

occupation of Kijik and it is likely that Kijik was the only large settlement at any time.

There are a few indications, however, of post-Kijik occupancy of the area. Just around the bend of the lake shore, to the southwest of Kijik, is a small site where people were living as late as 1939. This is not a temporary fish camp but consists of at least one large house. These people are said to have moved to Nondalton. At the mouth of the Tanalian River is another small site of three houses which was also occupied in the late 1930's. Capps (1931, p. 137) mentions that when he was in the area in the late 1920's there was one white man living on the north shore of Lake Clark about five miles above the mouth of the Kijik River but there were no permanent Indian residents at that time.


Kijik R.
Kijik
LAKE CLARK
N
S
KS-2
KS-4
KT-2
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KC-3
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KS-13
KS-18
Kijik River
□= 2 M.

Excavations

The Kijik village site is located on the north bank of the Kijik River at the point where this stream flows into Lake Clark (Lat. 60°, 17′, 38″; Long. 154°, 23′, 48″). The Kijik River, although not long nor particularly wide, is the most impressive river to flow into the lake along the north shore and its channel is nearly a kilometer in width at the mouth. However, water actually flows in only a small portion of this total area. At the present time, the main channel is on the south side and the stretch of water along which the site is located is virtually a slough. It is possible, however, that this may have been the main channel at the time the site was occupied.

In between these two channels is a low gravel beach covered in some places with grass and willows. As it extends inland, this delta area is covered with a heavy growth of willows, some big cottonwoods, and spruce. The two channels merge at a point approximately 2 km. upstream from the site near where the surrounding hills begin to rise. There are indications that the total river mouth may, at one time, have been even wider than it is today and that other channels existed. Such an abandoned grass and tree covered channel appears to run right through the middle of Kijik site and widens out into a flat, willow covered area at the southeast end of the settlement.

The location of the Kijik site is virtually flat except for a depression in the middle created by the above-mentioned dead river channel. This depression, shown on the site map (fig. 2), is 1–1½ m. at its deepest point and is a swamp which fills with water when the lake and river are high during mid-summer. At this time the site itself is likely to be no more than 2 m. above the water level. In fact, in mid-August of 1966, shortly after excavations had been completed, the level of the river in front of the site rose to within about 40 cm. of the top of the bank. With the river at this level, the low area in the middle of the settlement was flooded and water was standing in both the excavated and unexcavated cache pits. Normally, how-

FIG. 2. Map of the Kijik site.

Plate 1. The Kijik site, looking north.

ever, it would appear that the bank stands 1½–2 m. above the water level all along the front of the site. Nevertheless, it is likely that the general area has flooded a number of times in the past both since the occupation and perhaps during it (see Plate 1).

The occupation area has the appearance of a large, open space in the surrounding forest vegetation in which spruce predominates but which also contains, willows, cottonwoods, and a few birch. The forest appears to be slowly encroaching on the site but has not made a great deal of progress in the approximately 50 years since the settlement was abandoned. Three structures at the north end of the site had small cottonwoods and spruce trees growing out of them and a large clump of willows separates the two northernmost structures from the others; an isolated small willow stand was growing in one centrally located structure. Willows were growing in KS-8 (House 5) and rapidly approaching KS-9 (House 6). Nevertheless, it is probable that at least another 200 years must elapse before the formerly occupied area is completely covered with trees and indistinguishable from the surrounding forest.

The flat topography which characterizes the river mouth and surrounding area gradually slopes upward toward the interior and

to the north of the site, almost directly behind it, Kijik Mountain rises to a height of more than 1,000 m. To the northwest the mountains are closer but considerably lower and completely forest covered. The Kijik River cuts a deep canyon through this range of low mountains that represent a divide separating the Kvichak and Mulchatna-Nushagak drainages. On the opposite shore of Lake Clark the mountains are much higher, particularly to the southeast, and they come down virtually to the lake shore leaving only a very narrow beach.

A total of 19 structures were located on the Kijik site, nine distributed at irregular intervals in front of the dead river channel and six more closely clustered in back of it. In addition, there were two structures at the extreme north end of the site, and the church, the walls of which still stand, was located at the extreme southeast end approximately 25 m. virtually in a direct line from KS-9. Because of its distance from the other structures, it is not shown on the site map. The purpose of the 1966 field season was to excavate the site as fully as possible. All 19 structures were excavated and, in addition, 11 test pits were opened in an attempt to locate midden deposits and to determine the maximum thickness of the cultural debris at several places on the site. Six so-called cache pits, out of a total of 29, were also excavated.

Houses

Twelve of the structures on the Kijik site were identified as houses, although, as will be noted, some of these identifications are questionable. Excavation of these dwelling units presented few of the problems that frequently confront archaeologists who work in arctic and subarctic regions. At the time excavations were begun on June 19, the sod was thawed and only occasionally was frost encountered under a particularly thick clump of bunch grass. In general the house floors lay directly beneath the sod and all recovered artifacts were either embedded in the sod or lay just beneath it. In spite of the fact that there was no depth to the excavations, the work proceeded slowly because each piece of sod removed by an excavator had to be carefully and thoroughly broken up in order to be certain that all artifacts were removed from it. Seldom did more than three excavators work in a single structure at one time and some of the smaller houses were excavated by a single person in two or three days. Large structures, like KS-9 (House 6) and KS-14 (House 9), required the concentrated efforts of three or four excavators for as long as a

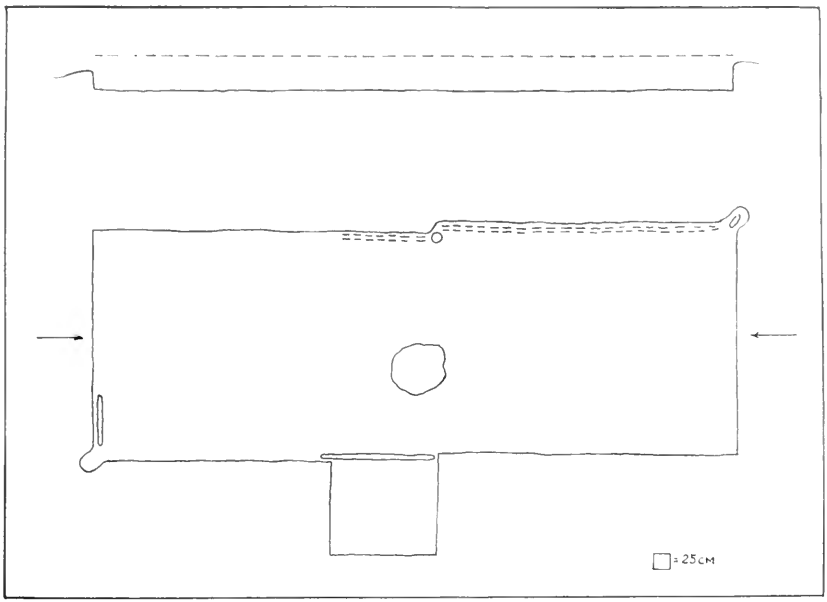

FIG. 3. KS–1.

Plate 2. KS-1, looking northeast.

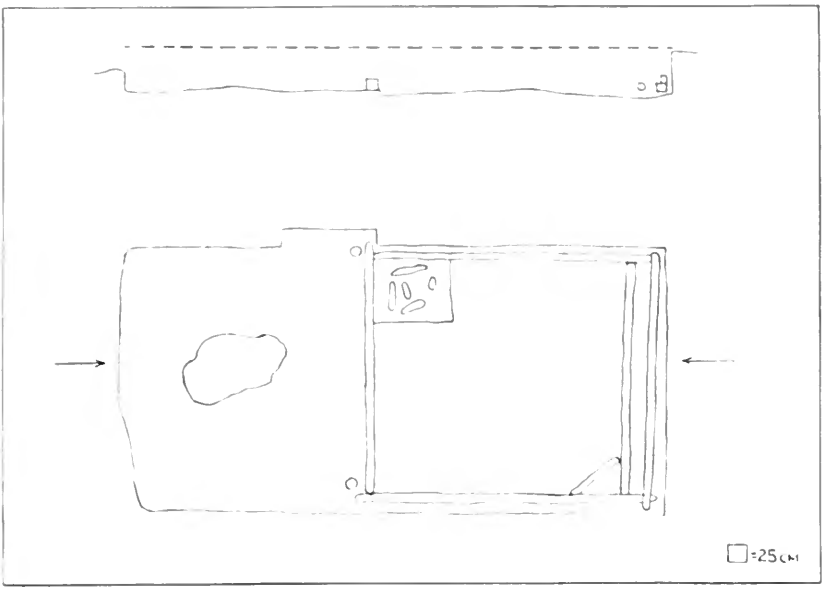

FIG. 4. KS-2.

week. Since frost was not a problem and the excavations were not deep, drainage was always good; a sandy subsoil rapidly soaked up any water that collected after particularly heavy rains.

Since the houses at Kijik exhibited considerable variation in size and shape, it does not seem worthwhile at this point to make generalizations about their construction. Rather, the details of each structure will be discussed and then a few general comments will be made. Here it is sufficient to note that all the houses appear to have been variations on the basic, above-ground, log cabin type of construction. In most cases, only base logs were exposed during excavations. Nondalton informants stated that most of the houses at Kijik were dismantled and moved to Old Nondalton when the bulk of the population abandoned the settlement.

House 1 (KS-1). Figure 3; Plate 2.

This long, rectangular structure is characterized by a virtual absence of preserved wood and a large number of recovered artifacts. Horizontal wall logs are suggested by the occurrence of long, narrow, hollow areas just below the sod which were probably created when base logs rotted away. There are small, round, recessed areas in two of the corners which suggest that posts may have stood there. The

Plate 3. KS-3, looking north.

floor area in this structure consists of a dark black compacted level just beneath the sod. In fact, in some places this level is in the sod and artifacts are found virtually on the surface. There is no indication of the manner in which the roof was supported. A small entrance chamber occurs about midway along one side, and the floor of this is level with the floor of the rest of the structure. A short log, perhaps a door jamb, lies across the entry room at the point where it enters the main section of the house. Roughly in the center of the structure are faint indications of a fireplace in the form of a few fire cracked rocks, grayish sand, and discolored clay.

House 2 (KS-2). Figure 4.

This structure is only tentatively identified as a house. It bears some resemblance to bathhouses on the site but is much larger. The eastern half of the structure has very good wall log preservation with the logs carefully shaped and fitted. Each log appears to have been squared on two sides with the upper side remaining rounded and the lower side made concave to fit over the log below. The ends of the logs are wedge-shaped for an overlapping fit. In one corner of the well-preserved half of this structure is a rectangular fireplace. The outline of a log enclosure can be noted, but there is no preserved wood. If the structure was a bathhouse, heated rocks would have

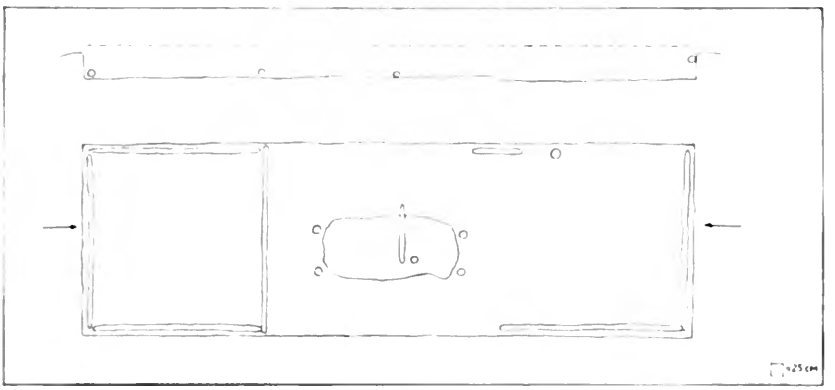

FIG. 5. KS-3.

been placed here, although the characteristic large pile of rocks which is typical of other bathhouses is missing. There are only a few large fire-cracked rocks and discolored soil. The floor of this half of the structure is extremely uneven, sloping toward a low point in the center. Benches are suggested but this is inconclusive. The floor surface is diffuse but tends to be of the same black composition as noted for house 1. In the western half of the structure, the walls could not be determined with accuracy. The only clear feature here is a large hearth area in the center. If the structure is an elaborate bathhouse, the rocks for the bath may have been heated over this hearth before being taken into the other room. The area might also have served as a dressing room. It should be noted, however, that other structures that are clearly houses also have hearths in the outer rooms and this one may simply be a general storage, cooking, and fish-drying area.

House 3 (KS-3). Figure 5; Plate 3.

The identification of this long, narrow structure as a house should also be considered tentative. Whether a residence or not, however, the largest section of this structure was almost certainly a drying and smoking house for fish. This section has preserved base wall logs in places, although they are badly disintegrated and permeated with roots from the sod. Center uprights, either to support a roof or, as is more likely, part of a fish rack, are better preserved. These uprights extended through the sod and were visible from the surface. A very large and thick hearth, consisting of charcoal and charcoal-permeated earth, encompasses the area between the uprights. The

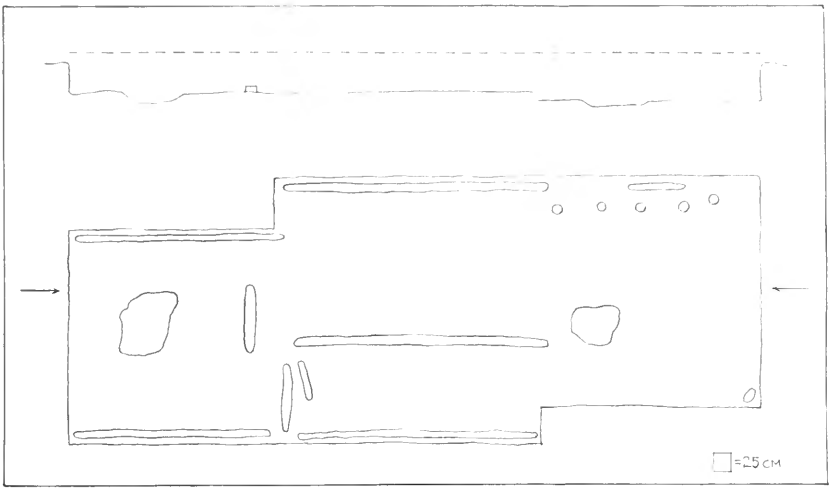

FIG. 6. KS-7.

rest of the floor in this section is uneven and poorly defined. The north end of the structure has large, well-preserved base logs and a dark, hard-packed, well-defined floor. This is the area that may have been the residential part of the structure, or perhaps simply a storeroom. The floor level, as usual, is immediately below the sod. This long, narrow structure may well have been simply a smoke house with attached storage area.

House 4 (KS-7). Figure 6.

This structure, long and rectangular like houses 1 and 3, may also have been a smoke house, but its actual construction is difficult to determine because of poor wood preservation. It appears that the building may have been divided into three rooms with those at the north and south ends characterized by depressed areas in the center that would have been identified as hearths except for the absence of ash or charcoal. In a corner of one of the end rooms, a series of closely-spaced vertical posts were encountered. The floor level is just below the sod and consists of a compacted dark layer that is clearly discernable from the underlying sandy clay.

House 5 (KS-8). Figure 7; Plate 4.

This small structure was almost certainly a log cabin occupied by a single nuclear family. As will be noted later, there is some reason to believe that a white man and his family resided in this structure. Base wall logs in this house are extremely well preserved.

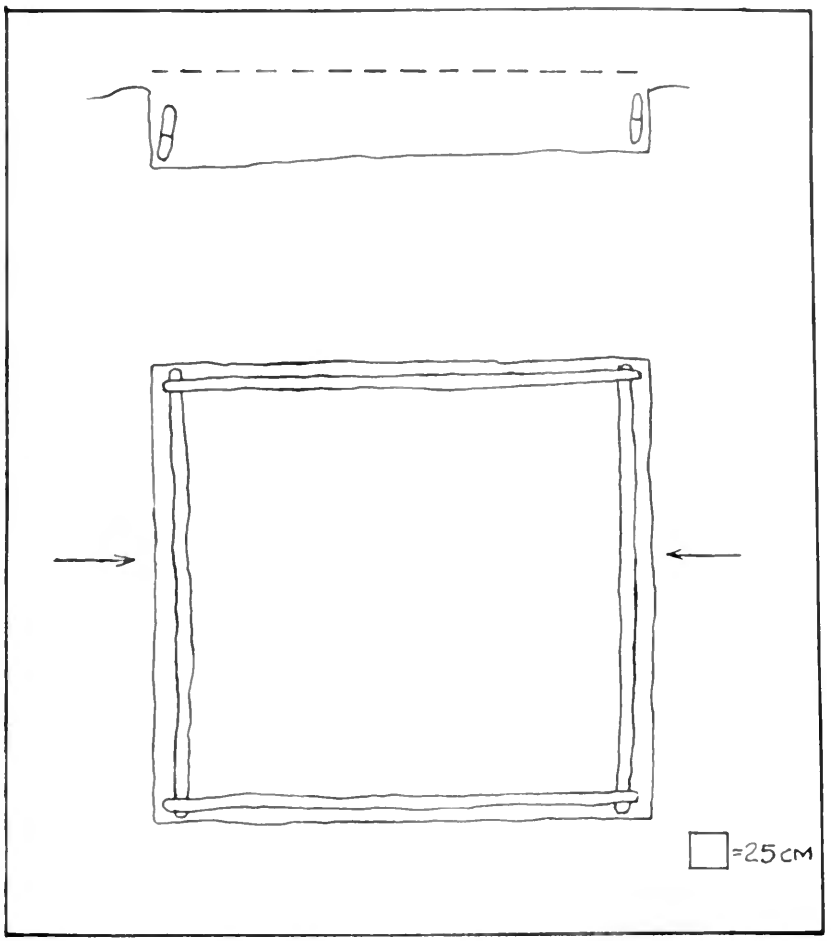

FIG. 7. KS-8.

They were carefully hewn and trimmed at the ends where they fit over one another. The floor is a very hard-packed, dark area. A number of collapsed roof planks were recovered, all of which are rectangular in cross-section, as much as 35 cm. in width, and very carefully fashioned. Since these roof planks are all quite short, a gabled roof is suggested. A considerable amount of earth appears to have been piled around the outside of this structure, doubtless to provide insulation against the cold. It is not possible to say with certainty on which side the entrance was located, although it is likely that the cabin faced the northwest to open toward the village.

Plate 4. KS-5, looking southeast.

House 6 (KS-9). Figure 8; Plate 5.

This structure is one of the two largest on the site and consists of a large, rectangular living area, a contiguous area that was possibly a fish-drying and general utility room, and two anterooms. Most of the artifacts recovered from this structure were found in the living area and there was also some preservation of base logs in this section. Arrangement of these logs suggests division into three rooms. West of the residential section is a large hearth area with much charcoal and many fire-cracked rocks. It would seem that this area might have been used primarily for drying and smoking fish as well as for heating rocks for the bath. Of the two rooms which open off this smokehouse, the smaller is a bathhouse with a pile of fire-cracked rocks in one corner. Base wall logs are preserved on three sides of this small room, the floor of which is slightly below the level of the large hearth. The other anteroom is much larger and its use is uncertain. A large area of fire-cracked rocks was located just at the point where this anteroom joins the smokehouse. This part of the structure does not appear to have been a living area, and it was possibly used occasionally as a bathhouse and at other times for storage. The entire structure definitely suggests a complex of activities carried out under one roof.

Plate 5. KS-9, looking southeast.

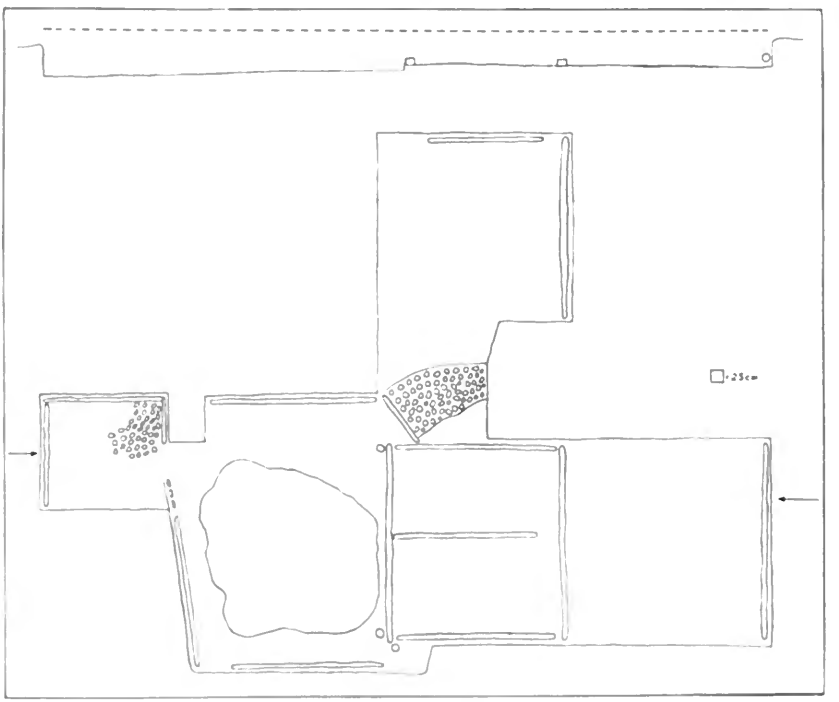

FIG. 8. KS-9.

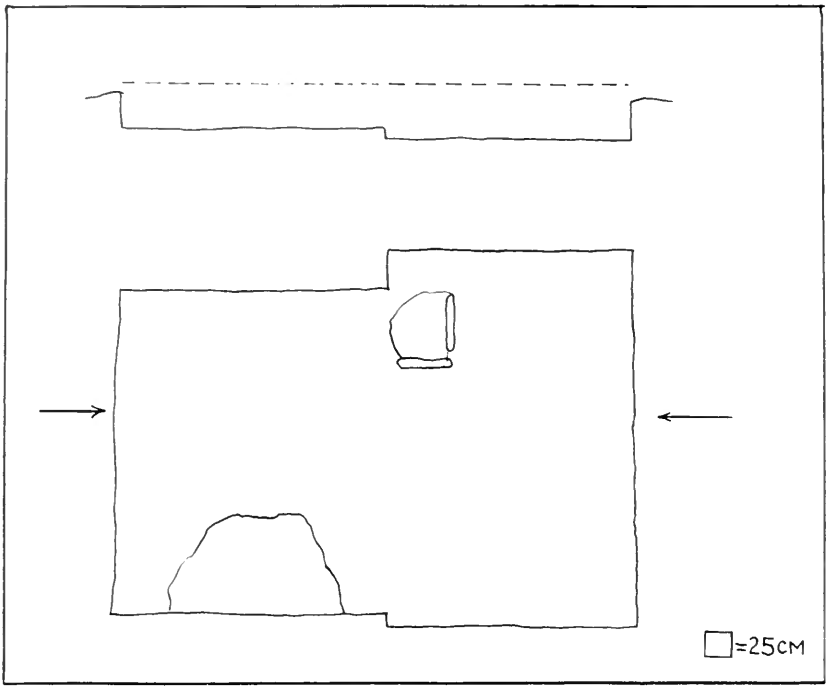

FIG. 9. KS-10.

House 7 (KS-10). Figure 9.

This structure contained no preserved wood and the excavation simply followed the surface outline. The house appears to have consisted of two rooms, the outer of which has a floor level slightly higher than the inner. The only structural feature apparent in the inner room is the remains of what may have been a square fireplace with log retainers. The outer room is characterized by a large hearth area of darkened earth, charcoal, some sand, and a few fine-grained rocks.

House 8 (KS-13). Figure 10.

Similar in shape to house 7, this structure also lacks preserved wood. Again there is an outer room with a hearth area and floor level slightly higher than that of the inner room. The latter is characterized by a large area of gravel and beach pebbles almost directly in the center. Both this structure and the one just described have been considered as small two room cabins, but this is by no means certain. The absence of a pronounced darkened floor in either structure may

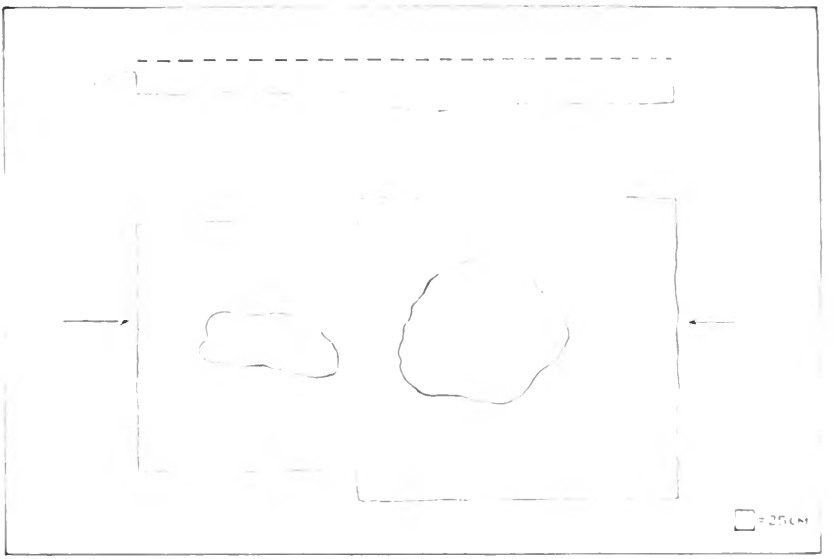

FIG. 10. KS-13.

be accounted for by the presence of a plank floor that has either rotted or was taken up when the structures were abandoned.

House 9 (KS-14). Figure 11.

This structure, the largest on the site, consists of a single rectangular living room and an adjoining fish-drying and smoking area off of which three small rooms open. Log preservation is generally poor, particularly in the main living area. The fish-drying section is characterized by a very large hearth consisting of charcoal, some fire-cracked rocks, and discolored sand. The area around the hearth proper is also considerably discolored. Two posts, perhaps part of a fish drying rack, are located at one end of the hearth. The anteroom to the south was completely devoid of structural features and a large number of animal bones were found in it; this room may have been a storage area and meat cache. Of the other two appended rooms, one, with good wall log preservation, was obviously a bath. It has a rock-filled area with log retaining walls in one corner. The floor of this room slopes downward slightly toward the center and the pile of rocks stands approximately 18 cm. above the floor. The other anteroom, to the north, has a square fireplace in one corner with few fire-cracked rocks but considerable fire-darkened sand and clay. Perhaps this was an additional small living room.

House 10 (KS-16). Figure 12.

This is one of three structures located within the wooded area at the north end of the site. A network of long spruce and cottonwood

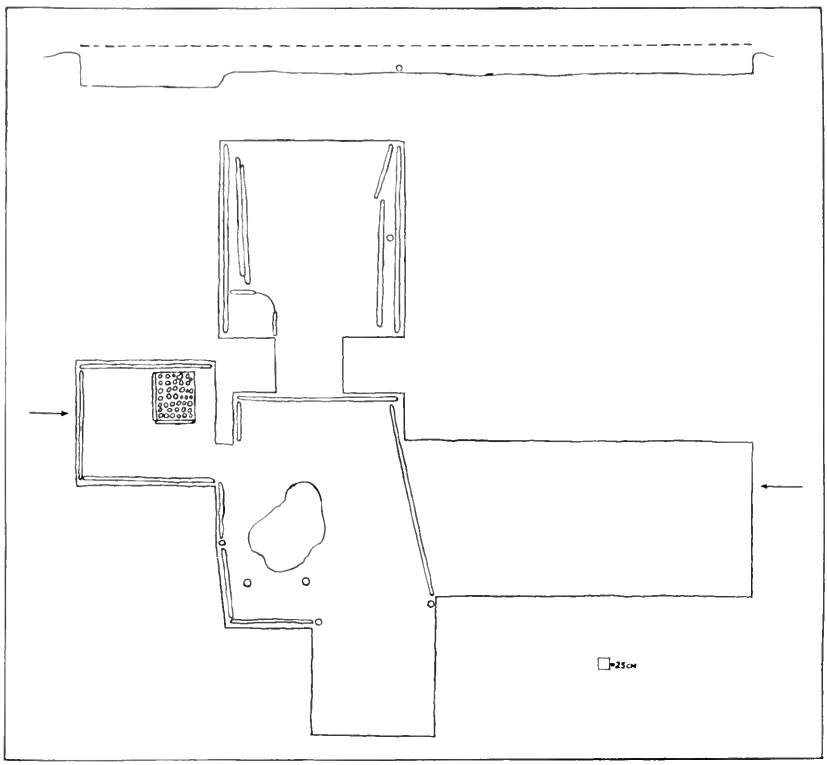

FIG. 11. KS-14.

roots complicated excavation. There are no construction logs of any kind preserved in this small, virtually square structure and the floor is a poorly defined, darkened area 10 to 15 cm. below the sod. The only feature in this structure is a small fireplace in one corner. It is raised above the floor approximately 15 cm. and has log retainers on all sides. Fairly sizeable fragments of the logs were found in place, but they are not sufficiently well preserved to indicate the manner in which they were joined at the corners. This log framework is filled with sand and some fire-cracked rocks. On the top is discolored earth and some charcoal.

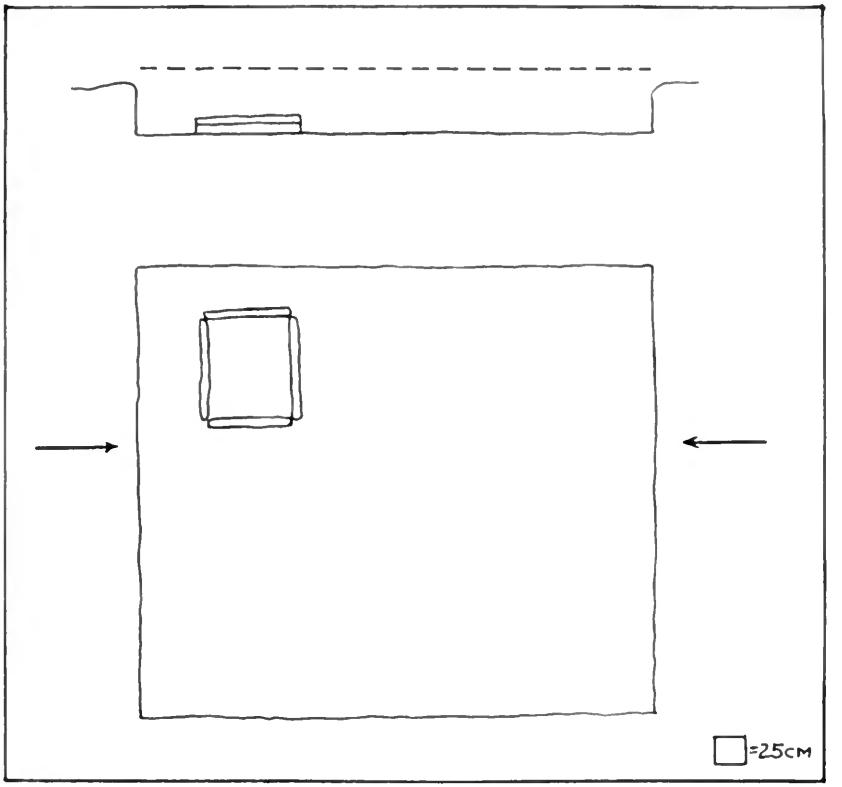

FIG. 12. KS-16.

House 11 (KS-17). Figure 13; Plate 6.

This small two-roomed structure is also located on the wooded edge of the site. Base wall logs, which are well preserved, lie virtually on the surface and were covered only with moss and grass. When this was removed, it was noted that one of the base logs had a heavy coat or coats of white paint. This suggests, of course, that the interior of this structure had been painted, the paint having been applied directly to the hewn inner side of the wall logs. Floor was difficult to determine, but there is an obvious dark occupation layer just beneath the sod and resting directly on beach pebbles and gravel. The outer room is somewhat smaller than the inner and it is possible to note the location of the entrance at the west end. A darkened, hearth-like area is located in this outer room but its exact dimensions are uncertain.

Plate 6. KS-17, looking east.

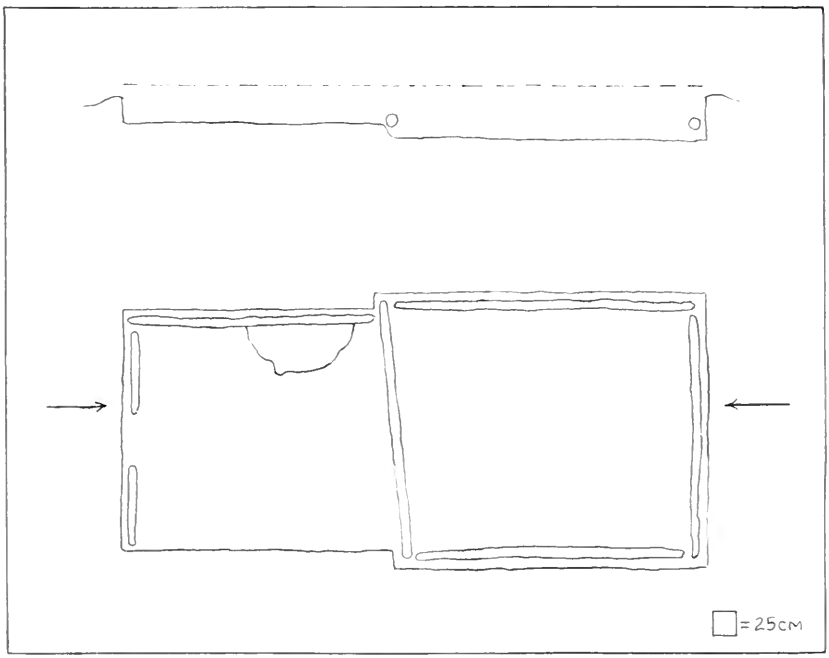

FIG. 13. KS–17.

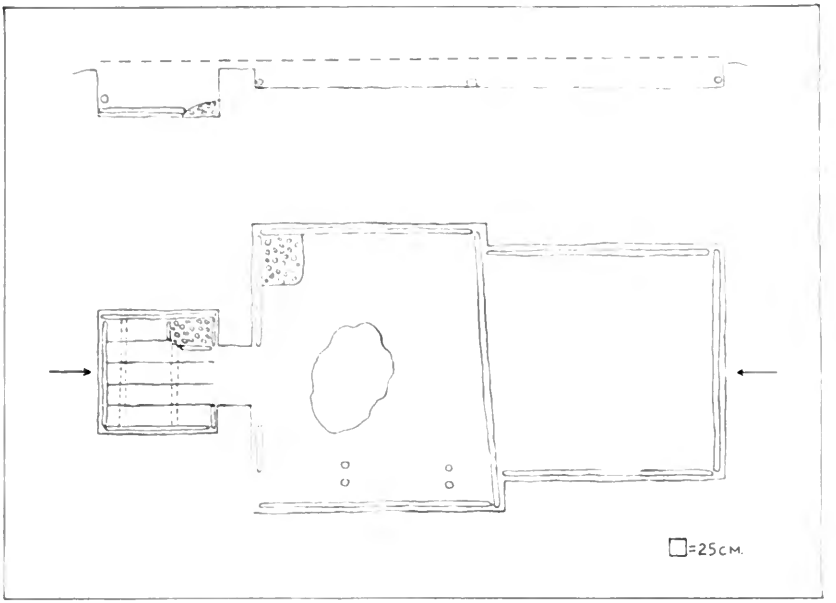

FIG. 14. KS-18.

House 12 (KS-18). Figure 14.

This structure was much obscured from the surface by a heavy growth of small spruce and willows. Again, as in the case of the previously described structure, the bottom wall logs are virtually on the surface and covered only by a layer of moss and grass. Other logs appear to have fallen outward and lay around near the walls. The structure consists of three rooms, one obviously a living room, an attached fish-drying and store room with a bath opening off of it. As usual, the floor level is just below the sod, and in the living room, gravel appears to have been thrown in at various times. A large, very dark hearth area characterizes the fish-drying section and along one wall is a pair of stakes driven through the floor in two places, perhaps as part of a drying rack. The bathhouse which opens off the fish-drying section has better wood preservation than any other feature on the site. Its floor is 30 cm. below the floor of the rest of the structure and has been constructed from a series of horizontally placed planks as much as 35 cm. in width resting on a pair of short cross beams (at right angles to the floor planks), flat on top and rounded on the bottom, placed along the side walls. The walls themselves consist of large hewn planks placed horizontally around all four walls with their uppermost surfaces just about level with the

surface of the ground. In the corner is a well constructed container for the bath rocks which seems to have been reconstructed and improved at one or more times during the period in which it was in use. It seems clear that the rocks were originally outlined by a rectangular wooden framework. However, the wall planks in the area are badly scorched and apparently later an attempt was made to surround the rocks on all four sides with metal. For this purpose a broken stove, several large cans cut and flattened, and a large sheet iron kettle similarly shaped were arranged in such a way as to contain the rocks and prevent them from touching the wall planks or the retainers at any point. It is probable that bath rocks were heated in the fish-drying section of the structure and then carried into the bath house. A pile of bath rocks was located in one corner of this area, apparently just a temporary pile as a number of artifacts were found under it.

In spite of the diversity in form of those excavated structures identified as houses at Kijik, a few generalizations can be made about their construction. To begin with, eight of the 12 houses represent some combination of a living room and another room characterized by extensive hearth debris that we have identified as a fish-drying and smoking room. Presumably the latter was also used as a general storage area and for the heating of bath rocks. It should be emphasized, however, that the identification of these latter rooms as having been used for fish-drying and smoking is extremely tentative. Such an identification fails to allow for the fact that most fish-drying would doubtless have taken place in fish camps away from the main settlement, and that a detached smoke house is the pattern in the Iliamna Lake-Lake Clark area today for both Eskimos and Indians.

Five of the identified houses (KS-2, 3, 10, 13, 17) are simple, two room structures, while a sixth (KS-18) is similar except for an attached bathhouse. Two houses (KS-9, 14) appear more complex because they have several rooms, but the basic pattern noted above has simply been elaborated upon. Of the other structures identified as houses, three (KS-1, 8, 16) consist of a single room, and the form of a fourth (KS-7) cannot be reconstructed with certainty although there appear to be three rooms.

Although log preservation is poor in most of these structures and preserved wood is completely absent in some, there seems little doubt that all were constructed of horizontal logs shaped on at least two and probably three sides and notched at the ends in the manner of modern log cabins. Precise indications of the manner in which roofs

Plate 7. The front of the church (KS-15), looking southeast.

were supported is absent for all the houses but it appears that some form of gabled roof was generally characteristic. Traditional Tanaina fireplaces, square, raised, and contained by a log superstructure (Osgood, 1937, p. 57), are present in two of the houses and it is likely that cast iron stoves, the remains of which are abundant in the site, were used in the others. It is obvious, therefore, that we are dealing with a house form greatly modified from the traditional types described by Petroff (1884, pp. 162–163), Porter (1893, p. 167), deLaguna (1934, pp. 142–145), and Osgood (1937, pp. 55–62), although the presence of attached rooms and baths at Kijik is suggestive of the traditional house. In general, however, Kijik houses would seem to reflect, to a greater or lesser degree, forms introduced by the Russians and Americans.

Church

As previously noted, the church (KS-15) which served the Kijik village is located along the beach at the extreme southwest end of the site and is not shown on the site map. It is separated from the nearest residential structure by approximately 25 m. and is the only structure on the site that is still partially standing. Apparently no attempt was made to dismantle the church and eight to nine rows of horizontal wall logs are still in place on all sides (Pl. 7). Excavation

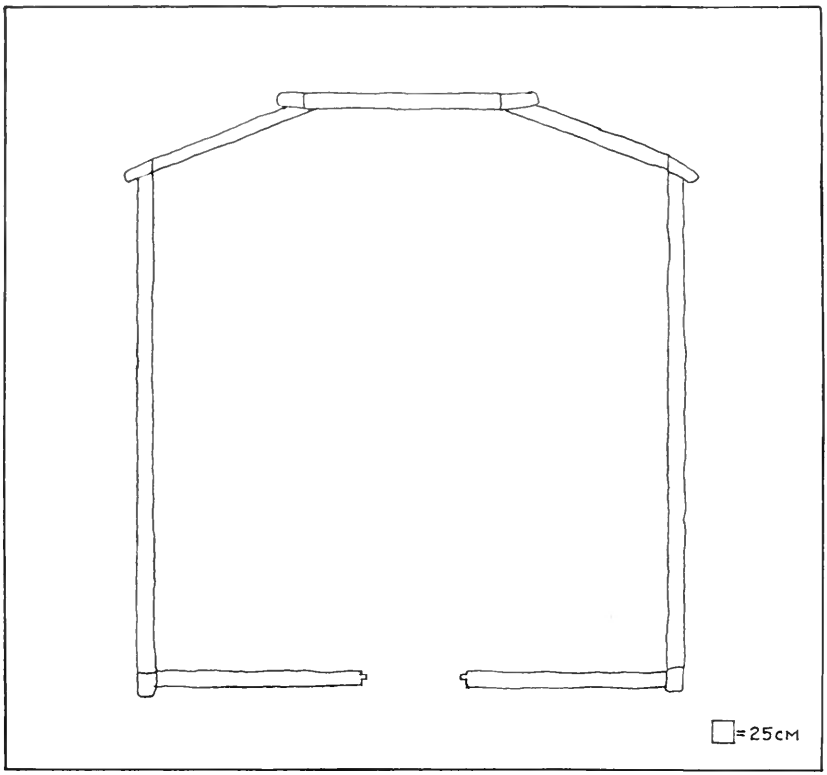

FIG. 15. Floor plan of the church (KS–15).

within the church revealed that there was no prepared log floor and that fallen roof beams rested directly on beach gravel; no artifacts were recovered.

The building is virtually square in outline but three-sided at the altar end (fig. 15). Especially notable is the skillful manner in which the wall logs were shaped and fitted (see figs. 16–18; Pls. 8, 9) and these doubtless indicate a type of workmanship and technique which was also characteristic of the houses (see Petroff, 1884, p. 162). It is obvious that the Indians had mastered the art of cabin construction. There were apparently two small windows on the side facing the lake and a triangular groove in one of the fallen gable logs suggests that a gabled plank roof, flat on the top, was supported by two long cross beams running parallel with the side walls. Figure 19 shows how the church might have looked with the roof in place.

Plate 8. The rear wall of the church.

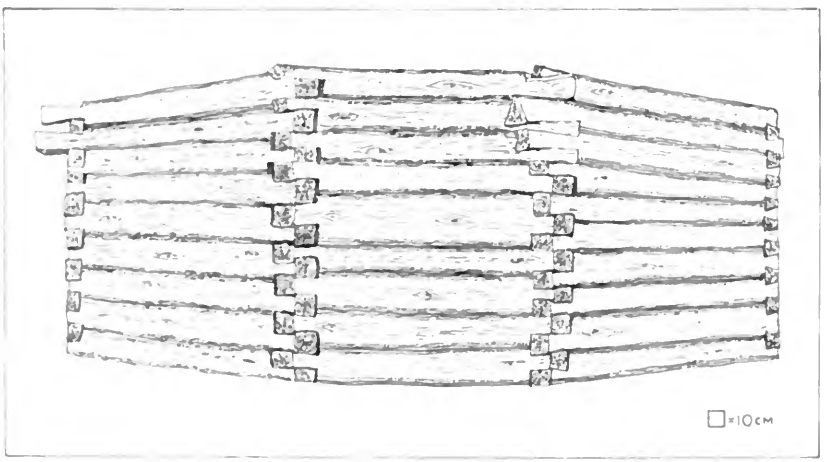

FIG. 16. Standing back wall of the church.

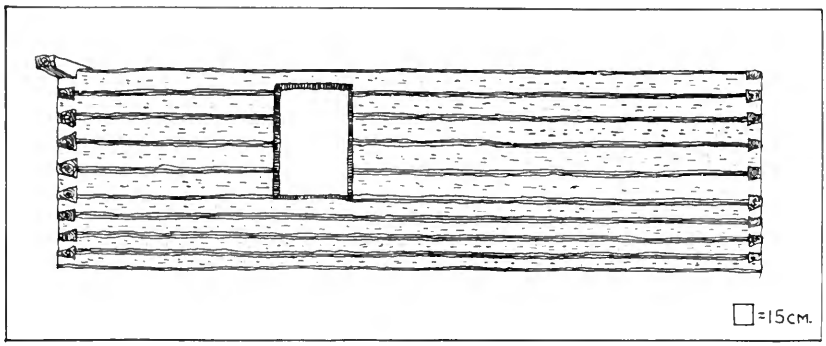

FIG. 17. Standing side wall of the church.

To the southwest of the church and strung out in a line parallel to the beach, nine wooden Orthodox grave markers were counted. All of these are badly rotted and several have fallen. They appear to represent only a very small remnant of the total number of graves in the cemetery. A grove of large spruce and cottonwoods have grown up in this area and these have doubtless done much to disrupt the graves and markers. Because of the very recent occupation of Kijik, no attempt was made to excavate in this area.

Plate 9. Detail showing manner in which church logs were fitted.

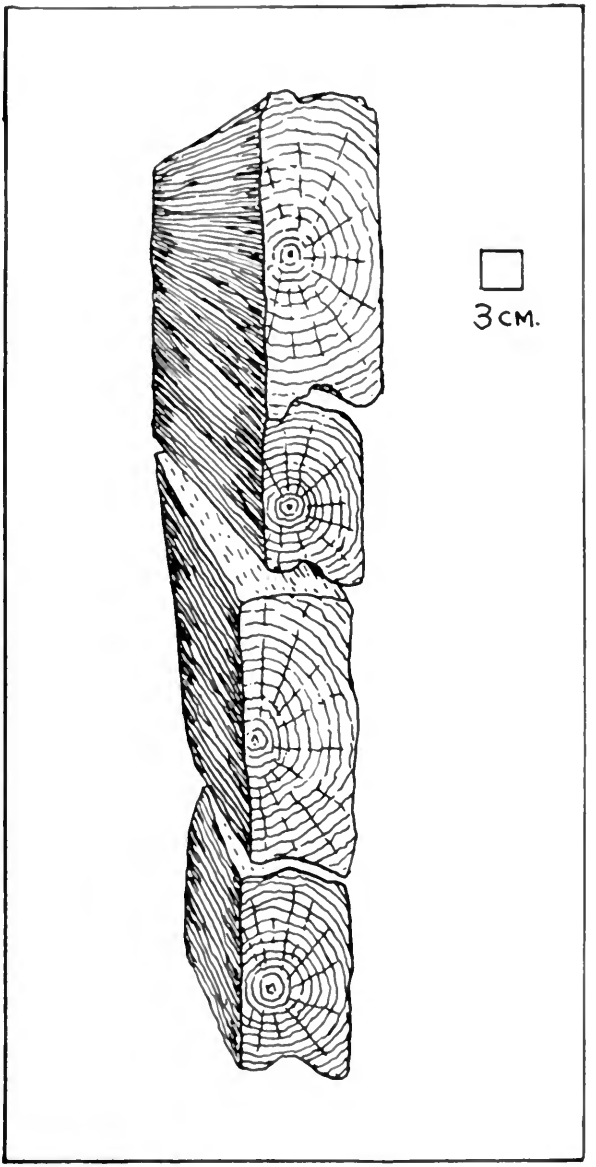

FIG. 18. Detail of church side wall showing how logs were fitted.

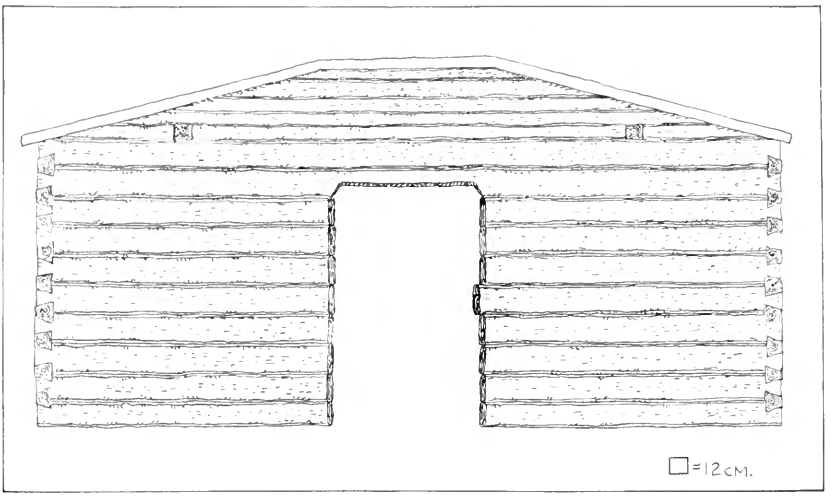

FIG. 19. Reconstruction of the entrance and roof of the church.

BATHHOUSES

According to Osgood (1937, pp. 59, 61), the traditional Tanaina bath houses in the Kachemak Bay and Upper Inlet areas were attached to the residences. Hot rocks were brought in on a wooden shovel and placed in the center of the room; water was then added to provide steam. Five detached bathhouse structures were identified at the Kijik site and, in general, they are characterized by a relatively deep excavation, horizontal wall log construction, and a pile of bath rocks usually located in one corner. Descriptions of the individual bathhouses follow:

KS-5. Figure 20.

This structure is the most poorly preserved and most atypical of those described as bathhouses. Floor level appears to slope toward a low point near the center where there is a large concentration of fire-cracked rocks. Horizontal wall logs seem to have been present but they could not be traced with any degree of consistency.

KS-6. Figure 21.

This is the best preserved of the bathhouses. Horizontal wall logs could be determined on all four sides and the floor is a dark compact layer consisting of charcoal and wood chips. In one corner of the structure is a rectangular area outlined with planks and filled with ash, charcoal, and fire-cracked rocks. It is raised approximately 15 cm. above the floor.

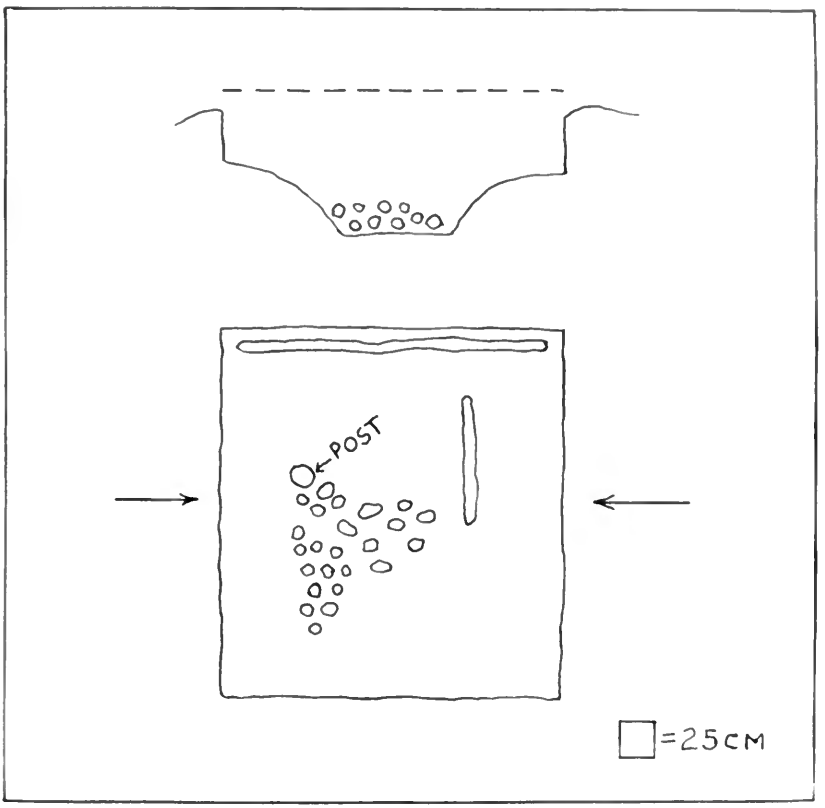

FIG. 20. KS-5.

KS-11. Figure 22.

A nearly square structure with traces of wall logs visible on all four sides. The floor level is a dark layer resting directly on clay-like sand. In one corner is an irregular heap of fire-cracked rocks.

KS-12. Figure 23.

Wall logs could not be determined in this bath house but a floor level is clearly discernable. An irregular pile of fire-cracked rocks is located near one corner.

KS-19. Figure 24.

This, the largest of the detached bathhouses, resembles those previously described. Wall logs are visible on two sides and the usual pile of rocks, which rises 10 to 15 cm. above the floor level, stands in the corner. The floor slopes toward the center.

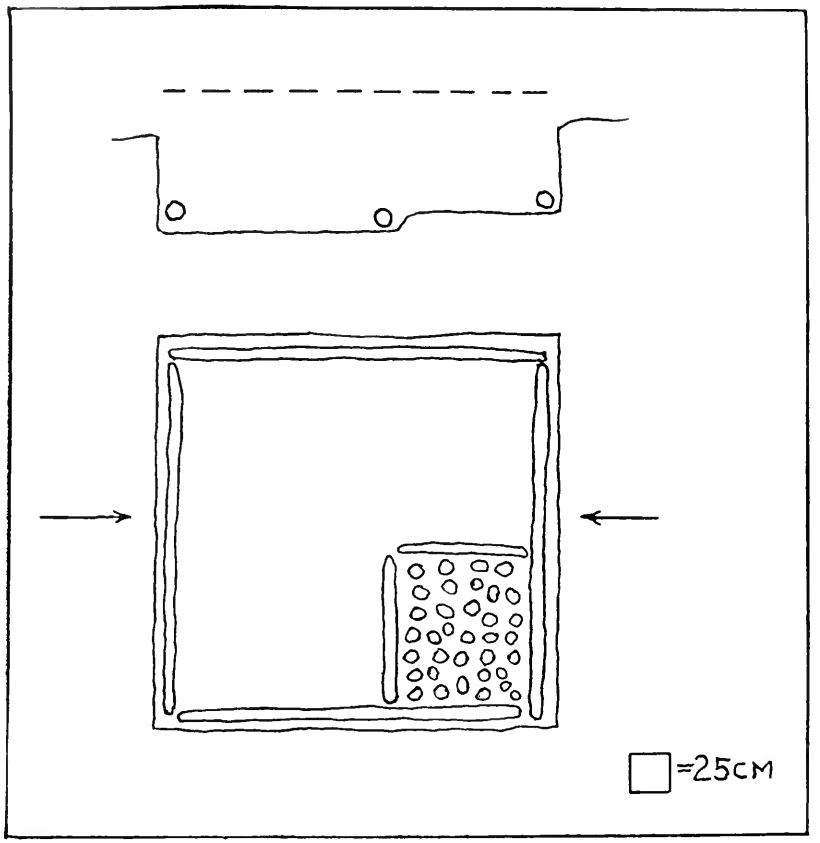

FIG. 21. KS-6.

In addition to these obvious bathhouses, there is a sixth structure (KS-4) which cannot be identified with certainty. It differs from the bathhouses described above in being much shallower and more rectangular in shape (fig. 25). Wall logs are clearly defined on all sides and the floor is an even, hard packed dark area. In the center is a large fireplace characterized by charcoal, darkened earth, and small, fire-cracked rocks. Sitting directly in this fireplace was part of a rather small, squat stove (described in detail in the following chapter) filled with ash. Were it not for the presence of these stove fragments, this structure might possibly be identified as simply an a typical bathhouse. This may still be a correct identification, or the structure may be a cook house. The fact that an iron frying pan was also found here lends weight to this latter interpretation. At

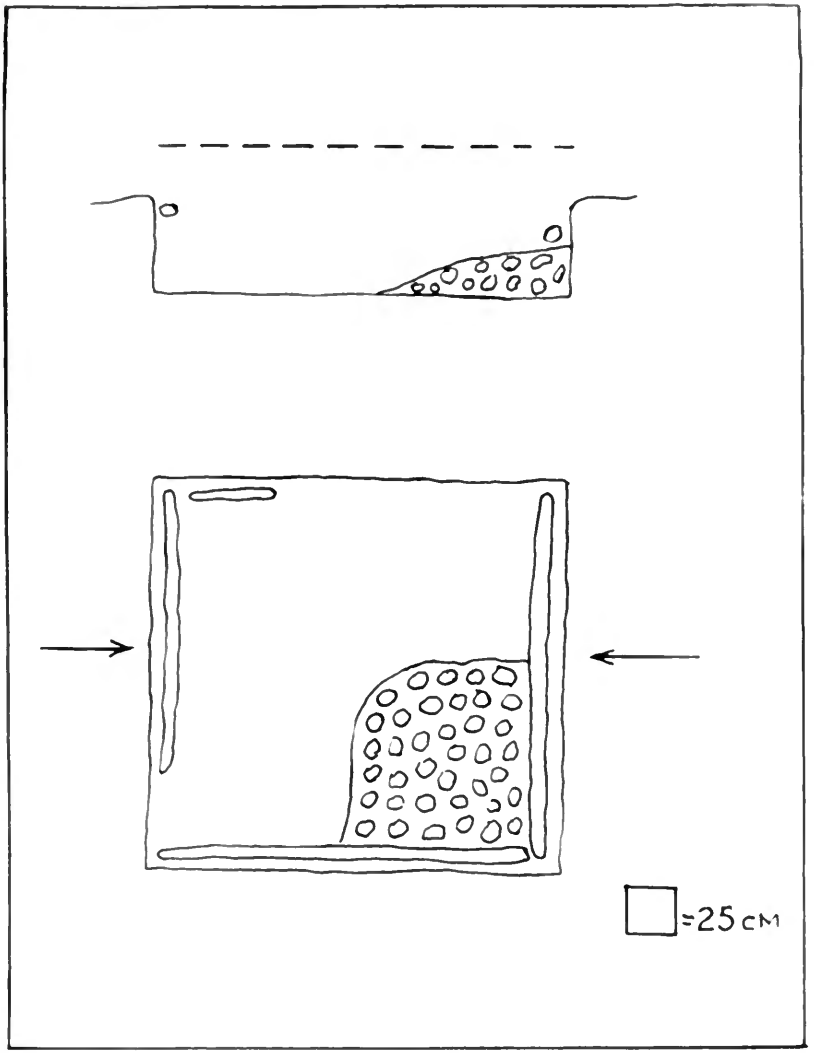

FIG. 22. KS-11.

any rate, it seems certain that fires were built directly in this structure and it may have been a type of bathhouse where the rocks were heated *in situ* rather than brought in already heated.

Three of the obvious bathhouses as well as KS-4 are located in positions which suggest their association with particular houses. KS-5 may have been the bathhouse for house 3 (KS-3), KS-6 for

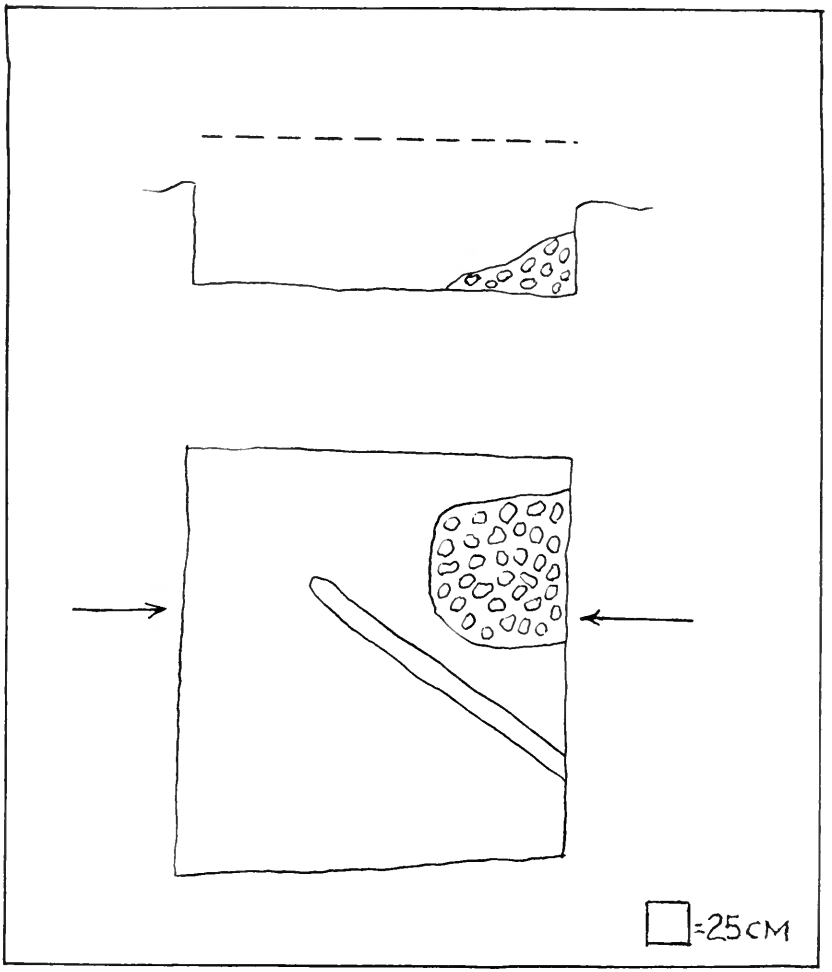

FIG. 23. KS–12.

house 1 (KS-1), and KS-12 for house 5 (KS-8). KS-4 is close enough to house 2 (KS-2) to suggest some kind of association even if the former is not a bathhouse.

CACHE PITS

Osgood noted that all the Tanaina groups constructed caches or protected shelters and the Kachemak Bay and Upper Inlet people made underground caches for fish (Osgood, 1937, pp. 65–66). A total of 29 small, but deep depressions were noted on the Kijik site. All are rectangular with rounded corners and average about 1½ m. in

length, 60 cm. in width, and are approximately 1 m. in depth. They tend to be located at the peripheries of the site with the largest concentration north of KS-14 and north of KS-9. Six were excavated in an attempt to determine whether or not they actually were caches. They proved to be sterile except for a few animal bones, and were devoid of structural features. Only those pits excavated are shown on the site map (fig. 2).

Test trenches

As previously noted, 11 test trenches were opened in the hope of locating deposits of midden debris and to determine maximum thickness of the cultural deposits. Five of these are in front of house

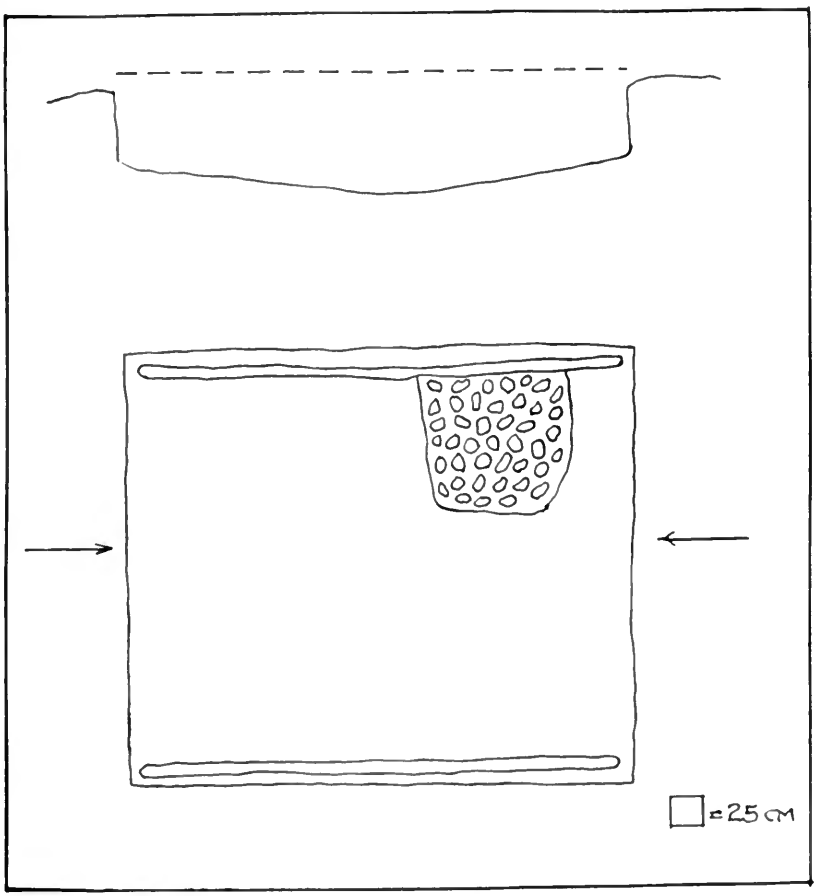

Fig. 24. KS–19.

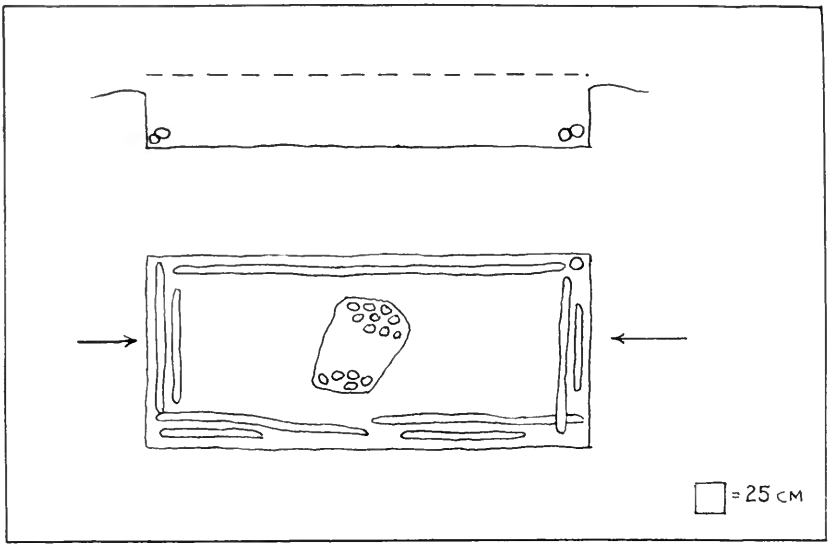

FIG. 25. KS–4.

structures and the others are located in what, for one reason or another, appeared to be promising areas. It can be stated at the outset that no concentrations of midden debris were located and at no point on the site did the cultural layer exceed a depth of approximately 50 cm.

KT-1-4. See Figure 2 for location of test trenches.

These four test pits are considered together because they are a series of very small pits that were opened at the beginning of the excavations for the purpose of determining whether we were, in fact, dealing with a single component site or whether there were other cultural deposits below those visible on the surface. All these trenches were taken down to a depth of 50 cm. Then KT-3 was excavated further to a depth of 85 cm. where water was encountered. The stratigraphy in this pit is typical of the other three. Initially there is the sod layer which is dark black and approximately 25 cm. deep. This is the only occupation layer on the site and the artifacts found in it are usually near the surface in the upper part of the sod, sometimes barely covered by grass. The lower part of the sod, although dark and rich looking, is relatively sterile. In excavation, the whole sod level tended to separate itself easily from the underlying material when cut into squares with a shovel. Directly below the sod is a clay-sand level which is about 30 cm. deep. This shades

off into a narrow level of gravel which in turn becomes beach pebble size at the level of the water table.

KT-5.

This narrow trench was opened because there was a distinct rectangular depressed area in the vicinity of house 5 (KS-8). However, sterile clay was encountered directly beneath the sod at a depth of approximately 20 cm. and very few artifacts were recovered. This test trench clearly indicates the depth of the cultural layer at the peripheries of the site.

KT-6.

The opening of this test pit was intended to take advantage of any midden material that might have been concentrated in front of house 6 (KS-9). There proved to be no real midden, but nevertheless, a sizable number of artifacts were recovered in their usual position in the sod. The dark black cultural layer at no point exceeded 35 cm. in this trench. Again, as in KT-3, it was noted particularly that the roots of the overlying sod actually extended into the darkened area below so that nearly the whole came up as one piece when a cut square of sod was removed. Underlying the sod-darkened earth layer was the previously noted clay-like sand.

KT-7.

This test trench was opened in front of house 9 (KS-14) in the hope of locating midden debris but none was found. The sod-dark black cultural layer, however, was somewhat deeper here than in other locations, being approximately 65 cm. deep in places. Underlying it was the characteristic clay-sand.

KT-8.

A trench opened in front of house 1 (KS-1) revealed the only true midden deposit on the entire site. However, the total cultural deposit was nowhere in excess of 50 cm. deep and again virtually all artifacts were found in the sod. Below the sod itself, and often clinging to it when the former was removed, was a true midden layer consisting of wood chips, charcoal, a few fish and animal bones, and a sizable number of birch bark fragments. Although this was a rich looking area, approximately 20 cm. deep, it was surprisingly sterile. Only a few artifacts were recovered. This midden layer shades off into the familiar dark black cultural layer which normally is a part of, and also directly underlies, the sod; this in turn shades into the clay-sand layer. Since this layer of true midden was not found in either

KT-1 or KT-10 it must be presumed to be very small in extent and not to continue much beyond the excavated area of KT-8.

KT-9.

A trench was opened in the vicinity of house 3 (KS-3) because this general area appeared to be somewhat higher than the rest of the site and covered with a particularly luxuriant growth of grass. It was hoped that this would prove to be a midden deposit for house 3 but this turned out not to be the case. The trench was completely sterile. The sod-cultural layer was approximately 20 cm. deep and below that was what appeared to be the fill from two nearby cache pits.

KT-10.

A trench was opened up in the hope of locating a continuation of the midden deposit in KT-8. Although the midden itself did not extend into this trench, a sizable number of artifacts was recovered in the sod. The sod-cultural layer was approximately 20 cm. deep and overlay the usual clay-sand level.

KT-11.

This test trench was opened at the front of the site simply to determine the depth of the cultural deposit in this area. As was to be expected, artifacts were fairly abundant in the sod level but scarce below that point. The sod-cultural level was approximately 40 cm. deep throughout this pit.

At the risk of over-emphasizing a point that is already abundantly clear from the above descriptions of the test trenches, it seems certain that Kijik is a single component site. The height of the settlement above the river and lake level, together with the shallow nature of the cultural deposits beneath the floors of the structures and in all the tested areas indicate beyond a doubt that the houses and other excavated structures represent remains of the only occupation at Kijik.

Collections

In this chapter the artifacts recovered from the Kijik site will be described under two major headings; locally manufactured goods and imported manufactured goods. Within these two categories further subdivisions will be according to the material from which the various artifacts were made. Some comparative and analytic data will be included with the descriptions, but comparative generalizations will be reserved for later chapters.

Locally Manufactured Goods

Under this heading are those artifacts manufactured locally by Indians. These include traditional Indian forms made from materials available in the environment, such as bone, stone, and antler, known to pre-contact Indians and representing a continuity of material culture extending into the historic period. Also to be described here are artifacts made locally from exotic materials introduced into the areas by Europeans. Some of these represent an attempt to perpetuate traditional forms in the new materials, while others represent forms that were direct products of the contact situation.

Chipped Stone

As might be expected in a collection from a site as recent as Kijik, there are relatively few examples of stone chipping as a manufacturing technique. And yet there are enough to indicate that this method of working stone was still being practiced by the villagers even at a time when metal was apparently available in large quantities.

A single *end blade* is carefully and evenly worked on all faces and has a slightly convex base (Pl. 10, 1). Blades of this type were probably used in knives but they might also have been spear points. A similar specimen, although of obsidian rather than chert, is illustrated, but not described, by Osgood (1937, Pl. 12, e). A basal fragment of a much smaller end blade of fine-grained schist, probably a projectile point, shows slight thinning along the flat proximal surface (Pl. 10, 2). A single tip fragment is from a very small projectile point

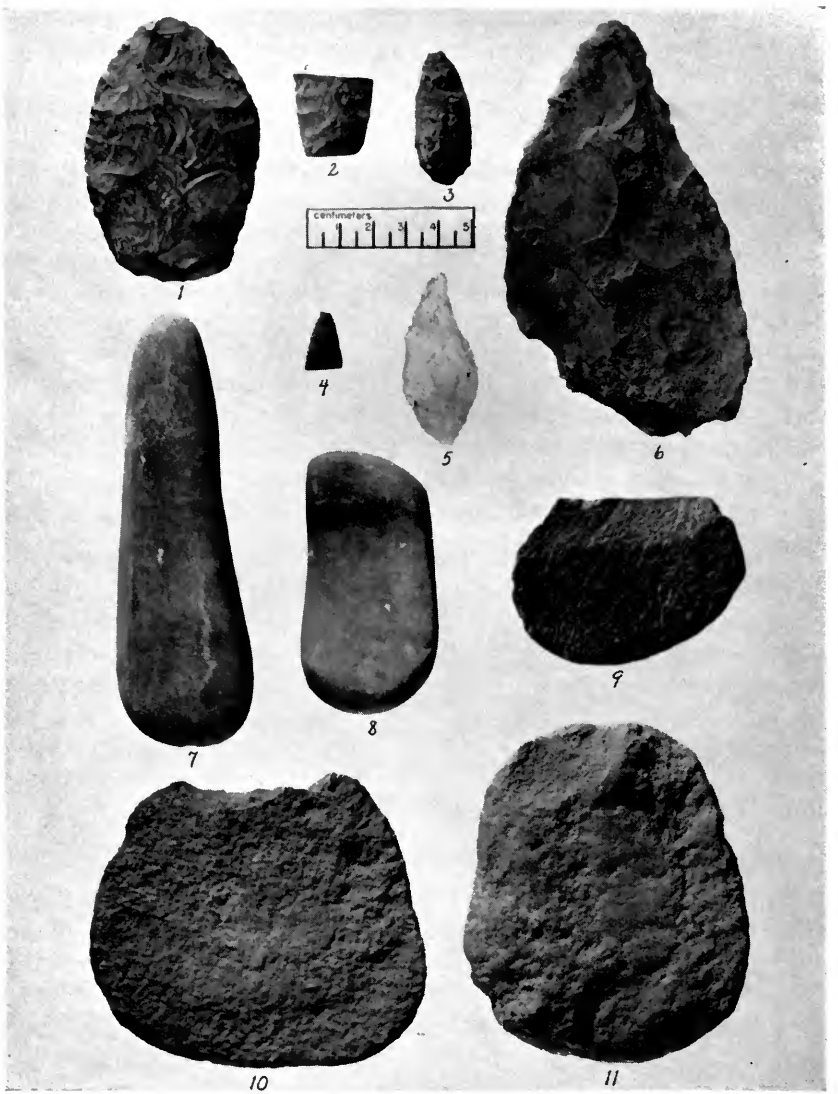

PLATE 10

Chipped and Ground Stone Artifacts

1. end blade (p.59); 2. end blade (p.59); 3. foliate blade (p.61); 4. end blade (p.61); 5. foliate blade (p.61); 6. end blade blank (p.61); 7. whetstone (p.61); 8. whetstone (p.61); 9. skin scraper (p.61); 10. skin scraper (p.61); 11. skin scraper (p.61).

of brown chert with serrated edges (Pl. 10, 4). There are two *end blade blanks* in the collection. One, of fine-grained schist, is complete (Pl. 10, 6) and could have been worked into a blade similar to the large complete specimen described above. Osgood also illustrates knife blades made of "slate" (1937, Pl. 12, d). The other is a brown chert fragment which could have been finished as a projectile point. Two bi-facially worked *foliate blades* have been made on flakes; one is of fine-grained schist and the other of an opaque chalcedony (Pl. 10, 3, 5).

The largest category of chipped stone implements is *skin scrapers* of which there are six. Three of these are pieces of fine to medium grained sandstone that have been roughly worked around the edges. All are similar in size to the two illustrated specimens (Pl. 10, 10, 11). The other three are flat sections of fine-grained schist with crudely flaked working edges (Pl. 10, 9). The smallest is illustrated and of the remaining two, one is of similar size and shape, while the other is much larger, measuring 11 by 12.5 cm. All these skin scrapers were used unhafted. According to Osgood (1937, pp. 75–76), the Tanaina women soaked a skin in warm water for about half an hour, then laid it over a smooth log and scraped it with an implement similar to those described above.

In addition to the chipped stone implements described above, a total of 81 light brown chert chips were recovered from the site, most of them from a single structure (KS-9) and one test trench (KT-6).

Ground Stone

The most abundant artifacts in this category are *whetstones* of which there are 44 specimens. These have been divided into three types based on the nature of the stone from which they are made. The 23 specimens belonging to type 1 are made of a very fine-grained filite (Pl. 10, 7, 8). All are water-worn pebbles that have been picked up and used as whetstones; they show wear on one or two flat surfaces, usually both. All are complete; the largest is 18.5 cm. in length and the smallest 6.5 cm.

Whetstones of type 2 number 16 and have been shaped from a very fine-grained siltstone. All these implements show wear on at least two surfaces and they tend to be worked to a rectangular form. The three illustrated specimens indicate better made examples and represent the range in lengths (Pl. 11, 4, 5, 6).

The five examples of type 3 whetstones are made of fine to medium-grained sandstone. Although all are fragmentary, they appear

to be broader in relation to their length than those of the other types, and all show wear on four surfaces. Three are similar in size to the illustrated specimens (Pl. 11, 1, 3), while one is nearly square and much larger, measuring 9 cm. by 10.5 cm. and the fifth was probably large but is too fragmentary for the shape to be determined with certainty.

Three type 1 whetstones, one of type 2, and one of type 3 have narrow, V-shaped grooves in them, perhaps indicating cutting with a stone saw (Pl. 11, 3). Although no such saws have been identified in the collection, it is likely that this implement was used for the initial shaping of some whetstones and for many other stone working purposes as well.

There is a single *hammerstone* in the Kijik collection, a large round pebble of volcanic feldspar which has been blunted at one end by use. It measures 12 cm. in length and is 10 cm. wide.

An interesting ground stone implement is a *bullet mold* half of fine grained siltstone (Pl. 11, 2). It is rectangular in shape and a depression 1.8 cm. in diameter, the size of the intended bullet, has been ground into one surface. At the upper end of this hole is a small groove. When the two halves of the mold were joined together, lead would be poured into the small round hole formed at the top of the mold. On the reverse of this specimen another much smaller depression has been ground and it also has a groove running to the outer edge of the specimen at one side. It would seem that this depression, 1 cm. in diameter, was also meant for a bullet and that another section would have completed the mold on this side. The complete specimen would then consist of two or three sections depending on whether the intention was to make one or two bullets. Strangely enough, the mold appears to have been damaged by the grinding or drilling of this second depression, as a small perforation appears in the wall separating the two bullet mold holes. Two other specimens, both fragmentary and made of fine-grained sandstone, are unfinished but apparently were intended to be of the same type and general design as the one just described.

Bone and Antler

Artifacts of bone and antler, although not abundantly represented in the Kijik collection, probably indicate a representative cross-section of the types of implements that were made of these materials by the residents. In fact, considering the extent to which the aboriginal material culture had been obliterated at Kijik, it is perhaps

PLATE 11

Ground Stone, Bone, and Antler Artifacts

1. whetstone (p.62); 2. bullet mold (p.62); 3. whetstone (p.62); 4. whetstone (p.61); 5. whetstone (p.61); 6. whetstone (p.61); 7. lure-hook shank (p.64); 8. salmon harpoon dart head (p.64); 9. salmon harpoon dart head (p.64); 10. salmon harpoon dart head (p.64); 11. net sinker (p.64); 12. net sinker (p.64).

surprising to find as many traditional artifacts of bone and antler as were recovered.

Net sinkers, of which there are three of antler and one of bone, are roughly rectangular in outline with laterally drilled holes at each end for attachment to the net. In cross-section the antler implements have a rounded triangular form, narrow at the top and somewhat thicker at the bottom. All are similar in size to the illustrated specimen (Pl. 11, 11). The single bone net sinker is simply a piece of cut bone, probably a caribou leg bone, with laterally drilled holes at each end. No attempt has been made to shape the specimen (Pl. 11, 12).

The single antler *lure-hook shank* is shaped like a stylized fish and has a drilled hole at the distal end to receive a metal hook (Pl. 11, 7), probably a bent nail. The proximal end of this specimen is broken but it would have had a drilled hole for suspension, probably running at right angles to the barb hole. Osgood (1937, Pl. 11, f) illustrates a similar lure-hook from Iliamna but does not describe its use. Presumably small lure-hooks like the one in the Kijik collection would have been used for winter fishing through the ice for grayling, or trout.

There are ten *salmon harpoon dart heads* of antler in the collection, six of which are complete or virtually so. They are barbed unilaterally with the number of barbs ranging from one to three. All the complete specimens and two basal fragments have wedge-shaped tangs and, with one exception, are shoulderless; the exception has a sloping shoulder (Pl. 11, 9). Line holes of five complete specimens and the two basal fragments are located off center; six are drilled and round and the seventh gouged (Pl. 11, 8, 10). A single complete dart head has a drilled, round line hole in the center. One of the complete specimens appears to have been broken and then reshaped to form a new implement; it has a single large barb and a deeply incised line running its entire length on one side (Pl. 11, 8). The complete heads range in length from 6 to 15.5 cm. Osgood illustrates and describes the use of the fish spear with detachable head by the precontact Tanaina (1937, pp. 29, 83–84, Pl. 11, f).

Two types of antler *arrowheads* have been identified, although the identification of the second is tentative. Type 1 consists of two specimens, one complete and the other fragmentary. The complete specimen, which is very poorly preserved, is 10 cm. in length with five small barbs along one side and two along the other; it has a sharp shoulder and plain, conical tang. The fragmentary arrow-

head has two large barbs along one side and four small ones along the other (Pl. 12, 7). Osgood illustrates Tanaina arrows with assymetrically barbed heads that were collected by Holmberg in 1853 (1937, p. 228, Pl. 8, I). Type 2 arrowheads, of which there are three complete and two fragmentary specimens, are very broad at the base and taper toward the tip where there are a pair of symetrically placed barbs on each side (Pl. 12, 8). They are all similar in size to the illustrated specimen. These artifacts might have been identified as center prongs for fish spears were it not for the fact that such a method of taking fish has not been reported for the Tanaina nor were any side prongs recovered from the site.

An interesting and carefully constructed artifact associated with hunting is a *powder horn* made of a hollowed out section of antler (Pl. 12, 10). The specimen has been worked to a hexagonal shape at the proximal end and there is a parallel row of small, drilled dots running the length of the sides. Some form of metal spout presumably fitted inside the specimen at this end and was held in place by riveting through four drilled holes. A small antler cap, probably fitting flush with the distal end of the horn, was held in place by lashing through three drilled holes. The implement has round suspension holes on the upper side at either end.

There are three tentatively identified *splitting wedges* in the Kijik collection, two of antler and one of bone. The antler specimens are blunt at one end and taper to a wedge-shaped tip at the other (Pl. 12, 3). Both are approximately the same length and neither show signs of extensive use. Osgood mentions that the Iliamna Tanaina made wedges of bone (1937, p. 104). The illustrated antler specimen is curved and thus may be a bark peeler. The bone specimen is simply a cut fragment, probably of a caribou leg bone, which has been worked to a wedge-shaped tip at one end (Pl. 12, 4).

The seven *awls* appear to be made from sections of caribou rib which have been sharpened to a point at one end. In every specimen the articular surface has been retained at the proximal end to form a small knob. Such a knob would be useful if a carrying loop were to be fastened to this end. The illustrated specimens show the range in sizes (Pl. 12, 2, 6). Osgood (1937, p. 103) states that the Tanaina made several varieties of awls for wood working, but he does not illustrate any.

Six *skin scrapers* made from caribou metatarsals have been cut longitudinally to form a sharp scraping edge which shows signs of use (Pl. 12, 12). The specimens, all complete, vary in length from 23 to 31 cm.

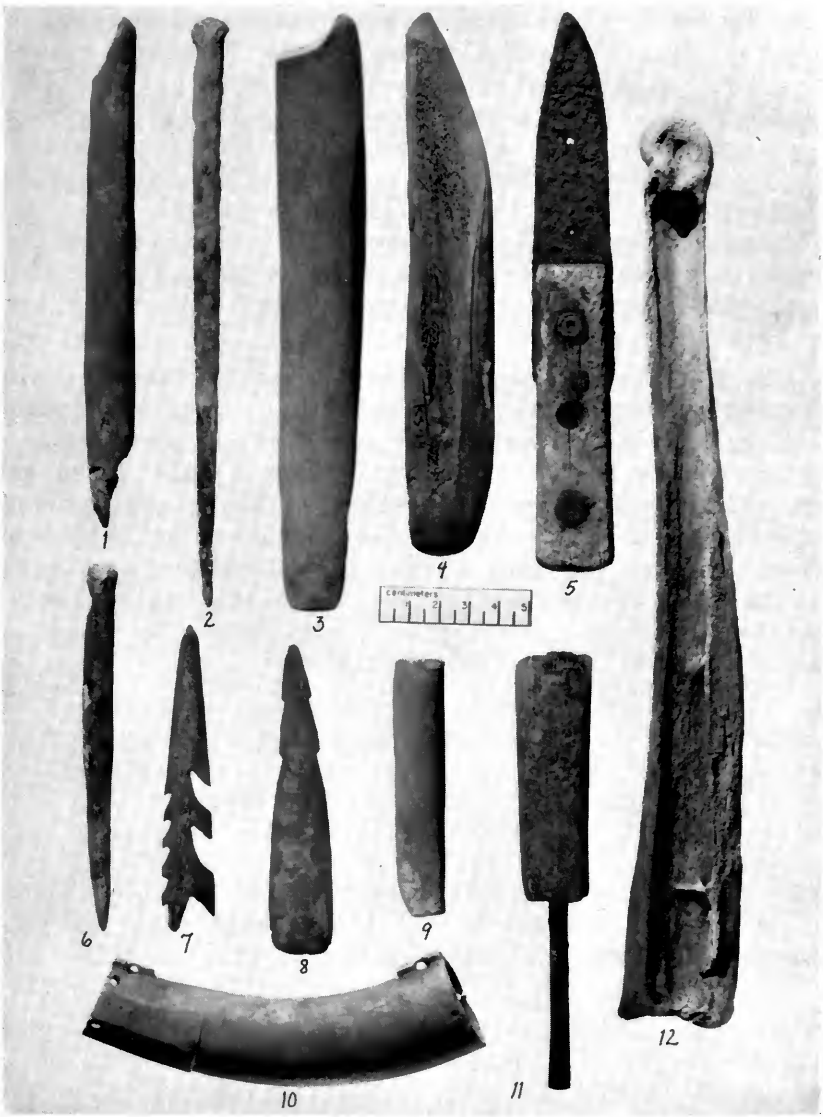

PLATE 12

Bone and Antler Artifacts

1. crooked knife handle (p.67); 2. awl (p.65); 3. splitting wedge (p.65); 4. splitting wedge (p.67); 5. end bladed knife (p.65); 6. awl (p.65); 7. arrowhead (p.65); 8. arrowhead (?) (p.65); 9. end bladed knife handle (p.67); 10. powder horn (p.65); 11. screwdriver (p.67); 12. skin scraper (p.65).

The only *crooked knife handle* in the collection is made of a slightly curved piece of bone and has a blade slit 7 cm. in length (Pl. 12, 1). The handle is decorated with a series of crude parallel lines which run from the proximal end of the specimen to the proximal end of the blade slit. Osgood illustrates crooked knives from Iliamna (1937, Pl. 11, e). It seems likely that this type of implement was one of those copied by the Tanaina from the Eskimos in historic times.

End bladed knife handles made of antler are of two types. Type 1 specimens, of which there are three, are short sections of antler, averaging 7 to 8 cm. in length, which have a blade slit at one end into which a small metal or stone blade would have been fitted (Pl. 12, 9). The second type consists of two flat, rectangular pieces of antler fastened to either side of a metal blade and held in place by a series of brass rivets (Pl. 12, 5). There are two of these and both appear to have locally made blades. Antler might also, of course, be used to repair knives with commercial handles of wood or hard rubber. A *screw driver handle* is made of antler and is similar to the type 1 knife handles as it is a plain section of antler drilled to receive the metal part of the screw driver (Pl. 12, 11).

There are 20 *sled shoe sections*, 13 of antler and seven of bone (Pl. 13, 12). Holes for pegging to a runner are drilled 8 mm. to 1.5 cm. in diameter and are irregularly spaced. The width of the unbroken shoes ranges from 2 to 4 cm.; none of the sections show indications of extensive wear. The longest unbroken section is 25 cm. and the shortest 7.5 cm. Four fragments are tentatively identified as shoes for a sled with extremely narrow runners. These are sections of antler approximately 1.5 cm. in width and 16 cm. in length with small, irregularly-spaced drilled holes (Pl. 13, 16). They might also be protective coverings for the keels of small boats.

There are three antler artifacts, complete or nearly so, that cannot be identified. One is thin, rectangular, comes to a point at both ends, and is slightly constricted toward the center. It has a small drilled hole in the center (Pl. 13, 4). This is one of the few items in the collection to show decoration. There are a series of engraved cross-hatchings on both surfaces and a row of evenly spaced engraved dots along each edge. Somewhat similarly shaped is another rectangular object which is notched at all four corners (Pl. 13, 3). The most intriguing of the unidentified artifacts would appear to be some kind of handle with a large circular projection, in the middle of which is a small drilled hole, perhaps for the attachment of a line. The "blade slit" of this implement is 1.4 cm. wide and there are slightly

raised lips at either end which suggest hafting aids (Pl. 13, 8). This object is decorated with crude parallel incised lines. A specimen identical to this one, collected in northwestern Alaska, occurs in the Eskimo collections of Field Museum of Natural History. It is also unidentified.

In addition to the identified and unidentified artifacts described above, a total of 302 pieces of cut bone and 28 pieces of cut antler were recovered from the site. Much of this material was discarded in the field, but those cut bones with preserved articular surfaces were saved and they appear as part of the bone count shown in Table 1.

Metal

The artifacts that have been described thus far in this chapter are not only of indigenous manufacture, but are made of materials locally available in the environment. When it comes to a description of metal artifacts indigenously manufactured, we are, of course, dealing with an exotic material and observing attempts by Indians to work in a new medium. Because of the nature of the medium and problems created by the generally poor preservation that characterized the Kijik site, it is sometimes difficult to tell with certainty whether a metal artifact has been imported or made locally. Thus the listing of some metal artifacts as being of local manufacture should be considered tentative (see Oswalt and VanStone, 1967, p. 49).

By far the largest number of indigenously manufactured metal artifacts are made from tinned steel plate of the type used in the manufacture of tin cans. Wrought and cast iron were available to the people of Kijik as were copper and brass, but can metal, which not only could be cut and worked easily but was expendable once the contents of a can had been used, was favored above other kinds of metal for a variety of implements. And yet the inhabitants of Kijik were not as versatile in the use of this new material as might be expected or as were their contemporaries at other nineteenth century villages in southwestern Alaska. The number of actual types represented in the collection is, therefore, rather small.

Six *blunt arrowheads* have been constructed by fitting a spent rifle cartridge over the end of a thin wooden shaft. A small section of this shaft protrudes from the open end of each cartridge. On two of these arrowheads the cartridge case is held in place by a crude metal plug which has been driven through one side of the case and into the shaft. The remaining four cases simply fit tightly over their shafts (Pl. 13,

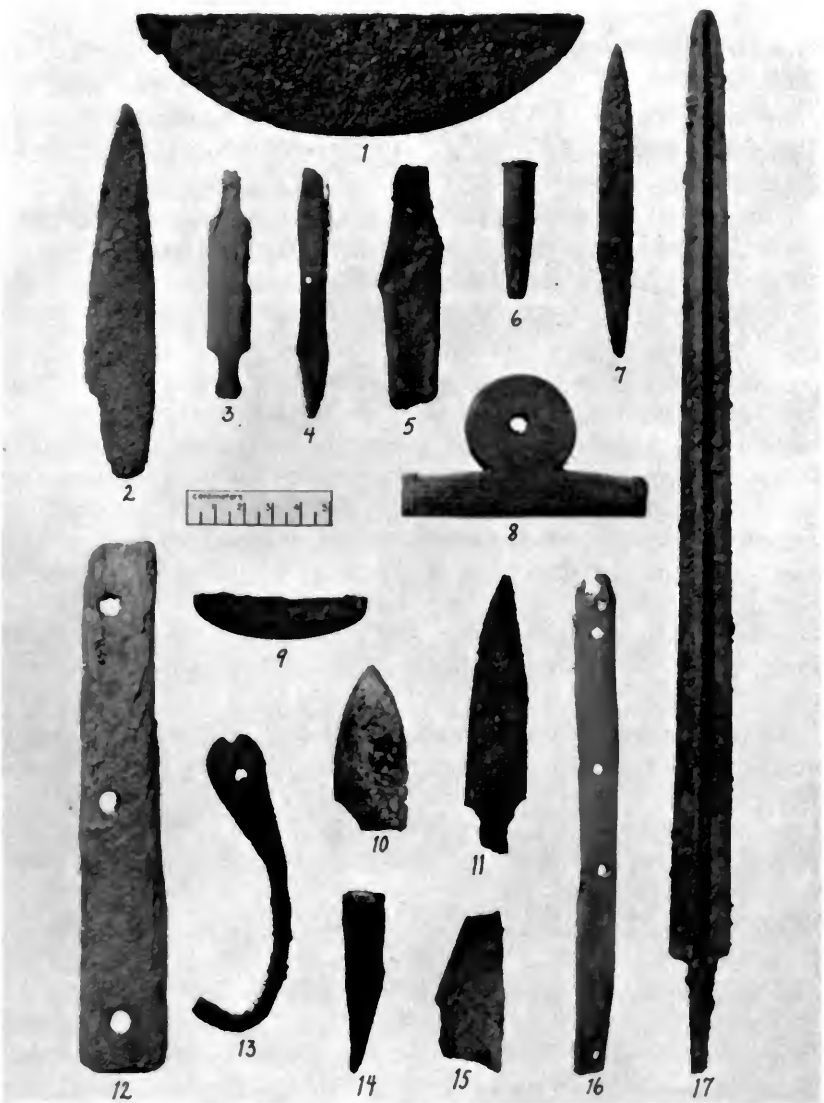

PLATE 13

Antler and Metal Artifacts

1. semi-lunar blade (p.70); 2. end bladed knife blade (p.70); 3. unidentified object (p.67); 4. unidentified object (p.67); 5. crooked knife blade (p.70); 6. blunt arrowhead (p.68); 7. end bladed knife blade (p.70); 8. unidentified object (p.68); 9. semi-lunar blade (p.70); 10. projectile point (p.70); 11. end bladed knife blade (p.70); 12. sled shoe section (p.67); 13. pothook (p.71); 14. crooked knife blade (p.70); 15. crooked knife blade (p.70); 16. sled shoe or boat keel section (p.67); 17. spear or lance blade (p.70).

6). The calibers and types of cartridges used will be discussed along with the large number of cartridge cases recovered from the site.

A piece of copper has been cut to the shape of a *projectile point* and the edges have been filed slightly to sharpen them. The point has a flat base (Pl. 13, 10).

An effective *spear or lance blade* has been made from a military-style bayonet with steep ridges on either side. The bayonet was cut toward the center ridges at the proximal end and the flat outer edges hammered over the ridge to form a tang for hafting to a wooden shaft (Pl. 13, 17).

End bladed knife blades of metal of varying degrees of thickness are tentatively considered to be of local manufacture because the material could easily have been worked by the Indians with available tools. And yet, as we will see, very similar commercial knives were imported by the villagers. At any rate, the implements described here are crude and have the appearance of having been made locally. There are nine specimens, four of which are complete or virtually so. The complete blades range in length from 10 to 13 cm., are pointed at the distal end, and constricted somewhat at the proximal end for insertion into a handle (Pl. 13, 2, 7, 11); the fragmentary specimens are all tips.

There are five *semi-lunar blades*, all of which appear to have been cut from the tops or bottoms of cans and utilize the rounded shape of the original container as a cutting edge. They vary in length from 6 to 15.5 cm. and are flat across the top (Pl. 13, 1, 9). Semi-lunar knives are described by Osgood for the pre-contact Tanaina (1937, fig. 28, b; pp. 102–103).

Six *crooked knife blades* are all similar in shape but vary in length from 5 to 8.5 cm. They have pronounced curves at the distal end and narrow in varying degrees at the proximal end (Pl. 13, 14-15). The blades are made from a somewhat thicker and heavier metal than the previously described end bladed knife blades. An unfinished specimen appears to have been made from the flattened and cut tip of a gun barrel (Pl. 13, 5).

An interesting type of indigenously constructed metal artifact that has also been reported from the other historic archaeological sites in southwestern Alaska (Oswalt and VanStone, 1967, p. 50; VanStone, 1968, p. 287) is the crude *dish* or small container. There are 11 fragmentary examples in the Kijik collection. They are made from sections of can siding which have been folded at the corners to form shallow, roughly rectangular containers (Pl. 14, 16).

The handle of what was probably a large, metal kitchen spoon has been turned up at the distal end to form a hook. Such an implement might have been used as a *pothook* (Pl. 13, 13).

Two fragments of gun barrels have been flattened at one end by hammering as though to form an implement that would serve as a *wedge or crow bar*. The smaller of these specimens is illustrated (Pl. 14, 18). The larger is 41.5 cm. in length and the proximal end of the barrel is complete. It will also be considered later as a firearm part.

Five rectangular strips of metal with holes at regular intervals have been identified as *sled shoe sections*. The largest, which was discarded in the field, is 62 cm. in length and 4 cm. wide. The sides are slightly curved to fit around the edges of the wooden runner. At approximately 11 cm. intervals are holes for attaching the shoe to the runner, probably with short, flat headed nails. The other specimens are similar but much shorter, the illustrated example is typical (Pl. 14, 1).

Also discarded in the field was a large piece of sheet metal approximately 35 cm. square with a round hole cut in the center and with a series of small punched holes around the edges. This would have been sewn or wired to the roof of a canvas tent as a *sleeve* for the stove pipe at the point where it went through the roof. Such a sleeve would protect the fabric of the tent from the hot pipe.

Nine irregularly cut sections of can metal have numerous holes around their outer edges and appear to have been prepared for use as *reinforcement pieces*. Two specimens have small fragments of nails inserted in several of the holes. Such reinforcement pieces might be used around the cracked shaft of a lance, for example, or to repair wooden artifacts in any number of ways.

Two 44 caliber cartridge cases, one centerfire and one rimfire, have been drilled at the proximal end and have small sections of twine knotted on the inside and protruding through the holes (Pl. 14, 10). These and similar cases would have been strung at intervals with beads as *bead separators* to form a necklace.

There are five locally manufactured *rings* in the collection, three made from narrow strips of copper (Pl. 14, 3) and two from bent wire (Pl. 14, 4). There is also a wire *clasp* which would appear to have served a purpose similar to that of a safety pin. It is made from a single piece of thick wire bent sharply at both ends (Pl. 14, 5).

A brass or bronze button has been converted into a *pendant* by filing away the eye and piercing a hole at the edge (Pl. 14, 2). The

insignia on the face has apparently been obliterated by wear but on the back the letters "RICH IMPERIAL" can be discerned. Similar descriptive words were used by the firm of Hyde and Goodrich of New Orleans which manufactured uniform buttons in the 1860's and 1870's (Albert and Kent, 1949, p. 405).

A curious, apparently unidentifiable, artifact has been made by forcing the distal ends of two spent centerfire cartridges together (Pl. 14, 9). There are three of these in the collection and two of them have the primer removed from one of the cartridges. However, since the primers are similarly missing from more than half of the total number of cartridge cases at the Kijik site, this may not be of any significance. In all three specimens, as might be expected, the distal end of one case has been forced over that of one of a slightly smaller caliber.

A total of 12 cartridge cases have been cut in a variety of ways for unknown purposes. Most are cut so that the entire head has been removed and also the constricted distal end. Thus they are simple brass cylinders. One very fragmentary specimen suggests how these cut cartridges might have been used; it is fitted over a small, round wooden fragment, perhaps a shaft of some kind (Pl. 14, 11). Thus the brass cylinder could serve as a reinforcing piece or for decoration.

The bottom or top sections of two large cans, both at least 24 cm. in diameter, have been fastened together in such a way as to form one large flat circular piece of metal, possibly part of a home-made *stove*. One section has a row of perforations around the outer edge at approximately 2.5 cm. intervals and the two have been fastened together by means of wire running through the perforations in an over-and-under stitch. The purpose has been to make a larger piece of circular metal than either section alone.

In addition to the metal artifacts described above, 16 pieces of cut can metal were recovered along with four additional pieces of light metal, probably from kettles or pans, that have also been cut

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PLATE 14

Metal and Rubber Artifacts and Imported Pottery

1. sled shoe section (p.71); 2. pendant (p.71); 3. ring (p.71); 4. ring (p.71); 5. clasp (p.71); 6. unidentified object; 7. transfer printed pottery fragment (type 1) (p.76); 8. transfer printed pottery fragment (type 1) (p.76); 9. unidentified object (p.74); 10. bead separator (p.71); 11. unidentified object (p.72); 12. transfer printed pottery fragment (type 2) (p.76); 13. transfer printed pottery fragment (type 10b) (p.78); 14. transfer printed pottery fragment (type 10c) (p.78); 15. transfer printed pottery fragment (type 3) (p.76); 16. dish (p.70); 17. transfer printed pottery fragment (type 7) (p.76); 18. wedge or crowbar (p.71).


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but not worked into any identifiable artifact. Two of the cut can fragments more or less retain their original form and will be discussed with the rest of the cans from the site. Much more abundant are fragments of cut brass or copper. There are 51 of these and most appear to be pieces of kettles or pots.

Glass

Five pieces of light blue bottle glass have been extensively retouched as *scrapers*. They average a little less than 4 cm. in thickness. Two fragments of window glass have been similarly worked; they are less than 2 mm. in thickness.

Leather

All 16 cut fragments of leather in the Kijik collection have been derived from commercially prepared cowhide. Many shapes and sizes are represented and there appears to be no consistent form to the fragments. One is rectangular with small holes around the sides. It may have been intended as a *patch or reinforcing piece*. It would appear that all the fragments have been cut from shoes.

Textile

There are two cut fragments of heavily felted, woolen cloth. One is virtually round and may have been intended as a *patch*.

Rubber

The three cut fragments of rubberized material in the collection are irregularly shaped and would appear to be pieces of rubbers, boots, or rubberized coats. In addition, there is part of what may have been a hard rubber hair comb. It has been notched along one side and cut and rounded at the ends for an unknown purpose (Pl. 14, 6).

Bark

The almost total absence of worked birch bark from the Kijik site can be attributed to generally poor preservation, a situation that is apparently also responsible for the almost complete absence of artifacts made of wood. Although birch bark must have been an important material, particularly for making baskets, only two small cut fragments were recovered.

Non-Indian pottery

Two small pottery fragments, probably from the rims of saucers, have small holes approximately 2 mm. in diameter drilled through

them. On both specimens the perforations are at the edge of the fragments and it may be that they were mending holes.

Imported Manufactured Goods

The artifacts to be described in this section are generally referred to as trade goods. That is, they were made elsewhere by non-Indians and traded to the residents of Kijik, probably in exchange for furs or labor. For a more detailed statement concerning the occurrence of some similar types of trade goods in nineteenth century Eskimo sites in southwestern Alaska, see Oswalt and VanStone (1967) and VanStone (1968).

Non-Indian pottery

Excavations at the Kijik site resulted in the recovery of 1,092 sherds of non-Indian pottery, including one complete saucer, 34 recognizable saucer fragments, 40 cut fragments, three plate fragments, and four pieces of shallow soup plates with wide, flaring rims. In addition, there are eight pieces with a thick, glazed surface, probably fragments of tea pots or kitchen bowls. All the collected sherds are fragments of ironstone china, a stoneware variant that was very popular during the nineteenth and early twentieth centuries. Although the ware appears uniform at first glance, there is actually a certain amount of variation in the structure of the sherds. In addition to variable thickness, some sherds are from vessels that have been better fired than others and some have a smoother glaze. Most of the sherds do not seem to have suffered greatly from being buried in the ground, although many showed a tendency to exfoliate when exposed. A marked deterioration in the glaze and coloring is also characteristic of a very few specimens.

The collection of non-Indian pottery can be classified most conveniently according to the six apparent types of surface treatment: undecorated white ware, transfer printed ware, hand-painted ware, a single sherd showing both hand-painted and stamped decoration, a ware characterized by stamped designs alone, and a heavily glazed kitchen ware. There are 452 sherds that are white and undecorated, of which three are saucer fragments, ten cup fragments and four pieces of soup plates. It should be kept in mind, however, that many of these sherds may be from decorated vessels but are from undecorated sections of complete specimens. It will be noted from the illustrations that some of the transfer printed designs leave large areas of undecorated space on complete or nearly complete vessels.

Other sherds, however, are very thick and show the kind of hard whiteness that would be associated with a plain, highly utilitarian ware.

The decorated sherds have been grouped into a typology that is based entirely on decorative motifs and conceived of simply as an ordering device which makes description of the sherd collection easier and more detailed. There are both homogeneous and heterogeneous types listed below. In order to be classified as a homogeneous type, six identical sherds are required. The heterogeneous types are labeled a, b, c, d, etc. These refer to decorative motifs represented on five sherds or fewer.

The most common ware found in the collection has been decorated with transfer printed designs. There are 587 sherds of this type, more than half the total collection. Of these, 26 are identifiable saucer fragments, 36 are cup fragments, and three are pieces of large plates. In addition, there is one complete saucer. Transfer printing is an English development which spread rapidly and widely during the nineteenth century.

Type 1 (Pl. 14, 7, 8).—Blue and brown willow ware. This is the most common transfer print, there being 166 sherds of the blue willow pattern and 35 brown willow fragments.

Type 2 (Pl. 14, 12; Pl. 15, 7).—Light blue floral. This type, represented by 110 sherds, has widely spaced floral and leaf designs in light gray-blue.

Type 3 (Pl. 14, 15).—Dark blue floral, geometric border. There are 100 sherds with this dark blue-on-white design.

Type 4 (Pl. 15, 4).—Light brown floral. Brown flowers and vine leaves are confined to the area near the rim on 72 cup and saucer fragments.

Type 5 (Pl. 15, 6).—Geometric floral design in brown, blue, and red. There are 36 sherds showing this interlocking floral pattern.

Type 6 (Pl. 16, 1).—Brown, geometric floral and pictorial. Twenty-three sherds of this type were recovered including about three-quarters of a large plate showing a center geometric-floral design with an inset sailing scene. Three sherds bearing this design from the Kolmakovski site on the middle Kuskokwim River have potter's marks which date the examples from 1860 to 1894 (Oswalt, correspondence).

Type 7 (Pl. 14, 17).—Large red and blue floral. Very large flowers and stylized leaves characterize the 23 sherds of this type.

PLATE 15

Imported Pottery

1. transfer printed pottery fragment (type 10a) (p.78); 2. transfer printed pottery fragment (type 10d) (p.78); 3. transfer printed pottery fragment (type 10e) (p.78); 4. transfer printed pottery fragment (type 4) (p.76); 5. transfer printed pottery fragment (type 10f) (p.78); 6. transfer printed pottery fragment (type 5) (p.76); 7. transfer printed pottery fragment (type 2) (p.76); 8. hand-painted pottery fragment (type 11a) (p.78); 9. transfer printed pottery fragment (type 10g) (p.78).

Type 8 (Pl. 16, 8).—Gray floral. Seven sherds have this light gray on white design which includes vine-like leaves, small flowers, and small cones.

Type 9 (Pl. 16, 6).—Light blue striped rim. Six saucer fragments have a series of four parallel light blue lines running around their rims.

Type 10a (Pl. 15, 1).—Blue pictorial. The two sherds of this heterogeneous type are, with the exception of those belonging to type 6, the only ones in the collection with a representational design.

Type 10b-e (Pl. 14, 13, 14; Pl. 15, 2, 3).—Brown floral with geometric elements. A total of five sherds show a variety of brown floral and geometric designs in various combinations.

Type 10f (Pl. 15, 5). Large gray floral. There is only a single sherd in this heterogeneous category and it is characterized by large white flowers with gray leaves.

Type 10g (Pl. 15, 9).—Blue-gray floral. This heterogeneous category is represented by a complete saucer with bluish-gray flowers and dark blue leaves and stems. The large amount of undecorated space on this saucer should be noted.

In general, the transfer printed ware from Kijik tends to be somewhat thinner than the undecorated white ware and has a smoother glaze. This characteristic has also been noted for the ironstone china from other historical sites in southwestern Alaska.

Sherds of hand-painted ware number 36 and include six saucer and four cup fragments. The hand-painted sherds are of approximately the same thickness as the plain ware and somewhat thicker than those decorated with transfer prints.

Type 11a-b (Pl. 15, 8; Pl. 16, 5).—Floral designs in red, blue, green. All of the hand-painted sherds are characterized by stylized or naturalistic floral patterns in the colors listed. Also characteristic are painted lines around the rims and outer edges of the vessels, or around the base. Typical examples are illustrated. Sherds similar to these that were recovered at the Kolmakovski site have potter's marks which place them in the last two decades of the nineteenth century (Oswalt, correspondence).

Hand-painted and stamped ware consists of a single sherd (*Type 12a*) which has blue and green leaves painted on by hand in combination with red flowers applied by means of a small stamp (Pl. 16, 9). Because of the small size of many of the sherds described above as hand painted, it should be kept in mind that they may actually be parts of vessels which also had stamped designs. This possibility

PLATE 16

Imported Pottery

1. transfer printed pottery fragment (type 6) (p.76); 2. glazed pottery fragment (type 14b) (p.80); 3. glazed pottery fragment (type 14a) (p.80); 4. stamped pottery fragment (type 13a) (p.80); 5. hand-painted pottery fragment (type 11b) (p.78); 6. transfer printed pottery fragment (type 9) (p.78); 7. stamped pottery fragment (type 13b) (p.80); 8. transfer printed pottery fragment (type 8) (p.78); 9. hand-painted and stamped pottery fragment (type 12a) (p.78).

emphasizes the importance of stressing the fact that the classification system being used here is significant for descriptive purposes only.

Eight sherds have only stamped, floral designs in dark red and green (*Type 13a-b*, Pl. 16, 4, 7). Again it should be noted that painted elements may have occurred with the stamping and that it may simply be an accident of breakage that places these particular sherds in the stamped category.

The final type of decoration consists of eight sherds which are characterized by a heavy glaze and have been identified as belonging to kitchen ware, probably thick bowls or tea pots.

Type 14a (Pl. 16, 3).—Brown glaze. There are five sherds of this thick, utilitarian crockery which has a heavy brown glaze on both sides.

Type 14b (Pl. 16, 2).—Blue and white glaze. Three sherds have a series of three white lines that presumably circled a vessel that was mostly covered with a dark blue glaze.

In addition to the decorated sherds which have been described above, there are 61 fragments which, although having some trace of decoration, are too small for meaningful typing.

A total of 33 bottom sherds have complete or fragmentary potter's marks. Unfortunately, 19 of these are too fragmentary for identification, although, as will be noted presently, it is possible to say something about a few of them. The remaining 11 marks were identified with some degree of certainty and they help to determine the place of origin and, within rough limits, the date of the non-Indian pottery from Kijik.

Two sherds have nearly complete marks consisting of a double circle, in the center of which is a kneeling figure shown in the process of modeling a pot. Under the figure is the date "1790." Above the figure and between the two circles is the word "ESTELLE," perhaps the name of the pattern. In the same position below the figure is the name "DALEHALL POTTERY CO." Below the whole design the registration number is listed as follows: "Rd No. 118135." This appears to be one of many marks used by Keeling & Co., one of the Staffordshire Potteries in Burslem, England. Under this name the firm manufactured earthenwares between 1886 and 1936. Registration numbers similar to the one mentioned above were added to some wares after 1884. This particular number belongs to a series registered between January, 1889 and January, 1890 (Godden, 1964, pp. 367, 527–528; Rhead, 1910, p. 154). Type 3 transfer printed sherds are associated with the "DALEHALL" marks.

Four sherds show parts of the basic "beehive" mark which is associated with Dunn Bennett & Co. of Burslem. Directly below the beehive on two sherds are the letters "D.B. & CO.," while on another the words "TRADE MARK" occur in the same position. Pattern names appear to occur as part of all three marks. Dunn Bennett & Co. was established at Hanley in 1875 and is still in existence. The beehive hallmark was characteristic between 1875 and 1907. One of these sherds has the word "ENGLAND" below the entire mark. This is significant because after 1891, as a result of the passage of the McKinley Tariff Act, the United States began to require that all imports, including pottery, be labeled with the name of the country of origin. Between 1891 and the turn of the century, English potteries used the single word as indicated above, but after 1900 the words "Made in England" signify a twentieth century dating. Thus it appears that the pottery under discussion was manufactured sometime between 1891–1900. Wares made for sale in England were not marked this way (Godden, 1964, pp. 11, 225; Rhead, 1910, p. 116; Ormsbee, 1959, pp. 16–17). Two type 2 sherds have "beehive" potter's marks, one predating 1891 and the other post-dating that year. Pottery manufactured by Dunn Bennett was stocked by the newly established Sears Roebuck & Co. in the late 1890's (Israel, 1968, p. 679).

The lower section of a mark represented on one sherd shows part of a scroll with the word "WARRANTED" on it and below that the letters "E. M. & CO." These are the initials of Edge, Malkin & Co.,
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another Staffordshire pottery in Burslem, which manufactured earthenwares, and was in existence under this name between 1871 and 1903. The occurrence of a letter below the firm's initials denotes in which town in the Staffordshire Potteries the factory was situated. The main towns and initials are Burslem (B), Colridge (C), Fenton (F), Hanley (H), Langton (L), and Tunstall (T). It should be noted that the absence of the name "England" from this mark indicates a pre-1891 date (Godden, 1964, pp. 12, 230).

A fragment of a lion and unicorn mark with the initials "E. B. & ———" below the insignia and "ENGLAND" below the initials presents something of a problem because of the missing part of the firm's name. There were several pottery companies whose beginning initials were E. B., but this is probably a mark of E. Brain & Co. Ltd. of Fenton which has been known under that name from 1903 until the present, or Bourne and Leigh (Ltd.), Burslem, a firm which made

earthenwares from 1892 to 1941 (Godden, 1964, pp. 90, 96). A single sherd of blue willow ware bears this mark.

A fragmentary and badly blurred printed mark is in three horizontal lines. The name "EMERY" is on the top line, the middle line is illegible, and the bottom line contains part of the word "BURSLEM." Another very fragmentary mark also contains part of a name that is probably Emery. These would appear to be marks of Francis J. Emery, Burslem, a firm manufacturing earthenwares between 1878 and 1893 (Godden, 1964, p. 237).

The only complete printed mark in the entire collection is on the bottom of a restored saucer with a transfer printed design (*Type 10g;* Pl. 15, 9). This mark consists of the intertwined initials "G. J." with a crescent below them containing the words "& Sons." Below the crescent the words "COLONY" and "ENGLAND" occur in two rows. The former would seem to be the name of the pattern. This is a mark of George Jones (& Sons, Ltd.), a Stoke pottery company operating between 1861 and 1951. The earliest marks of this form show the initials alone and the crescent with "& Sons" inclosed was not added until 1891 (Godden, 1964, p. 359; Thorn, 1947, p. 70).

An elliptical variation of the garter mark has the word "WILLOW" in the center and "BAKER & CO." in the border. This is a mark of W. Baker & Co. (Ltd.) of Fenton, a company which was in existence between 1893 and 1932. The name of the individual pattern, in this case "willow," was added to this firm's mark after 1860. "Ltd." was added in 1893 and is, it will be noted, absent from the mark under discussion. Since this mark is virtually complete, the absence of the word England is also significant (Godden, 1964, p. 51). Two other very fragmentary marks, also on sherds of willow ware, have tentatively been identified as belonging to the same firm.

A large plate fragment (*Type 6;* Pl. 16, 1) has two marks, a complete impressed one and one that is printed. The impressed mark is in four rows. On the top are the figures "81"; below that in a semicircle is the name "THOMAS HUGHES." The third row contains the place name "BURSLEM" and the fourth the figure "3." The printed mark is fragmentary but appears to consist of three rows, the first of which probably contains the name of the pattern; the letters ". . ITKA" are visible (Sitka?). In the second row only the name "HUGHES" can be discerned and in the third the place name "BURSLEM." These are the marks of the firm of Thomas Hughes, Burslem which manufactured earthenware under that name between 1860 and 1894. Since some nineteenth century potteries impressed

their wares with numbers denoting the month and last two digits of the year of manufacture, it may be that the numbers at the top and bottom of the impressed mark indicate March, 1881 (Godden, 1964, pp. 12, 339).

Of the remaining pottery fragments showing sections of marks, 19 are too fragmentary for identification. Of these, however, three have part of the word "ENGLAND" visible which indicates, as we have noted, that they date post-1891. One sherd has the impressed digits "$\frac{8}{89}$" which, as we have again noted, was a favorite way in which nineteenth century firms dated their wares and thereby made sure that their stocks were used in chronological order; the date indicated here would be August, 1889 (Godden, 1964, p. 12). Another sherd in this unidentified group has a clearly visible letter "F" which is obviously at the bottom of a mark and indicates that the factory making the ware was situated in the town of Fenton in the Staffordshire Potteries. Two sherds have fairly sizable portions of the upper parts of marks visible, but since it is the lower part that usually contains the firm's name or initials, these cannot be identified. One has the letters "HOP" at the top, below which are the words "SEMI-PORCELAIN." These words are above what is apparently a crown and circle design. The other has the word "OXFORD" at the top, probably a pattern name, and below the words "IRONSTONE CHINA" in a semi-circle above an unknown design. It seems certain that these, like the others in the collection, are British marks.

On the basis of the 14 identified marks, and a number of other unidentified ones, it appears that most, if not all, of the ironstone ware from the Kijik site is of British manufacture. It is also possible, however, that some of the ware is American. In the collection there are, in addition to the fragments with hallmarks already described, at least ten basal sherds large enough so that some part of the marks would be visible if they were present. It appears likely, therefore, that a sizable proportion of the pottery used at Kijik was unmarked. Unmarked pottery could have been made in America or imported before 1891 (Godden, 1964, p. 11; Ormsbee, 1959, pp. 16–17). Although it is impossible to say with any degree of certainty, there seems little reason to doubt that the Kijik non-Indian pottery is both American and British with the latter being by far the most common.

As far as identifiable pottery forms are concerned, it would appear that all the fragments from the Kijik site are from the forms of dishes

that have already been mentioned. Most of the saucer fragments seem to be similar to the complete illustrated specimen (Pl. 15, 9), although some apparently are deep with steeply inclined sides and a large area of flat bottom (Pl. 15, 6). Some saucers also have scalloped edges (Pl. 16, 8). The cups seem to range from very large, thick mugs with straight sides and flat bottoms to smaller, more delicate vessels with flaring sides. Ordinary table plates are represented by only three fragments and these are from specimens with broad and flaring rims. The soup plate sherds indicate complete specimens of a type similar to the table plates, but with a wider rim and a deeper center area. In general, all the non-Indian pottery from Kijik, with the exception of a few transfer printed cup and saucer fragments, give the impression of being heavy and highly utilitarian. The Kijik Indians seem to have had little need for plates but found cups and saucers extremely useful.

Unfortunately, the non-Indian pottery described above, like that from other historic sites in Alaska (see Ackerman, 1965; Oswalt and VanStone, 1967; VanStone, 1968), is not useful for dating within narrow limits. Ironstone ware is still being made and continues to be, as it probably always was, strongly associated with what we might call institutional crockery: that is, hotel and restaurant services. The very qualities that recommend it to those who operate such establishments would also recommend it to a trader on the frontier; namely, its strength and durability in spite of hard usage. As far as design elements are concerned, they were so widely borrowed, both in the United States and England, that they apparently have no chronological significance. Nevertheless, all the identifiable designs on Kijik sherds are illustrated in this report with the idea that a comparison of such designs with those on pottery from other historic sites in Alaska may eventually provide useful data. For example, it is already possible to note that the hand-painted and stamped floral designs similar to those from Kijik also occur at the Tikchik village site in the upper Nushagak River region (VanStone, 1968, Pl. 8, 7, 8), at Crow Village on the Kuskokwim River (Oswalt and VanStone, 1967, Pl. 13, b) and from the Homeshore site on Excursion Inlet in southeastern Alaska (Ackerman, 1965, fig. 15, 6). Transfer-printed designs similar to those on Kijik pottery have also been reported from the three above-mentioned sites (Ackerman, 1965, fig. 15, 3; Oswalt and VanStone, 1967, Pl. 13, a; VanStone, 1968, Pl. 8, 1, 2, 6).

It is difficult at this time to attach any particular significance to these resemblances except to note that they suggest a common source

for much of the trade pottery that was coming into Alaska during the Russian and early American periods. Although no identifiable Russian pottery was recovered at Kijik, there is reason to believe that the Russian-American Company purchased many of its trade goods in foreign countries (Tikhmenev, 1939–1940, Ch. XX, footnote 52). Since England would have been a logical place to purchase pottery, either directly or indirectly, it is possible that some of the Staffordshire pottery in the Kijik collection dates from the Russian period.

The general similarity of the decorated wares from the sites mentioned above has lent some encouragement to the idea that a dated sequence based on this feature might eventually be worked out if pottery could be excavated at a site where there was good stratigraphic control. Oswalt's excavations at Kolmakovski Redoubt in 1966 and 1967 have led to the establishment of a stratigraphy that has considerable potential importance for the eventual dating of trade goods in Alaskan historic sites, but only limited significance for the Kijik pottery just described.

The stratigraphy at Kolmakovski, which, along with the collections from this important site, is still in the prelimenary stages of study, is based on a combination of structures dated by means of historical records and a stratigraphic sequence based on determined floor levels within these structures. Oswalt has tentatively defined an early level dating from 1841 to ca. 1867, a middle level from ca. 1868 to ca. 1900, and a late level from ca. 1901 to ca. 1918 (Oswalt, communication). Using this sequence and those decorative pottery designs which the two sites share, it is possible to make some tentative statements about the time range of some Kijik sherds.

Unfortunately, comparable decorative designs from the two sites are limited to five and not all of these are diagnostic of any one of Oswalt's time periods. Type 1 at Kijik, for example, runs through the sequence at Kolmakovski and this suggests that willow ware may not lend itself to accurate dating at any site unless potter's or registration marks are present. Type 5 occurs at both sites and tends to be early at Kolmakovski. Type 6 is late at the Kuskokwim River site and has the same potter's mark.

The hand-painted ware at Kijik (*Type 11 a-b*) also occurs at Kolmakovski but it runs through the stratigraphic sequence. This would seem to suggest that in Alaskan sites wares which are hand painted, stamped, or a combination of the two may not prove to be datable within narrow limits. In addition to their widespread occur-

rence in Alaska, such designs have been reported extensively throughout the former frontier areas of the American west where they are generally considered to date no earlier than the 1880's (Bernard L. Fontana, communication). The only other Kijik design which also occurs at Kolmakovski is *Type 14b* which is clearly early at the latter site, but also occurs in small amounts in the middle and late periods.

It must be emphasized, of course, that simply because a particular design occurs stratigraphically "early" at Kolmakovski does not necessarily mean that it is also early at Kijik. Nevertheless, the comparisons are intriguing and it seems worthwhile to have considered the pottery from the one site in terms of the other. It is unfortunate that the two sites have so few decorative motifs in common.

Regardless of the tentative comparative data just presented, it is clear that the Kijik wares, like those from the other historic sites in Alaska that have been mentioned in this chapter, exhibit a number of late nineteenth and early twentieth century characteristics such as shade of color, sharply cut design, rounded saucer foot rims, extreme hard whiteness, crude application of color and design, etc. These facts, together with the specific information provided by the dated potter's marks described above, make it abundantly clear that the majority of the Kijik pottery can date no earlier than the last two decades of the nineteenth century and the beginning of the twentieth.

Glass

Objects of glass and glass fragments are relatively common in the Kijik collection and it is obvious that glass, as a container material and in the form of beads, buttons, and windows, was an important element in the material culture.

Fifty glass *buttons*, all of the common four-hole shirt variety, occur in the collection. They are molded in a bi-convex shape with a slight depression in one face and have diameters ranging from 9 mm. to 1.7 cm. Thirty-two are white and 12 others are of solid colors; four are of a dark blue milk glass, four are dark green, and a similar number are a plain buff color. One of the dark blue specimens has a white center. Four buttons have a molded decoration of dots near the rim and gray or dark brown rims (Pl. 18, 12), while a single specimen is dark brown with a white center. Another unique specimen is white with a dark brown rim and a similarly colored line around the depression in the outer face (Pl. 18, 14). A pair of large buttons have two holes for the thread instead of four. The largest of these is white and 1.9 cm. in diameter. It is flat on both sides without the depres-

sion in the area of the holes that is characteristic of the four-hole specimens (Pl. 18, 15). The other button is somewhat smaller, measuring 1.5 cm. in diameter, with a convex outer surface, thread holes slightly counter-sunk, and a simple transfer printed decoration consisting of a brown and white "calico" pattern (Pl. 18, 13).

Four glass buttons are completely different from those previously described. One is a semi-circular milk white specimen that is flat on the back and has an iron wire eye for attachment to the garment. The others are molded buttons of black glass with brass wire eyes. Two are fragmentary with rosette designs on the front. The other is complete and has the head of an animal, possibly a horse, on the outer surface (Pl. 18 18,). These buttons probably were associated with women's dresses.

Four-hole shirt buttons were first made in France and introduced to the United States about 1860 (Fontana and Greenleaf, 1962, p. 98). They are, of course, still being made at the present time. A sizable number of buttons in the Kijik collection are made of materials other than glass and will be discussed in the appropriate sections.

A total of 183 pieces of glass have been identified as *window glass* fragments. Thickness of these fragments varies from 1–2 mm. with the majority of pieces being closer to the latter figure. Most are perfectly clear but some have a slight bluish or greenish tinge. Many fragments have edges that are straight and smooth suggesting the use of a glass cutter. It has sometimes been considered that the thin, colorless window glass averaging approximately 1 mm. in thickness recovered from historic sites in the middle west and western states belongs to the early nineteenth century and is earlier than the thick (3 mm.), slightly greenish glass which was first used during the latter part of the nineteenth century and is still being manufactured (Miller, 1960, p. 67). It is impossible to separate the window glass fragments from the Kijik site on this basis, but all the fragments are noticeably thinner than the thick specimens described as late nineteenth century. We know that window glass was highly prized by the Eskimos of southwestern Alaska at least as early as 1842 (Zagoskin, 1967, p. 255), and there is no reason to believe that it would not have been available, at least in small quantities, to the Tanaina Indians at Kijik by that date.

Although no unbroken *bottles* were recovered from the Kijik excavations, there are 11 specimens that can be either wholly or partially reconstructed. Four of these are brown-tinted quart whiskey

bottles. One is complete, two are large basal sections comprising more than half of a bottle, and the fourth consists of the upper half including neck and rim; in addition there are 11 small fragments that appear to be from a similar type of bottle. The complete specimen is 30 cm. in height and has an embossed label on one side which consists of a crown and shield design with the letters "C D CO." entwined in the center of the shield. Around the whole is a double circle within which are the words "CROWN DISTILLERIES COMPANY" (Pl. 17, 5). The lip of this bottle has an inside screw thread and a hard rubber stopper in place. On the top of the stopper is a repetition of the trade design found on the bottle itself. Whiskey bottles with inside-screw threads were produced around the turn of the century (Blumenstein, 1965, pp. 15–16; Ferraro, 1964, p. 25; 1966, pp. 14–15). The three large fragments of this type of whiskey bottle appear similar in every way except that they have no trade labels and the one which includes neck and lip does not have an inside screw thread, but would have been closed with a cork.

Two sections of large square or rectangular containers may be fragments of sarsaparilla bottles since they resemble complete specimens found in a nineteenth century San Francisco dump and now in the Lowie Museum, Berkeley, California. These bottles were made of heavy green tinted glass and have shallow, round depressions in the base. Another square or rectangular basal fragment is much smaller and lighter; the bottom of this container is 5.5 cm. square.

A single nearly complete bottle and 11 fragments belong to the familiar rectangular shaped, green tinted, patent medicine type with recessed panels on which the trade name frequently would appear. During the latter part of the nineteenth century and until the passage of the Federal Pure Food and Drug Act in 1906, patent medicines of all kinds flourished throughout the United States and about 90 percent of them were distributed in bottles similar to the ones in the Kijik collection (Ferraro, 1964, pp. 58, 63). These so-called medicines were high in alcoholic content and this was doubtless responsible for at least part of their appeal on the frontier to both Indians and whites. It is interesting to note also, that the Tyonek post of the Alaska Commercial Company was, as early as 1880, extremely well stocked with medicines of all kinds. The Tanaina Indians who traded there, including, occasionally, the inhabitants of Kijik, must have been exceedingly interested in their health quite apart from the "kick" that would almost certainly be received as a result of the rapid consumption of a bottle of patent medicine.

PLATE 17

Glass Bottles

1. patent medicine bottle (p.90); 2. pharmaceutical (?) bottle (p.91); 3. bitters (?) bottle (p.91); 4. condiment bottle (p.90); 5. whiskey bottle (p.88).

The nearly complete patent medicine bottle has embossed on one of its broad panels the words "H.H.H. HORSE MEDICINE," and on a side panel the letters "D.D.T." and the digits "1868" (Pl. 17, 1). If these latter figures are a date, they almost certainly refer to the year in which the company was founded or the formula first produced and not to when this particular bottle or its contents were manufactured. H.H.H. Horse Medicine was made and distributed at the end of the nineteenth century and as late as 1915. Not surprisingly, it was advertised as "good for man or beast" (Ferraro, 1964, p. 63; Denver, 1968, p. 44). Similar bottles have been reported from a number of late nineteenth century sites in the western United States (Berge, 1968, p. 181).

Of the 11 fragments of patent medicine bottles, four have parts of embossed trade names on them. Three are fragments of the narrow sides of such bottles and on two the embossed words "PAIN KILLER" appear; the third contains part of the word "VEGETABLE." The fourth fragment is a base with the embossed word "DAVIS." It is possible that these latter two were parts of the same bottle since they were found in the same structure. It seems virtually certain that the contents of this bottle was Davis Vegetable Painkiller, a product manufactured by one Perry Davis during the latter part of the nineteenth century and consisting of various gums, cayenne pepper, and alcohol. A similar bottle was recovered from a late nineteenth century lineage house in the Glacier Bay area of southeastern Alaska (Ackerman, 1965, p. 24) and it is likely that patent medicines of all types were widespread throughout Alaska by 1900.

A fragmentary bottle with the neck and base complete is probably a pint catsup bottle. Running in a circle around the bottom are the embossed words "CAL. PACKING CO. / SAN FRANCISCO." The neck has an exterior screw thread and is fitted with both a cork and a metal cap. The California Packing Corporation, successors to California Fruit Canners Association, was established in 1916 so this would appear to be the most recent bottle in the collection.

A round bottle of light green glass is 21 cm. in height and has sloping shoulders, a short neck, and thickened rim (Pl. 17, 4). This was a popular shape of condiment bottle in the late nineteenth and early twentieth centuries and was made by a large number of glass houses. On the bottom of this specimen are the letters "C.B." and the digits "3183." The letters may be the initials of the firm of Crosse & Blackwell, although these usually occur separated by the "&". Another possibility is Curtice Brothers Co. of Rochester, New

York (Fike, 1966, p. 13). At least one author believes that the digits frequently found on the bottoms of bottles could be dates. If this is the case, the sequence mentioned above would be separated as follows: 3/1/83 (Jones, 1961, vol. 1). Such dates, if that is what they are, would presumably refer to the time when a particular lot of bottles was manufactured and not to the founding date of the glass company.

A rather large, ovoid shaped bottle of light bluish green glass with a rounded shoulder and short neck has been tentatively identified as a bitters bottle (Pl. 17, 3). The bottom is stamped "W. T. & CO." beneath which is a figure "2." This would appear to be a mark of the Whitall Tatum & Co. glass works of Millville, New Jersey, a firm that was founded in 1806 and known by this name after 1857. The company is still operating as part of the Armstrong Cork Company (McKearin and McKearin, 1948, p. 588). A similarly shaped, but smaller, container with the same basal marking was recovered from a Tlingit site in southeastern Alaska (Ackerman, 1965, p. 24). Like patent medicines, bitters were high in alcoholic content and in Sitka were served by the drink in saloons (Young, 1961, p. 130). In the second half of the nineteenth century such medicinal concoctions were particularly popular in areas which had voted dry by local option.

The last complete bottle to be described here is round with a sloping shoulder, short ground glass neck, and everted lip (Pl. 17, 2). It is a style of bottle normally associated with pharmaceuticals. Whether or not it was actually used for that purpose by the residents of Kijik cannot, of course, be ascertained with certainty. It is significant, however, that in the vicinity of this bottle was found many globules of mercury and it seems likely that the bottle under discussion was a container for this liquid metallic element used in the mining of fine gold.

A notable characteristic of the reconstructed bottles from the Kijik site is that with one exception, they all have hand-finished necks. This fact can be determined because seams from the molds in which they were made do not pass through the lip. This is also true of a single neck fragment from a patent medicine-type bottle. Thus, they can be said definitely to date prior to 1903 when the invention of the first fully automatic bottling machine made it possible for an entire bottle to be manufactured without being manipulated by human hands. It can further be noted that these bottles were constructed to receive cork stoppers, a characteristic of nearly all bottles made before about 1900 when metal caps were introduced

(Hunt, 1959, pp. 9–10; Jones, 1962, vol. 2; Ferraro, 1964, p. 79). The only exception to these turn-of-the-century bottles is the catsup container bearing the stamped imprint of the California Packing Co. Here the seam can be clearly seen extending to the edge of the lip.

In addition to the reconstructed bottles and identifiable fragments just described, there are 99 fragments too small to be definitely associated with any particular shape or style of bottle. Among them, however, are three lip fragments of ground glass presumably from bottles similar to the so-called pharmaceutical type previously described. There are also four basal fragments from round bottles, one of which has part of a design on the bottom that includes a horseshoe with a five-pointed star in the middle (Pl. 18, 24).

A single ground glass *stopper* is for a pharmaceutical-type bottle but much smaller than the reconstructed specimen previously described (Pl. 18, 19).

Miscellaneous glass: In addition to buttons, window glass, and bottles, there are a small number of additional glass items represented in the collection. These include fragments of at least three large flat bottomed *drinking glasses*, a nearly complete round milk glass *jar* of the type usually associated with cosmetics, four *mirror* fragments, and a round piece of tinted glass which may be a lens from a pair of *sun glasses*. There are also numerous fragments from what appear to be the bases of at least three kerosene *lamps*. These are not chimney fragments, but rather pieces of the hollow container for the kerosene into which the wick extends. Most of the fragments are of plain, clear glass but nine, obviously from a single lamp, are a decorative combination of clear and milk glass with uneven surfaces.

Glass *trade beads* of various shapes, sizes, and colors were found in 11 structures and two test trenches at the Kijik site. They form the most numerous category of artifacts in the collection and their great variety and distinctive qualities make typological analysis possible. Unfortunately, their value as dating aids is limited and it will be possible to make only the most general statements about the chronological position of the Kijik beads.

The collection consists of 1,229 beads. For study purposes these were first separated into groups based on color alone. The colors are given as they appeared to the authors and not through comparison with a standard color chart. Variation in the basic colors listed is often considerable and some of the beads described also appear to be discolored as a result of changes caused by exposure or chemical

PLATE 18

Metal and Glass Artifacts

1-11. wire nails (p.98); 12. button (p.86); 13. button (p.87); 14. button (p.86); 15. button (p.87); 16. key-hole plate (p.99); 17. key-hole plate (?) (p.99); 18. button (p.87); 19. glass stopper (p.92); 20. iron ring (p.100); 21. saw blade (p.100); 22. file (p.100); 23. file (p.100); 24. bottle fragment (p.92); 25. iron ring (p.100); 26-32. square cut nails (p.98).

actions of the soil. It was found that there were 707 white beads, 110 blue, 62 blue faceted, 111 white-lined red, 12 brown-lined red, 19 yellow, 5 clear, 18 green, 44 red, 22 polychrome, 99 pink, and 20 black beads.

Next, the beads were separated according to shape within each color category and it was found that ten different shapes are repre-

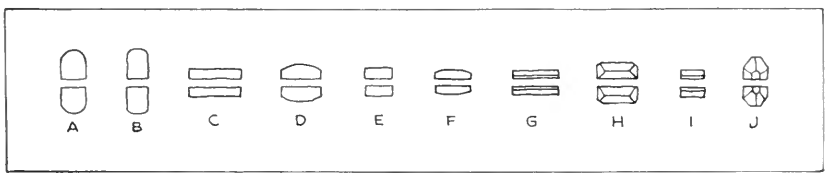

FIG. 26. Bead types according to shapes, showing cross-sections of each.

sented (fig. 26). Sizing came next and out of the total there are 299 of the "seed" form, those that are less than 2 mm. in diameter. All of these belong to the type A shape. White, blue, white-lined red, clear, red, pink, and black are the colors represented. These beads are identical with those sold in tubes in stores throughout rural Alaska today for sewing into beadwork designs on cloth or skin garments.

Of the 707 white beads, 365 belong to type A, 315 to type B, 1 to type C, 24 to type D, and 2 to type E. The color varies considerably from an extreme hard whiteness which is characteristic of more than half the 121 seed beads to a grayish white which is typical of this color category as a whole. A large number of those beads belonging to the type A and B shapes exhibit a variation between exterior and interior color. Both are opaque, but the interior is whiter than the exterior. Of particular interest in this color category are the opaque ovoid beads which are similar in shape to an olive pit (type D); these have a "stony" surface texture. Fifteen of the 25 beads of this type are fragmentary suggesting that this variety was especially liable to breakage in handling. They are much larger than any of the other white beads, averaging 3 to 5 mm. in diameter at either end and 15 to 18 mm. in length. Another interesting form is the single specimen belonging to type C which is really a bead separator rather than a bead; it is 13 mm. in length.

Blue beads are represented in four shapes: 90 of type A, including 67 of the seed category, 12 of type B, 5 belonging to type E, and 3 to type F. Here again the color range is great, from very light blue to a deep marine blue, and there are several beads that are almost green.

This is particularly true of the three specimens belonging to type F. Beads in the seed category are mainly very light, while those belonging to the type E shape are of such deep color as to appear almost black until closely examined.

The blue faceted beads were considered distinctive enough to be placed in a separate category. They are the only examples in the collection where a color is so closely associated with a particular shape. Yet even here there is some color variety, with a range from a light to an extremely deep, marine blue. Two shapes are represented: type H with 55 specimens and type I with seven. The type H beads exhibit considerable variation in size ranging in length from 5 to 11 mm. with corresponding diameters. Most of them appear to have been cut from hexagonal canes and the facets created by rubbing each small section against some abrasive object thus creating a number of irregular facets over the entire surface. The beads belonging to the type I shape are uniformly of a rich, dark color and are hexagonal. None are more than 5 mm. in length and they doubtless indicate what the type H specimens looked like before being faceted.

The white-lined red beads are the most uniform of the various color categories. All the specimens have a bright, semi-translucent red exterior and an opaque white core. There are 95 belonging to type A, including 13 of the seed form, 11 to type B, 2 to type D, and 3 to type E. The two type D beads are distinctive because they have extremely thick white interiors with a very thin covering of red glass on the exterior. They are similar in size to the type D white beads. This white-lined red form is a variety of the famous Cornaline d'Aleppo bead, the significance of which will be discussed presently.

Another form of Cornaline d'Aleppo bead has a dull, reddish brown exterior and a translucent dark green or dark brown interior. In some cases this interior core is so dark as to appear black. There are only 12 of these beads in the Kijik collection, five belonging to the type A shape and seven to type B. They are uniformly small but slightly larger than the seed category.

The yellow beads are clearly divided on the basis of color. The six specimens which belong to type A and the three belonging to type B are opaque and light yellow. The five of type H and a similar number belonging to type J are translucent and more of an amber color. The type J specimens are particularly interesting. They are characterized by extremely steep facets which have resulted in a pronounced ridge running around each bead at right angles to the threading hole.

The five colorless beads include one of the seed form. Three belong to type A and two to type B.

Eighteen green beads all belong to type A and exhibit considerable color variation. All except one are opaque; some are a very bright, yellowish green while others are much darker. The single translucent specimen is the deepest shade of all.

Of the 44 red beads, 23, including one seed bead, belong to type A, eight to type B, 10 to type E, and three to type F. Many of the smaller beads belonging to type A are wine colored and translucent. Those belonging to type B are, for the most part, of a dull, reddish brown color and opaque. The larger beads in this color category appear to have been affected by soil conditions or exposure because their surfaces are badly corroded. Those specimens belonging to type E are the darkest but are nevertheless clearly translucent.

Although only 16 polychrome beads occur in the Kijik collection, there are a number of different designs and a great many color combinations. The most common design is a basic color of black, white, or blue with a series of parallel lines of a different color running around the beads parallel to the stringing hole. Frequently too, the beads exhibit three color layers; a white or blue core, a thin red layer, and an outer layer. The horizontal stripes on the exterior are often edged in white if they are dark, or dark red if they are a light color such as yellow. All are opaque. There are no seed beads in this color category and ten belong to type A while six are the type B shape.

The pink beads exhibit remarkable uniformity of color and shape. All are a very light pink and all belong to type A. Another noteworthy factor concerning this color category is that all except four specimens belong to the seed category.

Opaque, shiny black beads are uniform in color but show a variety of shapes. Eight, including two seed beads, belong to type A, three to type B, and three to type E. In addition there are six hexagonal bead separators designated as being of the type G shape.

The only type of bead in the Kijik collection that has any diagnostic value at all is the form known as Cornaline d'Aleppo which derives its name from the fact that it was associated in the Italian export business with the city of Aleppo in Syria. This type of bead was widely distributed among Indians of North America in the first half of the nineteenth century (Orchard, 1929, p. 87; Woodward, 1965, pp. 19–20). The dark brown-lined red Cornaline d'Aleppo beads occur chronologically earlier than those with white cores but

it seems clear that both forms were introduced into Alaska after extensive use elsewhere. Unfortunately, the exact time of introduction cannot, at present, be determined.

The large, deep marine blue faceted beads are of some interest in the present context because they are frequently referred to as "Russian" beads and are thought to have been widely circulated by the Russian-American Company. It is unlikely that these beads were manufactured in Russia since "original packages . . ., wrapped in grey course paper, were found unopened in the warehouse of the Russian American Fur (sic) Company at Sitka in 1867, marked 'Brussels' " (Woodward, 1965, p. 9). Nevertheless, these beads seem to have been particularly common in southern Alaska and British Columbia and as far south as Washington and Oregon. Along the Columbia River, such beads are thought to be the oldest of any in the area because they are found in sites which represent a transition from the prehistoric to the historic period (Strong, 1965, pp. 33–34). It may very well be that they are also the oldest beads at Kijik but there is no way of telling for certain whether they belong exclusively to the Russian period.

Little can be said of the rest of the beads in the collection. They presumably represent a nineteenth century assemblage of European and Syrian made trade beads which, like the Cornaline d'Aleppo, were used extensively in the Plains and in other parts of North America prior to being introduced into Alaska where, for some uses, they have persisted down to the present day.

Metal

Objects of metal form the largest and most important category of imported goods from the Kijik site. Their abundance demonstrates graphically the extent to which the Tanaina Indians had access to European manufactures. Because of the numbers and variety of imported metal artifacts, it seems advisable to describe them under the following headings: building hardware, tools and implements, household articles, firearms and ammunition, personal possessions, subsistence, and unidentified.

Building Hardware

Nails.—A total of 291 nails were recovered from the Kijik site most of them heavily rusted and corroded. Of this number, 109 could be identified as square cut nails, while 141 were wire nails, the common variety in use at the present time. Forty-one specimens were

either too fragmentary or too badly corroded for positive identification.

Wire nails have been manufactured in the United States since the 1850's, but prior to 1879 they were much less common and more expensive than the square cut variety. In that year an American manufacturer succeeded in using the newly developed Bessemer steel wire, and it was no longer necessary to import iron from Norway for making wire nails. By 1890 wire nails greatly outnumbered the square cut type and the latter were completely replaced except for certain specialized uses. It is not surprising that wire and square cut nails occur in about equal numbers at Kijik since occupation of the village encompassed the period of shift from one kind to the other (Fontana and Greenleaf, 1962, p. 55; Fontana, 1965, p. 89).

Of the total number of wire nails, 87 were suitable for sizing; the others were so badly rusted or bent that they could not be measured. The sizes represented and the number of nails of each size is as follows (Pl. 18, 1–11):

3d..... 1	6d.....13	9d..... 9	20d..... 2
4d..... 5	7d..... 4	10d..... 6	40d..... 6
5d.....16	8d..... 8	12d.....17	

It is likely that most of these nails were used in light framing or were taken from boxes and crates.

After 1830 square cut nails were produced by machines that cut and headed them uniformly. Those from the Kijik site appear to belong exclusively to the form called common cut which were made in sizes 2 to 60d. All specimens regardless of size have beveled shanks that are rectangular in cross-section at the point. A few may be fencing nails, but because the heads of some specimens were badly rusted, positive identification is impossible. Forty-seven square cut nails were suitable for sizing and were sorted with the following results (Pl. 18, 26–32).

2d..... 1	8d.....15	20d..... 2
4d.....13	12d..... 7	
6d..... 6	16d..... 2	

Common cut nails were used more than any other form of square cut nail, and most of the Kijik specimens were probably associated with house or cache construction. Many of the square cut nails have been sharply bent and yet show no signs of rupture. This indicates that they have been annealed as part of the manufacturing process, a development which took place about 1870 (Fontana and Greenleaf,

1962, p. 57). Thus, these nails can be dated post-1870, and it is highly probable that all the others in the collection can too.

Three *cut tacks* and a *cut spike* were also recovered. The tacks are four, eight, and 24 ounces respectively and the spike is 9.7 cm. in length. In addition, there are five *wood screws* and a small *nut and bolt*. Only three of the screws are complete; two have shanks 5.5 cm. in length while that of the third is 3.2 cm. long. All, including the two fragments, have flat heads. The shank of the nut is 1.1 cm. long.

The collection of building hardware also includes two fragmentary rectangular brass *hinges*, probably for interior cupboards, and three *key hole plates*, of which only one is complete. It is ovoid in shape with pointed projections at either end for driving into the wood of the door (Pl. 18, 16). This plate is small and was probably used on a small cupboard door. Identification of the two fragmentary plates is somewhat uncertain. One is round and was apparently fastened to a door with tacks. The other is half of what was probably a rectangular plate. There are three tack holes across the top and the whole is covered on one side with an engraved floral design (Pl. 18, 17).

Tools and Implements

Considering the abundance of metal imported artifacts from Kijik, it is perhaps noteworthy that so few can be grouped as tools or implements apart from household articles. Especially significant in this regard is the paucity of artifacts associated with wood working which, in its various forms, must have been an important activity for the men of the village. Only one complete single bitted *axe head* was recovered together with two fragments. The complete specimen has a fragment of the wooden handle still in place (Pl. 19, 1). Both fragments are from specimens which broke along the sides at the point where the handle enters. Each appears to have been machine forged from a single piece of iron.

Two wood-splitting *wedges* of iron have semi-lunar working edges and taper toward the proximal ends. Pounding on the proximal surface has badly battered and mushroomed the metal of one specimen (Pl. 19, 2).

A single *shovel* fragment consists of the iron casing which braced the lower part of the handle and a small section of the blade to which it was riveted. At the proximal end of the handle casing is the name of the maker, "W. MOORE," the descriptive word "BEST" and, at right angles to these and parallel to the blade, the size of the shovel, a "NO. 4."

Three identical flat rat-tailed *files* that taper slightly at the distal end and are rectangular in cross-section were recovered from a single structure (KS-18); each is 32 cm. in length (Pl. 18, 22). A single badly corroded file is much shorter, being 20 cm. in length and triangular in cross-section (Pl. 18, 23). These specimens are machine-made as were all files in the United States after 1850 (Fitch, 1883, p. 724). A short, fine-toothed *saw blade* completes the inventory of true tools from the Kijik site (Pl. 18, 21).

Much less easy to identify than the object just described are four *iron rings*, two round (Pl. 18, 20) and two oblong with a small opening on one side (Pl. 18, 25). The small, round rings may be parts of dog harnesses or terminal links in the chains attached to steel traps. It would seem that the larger rings are too large to have been associated with dog harnesses, but they were doubtless attached to a strap of some kind. Also probably associated with leather straps is a *buckle*-like object with a rectangular opening at one end and a round one at right angles to it at the other (Pl. 19, 6).

Five brass *rivets* and six *rivet washers* are associated with fabrics. The washers are necessary so that the rivets will not pull out easily. Today among the Indians and Eskimos throughout Alaska such rivets are used in the manufacture of webbing dog harnesses. Rectangular strips of webbing are riveted together and then sometimes sewn at the corners for extra strength.

The only objects in the collection that can be definitely associated with trapping are two *jaws* (Pl. 19, 3) and a fragment of the *pan* of an Oneida Newhouse spring trap. The word "NEWHOUSE" appears on the latter specimen. Sewall Newhouse was one of the founders of the trap company started by the Oneida Community in 1848. The style of spring trap that bears his name was first made in that year and has changed very little down to the present day (How to Catch more Furs etc., 1945, pp. 2, 27). This pan fragment measures approximately 5.5 cm. in diameter. It is impossible to determine the size of the trap on the basis of such a small fragment.

The collection includes four lead fishing *sinkers*. Three are very small and light and would almost certainly have been used with hooks and lines. Two are of the clincher type where the piece of lead is simply squeezed around the line. The third has small wire eyelets at each end (Pl. 19, 4). The fourth sinker, also of the clincher type, is larger and heavier and was presumably used on a net (Pl. 19, 5).

PLATE 19

Metal Artifacts

1. axe head (p. 99); 2. splitting wedge (p. 99); 3. trap jaw (p. 100); 4. fishing sinker (p. 100); 5. fishing sinker (p. 100); 6. buckle(?) (p. 100); 7. lug for kettle handle (p. 104); 8. lug for kettle handle (p. 103); 9. teaspoon (p. 105); 10. kitchen knife (p. 105); 11. kitchen knife (p. 105); 12. kitchen knife (p. 105) 13. table fork (p. 105); 14. table knife (p. 105).

Three short sections of *multi-strand wire* and seven pieces of heavy *single strand wire* were discarded in the field as were 16 *iron rods* about 40 to 50 cm. in length and of slightly smaller diameter than curtain rods.

Household Articles

Identifiable metal artifacts in this category number 139 and would seem to represent a fairly complete cross-section of the kind of household equipment available to the Indians at Kijik through their contacts with the trading posts at Iliamna and Tyonek. Preservation of all metal except brass or copper and cast iron was poor. As a result, many of the artifacts in this category, as in others, are heavily rusted, badly corroded, and fragmentary.

Although cast iron *stove* fragments were recovered from ten structures and two test trenches, most of the pieces are too small to be of use in identifying different types of stoves. Cast iron is surprisingly brittle and there was even some breakage of recovered specimens during shipment between Alaska and Chicago. Only in three structures were the recovered fragments numerous and large enough to provide definite information about the types of cooking and heating stoves used by the Kijik Indians. Five large fragments from KS-4 appear to be part of a rather small, squat, pot bellied stove of the Franklin type. This stove apparently had two large covers or lids, a narrow elliptical smoke hole for the pipe, short curved legs 15 cm. in length and a rounded apron projecting in front of the body. On the door are the words "MUNSELL & THOMPSON / MFG. CO. / NEW YORK." It is impossible to measure the height of this specimen, but it is 50 cm. in length at the front, tapering to 38 cm. long at the back, and 40 cm. wide.

A stove of a rather different type is represented by the 13 fragments from KS-18. It appears to have been rectangular with two compartments, a large one for fuel and a small oven with a door only 16.5 by 12.5 cm. The front and rear sections of the specimen can be reconstructed and they measure 51 by 33 cm. The one leg recovered is 27 cm. in length and curved. Thus the top of the stove was approximately 60 cm. above the floor. Two round lids were recovered, each 16.5 cm. in diameter. The curved supports for the lids were removable. This stove is ornamented at several points with a raised floral design; the letter and digit combination "EB 6" occurs on three fragments.

The 15 stove fragments from KS-3 seem to represent at least two specimens. One was rectangular and possibly similar to the stove just described for KS-18. It was much smaller, however, and on short legs similar to those on the specimen from KS-4. The largest fragment from this stove suggests that is was no more than 32 cm. in length. The second specimen from KS-3, although very fragmentary, appears not to have been a stove at all, but rather a heavy grate on legs; a sort of rectangular grill under which fires were built. Presumably such a device would, of necessity, have been used out of doors.

The only other stove fragment of interest is a door from KS-8 with the maker's name, "I. SOUTHARD," on the front. An arabesque-like type of ornamentation characterizes this specimen as well as a number of other stove fragments in the collection.

Three kinds of *kettle* fragments were recovered. There are five fragments of sheet iron kettles, four of which are so small that they indicate nothing about the size of the vessels. The fifth, although fragmentary, must have been at least 40 cm. in diameter because the largest fragment is 75 cm. long. The bottom has been cut out of this specimen and the sides cut and straightened out. It has been used as a retainer for rocks in the small bathhouse attached to KS-18. All of these fragments were doubtless from wide-mouthed kettles which had wire handles attached to circular lugs on either side.

A single copper kettle has been cut and is extremely battered. It appears to have had a flat bottom approximately 17 cm. in diameter with straight, but perhaps slightly flaring, sides. On opposite sides of the rim are heavy lugs riveted in place.

There are three fragments of cast iron kettles, only two of which are large enough to indicate size or shape. One is simply the bottom of a very small vessel with three small feet and the digit "5" in relief (Pl. 20, 1). The fourth is the upper half of a larger circular kettle that must have measured at least 28.5 cm. in diameter at its widest point. The vessel sides curve in abruptly toward the opening and there is a short vertical lip. The diameter of the opening was probably no more than 15 cm. A single lug that is one piece with the rest of the kettle occurs near the rim and there is also a small, vertical spout. Although the shape of this large kettle when complete can only be surmised, it is likely to have had a flat bottom.

The 19 *lugs for kettle handles* are from vessels similar to those just described. Sixteen are from sheet iron kettles and resemble the illustrated specimen (Pl. 19, 8); some are heavier and thicker than

others. They were riveted to the kettle rims just below the lip. There are three from copper or brass kettles which were likewise riveted in place. Two of these resemble the illustrated specimen (Pl. 19, 7), while the third is similar in shape to those found on the sheet iron kettles.

A single *kettle handle*, which is very fragmentary, has a small, outward facing knob at the distal end which would have fitted into a small hole in the kettle lug, not unlike that on the fragmentary cast iron kettle previously described.

Of the five badly rusted and fragmentary *kettle or pan lids*, three can be measured and are 23.5, 15.5, and 12 cm. respectively. Two have small wire handles and all have slightly constricted rims. The largest might have been used with a frying pan.

Tea kettles are represented by nine fragments which reveal something about their construction. Such kettles in use at Kijik appear to have consisted of three parts, not including the lids and lugs. The body of such a kettle was made up of a lower section including the flat bottom and straight sides. Over this was fitted a rounded upper section which curved inward to the opening which was approximately 9 cm. in diameter. On one side of this upper section was a series of small holes in a V-shaped pattern. Over this was fitted a separate spout. Two types of spouts occur; a very light one of sheet steel and a smaller one of brass which is badly twisted and battered.

A large, square pan, 35 cm. square and 7.5 cm. deep, with a flat bottom and swivel handles on two sides is probably a *baking pan*. However, it had been used in KS-6, the structure from which it was recovered, to hold hot rocks for a bath. Because of its size and fragile condition, it was discarded in the field.

Two badly rusted, fragmentary round *pans* were recovered. The smaller is approximately 10 cm. in diameter and 4 cm. deep. It has slightly flaring sides and an everted lip. A much smaller specimen appears to have been made of blue enameled steel. Its diameter cannot be measured, but it is 12 cm. deep with straight sides and a rolled rim. It does not appear to have had a handle.

There is one complete cast iron *frying pan* and another fragmentary sheet iron specimen in the collection. The complete pan is 22 cm. in diameter at the rim, 5 cm. deep, and has pouring spouts on either side. On the handle where it joins the rim is the figure "6." The sheet iron specimen is much larger and a little deeper but its exact measurements cannot be determined.

A badly crushed sheet iron *pail* has straight sides and a basal diameter of not more than 15 cms. It has small, riveted handle lugs similar to those described above and also a cup-like handle on one side.

A badly corroded, deep, round pan with curving sides is approximately 30 cm. in diameter with a wide lip. It is most likely a *wash basin*. The specimen was discarded in the field.

Cutlery from the site includes one complete steel *teaspoon* with a faintly visible arabesque design on the handle (Pl. 19, 9) and four iron fragments. There is also a *tablespoon* handle, a complete *table knife* with a plain recessed handle (Pl. 19, 14), and two iron *serving spoon* fragments. One of the latter is the upper end of a handle decorated with arabesque ornamentation and a hole in the center. Two steel *table forks* are three tined with wooden handle fittings held in place by three small, brass pins (Pl. 19, 13).

Four *kitchen knives* are all of different sizes. The largest, 20 cm. long, had a handle with wooden fittings. These were held in place by five iron pins (Pl. 19, 12). A similar specimen, 15 cm. in length, probably had the same kind of handle but with only two iron pins. The other knives are smaller. One has a handle with bone fittings fastened to the blade by three brass rivets. There are cross-hatching designs on both sides of the handle (Pl. 19, 10). The other has a solid wooden handle into which the blade has been fitted (Pl. 19, 11).

A large pair of *scissors* was recovered complete (Pl. 20, 8) along with three fragments from much smaller specimens.

A pair of toothed *grommets* of brass were probably parts of canvas tarpaulins or tents. On one specimen is the following inscription in stamped letters: "PAT'D AUG. 26, 1884." Below this inscription are the letters "NO" and an illegible digit, probably a size reference (Pl. 20, 4).

A sheet-steel *padlock* with brass fittings (Pl. 20, 3), and a metal *drinking cup* complete the inventory of metal household articles.

Firearms and Ammunition

The collection of metal gun parts, cartridge cases, and accessories from the Kijik site is of sufficient size and variety to give a fairly clear idea of the range of weapons used by the Indians. The large collection of cartridges is particularly valuable because it indicates the use of a number of weapons, parts of which were not recovered from the excavations. It is likely that throughout the period of occupation at Kijik, firearms of any kind were valued possessions, diffi-

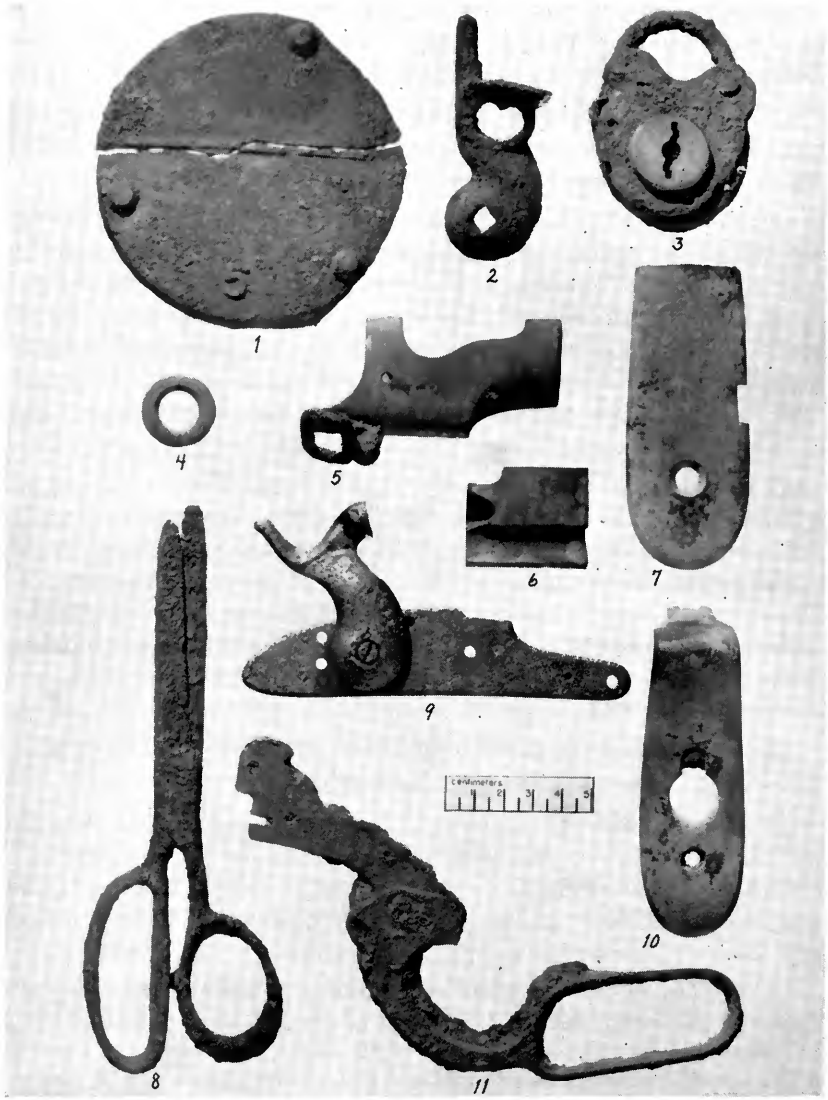

PLATE 20

Metal Artifacts

1. cast-iron kettle fragment (p. 103); 2. flintlock hammer (p. 107); 3. padlock (p. 105); 4. grommet (p. 105); 5. barrel band (p. 107); 6. magazine for repeating rifle (p. 108); 7. butt plate (p. 107); 8. scissors (p. 105); 9. lock plate with hammer (p. 107); 10. butt plate (p. 108); 11. lever (p. 108).

cult to repair when broken and expensive to replace. Therefore, it is perhaps surprising that there are as many gun parts in the collection as actually occur.

Firearms.—Guns originally manufactured for the armed forces of the United States include parts of muzzle-loading muskets and rifles and a lever action repeating rifle. In addition, there are gun parts which the authors have not been able to associate definitely with any specific make or model.

The United States percussion rifle Model 1841 is represented by two *lockplates*, one of which has the hammer attached. On the hammerless plate behind the hammer screw hole are the markings "HARPERS FERRY 1845" in three vertical lines reading to the rear. This plate is part of a gun that was the first general issue army percussion long arm to be made at the government armories. The pattern model of the rifle was prepared at the Harpers Ferry Armory in 1841 and the arm was made at that armory between 1846 and 1855, as well as by a number of contractors (Gluckman, 1965, p. 181). One of these contractors was Eli Whitney, the famous inventor of the cotton gin, who operated an armory at New Haven, Connecticut. The lockplate with hammer is from a Whitney Model 1841 rifle. The markings on the plate are extremely indistinct, but it is possible to make out, in front of the hammer, the name "E. WHITNEY," and behind the hammer, "N. HAVEN" (Pl. 20, 9). There would also have been a date in a second line reading to the rear. Between October, 1842 and May, 1855 the Whitney armory contracted for 17,600 of these rifles (Gluckman, 1965, p. 186). Also associated with the Model 1841 percussion rifle is a fragmentary brass *butt plate* (Pl. 20 7) with a countersunk screw hole and a notch on one side for the catch of the patch box that was built into the stock of this model (Hicks, 1962, Pl. 38). Two brass lower *barrel bands*, one bearing a sling swivel (Pl. 20, 5), complete the inventory of Model 1841 parts in the collection (Hicks, 1962, Pl. 38).

A single incomplete iron *hammer* (Pl. 20, 2) is probably from a U. S. flintlock musket Model 1816. Its lower portion is rounded with a square screw hole, and the hammer hole is heart-shaped. The Model 1816 was produced in the Springfield and Harpers Ferry armories and by contractors from 1817 to 1844 (Russell, 1962, p. 162; Gluckman, 1965, pp. 115–120).

Three specimens have been identified as being associated with the Winchester repeating rifle, Model 1866. These include an entire brass *frame* (Pl. 21, 1), a *butt plate* showing the opening for a cleaning

rod which fitted into the butt stock (Pl. 20, 10), and an iron *lever* (Pl. 20, 11). The Model 1866 was manufactured from 1867 to 1898. Directly in back of the trigger on the frame mentioned above is the serial number "121776." This indicates that the weapon was manufactured in the early 1880's (Williamson, 1952, p. 457). Another butt plate similar to the one described above, but made of iron rather than brass was also recovered.

Two additional specimens seem likely to have been associated with weapons made for the United States government but it has not been possible to identify them with certainty. One is an octagonal musket barrel 74 cm. (29 in.) in length that has been converted from flintlock to percussion by one of the methods authorized for government conversions. The proximal end of the barrel has been cut off and then fitted with a new breech which has the cone bolster included as part of the breech forging (Gluckman, 1965, p. 159). This barrel has been rounded at the distal end so that it could be fitted with a bayonet and has a brass front sight. On top of the new breech is the date "1841" and on the underside of the barrel about 7.5 cm. from the end of the breech are the proof numbers "118." Also on the underside are two lugs for fastening the barrel to the stock; one is round and the other rectangular. A fragmentary iron *trigger guard* also closely resembles those on a number of U. S. government muskets and rifles of the period 1830 to 1850, but it is not complete enough for positive identification. The forward edge of the guard bow has a hole for a sling swivel.

The remaining gun parts from the Kijik site cannot be accurately dated or associated with a particular weapon either because they are too fragmentary, or because they are non-diagnostic parts that were not subject to variation throughout the period of occupation of the site. A complete *percussion lock assemblage* is from the left side of a double barreled shotgun (Pl. 21, 7). Although the lockplate is deeply pitted, it appears to have been decorated with an engraved scroll-like design. Two lockplate fragments and a hammer are probably from similar weapons. Other fragmentary parts of locks include three *main springs*, two *sears*, and two *sear springs*.

Almost certainly associated with repeating cartridge rifles is a fragment of the magazine of a 44 caliber weapon (Pl. 20, 6), a section of the lower frame near the trigger, and a section of the firing mechanism (Pl. 21, 5, 9). In addition, there are two nearly complete butt plates, one fragmentary and of iron which probably had a very short tang (Pl. 21, 3), and the other of hard rubber with a checked surface,

PLATE 21

Metal Artifacts

1. frame for repeating rifle (p. 107); 2. handle of reloading tool(?) (p. 118); 3. butt plate (p. 108); 4. cigarette holder (p. 118); 5. breech block (p. 108); 6. bullet (p. 117); 7. percussion lock assemblage (p. 108); 8. bar of lead (p. 117); 9. frame fragment (p. 108); 10. gun powder can lid (p. 118); 11. gun powder can (p. 118).

no tang, and two screws still in place. There are also three very small butt plate fragments, one of hard rubber and two of brass. A fragment of trigger mechanism and a thin, broad iron trigger guard fragment complete the collection of gun parts with the exception of barrels.

Besides the converted gun barrel already described, there are two additional complete barrels of muzzle loaders in the collection and

four barrel fragments. Of the two complete specimens, one has a percussion cap cone bolster on the right side of the breech and is round for its entire length of 61 cm. (24 in.). The breech plug is in place and because the barrel is heavily rusted and otherwise damaged, the caliber can only be estimated at between 45 and 50 and the presence or absence of rifling cannot be determined. The other complete barrel is octagonal for its entire length of 71 cm. (28 in.) but the method of firing which characterized this weapon cannot be determined. The breech plug, which may have contained an attached cone bolster for percussion firing, is missing. There is no touch hole at the proximal end of the breech so the weapon definitely was not a flintlock. On the underside of the barrel are the digits "26940" and three lugs for attachment to the stock; two are rectangular and one is round. It is impossible to tell whether the barrel is rifled, but the caliber is approximately 30.

Of the four incomplete barrels, two are mere fragments, badly rusted and twisted, and less than 20 cm. in length; one seems to be a section of a 12 gauge shotgun barrel. The other two are reasonably complete at the proximal end and are recognizable as being from muzzle-loading percussion weapons. The shorter of the two is hexagonal its entire length of 30 cm. and has several illegible digits on the underside; the breech plug is missing. At its distal end it has been cut off and flattened to form a wedge or crow bar and has already been described in the section on locally manufactured goods. The breech plug is in place, and the cone, which is missing, screwed directly into the barrel. The caliber and presence or absence of rifling cannot be determined, but the bore seems to have been very small. The barrel could not measure more than 1.8 cm. in diameter.

With reference to the barrels just described, it should be pointed out that the two complete specimens and one of the fragments possibly could be parts of U. S. government muzzle-loading weapons similar to those that have been more explicitly defined by means of lock parts. However, the complete specimens from the Kijik site are much shorter than any barrels listed for these kinds of weapons.

In concluding this discussion of gun parts, it should probably be mentioned that simply because such weapons as the U. S. flintlock musket Model 1816 and the U. S. percussion rifle Model 1841 are found at the site does not mean that they were being used by the Tanaina Indians at the same time they were being distributed to American soldiers. On the contrary; it is quite likely that these

weapons did not reach Alaska until long after they had been replaced by more advanced types in the army. It is not difficult to imagine that surplus early army issues could be readily disposed of through the Indian trade. The Moravian missionary, William Wineland, mentions that old army muskets were being sold to Eskimos along the Kuskokwim River in the 1880's (Oswalt, 1963, p. 110). In fact, muzzle-loading weapons would have remained in demand much longer in Alaska than in other frontier regions because of a ban on the sale of breech-loading rifles and ammunition that was in force until 1896.

Ammunition and Accessories.—A total of 197 cartridge cases were recovered from the Kijik structures and test trenches and they indicate that, in addition to the guns that have been identified by actual recovery of gun parts, the following types of weapons were in use at one time or another during the occupation of the site: various 22 caliber single-shot and pump or slide action rifles, lever action and single-shot rifles of moderate power, high power bolt action rifles, 32, 38, and 45 caliber revolvers, as well as 10 and 12 gauge shot guns. Most of the weapons were designated for the use of smokeless powder which did not come into general use until around the turn of the century. In the detailed analysis of the cartridge cases presented below, it will be noted that dates of manufacture cannot be determined very closely because most of the weapons used by the Kijik Indians fall within a period when both firearms and ammunition did not change rapidly. In fact, many of the cartridges described are indistinguishable from those manufactured and sold at the present time.

Rimfire.—1) 22 short, copper, two with plain base, four with sunken letter "H" on base, six with sunken letter "U" on base. The 22 short was introduced in 1857 for the Smith & Wesson First Model revolver and is still being loaded and widely used all over the world. After 1887 it was available with semi-smokeless powder and within a short time, smokeless powder (Barnes, 1965, p. 448). Those cartridges with the sunken letter "H" on the base were manufactured by the Winchester Repeating Arms Company from 1873 to the present (Williamson, 1952, p. 448). Specimens with the sunken letter "U" on the base were manufactured by the Union Metallic Cartridge Company after 1867 when the firm was founded, but before 1902 when it merged with the Remington Arms Company (Logan, 1959, pp. 8, 10). Three cases have no firing pin marks. Total 12.

2) 22 long, copper, eight with sunken letter "H" on base, six with sunken letter "U" on base. This cartridge was introduced in 1871 and is still being made. Those with the sunken "H" were manufactured by Winchester beginning in 1873 (Williamson, 1952, p. 448), while those with the "U" headstamp were manufactured by UMC between 1867 and 1902. Total 14.

3) 22 Winchester Rimfire (WRF), copper, with sunken "H" on the base. This cartridge was introduced for the Winchester Model 1890 pump or slide action rifle and was chambered in various Remington, Stevens, and Winchester single-shot and repeating rifles and Colt revolvers. It is still loaded by major ammunition manufacturers but no rifles are made for it (Barnes, 1965, p. 275). Total 1.

4) 44 Henry, copper, 16 with plain base, 20 with sunken letter "H" on base, one with raised letter "P" on the base. This cartridge was developed by B. Tylor Henry for the lever action repeating rifle bearing his name, the forerunner of the first Winchester rifle. Manufacture of the 44 caliber Henry began in 1860 and continued into the 1930's. The cartridges with the sunken letter "H" probably date post-1900. Earlier than 1900 the "H" appeared as a raised letter. The single cartridge with a raised letter "P" was manufactured by the Phoenix Cartridge Company of South Coventry, Connecticut around 1880. Thirty cases bear the double firing pin marks of the Henry repeating rifle, patented in 1860, or of the Model 1866 Winchester, made until 1898. One cartridge is unfired (Logan, 1959, p. 68; Barnes, 1965, p. 280; Smith, 1955, p. 8; Williamson, 1952, p. 460). Total 36.

Centerfire, internally primed.—1) 50 Government (50–70), copper, plain base, crimped nearly all the way around 5 mm. above the base, Benet primer. Made at the Frankford Arsenal between 1868 and 1873 for use in the U. S. Springfield Model 1866, 1868, and 1870 rifles and in such weapons as the Sharps and Remington which were made on contract for the United States Army (Logan, 1959, p. 97; Smith, 1955, p. 8). This is probably the most closely dated, as well as one of the earliest, cartridge in the collection. It is interesting that the Kijik Indians may have possessed at least one rifle that would fire this shell at least 23 years before the ban on the sale of breech-loading weapons was lifted. Total 1.

Centerfire, externally primed.—1) 7.65 mm. (UMC), brass, Boxer primer. The 7.65 mm. Mauser is the world's second oldest rimless military cartridge. It was originally patterned for the Model 1889 Belgian Mauser, but was also adopted in a number of South Ameri-

can countries. In the United States, Remington and Winchester loaded sporting ammunition and provided rifles in this caliber from 1900 until about 1936. The Remington Model 30, a bolt action rifle, was chambered for the 7.65 mm. and the UMC headstamp on the Kijik specimens indicates that they were made before 1902 (Barnes, 1965, p. 192; Bearse, 1966, pp. 178–179). Total 2.

2) 30–30 Winchester, brass, Berdan or Boxer primer, 33 specimens are headstamped "WRA CO. / 30 W.C.F.," three are headstamped "UMC / 30-30," a unique but badly damaged specimen is headless, has a nickled surface and an obscured inscription along the sides of the case which reads in part, "30 CALIBER WINCHESTER," "PAT. AUG. 22, 1899." The 30–30 or 30 WCF was the first American small bore, smokeless powder, sporting cartridge. It was designed by Winchester and first marketed in 1895 as one of the calibers available for the Model 94 lever action rifle. It is still being manufactured and has been adapted to a large number of lever and bolt action rifles. It has been a favorite rifle in remote areas and even today, stores throughout rural Alaska are certain to stock 30–30 ammunition even if they have few other kinds (Barnes, 1965, p. 34; Bearse, 1966, pp. 105–106). Total 37.

3) 30–40 Krag, brass, Berdan or Boxer primer, headstamped "WRA CO. / 30 U.S.G." The caliber U. S. Army or 30–40 Krag was the first United States small bore military cartridge and was adopted in 1892. It was used in a variety of military firearms including the Models 1892 and 1896 rifles and carbines. It was also used in the Winchester Model 95 lever action rifle and some single-shot weapons. No commercial rifles have used the cartridges since about 1936 although it is still being made (Barnes, 1965, p. 40; Bearse, 1966, pp. 106–107). Total 9.

4) 303 Savage, brass, Boxer primer, one specimen headstamped "UMC / 303 SAV.," another "SRA CO / 303," five "UMC / 303 SRA CO." This cartridge was designed in 1896 by the Savage Repeating Arms Company to compete with the 30–30 Winchester. Although the two rounds are similar, they will not interchange. It was introduced commercially as one of several calibers for the popular Savage Model 1899 lever action rifle. Although the cartridge is still manufactured, no rifles are chambered for it at the present time (Barnes, 1965, p. 44; Bearse, 1966, pp. 118–119; Datig, 1956, vol. 1, p. 138). The specimens headstamped "UMC" were manufactured before 1902. Those cartridges with "SRA CO." on the headstamp were probably made in 1896 or 1897. In December of the latter year,

the Savage Repeating Arms Company was reorganized into the Savage Arms Company and adopted a new headstamp. The Savage Repeating Arms Company was in existence under that name only from April, 1895 to December, 1897 (Bearse, 1966, pp. 52, 55). Total 7.

5) 32 Winchester Special, brass, Boxer or Berdan primer, headstamped "WRA CO. / 32 W.S." Manufactured since 1902 for use in Winchester Model 1894 and other lever action and single-shot rifles. The Marlin 1893 also used the 32 Special. The famous Winchester M94 is still manufactured in this caliber (Barnes, 1965, p. 48; Bearse, 1966, p. 122). Total 3.

6) 32 Smith & Wesson, brass, headstamped "WRA CO. / 32 S & W." This cartridge was manufactured by Winchester for the Smith & Wesson Model 1½ hinged frame, single action revolver introduced in 1878. Many companies have made light revolvers for this cartridge and it is still manufactured (Barnes, 1965, p. 154). Total 6.

7) 38 Smith & Wesson, brass, headstamped "UMC / 38 S & W." Manufactured by the Union Metallic Cartridge Company from about 1890 to 1901 for use in Smith & Wesson revolvers and similar arms (Barnes, 1965, p. 163; Smith, 1960, p. 235). Total 2, including one complete, unfired cartridge.

8) 38–40 Winchester, brass, Boxer or Berdan primer, headstamp "UMC / (ILLEGIBLE)." The 38–40 was developed by Winchester as a companion cartridge to the 44–40 and was introduced in 1874. It was originally a black powder cartridge chambered in the Winchester Model 73 lever action rifle. Shortly after it came out, Colt began chambering revolvers for it. It was later offered in the Remington Model 14½ slide action, the Winchester M92 and Marlin M94 lever actions, and a number of single-shot rifles. No rifles have been chambered for the 38–40 since the 1930's. The Kijik specimen was manufactured by UMC prior to its merger with Remington in 1902 (Barnes, 1965, p. 59; Bearse, 1966, pp. 141–142). Total 1.

9) 38–55 Winchester, brass, Boxer primer, headstamped "WRA Co / 38–55." Introduced in 1884 and chambered for various Winchester, Marlin, and Ballard lever action and single-shot rifles including the Winchester Model 1885 single-shot, and the Marlin Model 93 and Winchester M94 lever action repeaters (Datig, 1956, vol. 1, p. 156; Barnes, 1965, p. 60; Bearse, 1966, pp. 142–143). Total 2.

10) 40–65 Winchester, brass, Boxer primer, headstamped "WRA Co / 40–65 WCF." Introduced in 1887 and used in Winchester

Models 1885 and 1886. Not manufactured after the Second World War (Bearse, 1966, p. 146). Total 1.

11) 40–82 Winchester, brass, Boxer primer, headstamped "WRA CO / 40–82 WCF." Developed by Winchester for use in the Model 1885 single-shot and introduced in that year. Also used in the Model 1886 lever action and other Marlin and Winchester rifles. The 40–82 is said to have been a favorite of miners going to the Yukon and Alaska in 1898 (Bearse, 1966, p. 148; Datig, 1956, vol. 1, p. 156). Total 3.

12) 44–40 Winchester, brass, Boxer and Berdan primers, headstamped "WRA CO / 44 WCF." This was the original cartridge for the famous Winchester Model 1873 lever action repeating rifle. At one time or another nearly every American arms manufacturer has offered some kind of weapon chambered for this cartridge. No rifles have chambered the round since 1937, but Colt revolvers retained it until about 1942 (Barnes, 1965, p. 61; Bearse, 1966, pp. 153–154). The Kijik 44–40 cartridges are of a form dating from about 1900 to the present (Smith, 1960, p. 235). Total 19.

13) 45 Webley, brass, headstamped "WRA CO / 45 WEB." Manufactured by Winchester from 1876 to about 1939 for a variety of 45 caliber revolvers (Barnes, 1965, p. 173; Williamson, 1952, p. 453). Total 1.

14) 45–60 Winchester, brass, Boxer primer, headstamped "WRA CO / 45–60 WCF." One of several cartridges designed for the Winchester 1876 Centennial model rifle. The cartridge was introduced in 1880 and Winchester continued production until 1935 even though the rifle was discontinued in 1897 (Barnes, 1965, p. 110). Total 2.

15) 45 Government (45–70), brass, Berdan or Boxer primer, headstamped "WRA CO / 45–70" (8), "WRA CO / 45–70 USG" (3), "WRA CO / 45–70 MAR" (1), "UMC / SH / 45–70" (1), "RF / 1882" (1), "UMC / 45–70" (1), plain (7). This cartridge was adopted by the U. S. military in 1873 for the Springfield rifle and it continued to be the official service cartridge for nineteen years before being replaced in 1892 by the 30–40 Krag. It was also a popular cartridge for sporting use and many repeating and single-shot rifles were chambered for it, including the Winchester Model 1885 single-shot and Model 1886 lever action repeaters. Those marked UMC were manufactured before 1902. The single cartridge with the headstamp "45–70 MAR" was manufactured for a Marlin rifle, probably the Model 81. The specimen headstamped "RF / 1882" has the "R"

at 12 o'clock, the "F" at 6, the "18" at 9 and the "82" at 3. This is a government cartridge with a rifle load, as opposed to a carbine, manufactured at the Frankford Arsenal in 1882. The letters SH on the headstamp of one cartridge stands for solid head as opposed to the earlier folded-head type case (Barnes, 1965, p. 63; Bearse, 1966, pp. 55, 155–157). Total 22.

16) 45–90 Winchester, brass, Boxer primer, headstamped clockwise "UMC / H / 45–90 / S." Developed by Winchester in 1886 for their Model 1886 rifle. It is basically the same as the 45–70 cartridge except that the case is slightly longer. The shell is now obsolete, these specimens having been made before 1902 (Bearse, 1966, pp. 157–158; Datig, 1958, vol. II, p. 135). Total 3.

17) 50 Government (50–70), brass, Berdan primer, headstamp "WRA CO / 50–70." This was the U. S. military cartridge from 1866 to 1873. It was manufactured by Winchester between 1876 and the turn of the century for use in U. S. Springfield arms of the Models 1866, 1868, and 1870 and for a variety of sporting rifles, both single-shot and repeating (Barnes, 1965, p. 115; Smith, 1955, p. 9; Williamson, 1952, p. 455). Total 1.

18) 50–110 Winchester Express, brass, Boxer primer, headstamped "WRA CO / 50–110 EX." Introduced by Winchester for use in the Model 1886 repeating rifle, it was listed in catalogues until about 1935 (Barnes, 1965, p. 116; Bearse, 1966, pp. 161–162). Total 1.

Shotgun shell, centerfire and externally primed.—1) 12 gauge, low base, paper missing, headstamped "WINCHESTER / NO 12 / BLUE RIVAL," Manufactured by Winchester around 1900. Total 1.

2) 12 gauge, low base, paper missing, headstamped clockwise "NO 12 / S / NEW CLIMAX / U." Manufactured by United States Cartridge Company, probably after 1900 (Smith, 1960, p. 23). Total 1.

3) 12 gauge, high base, paper missing, headstamped "UMC CO / NO 12 / SMOKELESS." Manufactured by the Union Metallic Cartridge Company before 1902. Total 1.

4) 12 gauge, low base, paper missing, headstamped "UMC / NO 12 / PRIMROSE CLUB." See no. 3. Total 5.

5) 12 gauge, low base, paper missing, headstamped "NO 12 / S / CLIMAX / U." See no. 2. Total 1.

6) 12 gauge, low base, paper missing, headstamped "UMC / NO 12 / NITRO." See no. 3. Total 1.

7) 10 gauge, brass case 6.5 cm. long, headstamped "WINCHESTER / NO 10." Manufactured by Winchester around 1880. Total 1.

Bullet.—1) 45 caliber conical bullet, lead. For 45 government cartridge as described above, around 1873–1900. Total 1 (Pl. 21, 6).

It seems clear from the above cartridge descriptions that lever action repeating rifles were the favored weapons of the Kijik Indians, particularly in 30 and 44 calibers. It is unlikely, however, that guns of this type were available to the villagers until very close to the end of the site's occupation. Muzzle-loaders similar to those previously described were used throughout most of the American period, and prior to 1867 the Indians may have had little access to firearms of any kind. In 1902 at the Tyonek station of the Alaska Commercial Company, most of the cartridges described here were carried in stock (Alaska Commercial Company Records, University of Alaska Archives).

Since most rifle cartridge cases would presumably have been used at some distance from the village, the fact that so many empty cases were found within the confines of the settlement and actually in the dwelling structures suggests that they were carefully collected and saved. The most probable explanation for this would be that the Indians intended to reload the cases and use them again. In this connection, it is interesting to note that in 1902, the Tyonek station carried a full line of reloading equipment for both rifle cartridges and shotgun shells (Alaska Commercial Company Records, University of Alaska Archives). It is not surprising, then, to find, in addition to the cartridge cases themselves, evidence for reloading activity in the collection. A total of 167 *primers* were recovered, all but six of them used, and 37 *shot*. Of these latter, 21 were of the No. 5 size, five were No. 4's, six No. 2's, and five size BB. A single narrow, rectangular *bar of lead* (Pl. 21, 8), 7 cm. in length, appears to represent the manner in which this material was received by the Indians for manufacture into bullets, either for muzzle-loading weapons or for the capping of reloaded cartridges. In addition to the lead bar, ten small pieces of melted lead were also recovered.

Twenty-two copper *percussion caps* occur in the collection, 16 of which have a narrow phlange around the lower end and were used with rifles or muskets. The remaining six are of the corrugated type used with revolvers. Three flat, cylindrical metal boxes and six press-on tops for such containers have been tentatively identified as *cap boxes* even though there are no markings to this effect on them.

It is known that percussion caps were distributed in boxes of this type (Russell, 1962, p. 243). Two of the Kijik boxes and two lids are of copper; the rest are of thin gauge iron. All are badly rusted and corroded. It would appear that these boxes measured approximately 4 cm. in diameter.

Another very uncertain identification is a possible handle for a *reloading tool.* This specimen is made of iron and is 13 cm. in length (Pl. 21, 2).

Seven cans have been identified as *gunpowder containers.* They are ovate in shape and of the double seamed variety; six are complete enough to indicate size. Four of these are approximately 9 cm. in height, while the other two are about 12.5 cm. high (Pl. 21, 11). In addition to these cans, there are ten tops and bottoms, slightly curved in cross-section, which would appear to have fitted cans of this type. Three of these have a single hole, approximately 1.1 cm. in diameter, directly in the middle (Pl. 21, 10). Similar cans were found at both Crow Village and Tikchik (Oswalt and VanStone, 1967, p. 64; Van Stone, 1968, pp. 297–298). At the former site they were tentatively identified as having contained tobacco. This identification now seems doubtful in the light of informants' statements and the recent recovery of labeled lead screw caps for such cans by VanStone at the Akulivikchuk site on the middle Nushagak River.

Personal Possessions

Items in this category are associated primarily with clothing, although evidence for the use of tobacco and other wholly personal possessions and activities are indicated.

Only a single pipe fragment of hard rubber (to be described later) was recovered from the Kijik excavations. Aside from this, evidence for the use of tobacco is confined to a single tobacco can and a metal cigarette holder with a hard rubber mouthpiece (Pl. 21, 4). The Tyonek station inventory for 1902 suggests that the smoking complex was well developed in the general area. Several types of pipe tobacco and cigarettes were stocked, as well as cigarette paper, chewing tobacco, and cigars (Alaska Commerical Company Records, University of Alaska Archives).

The only can fragment that can definitely be said to have been part of a *tobacco container* is a lid a little more than 8 cm. square, some of the label of which has been preserved. The legible part of the label contains the following information: at the top as part of an

inscription running around the outer edge of the can are the words "IT FITS THE POCKET;" in the center of the can "CURVE CUT PIPE TOBACCO," and elsewhere in the center, "THE AMERICAN TOBACCO COMPANY." This organization, a trust composed of five cigarette companies, had been incorporated in New Jersey in January of 1890 (Robert, 1949, p. 145). The can under discussion appears to have been virtually square and with a hinged lid. It was probably less than 3 cm. in depth. Eight pieces of heavy *lead foil* were also recovered; these were possibly liners for tobacco cans.

Although snuff is not listed in Tyonek inventories, it is popular in the area today and there is a single cylindrical can with a tight fitting lid that is of a size and shape to suggest that it is a *snuff can* (Pl. 22, 1). Unfortunately, it is badly rusted and there is no remaining label fragment that would make the identification positive.

One of the few examples of good preservation at the Kijik site was the recovery of a heavy lead foil *cap for a liquor bottle* with the paper tax stamp intact. The words "HIRAM WALKER & SONS LIMITED" appear in a circle around the top of the cap, while on the fragmentary tax stamp is the inscription "OTTAWA / CANADA / 1892 / 1 CENT" (Pl. 22, 5, 9). Since such stamps are placed on liquor bottles at the time they are sealed, this is certainly one of the more precise dates obtained for items in the collection.

The entire Kijik excavations yielded only two *United States coins*, a liberty head half dollar with a date of 1898 (Pl. 22, 7) and a liberty head copper nickel dated 1899 (Pl. 22, 6). Other specimens that can be considered as personal possessions are the metal frame of a *jack knife handle* with a section of a blade attached (Pl. 22, 10), a lead finger *ring* (Pl. 22, 16), two copper *thimbles* (Pl. 22, 3), and part of a steel *safety pin*.

Two parts from one or more *pocket watches* are included in the collection, a small cog wheel measuring 1 cm. in diameter and a back piece from inside the case with "W^{m} ELLERY" engraved on it (Pl. 22, 11). A small ovate brass fragment has been tentatively identified as the lower part of a *watch fob* (Pl. 22, 4). It appears that a small loop has been broken from the proximal end of the specimen and the strap would have been attached to this loop.

There are two fragments of *harmonica reed plates*, the only identified musical instrument in the collection (Pl. 22, 2). Harmonicas were presumably popular over a long period of time at Kijik as they are included in the inventory that the Russian-American Company

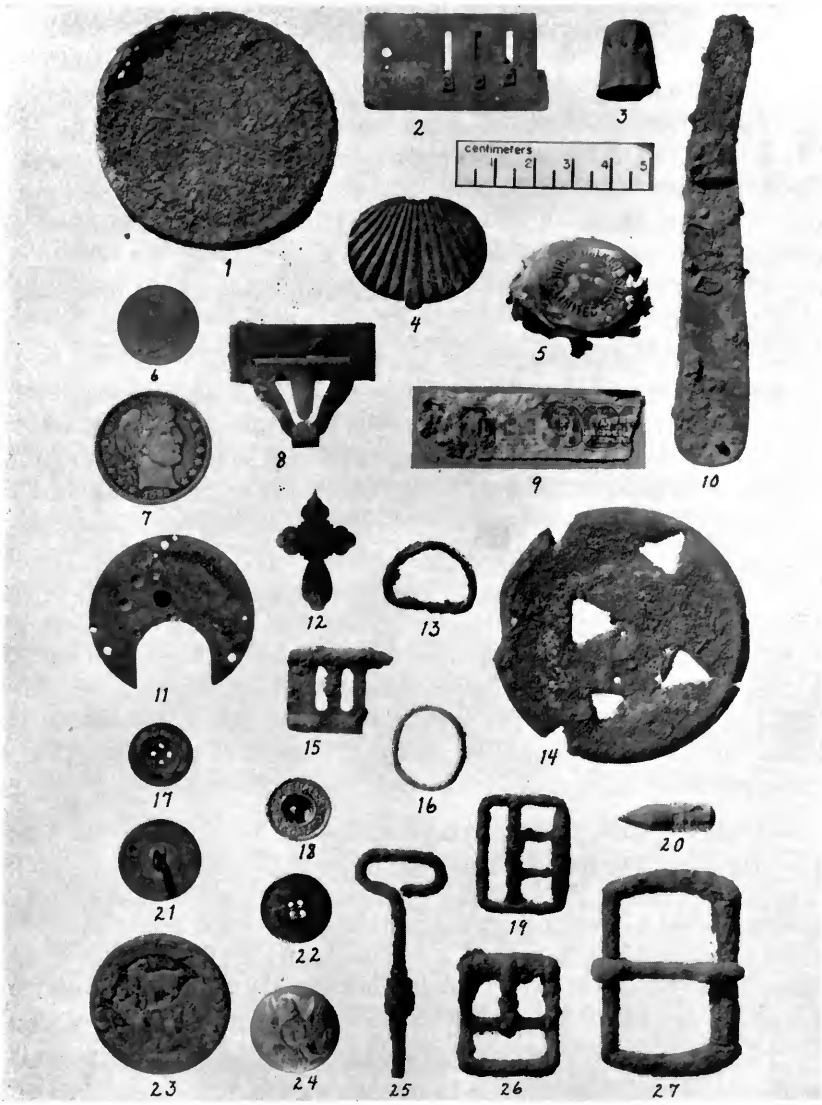

PLATE 22

Artifacts of Metal and Miscellaneous Materials

1. snuff can(?) (p. 119); 2. harmonica reed plate (p. 119); 3. thimble (p. 119); 4. watch fob(?) (p. 119); 5. cap for liquor bottle (p. 119); 6. U. S. nickel (p. 119); 7. U. S. half dollar (p. 119); 8. suspender buckle (p. 121); 9. tax stamp for liquor bottle (p. 119); 10. jack knife (p. 119); 11. back piece for pocket watch (p. 119); 12. cross (p. 121); 13. strap or belt ring (p. 121); 14. can lid showing method of opening (p. 125); 15. boot fastener (p. 121); 16. finger ring (p. 119); 17. button (type 3) (p. 122); 18. button (type 4) (p. 122); 19. buckle (p. 121); 20. pencil (p. 130); 21. button (type 2) (p. 121); 22. rubber button (p. 129); 23. button (type 5) (p. 122); 24. button (type 1) (p. 121); 25. key can opener (p. 126); 26. buckle (p. 121); 27. buckle (p. 121).

turned over to Hutchinson, Kohl & Co. at the Iliamna post in 1868. They were also stocked by the Western Fur and Trading Company at the same village in 1883, and by the Tyonek station in 1902 (Alaska Commercial Company Records, University of Alaska Archives).

A small copper *cross* (Pl. 22, 12) is of the type worn today by members of the Russian Orthodox Church in southwestern Alaska. The figure of the crucified Christ appears in low relief on one side and on the other is the figure of a saint and some inscriptions in Russian that are almost illegible; only the word "BOGA" (God) can be made out with certainty. Such crosses are given to infants when they are baptized and worn around the neck all through life. Frequently the cross is nailed to the wooden grave marker after death.

The remaining items in the category of personal possessions are associated with clothing. These include seven *buckles* that were used with men's suspenders (Pl. 22, 8), two of the type used to secure a cloth strap on the rear of a man's vest or to secure overall straps (Pl. 22, 19), and two belt buckles (Pl. 22, 26, 27). In addition, there are two *rings* with one straight side that were probably also associated with straps or belts (Pl. 22, 13), and part of a *fastener* for a rubber boot or galosh (Pl. 22, 15). It is altogether possible that the above-mentioned rings, as well as all the buckles except those definitely associated with suspenders, were parts of dog harnesses rather than clothing.

The 35 *metal buttons* from the Kijik site can be divided into four basic types. Type 1, of which there is only a single example, is a two-piece, pressed brass military button with a domed outer surface on which is stamped a spread eagle design in relief. In the center of the eagle is a shield within which is the letter "I" (Pl. 22, 24). It is possible that this is a National Guard button, perhaps from Illinois, Indiana, or Iowa. A brass eye is soldered to the back, and around the eye is stamped the words "SCOVILL MFG. CO. / WATERBURY." The Scovill Manufacturing Company was founded in 1802 but did not begin operating under this name until 1850. The firm is still in business (Albert and Kent, 1949, pp. 405, 408; Woodward, 1965, p. 25; Olsen, 1963, p. 32).

The two type 2 buttons are plain, brass coin-shaped discs having an eye of the same material with bent ends soldered to the back (Pl. 22, 21). The backs of these buttons carry the words "RICH IMPERIAL COLOR" which were intended, according to one source, not only to denote the button quality but to catch the eye of the purchaser. Such buttons date fairly early as they were manufactured

between about 1812 and 1820 (Olsen, 1963, pp. 31–32). One of the Kijik specimens has the eye filed off and is drilled for wearing as a pendant. It has already been described in the section on locally manufactured goods.

The type 3 buttons, eight in number, are of two piece pressed steel with two or four thread holes (Pl. 22, 17). They were probably used on ordinary work pants. There are 25 specimens belonging to type 4. All are very badly rusted and corroded, but they appear to be of two piece construction, a disc-shaped section with a knob which would penetrate the cloth and also the center of the disc. These small buttons are the type generally associated with overall pockets and straps. The following stamped inscription could be made out on the single specimen which responded to cleaning: "LEVI STRAUSS & CO. S.F. CAL" (Pl. 22, 18). This firm, which has made the famous "levis" since the latter part of the last century, is still in business.

The single type 5 button is of two piece construction. There is a backing of pressed steel with a copper or brass overlay consisting of a stamped design showing a mountain scene with a mountain goat. This button was probably used on a woman's coat or dress (Pl. 22, 23).

In addition to buttons, there are four brass *snap fasteners;* both parts of the fastener are represented by two specimens. On one of these are the following words; "PAT. APR. 21, 96 & SEPT. 1, 96." There is also a single hook of the type that is often found near the top of a boot or shoe-pac above the lace holes.

Subsistence

Virtually all the artifacts in this category consist of food containers manufactured from tinned steel plate: ordinary *tin cans.* Can fragments were found extensively throughout the Kijik site and the quantity and variety of recovered identifiable cans is also considerable. It should be remembered too that can metal was used in the manufacture of artifacts and that some cans which were cut and reworked by the villagers have already been described under the heading of locally manufactured goods.

Thirteen types of cans and can fragments are identifiable with some degree of certainty. Many of them are characterized by what is known as the hole-in-top method of closure. After the body, top, and bottom of such a can had been cut and soldered, a hole was left in the top through which food was forced. When the can was filled, a smaller cap was soldered in place. A pin hole in the cap allowed gasses to vent and this was finally sealed with a single drop of solder.

This type of can was the most common variety until the early 1900's (Fontana and Greenleaf, 1962, pp. 68–69).

The earliest hole-in-top cans were, of course, made entirely by hand. By the 1880's, however, the development of various machines resulted in complete automation. A key innovation in this connection was the development of side seam soldering machines. Another diagnostic trait introduced at this time was the notching of the four corners of the body blank so that the ends of the body were locked together before soldering the seam. With the development of a suitable machine for forming and rolling a hermetic double-seam came the modern open top can. This machinery was perfected over a long period of time beginning before 1860, but it was not until around 1902 that the old hole-in-top can began to be replaced. By 1922 the new double-seamed variety had gained general acceptance in the industry (Fontana and Greenleaf, 1962, pp. 70, 72).

None of the cans from the Kijik site have the dimensions of the modern double-seamed cans, nor is it possible to refer any of them to a specific size of the earlier soldered, hole-in-top variety. Nevertheless, they are of interest because they give some idea of the canned food products available to the Kijik Indians.

Type 1.—Twenty round cans 8.4 cm. in height and 7.5 cm. in diameter. All of these, with two exceptions, are single-seamed soldered, hole-in-top cans with the hole being approximately 3.3 cm. in diameter. Directly in the center of the hole covering is the tiny pin hole for the last drop of solder. The two exceptions are double-seamed cans of the modern type. It is possible that most of these cans once held evaporated or condensed milk.

Type 2.—Four lids of baking powder cans, all with stamped inscriptions giving the name of the product and other information. They are 8 cm. in diameter and have rims 2 cm. in length. On one specimen are the following words in five lines: "J. (?) FOLGER & CO. / GOLDEN / GATE / BAKING POWDER / GUARANTEED PURE" (see Fike, 1966, p. 38). Another lid has the following inscription, also in five lines: "CREAM OF TARTAR and SODA ONLY / 1 LB / TROPHY / FULL WEIGHT / BAKING POWDER." The other two lids are fragmentary and badly rusted. The inscriptions cannot be wholly discerned. On one, the following four lines of inscription are visible: "DR. PRICE'S GREAT / BAKING POWDER / 1 LB / FULL WEIGHT." On the other, only the

word "POWDER" and the letters "KC" can be made out. In addition to these lids, there are two cans that were probably for baking powder. Both are double-seamed and measure 11 cm. in height and 6.7 cm. in diameter. About 1.5 cm. below the rim is a ridge which runs around the cans.

Type 3.—Eight soldered, single-seam, hole-in-top cans measuring 11.5 cm. in height and 7.2 cm. in diameter. All except one have very small holes suggesting that they were filled with a liquid. The large drop of solder covering the hole is often as much as a centimeter in diameter. The exception has a hole 5 cm. in diameter and may have been a vegetable can.

Type 4.—Six single-seam, soldered hole-in-top cans only one of which is complete enough for measuring. It is 12 cm. in height and 10.6 cm. in diameter. All have large holes, 7.5 cm. in diameter sealed with a fine line of solder, while a large drop of the same material seals the pinhole in the center. These are almost certainly vegetable cans.

Type 5.—Similar to type 4 but with a slightly smaller diameter are five single-seam, soldered hole-in-top cans. They are 11 cm. in height and 10 cm. in diameter. They also have slightly smaller holes than type 4, being about 5 cm. in diameter with the usual pinhole covered with a lump of solder in the middle. At least one of these cans was intended to be opened with a key. The specimen, however, had not been opened that way and a scored strip can be seen running around the can just below the top. The tongue, which is gripped by the key, extends out at the seam. The key method of rolling a strip was developed by Edwin Norton of Chicago in 1895 (Fontana and Greenleaf, 1962, p. 71).

Type 6.—Two rectangular single-seam, soldered, hole-in-top meat cans 12 cm. high, 10.5 cm. wide, and 6 cm. deep, along with eight tops for such cans. The holes in these tops are 4.8 cm. in diameter with pinholes in the center. These cans were opened with a key and on the bottoms of the two virtually complete specimens are sunken key impressions.

Type 7.—A single rectangular can that is square in cross-section. This single-seamed specimen is 15.5 cm. high and 8 cm. square. The top is missing. There are also two bottom fragments from cans of this type. This is probably a meat can, and most likely contained bacon.

Type 8.—A large, single-seam, pail-like can, very fragmentary and badly corroded, was probably a lard container. The specimen has a

slight ridge running around the circumference just below the rim and circular inset discs with holes in the center for the hooks of the handle. There is also a handle for this type of pail in the collection as well as three lids which measure approximately 15 cm. in diameter. These lids, however, were for somewhat smaller pails than the recovered specimen.

Type 9.—One very fragmentary single-seam container has a large diameter but is very short. The diameter cannot be measured accurately, but the can is only 6.2 cm. high. This type of oval, flat can may have contained fish.

Type 10.—Another single-seam can is very fragmentary and corroded and has a diameter of at least 14 cm. Height cannot be measured but there seems to be little doubt that this is a large hole-in-top vegetable can.

Type 11.—A circular lid for a can of pepper, salt or some other granular product. The lid is 4.8 cm. in diameter and has a revolving disc on the top that alternately opens and closes a series of holes which radiate out in a pattern from the center. Another specimen is very similar but comes from a rectangular can. It measures 5.5 by 4.5 cm. Both lids have pronounced rims for fitting over the container proper.

Type 12.—This type of can is defined entirely on the basis of six small fragments. It appears to have been approximately 15 cm. square in cross-section or perhaps larger, but it is not possible to measure the height. In the top was an opening approximately 8 to 10 cm. in diameter and a raised neck threaded for a flat, screw cap. Such cans may have contained pilot bread or crackers.

Type 13.—Another type of can with a screw cap is identifiable only on the basis of one fragment and two caps. It was probably round and not more than 8 cm. in diameter with an opening 4 cm. in diameter or less. The cap, when screwed in position, was raised 1.2 cm. above the top of the can. It is assumed that this type of can contained some kind of liquid, perhaps syrup or molasses.

In addition to the reconstructed can types just described, there are 29 can tops, bottoms or coverings for the hole-in-top variety. Some of these show indications of having been opened with a heavy knife while one specimen bears the marks of a press type can opener (Pl. 22, 14).

There are also eight *keys* which were used with cans opened by the key strip method as well as five of the strips. The keys range in

length from 3.5 to 8.5 cm. (Pl. 22, 25). The larger ones were probably used with roll-top sardine cans, none of which occur in the collection.

A total of 2,767 unworked can fragments too small or badly corroded to be useful in reconstructing can types were recovered from the structures and test trenches. Most were counted and discarded in the field.

Unidentified

As might be expected in a collection containing so many objects of metal, there is a large number that cannot be identified. Many of these are either fragmentary or are small parts of complex artifacts and are, out of context, unrecognizable to the authors. Most are of iron, but some are of bronze and lead. From the total of 95 unidentified specimens, six of the more complete and intriguing are illustrated (Pl. 23, 1, 2, 3, 8, 10, 14, 16).

Textiles

The textile fragments in the Kijik collection are all of mill manufacture and date no earlier than the middle of the nineteenth century. With one exception, they are all too small for identification with any particular type of garment. The exception is 12 fragments of straight wool felt which include an almost complete crown of a hat and several obvious brim fragments. In addition there are 19 fragments of good quality black worsted woolen material and two of low quality black broadcloth, napped on one or both sides. These fragments are almost certainly from men's clothing, either suits or, in the case of several heavy fragments, perhaps overcoats. There are also eight pieces of backed cloth with a wool face and cotton backing. This material may have been rubberized on the cotton surface. Two small fragments of cotton satine may be parts of garment linings.

Leather

All of the leather fragments from the Kijik site derive from commercially prepared cowhide. The largest number of fragments are from *shoes or boots*. Women's footwear is represented by the sole and heel of a right shoe (Pl. 23, 17) and the sole, heel, and part of the upper leather of another right shoe. The first measures approximately 21 cm. in length and the second 23.5 cm. The inner and outer soles of both specimens are held together with headless brass nails driven along the outer edges. Enough of the upper leather of the second specimen remains to indicate that it was a laced ankle boot.

PLATE 23

Artifacts of Metal and Miscellaneous Materials

1. unidentified object (p. 126); 2. unidentified object (p. 126); 3. unidentified object (p. 126); 4. boot fragment showing lacing holes (p. 128); 5. wooden knife handle (p. 130); 6. folding ruler (p. 130); 7. pocket comb (p. 130); 8. unidentified object (p. 126); 9. rubber pipe stem (p. 129); 10. unidentified object (p. 126); 11. comb fragment (p. 129); 12. leather loop (p. 129); 13. leather strap fragment (p. 129); 14. unidentified object (p. 126); 15. strap retaining loop (p. 129); 16. unidentified object (p.126); 17. sole and heel of shoe (p. 126); 18. sole and heel of shoe (p. 128).

The upper leather of this specimen can be seen to have been tacked between the inner and outer soles with a series of iron tackets. The tacket heads are badly rusted and their size cannot be determined. The heels of both these women's shoes were attached to the sole by means of short iron nails running around the outer edge and longer ones toward the center of the heel.

In 1858 a machine was invented that would sew shoe soles to uppers with thread. This did not mean that tackets and other metal fasteners ceased to be used at that time. However, one source believes that tacketed shoes were probably not made after about 1870 and if that is true, the two shoes just described were manufactured before that date (Wilcox, 1948, p. 139).

Men's shoes or boots from the Kijik site are represented by 11 fragments. Five of these are small sections of the upper part of boots or possibly shoe-pacs and show lacing holes with brass eyelets (Pl. 23, 4). There are also six fragments of the lower part of shoes or boots. Three are small sections of inner and outer soles about which little can be said except that they appear to be from footwear similar in construction to the women's specimens already described. The other three are more or less complete sole and heel sections, in two cases with part of the upper leather intact. Two of these sole and heel sections are complete enough for measurement and are approximately 25 cm. and 28 cm. in length respectively. Both show the tacketed form of construction and the inner and outer soles are fastened together with headless brass tacks. In addition, the soles of both are covered with short, iron tacks with broad, rounded heads measuring approximately 7 mm. in diameter (Pl. 23, 18). On one specimen the heel also appears to have been covered with these "hobnails." The third heel and sole section has no part of the upper leather preserved, but the presence of thread holes indicates the manner in which the upper leather was attached. This specimen shows the construction of the heel particularly well. It is in three sections and is fastened to the sole by means of a series of headless nails approximately 2.5 cm. in length which pass through all the sections into the sole. A series of much shorter iron tacks as well as some tiny brass tacks were also used. All are placed around the outer edge of the heel.

It thus appears that all the shoes recovered from the Kijik site date from the latter part of the nineteenth century with the tacketed specimens possibly having been made during the 1860's.

In addition to the shoe fragments just described, there are three sections of leather strap, 1.4 (Pl. 23, 13), 1.6, and 2.3 cm. in width respectively; all are less than 8 cm. long. Since these strap fragments, all of which have punched holes 1.5 cm. apart, are narrow, it is possible that they are parts of *dog harnesses*. Also possibly associated with dog harnesses are four rectangular loops with brass rivets at one end similar to the illustrated specimen (Pl. 23, 12), and six other riveted fragments including a strap retaining loop (Pl. 23, 15). Two fragments of a leather *change purse*, probably from the same specimen, have stitching holes on opposite sides but the metal clasp is missing. This identification should be considered tentative.

There are 30 leather fragments that are too small for identification with any particular kind of leather good. Many have rows of stitching holes and it seems likely that most are fragments of the upper leather of shoes or boots.

Rubber

Footwear of this material includes two complete and one fragmentary *shoe rubber*. The complete specimens are a pair and show signs of heavy usage. They measure approximately 26.5 cm. in length. There is also a single *hip boot*; the foot is intact, but the leg portion is sufficient only to indicate that it reached above the knee. The sole of the boot is 31 cm. in length. A separate heel, badly worn, is attached by three iron tacks with heads approximately 5 mm. in diameter. All the specimens of rubber footwear, including seven small fragments, have cotton linings.

Other rubber artifacts include a *pipe stem*, made of hard rubber (Pl. 23, 9) for a curved pipe and two fragments of *combs* which had fine teeth along both edges (Pl. 23, 11). There are also two hard rubber, four-hole *buttons*. One has a raised ridge running around the outer surface while the other is perfectly flat with the following inscription in three lines: "R.C. CO. / 1851 / GOODYEAR" (Pl. 22, 22). Buttons with the name Goodyear and the date 1851 printed on the back refer to Nelson Goodyear's patent of May 6 of that year. Although the real Goodyear hard rubber buttons were produced by only two factories and for only a few years (Albert and Adams, 1951, p. 104), it is likely that the patents were widely infringed upon and this particular button is almost certainly of later manufacture than the year 1851.

There are three unidentified objects of hard rubber. One of these may be part of a handle for a small mirror or comb. Of the other two,

one is little more than a burned fragment and the other is illustrated (Pl. 23, 1).

Miscellaneous materials

The collection contains two small *lead pencils* both of which have been sharpened down just about as far as possible. One specimen has a copper or brass cap on the proximal end but did not have an eraser (Pl. 22, 20); the cap is missing from the second specimen. There are also five short fragments of *pencil lead*, the longest of which is 1.5 cm. It seems clear that lead pencils were a rare commodity to be carefully saved and used as long as possible.

Also of wood are two fragmentary *knife handles* from commercial knives similar to those already described. Both are of the two-piece variety that was riveted to the knife blade. In the case of the best preserved specimen, both halves are present and one rivet is still in place (Pl. 23, 5).

Two items made from cellulose plastic are a fragment of *pocket comb* with the inscription "MADE IN U.S.A." (Pl. 23, 7) and two fragmentary sections of a *folding ruler* held together with a small brass eyelet (Pl. 23, 6). This is an interesting specimen because a printed inscription can be read on both sides of the two pieces. When both sections are extended in a straight line, the inscription on one side reads "————N CENTRAL RAILWAY / THE POPULAR THOROUGH ————," while on the other "————EE & MANITOWOC AND / ST. PAUL, MINNEA———— / DULUTH, / AND THE NORTHW————." The most likely reconstruction of this inscription suggests that the ruler carries an advertisement for the Wisconsin Central Railway. The Wisconsin Central had its origin in a three-cornered transaction involving the consolidation of the Winnebago & Lake Superior, the Portage & Superior, and the Portage, Stevens Point & Superior railroads in 1869–1870. In July of 1899, the Wisconsin Central *Railroad* Company became the *Railway* Company so it is obvious that this ruler dates after that change of name. In 1908 the Minneapolis, St. Paul & Sault Ste. Marie Railroad, otherwise known as the Soo Line, acquired ownership of the Wisconsin Central although the latter continues to operate under that name (Morton, 1941, pp. 7, 99, 117).

Preserved paper from the Kijik site includes small fragments of cardboard with 4 oz. flat-headed tacks protruding from them. These are a representative sample of a large amount of such cardboard

which was recovered from a single structure (KS-8). On the basis of current practice throughout rural Alaska, it is surmised that in this structure flattened cardboard was tacked to the walls to serve as insulation. Rolled up inside one of the empty cartridge cases was a small fragment of a *playing card*, a jack of diamonds.

Also recovered from KS-8 were 35 small fragments of twisted rope coated on the outside with a bituminous substance. It is tentatively suggested that these may be fragments of a caulking or sealing compound used in the manufacture and repair of boats.

Continuity and Innovation

There are two very interesting things about the Kijik collection of traditional Indian artifacts. The first is the small number and variety of objects represented, and the second is that all types can be duplicated in Eskimo archaeological collections from southwestern Alaska. The small number and variety of types of traditional artifacts attests to the extent that the aboriginal material culture had been swamped by imported items available through trading posts. The Eskimo-like, rather than Indian-like, character of the traditional antler, bone, and stone objects reflects the proximity of the Eskimo–Tanaina boundary which runs across the southwestern end of Iliamna Lake, and also perhaps a general tendency for the Tanaina to be very receptive to the material culture of their Eskimo neighbors. In this context it should be noted that the aboriginal Tanaina are said actually to have sought out trade with the Eskimos of Iliamna Lake and Bristol Bay, while the Lake Clark people sometimes went as far afield as the Kuskokwim River drainage to trade with the Eskimos living there (Osgood, 1937, p. 74).

Trade, however, was not the only means of contact between Eskimos and the Tanaina. Both groups were aggressive and war-like, a fact which is attested to in Russian accounts of conflicts between the Indians and the Eskimos as well as between Indians and Russians. Tanaina oral traditions also support the idea that there were many Eskimo–Indian battles in the past. Although many times virtually all residents of a village would be killed in a skirmish, Eskimos would also often be taken captive and kept as slaves to become part of the wealth of an important man. Slaves were well treated because a contented slave enhanced the prestige of his master, and they were occasionally permitted to return to their own villages after serving for several years. Conversely, Indians were not always the victors in these battles; they also sometimes found themselves slaves in an Eskimo village.

One further point should also be mentioned. Traditionally, in the literature, Eskimos and Indians are supposed to have had a violent antipathy toward one another. In fact, this was probably sel-

dom the case. Thus, Eskimos and Indians in southwestern Alaska did in the past and do now occasionally intermarry. At times the residence will be exclusively in either the Indian or the Eskimo partner's village. On other occasions, the pattern may be bilocal. When we consider all three of these elements: trade, slavery, and intermarriage, it becomes much easier to comprehend the many possibilities for cultural exchange between the Tanaina and their Eskimo neighbors. Since the Eskimos presumably were in the southwestern Alaska area for a considerably longer period than the Tanaina, it can be assumed that they had made a more efficient adaptation to that particular environment. The Tanaina appear to have moved into the southwestern coastal region sometime in late prehistoric times, perhaps in the seventeenth or eighteenth centuries, and, therefore, it is not surprising to find that they borrowed material cultural traits from the neighboring Eskimos rather than clinging tenaciously to their totally inland oriented culture.

Although no exhaustive comparative analysis of the Kijik artifacts will be attempted here, it is clear that even though the traditional material culture, as indicated by the recovered artifacts, was to a large extent overwhelmed by imported items, there is obvious and specific evidence of varying degrees of continuity with the past. It therefore seems necessary that at least some aspects of this continuity be discussed. Comparisons will be made with recovered materials from the Eskimo sites of Crow Village (VanStone and Oswalt, 1967) and Tikchik (VanStone, 1968) as well as those from the late component at the Pedro Bay and Russian Point sites, both located at Pedro Bay on the northeast shore of Iliamna Lake and recently excavated by Townsend. Although these latter two sites have not yet been dated with certainty, it is assumed, because of the few trade goods recovered, that they represent the early contact period. The late component at Pedro Bay is presumed to date from the first half of the eighteenth century, while the Russian Point site, which yielded more trade goods, probably was occupied at the end of the eighteenth into the early nineteenth century; thus both predate Kijik. One major difficulty in using the material from these sites for comparative purposes stems from the fact that it is as yet uncertain whether these settlements represent Eskimo or Tanaina occupations. Some of the recovered artifacts are closely related to those from nearby Eskimo sites, while others point more directly to Indian occupation. Much of the chipped stone material at Pedro Bay and Russian Point can be duplicated in the Kijik collection. Of equal importance is the fact

that in their oral traditions, the Tanaina have stories linked to these locations.

With reference to house construction at Kijik, it can be noted that the above-mentioned continuity noticeable with respect to traditional artifacts can hardly be said to exist. We have already noted that here we are dealing with a house form greatly modified from the traditional types described in the literature and which instead reflect forms introduced by the Russians and Americans. This contrasts markedly with the tendency of the neighboring Eskimos to retain their traditional houses until fairly recently in spite of the fact that they were presumably exposed to the same housing innovations as the Lake Clark Tanaina and in a similar manner. This may be because the log cabins of the Russians and Americans represent a less radical departure from the traditional house of the Tanaina than from the sod-covered semi-subterranean living structures of the Eskimos.

Structural features of a more or less traditional nature retained in house construction at Kijik are multiple rooms, attached storage rooms and baths, and, in two cases, square, raised fireplaces contained by a log superstructure. The multi-roomed houses may be interpreted in terms of an economy which developed in response to the fur trade in post-contact time and reached a peak in the late nineteenth century. When wealth, in the form of luxury goods, was introduced through the fur trade, some families became quite affluent and a class system began to be elaborated. Under these circumstances, poorer relatives of a rich man would move to the latter's home and work for him in exchange for support, thus creating a need for larger, more complex dwellings.

It is rather surprising that we were unable to locate the remains of raised log caches, particularly since they are said to have been characteristic of all the Tanaina groups (Osgood, 1937, p. 65) and are reported for the village by Schanz. Perhaps, like the residences, they were dismantled and the logs taken to Nondalton when the village was moved. Such caches were found, however, at the fish camp located approximately 5 km. up the Kijik river from the settlement (see fig. 29, appendix 3). Their place at Kijik may have been taken, for the most part, by the underground caches which occur abundantly around the village. Osgood notes that the aboriginal Upper Inlet Tanaina made elaborate underground caches, but the Kachemak Bay people used them only for fish. He makes no reference to the use of underground caches of any kind by the Iliamna Lake and Lake Clark peoples (Osgood, 1937, p. 66).

Another problem related to house construction that can be considered here concerns the occupancy of house 5 (KS-8), a single-room structure that, because of its size, almost certainly housed a small, nuclear family. On the basis of a number of factors it seems at least possible that the occupant of this house was a white man, perhaps living alone, but more likely with his family. As we have noted previously, at least one white man, Brown Carlson, was known to have lived at Kijik toward the end of the period of occupancy and the fact that this is the smallest of those structures identified as residences suggests that it may have been occupied by the kind of small nuclear unit that is associated with Euro-Americans. Also, this structure is located on the edge of the site and some distance from other houses. Among the artifacts recovered from house 5 were the only commercial liquor bottles found at the site as well as a small bottle containing mercury. This latter material is frequently used by miners because fine gold particles adhere to it. Also recovered from this house were several large fragments of heavy paper or oil cloth pierced by broad, flat-headed tacks; this suggests a form of wallpaper. None of these factors, of course, precludes the occupancy of this structure by Indians, but they are all unique for the site and seem to suggest a degree of sophistication that might not be characteristic of the average Kijik Indian. On the other hand, it must be noted that many beads and other traditional artifacts were also recovered from house 5; in fact, proportionately, there were as many "Indian" artifacts in this structure as in any other. Of course, these could have belonged to the white resident's wife who almost certainly would have been an Indian. Whatever these various factors suggest, we know that at least one white man was living at Kijik in the early twentieth century and of all the house structures, house 5 is the most likely to have been his.

Traditional Indian stone working is represented at the Kijik site although the number and variety of types is very small. Of particular interest is the continuation of chipping techniques using hard, flinty materials such as chert, chalcedony, and fine-grained schist. It is probable that these artifacts, the end blades and foliate blades in particular, were used very early in the occupation of Kijik and they may even represent "antiques" that were retained by the villagers long after they ceased to be used as part of equipment that was passed down from generation to generation. But the presence of chert chips in the collection does seem to suggest local working of the material at some time during the occupation. At any rate, it is certain that the chipping of flinty materials, although definitely prac-

ticed to some extent by the aboriginal Tanaina (Osgood, 1937, Pl. 12e), was not a significant aspect of technology at Kijik. Chipped sandstone skin scrapers, however, represent a stone working tradition that may well have continued to be important at Kijik long after imported materials were available. Such scrapers are also well represented in the late component of the Pedro Bay site (Townsend and Townsend, 1961, pp. 41–45) and at Russian Point. In our experience, traditional objects with which Athapascan women prepare moose and caribou hides often persist long after the remainder of traditional material culture has disappeared. This may be due to the conservatism of skin workers, or, just as likely, to the fact that imported materials simply did not do the job better.

Further evidence for continuity in stone technology can be seen in the polished stone artifacts, although only two types are represented, whetstones and a single hammerstone. These forms occur at Pedro Bay (Townsend and Townsend, 1961, pp. 42–45), Russian Point, and are similar to types found at nineteenth century Eskimo settlements in southwestern Alaska, notably at Crow Village and at Tikchik (Oswalt and VanStone, 1967, p. 27; VanStone, 1968, pp. 266–267). At all these sites, whetstones were found in abundance, as they were at Kijik, and such implements presumably owed their continuity to the fact that they probably functioned equally well for sharpening either stone or metal. The fact that 44 whetstones were recovered at Kijik is particularly significant when it is realized that there are only 24 additional aboriginal stone artifacts, chipped or ground, of any kind from the site. It is also significant that in all the inventories for the Iliamna and Tyonek trading posts between 1873 and 1907 examined by the authors, none lists commercial whetstones in spite of the fact that other types of hardware were carried in abundance.

One of the most significant features of the excavations is the relative scarcity of raw bone and antler recovered from both the houses and the test trenches. A table of bone occurrences (fig. 27) indicates that although the bulk of recovered bone is considerable, a relatively small number of species are represented. Caribou bones occur with greater frequency than those of any other animal and this is not surprising since, according to informants, this animal was, and still is, plentiful in the area. Only a few moose bones were recovered and this, too, is to be expected since, although the animal is fairly plentiful in the Lake Clark area at the present time, as late as 1910 informants report them as being scarce. It is also not surprising to

find a large number of dog bones around a habitation site and it is likely, too, that the hare bones represent an important small food animal that was trapped or snared in the vicinity of the settlement, particularly during the winter. Among larger game animals the bones of which might be expected to occur, or to occur in greater abundance, at Kijik are the black and brown bear, both of which were apparently plentiful in the area throughout the period of occupation. According to informants, sheep hunting was particularly good around the turn of the century, especially in the mountainous Current Creek area, but no sheep bones were recovered. Even though the animal bones recovered at Kijik give an attenuated picture of the species hunted, there seems little doubt that caribou were the most important food animals and it can be safely assumed that much time and effort was directed toward taking them.

The bone list offers an equal distortion with reference to the taking of fur-bearing animals. Only beaver bones were recovered in significant numbers and the only other fur-bearing animals represented at all are red fox and wolverine. And yet, we know from the records of the trading post at Iliamna (Alaska Commercial Company, Iliamna post trading and fur inventories, University of Alaska Archives) that between 1873 and the turn of the century beaver, red fox, white fox, cross fox, land otter, marten, mink, lynx, wolf, and wolverine were all trapped extensively in the Iliamna Lake – Lake Clark areas. Throughout most, if not all, of the occupation at Kijik, it was only by exchanging pelts for trade goods that the villagers could obtain those exotic items which they desired and which are so well represented in the collection. It is significant, however, that the collection contains only three artifacts associated with trapping even though metal traps were stocked extensively by the posts at Tyonek and Iliamna at least as early as 1873 and probably much earlier. It is also likely that, at least during the earlier period of occupancy at Kijik, traditional trapping methods continued to be practiced and perhaps even preferred. Zagoskin (1967, p. 221) notes this as having been true for the Kuskokwim River Eskimos in the early 1840's and it is significant that traps and trap parts are absent from the Crow Village and Tikchik sites. At the latter site, one trap was recovered but it is thought not to be contemporary with the rest of the collection (VanStone, 1968, pp. 304–305).

It should be kept in mind, therefore, that locally made snares, nets, and deadfalls would leave no trace in the archaeological record. Also, both these and metal traps would be set some distance from the

FIGURE 27

ANIMAL BONE:	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Beaver (*Castor canadensis*)												
mandible								2	2			
rib	1							1				
tibia												
pelvic bone												
incisor						1			5	1		
fibula												
scapula									3			
humerus			1						2			
Caribou (*Rangifer articus*)												
mandible	1									1		1
rib						2	1		2			
tibia												
ulna												
scapula	1											
pelvic bone												
astragalus												
femur									1			
fibula			1				1		1			
vertebra									1			
tarsal												
carpal	1											
phalanges	3							3	5			
Dog (*Canis familiaris*)												
scapula												
femur												
humerus			1			1						
fibula												
radius								1	2			
ulna								1	1			
rib												
sacrum									1			
tarsal							2		1			
vertebra								1	1			
Red fox (*Vulpes vulpes*)												
mandible												
Bear (*Ursus arctos*)												
scull cap												
incisor								1	2			
Wolverine (*Gulo gulo*)												
mandible									1			
Hare (*Lepis americanus*)												
skull												
maxilla									1			
mandible	2					1	1	11				
scapula								1	1			
clavicle								4	5			
humerus	2							1				
femur	2		2					6	8			
fibula	1							1				
pelvic bone	3							2	1			
Moose (*Alces alces*)												
scapula												
femur								1				
humerus												
BIRD BONE:												
Seagull (*Larus* sp.?)												
skull												

FIGURE 27 (*continued*)

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1–6
	1													1				
	1												1	1				
														4				1
	10												1					
													1					
	2																	
	1												2					
11	4											1						2
1	3											1	7					
	1												3					
													2					
													6				2	
	7												9	3			1	
													1					
													1	3				
	1												3	1				
	1								1				2	2				
	1												2					
	3		1															1
													20					
													1					
	1																	1
													24	2				
	1																	
1																		
1																		
	1																	
	1																	
	1																	
	2													2				
	1													1				
			1															
												1	4					
	1												2	2				
												1	2					
	2																	
													2					
													1					
	1												1					
													1					

village and perhaps hung in trees between trapping seasons and never brought back to the settlement. Informants noted, for example, that beaver trapping was never particularly good right around Kijik, but that the settlement was extremely well situated for access to the upper Mulchatna River country where the animals were plentiful. If this explains the virtual absence of traps and trap parts from the collection, it will also serve as at least a partial explanation for the poor representative quantity of recovered bones. Game animals are certain to have been butchered away from the settlement and fur-bearing animals possibly were skinned in trapping camps. Unless these fur bearers were also valued for food, which is unlikely in most cases, the carcasses would not be brought back to the village at all. This explanation would also account for the small bone recoveries at the Crow Village and Tikchik sites.

In addition to the recovered bones shown in Figure 27, a few fish bones were also found. These include two vertebra (KS-14) and one mandible (KS-11) from one or more salmon species, as well as six gill fragments (KS-1 (1); KS-3 (1); KS-9 (1); KS-14 (1); KT-8 (3)) from northern pike (*Esox lucius*). In addition, two fragments of salt-water mussel shells (*Mytilus californianus*) were found in KS-14.

The use of bone in the manufacture of artifacts is relatively rare at Kijik as it is at most Eskimo sites where antler was available. Only five artifact types (splitting wedge, net sinker, awl, skin scraper, crooked knife handle) were made locally from available bone, while the whale bone out of which sled shoe sections were made was, of course, traded from the coastal Eskimo country to the north. Antler artifacts are not particularly plentiful either and the number of represented types is very small. Tanaina informants at Pedro Bay recall antler harpoon heads similar to those from Kijik being used in the early twentieth century. The most significant thing about these objects is the fact that all are Eskimo types. Continuity with the past and with riverine Eskimos is very clear. Every one of the bone and antler artifact types from Kijik was found at the Tikchik site approximately 200 km. to the west. As we have mentioned, it is, of course, this close proximity to Eskimo territory that is reflected in the traditional artifacts at Kijik. Also it should be emphasized again that the Tanaina, as the only northern Athapascan group to penetrate to the coast, have, throughout their area, been greatly influenced by the Eskimos who surround them.

Having considered the few features of Kijik material culture in which continuity with the past can, to a greater or lesser degree, be

demonstrated, we can now turn to examples of change induced by the contact situation. In approaching this problem, we will follow a method of analysis used in dealing with imported items in the Crow Village and Tikchik collections (Oswalt and VanStone, 1967, pp. 74–75; VanStone, 1968, pp. 320–323). In these reports it was pointed out that innovations, as represented by items of material culture in the collections, might be expected to occur in three ways: 1) through the introduction of exotic objects which are then accepted and added to the cultural inventory without change; 2) as a result of the availability of new materials which permit changes in existing forms, and 3) through the construction of new forms based on new models.

With reference to the first source of innovation, the reader is referred to the artifact descriptions and the trait list, both of which indicate those recovered items which were accepted into the cultural inventory without change. It will immediately be noted that the number and variety of such artifacts is considerable, and it is probably true that the collection is accurately representative of the number and variety of preservable trade items available to the people of Kijik. An examination of inventories for the Alaska Commercial Company posts at Iliamna and Tyonek suggests that by 1876 the stocks at these two stores were so complete as to include virtually all the imported items recovered from the Kijik site. With reference to food and related products, for example, the Tyonek post, in 1876–1878 stocked sugar, flour, beef, bacon and ham (salted in barrels), rice, syrup, potatoes, vinegar, canned fruit, barley, split peas, yeast powder, macaroni, soup, oysters, pepper, raisins, pilot bread, oatmeal, sardines, milk, butter, coffee, tea, onions, leaf toacco, mustard, dried peaches, plug tobacco, lard, and assorted crackers. Of these items, only the fruit, milk, oysters, sardines, and possibly the beef were canned, although a number of other products were probably bottled.

The following year, in 1879, canned vegetables made their appearance and by 1881 the post was regularly stocking canned corn, tomatoes, peas, corn beef, milk, soup, oysters, a variety of fruit, and a number of canned meat products. By 1902 the list of canned goods reads almost like that of a modern supermarket and included the following: pie squash, pumpkin, sweet potatoes, assorted vegetables, sugar peas, corn, string beans, baked beans, asparagus, tomatoes, roast mutton, roast beef, sausage, boned chicken, ox tongue, oysters, sardines, salmon, assorted table fruits, assorted jams, etc. At the Iliamna post the situation was much the same. It is, therefore, safe

to conclude that in both places canned foods were relatively scarce, if not entirely absent, in the early 1870's but began to make their appearance in the late 1870's and were extremely abundant and varied by the turn of the century.

As far as goods other than foods are concerned, it is worth noting that breech-loading Henry repeating rifles were available to Indians trading at Tyonek as early as 1876 and to those trading at Iliamna at least three years earlier. This situation existed in spite of the fact that the ban on the sale of breech-loading weapons and ammunition to the Eskimos and Indians of Alaska was not lifted until December, 1896, and the Alaska Commercial Company did not secure permission to sell such weapons until 1900. Even after the ban was lifted, special permission was required under an act of Congress, passed in 1899, with particular reference to the District of Alaska (Alaska Commercial Company Records, University of Alaska Archives). The Iliamna post also sold a small number of Enfield and Winchester rifles toward the close of the century, but neither store carried cartridges in large numbers and varieties of calibers until after 1900. It seems certain, too, that muzzle-loading flintlock and percussion rifles and shotguns continued in use throughout the period of occupancy at Kijik. As late as 1907, for example, the Tyonek post still carried bar lead, black powder, and percussion caps.

Steel traps, coal oil for lamps, and nails were all carried by both the Tyonek and Iliamna posts as early as 1876 and traps, in particular, seem to have been abundant in a variety of sizes. By 1898 the Tyonek post stocked wire nails in 11 weights, cut nails in three weights, as well as boot nails, tacks, screws, and bolts in a variety of sizes. A bewildering number of patent medicines were available to the Tanaina at least as early as 1880 and some probably could be obtained much earlier.

All this suggests the large number and variety of imported items that were available to the Indians at Kijik, at least during the early American period. The fact that these objects make up a large percentage of the recovered materials from the site seems to indicate that the Indians of the Lake Clark area, in spite of their location on the peripheries of Tanaina territory, were by no means conservative in their reaction to Euro-American material culture. This is in marked contrast to the inhabitants of at least one contemporary Eskimo settlement in the same general area (VanStone, 1968).

The second source of innovation at Kijik is of particular significance because it concerns the introduction of new raw materials and

their effect on the manufacture of traditional artifact types. Here we see clearly the persistence of old ideas in new mediums. Examples of this form of innovation are more plentiful than might be expected considering the small number of traditional artifacts of any kind in the collection. A few examples are discussed below.

1) Spent cartridge cases are used to form the end of blunt arrowheads (Pl. 13, 6). This change represents only a slight modification of a traditional artifact and it probably increased the durability and perhaps the efficiency of the point. It is interesting that blunt arrowheads of this type have been recovered from a number of historic sites (see Oswalt, 1952, p. 53; Oswalt and VanStone, 1967, p. 76; Van Stone, 1968, p. 321), and it would seem to be a change that has recommended itself to all historic Eskimos and Indians who use blunt arrowheads.

2) A piece of copper or brass has been cut in the shape of a projectile point (Pl. 13, 10). The point, which resembles a slate blade for an arrowhead or harpoon head, has a flat base and filed edges.

3) Semi-lunar and end bladed knife blades made from can metal (Pl. 13, 1) have also been reported from other historic sites in Alaska (Oswalt and VanStone, 1967, p. 75; VanStone, 1968, p. 321). In connection with these artifacts at Crow Village, it was pointed out that their advantage over similar implements of slate probably centered on the fact that they could be manufactured more quickly and in larger sizes. However, the flexibility of the metal and its inability to hold a sharp cutting edge would probably make these metal blades far less functional than their stone counterparts.

4) A spear or lance blade has been made from a military-style bayonet with steep ridges on either side (Pl. 13, 17). Here the interesting factor is not the over-all shape of the blade, although it may well resemble similar blades of antler or slate, but the fact that its tang has been prepared for hafting in the traditional manner.

5) Can metal folded into shallow dish-like containers (Pl. 14, 16) have been reported for the Crow Village and Tikchik sites (Oswalt and VanStone, 1967, p. 76; VanStone, 1968, pp. 321–322) where they seemed to indicate a marked conservatism with regard to use of the new material. They were folded at the ends in the same manner as birch bark baskets. The Kijik specimens are folded at the corners and must be considered similar to those from other sites.

6) Metal sled shoe sections are exact counterparts of those made from bone and antler (Pl. 14, 1). Metal had the advantage of being available in longer sections than antler and, throughout most of the

occupation at Kijik, it must have been easier to obtain than whale bone. It seems likely that metal shoes were fastened to the runners with nails or screws and thus would not have come into use until those items were available.

7) Two 44 caliber cartridge cases are perforated at the proximal end and a cord passed through the hole. The cases were then strung as bead separators to form a new type of necklace (Pl. 14, 10). The presence of similar cartridge cases in the collections from Crow Village and Tikchik suggests that it is likely to be a widespread form in Alaskan historical sites.

8) A brass or bronze button has been converted into a pendant by filing away the eye and piercing a hole at the edge (Pl. 14, 2). It is not surprising to find shiny metal used in this way and it can be assumed that such metal pendants were used traditionally in the same way as pendants made from locally available materials.

9) Scrapers made from bottle glass are another widely distributed trait since glass appears to have recommended itself as a substitute for flinty materials in many areas of Alaska as well as other parts of North America (Oswalt and VanStone, 1967, p. 75; Ackerman, 1965, p. 46; VanStone, 1968, p. 322; Schaeffer, 1961, pp. 275–276).

In dealing with any historic site, of course, it should be kept in mind that many imported items may have been used in a manner quite different from that intended by the manufacturer even though the villagers may have made no apparent modification in the shape of the object. The blunt arrowheads with cartridge case tips can serve as an example of this since many of them were not modified at all, but simply fitted over the end of a wooden shaft. Thus, if the cases were recovered with the shafts missing, one might assume that they were either discarded after having been fired, or saved for reloading, both purposes that were intended by the manufacturer.

Turning to the third category of innovation mentioned earlier, that of new forms based on new models, there are two interesting examples from the Kijik collection. Both are significant examples of attempts by Indians to reproduce non-Indian artifacts locally. The first of these are bullet mold halves of fine-grained siltstone (Pl. 11, 2) and the second is a powder horn made from a hollowed-out section of caribou antler (Pl. 12, 10). Bullet mold halves similar to the Kijik specimens were found at Crow Village (Oswalt and VanStone, 1967, p. 76) and there are indications that it is a form which may be widespread in Alaskan historic sites, both Indian and Eskimo. The small

number of examples in this third category of innovation, however, would definitely suggest that it was seldom necessary for the Indians at Kijik to improvise in order to create imported implements or to maintain and repair those already in their possession.

The various specifics of innovation which are discussed in this chapter provide some information about Indian response to the new items of material culture that were available to them. We have noted how the inventories of trade goods at Tyonek and Iliamna show the large number and variety of items that were available to the residents of Kijik in the early American period. The extent to which this was also true during the Russian period will be examined in the next chapter. But we know that trade goods were plentiful after about 1870 and the Kijik Indians do not appear to have been reluctant to acquire them. In fact, as we have noted, there is little about the collection of artifacts or the excavated living structures that suggest continuity with the past at all.

This receptiveness with regard to material items contrasts markedly with the situation revealed through the excavation of two Eskimo settlements occupied at approximately the same time as Kijik; the Crow Village and Tikchik sites. Here the collections clearly indicate continuity with emphasis on the retention of traditional forms (Oswalt and VanStone, 1967, p. 77; VanStone, 1968, p. 323). Presumably the inhabitants of these two Eskimo villages had access to sources of trade goods that were equally as rich as those available to the residents of Kijik and their location is no more inaccessible. Thus, our explanation for Eskimo conservatism as opposed to Tanaina Indian progressiveness with reference to material culture must be sought elsewhere.

The Tanaina, as well as the riverine Eskimos who inhabited the Kuskokwim and Nushagak river drainages, maintained a traditional orientation to seasonal salmon fishing that has remained consistent and strong down to the present day. Thus, basic subsistence differences cannot be used as an explanation for variation in receptiveness to trade goods. Although on the surface it would appear that both groups participated on a nearly equal basis in a trapping-trading economy, the possibility of differential exposure to this post contact phenomenon should not be automatically ruled out. This may have been a significant factor and it will be discussed in the following chapter.

It is also profitable to look at variations in social organization for clues to the reason for Tanaina progressiveness with reference to ma-

terial culture. The Tanaina value system stressed individual excellence and achievement. In many ways, it seems to have resembled the Euro-American stress on individual initiative and related values. Townsend (1965) has suggested that the social organization was well suited to elaboration when wealth, in the form of imported material goods, was introduced. Although the Tanaina may have possessed an incipient class system prior to the contact period, it was considerably elaborated when the opportunity arose to obtain wealth in the form of trade goods through participation in the fur trade. Imported items of various kinds quickly became status symbols for the wealthy of the community. Some of the better hunters were rapidly enticed into debt through reliance on credit obtained from the trading posts for trapping equipment, supplies, and luxury items. This insured their continued participation in the trapping-trading economy. It is suggested, therefore, that the Indians eagerly acquired trade items not only for their utilitarian value, but, more importantly, for their prestige value and, specifically, for their use in prestigious potlatches. The Eskimos of southwestern Alaska, on the other hand, lacked the prestige system and class-based social organization which would have given added meaning to their acquisition of trade goods. The Tanaina, with a culture already strongly oriented toward borrowing, and a social organization which encouraged the acquisition of material goods to enhance prestige, quite naturally reacted more positively than the Eskimos when presented with an opportunity to acquire a complex, imported material culture.

Time and Change

The occupation at Kijik has been seen to span much of the nineteenth century and the first decade of the twentieth. Trade goods were found in all the structures and in the test trenches, so it seems safe to assume that the inhabitants had at least indirect contact with Europeans from the time of earliest occupancy. In addition, the shallow cultural deposits indicated by our various test trenches make it clear that there was no earlier, prehistoric component at the mouth of the Kijik River. In fact, as has been suggested several times in this study, it is probable that the Tanaina did not move into the Lake Clark area until at least the end of the eighteenth or beginning of the nineteenth century. If that was the case, then the original residents of Kijik doubtless brought trade goods with them and continued to have access to Nikolayevski Redoubt on Cook Inlet and, by 1821, to the post at Iliamna. Thus, the settlement cannot be said to have been isolated in terms of its access to trading posts at any time during its occupation.

Familiarity with the fur trade can, with certainty, be attributed to the nineteenth century Lake Clark Tanaina. However, the Kijik collection clearly shows that it was American influence after 1867 that left its mark on the material culture of the villagers and continued to influence village life until the site was abandoned. We have already noted that historical source material referring directly to Kijik is scanty. In spite of that, it is convenient to consider two major historical periods and their significance to the Indian inhabitants of Kijik. The first begins at the time when the settlement was established and extends until the purchase of Alaska by the United States in 1867, while the second encompasses that period between 1868 and the abandonment of the village.

1800–1866

The date of 1800, of course, represents only an approximation of the founding date for Kijik. If we are correct in assuming that the Lake Clark–upper Mulchatna–Stony River area was not occupied by

the Tanaina until approximately that time, then it seems likely that Kijik was one of the original settlements in the area. The important point here, it seems to us, is that Kijik very likely never was an aboriginal Tanaina village in the strict use of the term. That is, it was never occupied by people entirely free from Euro-American influence. If the original inhabitants of Kijik were a segment of a former coastal population, they would certainly have brought with them to the interior the many material traits which they had acquired as a result of contact with the posts on Cook Inlet. Thus, even though the Lake Clark area itself remained relatively unknown throughout most of the Russian period, this should not necessarily be considered significant with respect to Russian influence on Kijik Tanaina culture. In fact, it is altogether possible that the original inhabitants of Kijik were actually sent to the Lake Clark area from Cook Inlet by the Russians in the interest of the fur trade. If this were the case, and the Kijik Tanaina were already highly acculturated when they arrived at Lake Clark, it would help explain why so few aboriginal Indian artifacts were recovered from the site. It would also serve as a partial explanation for the apparent rapidity with which Kijik residents accepted American material items when they became available.

These aspects of culture change at Kijik are interesting in comparison with Eskimo–Russian relations to the west in the Nushagak–Kuskokwim River region. Here, shortly after the establishment of Aleksandrovski Redoubt at the mouth of the Nushagak in 1818, the Russians penetrated the river systems of southwestern Alaska and thoroughly explored the entire region. Although it cannot be said that any of the Eskimo villages in the interior of this area were visited frequently by the Russians, it seems certain that the Russian presence was more real to the Eskimos of southwestern Alaska than it ever was to the Indians of the Lake Clark area. And yet it is very likely that the Kijik Tanaina, as a result of their Cook Inlet background, had been more intensively exposed to the fur trade than their Eskimo neighbors to the west and consequently were more receptive to items of introduced material culture, both Russian and American. This in spite of the fact that, as we have noted, Lake Clark continued to be off the beaten path throughout most of the nineteenth century because of its location slightly to the north of the major trade routes from Cook Inlet to Iliamna Lake and Bristol Bay.

In our description and analysis of the imported manufactured goods from Kijik, an attempt was made to suggest the chronological significance of the collection as a whole. This proved to be difficult

and, regrettably, it has not been possible to go much beyond the general statement that the bulk of the trade materials is of American derivation and belongs to the latter part of the nineteenth and early twentieth centuries. Since Kijik was occupied during the Russian period and since, as we have noted above, it is likely that even the original inhabitants brought with them a culture in which Russian material items played a major part, it is necessary to come to grips with the problem of recognizing those trade objects belonging to the Russian period. Unfortunately, no clear dichotomy emerged, either with reference to stratigraphy or in terms of the artifacts recovered, and it is therefore necessary to use other means in order to determine, if possible, which trade goods are of Russian origin.

In the absence of recognizable stratigraphic levels in the test trenches or house floors at Kijik, it can be assumed that any artifacts identified as of Russian origin found at the site either represent objects that continued to be used to the end of the occupation, or discarded material from an earlier time. Considering the nature of the settlement, it is unlikely that much of the latter was recovered. Unlike houses at an Eskimo settlement, which might, after abandonment, be allowed to fall into ruin, it is altogether possible that simple log houses of the kind excavated at Kijik would be built on the same location as old ones. A traditional Eskimo house, dug as it is into the ground and with the framework covered with a thick layer of sod, is difficult to repair. The original location is impractical to re-use once the house has collapsed. Thus, while timbers might be taken from one house for the construction of another, the first site is likely to be left undisturbed. On the other hand, a log house completely above ground can be easily repaired and, when the structure is too old to be patched up for continued occupancy, it is no problem to tear it down and build again on the same location. This means that the debris recovered from houses like those at Kijik is likely to belong primarily to the period of final occupancy. Unless it is possible to prove that the number of occupied structures varied considerably throughout the period of occupancy, it is difficult to escape the conclusion that our picture of material culture at Kijik is bound to be reasonably complete only for that period just before the inhabitants moved away.

In order to make at least some attempt at determining which artifacts in the Kijik collection are likely to have belonged to the Russian period, it is necessary to turn to whatever historical sources are available that might throw some light on the specific types of trade goods which the Russians introduced into southwestern Alaska.

This problem must be approached through a consideration of a wide geographical area because we have been unable to locate any specific references to goods traded to the Tanaina by the Russians. However, it seems safe to assume that the posts in Tanaina territory received approximately the same kinds of trade items as those in other areas served by the Russian-American Company. Even allowing for this latitude, it is by no means possible to determine specific Russian trade goods with the same degree of completeness as is possible for the American period. Inventories similar to those discussed in the preceding chapter simply do not exist in the records of the Russian-American Company.

If we turn to the Kuskokwim and Nushagak River regions immediately to the west of Lake Clark, we do encounter some indications of the goods traded into the area by the Russians. In 1841, when the manager of the Russian-American Company office at Kodiak visited Aleksandrovski Redoubt to settle a dispute arising from dissatisfaction on the part of the Eskimos with the prices paid for fur, his orders from the general manager instructed him not to raise prices paid in tobacco, beads, cloth, and other so-called luxury items used by the people. However, if payment was to be made in blankets, heavy cloth, canvas tent cloth, and other materials which could be used for garments, then the price could be raised (Russian-American Company Records: Communications Sent, vol. 20, no. 43, folios 51–56). The purpose here, of course, was to encourage the Eskimos not to use valuable furs for clothing.

It seems certain that although guns and metal traps were introduced by the Russians at least as early as when they began to expand their activities into the Eskimo areas of southwestern Alaska, it is doubtful if these items were ever available in quantity either to the Eskimos or the Tanaina. As late as 1839, the manager at Aleksandrovski was forbidden to sell guns to the Eskimos and in the same year he received only five metal traps for trading purposes. Zagoskin noted that along the Yukon and in Kuskokwim villages at the time of his explorations in 1842–44, trappers were not interested in changing their traditional methods of carrying out the activity. When they first acquired metal traps, they promptly dismantled them and used the metal to make knives and other useful objects (Russian-American Company Records: Communications Sent, vol. 16, no. 377, folios 106–108; vol. 17, no. 387, folio 370; no. 513, folio 505; Zagoskin, 1967, p. 221).

Tikhmenev, in his history of the Russian American Company, noted that in the 1860's the most favored trade goods at Aleksandrovski were tobacco, various kinds of dry goods and cast iron kettles. Beads, particularly large red, black, and white ones, had formerly been popular but had fallen into disfavor (Tikhmenev, 1939–1940, pt. II, p. 334). Other goods bartered by the Russians in western Alaska and likely to have been available for the Indians at Kijik were blue beads, knives, iron for striking a fire, needles, combs, pipes, large cups, copper jugs, mirrors, copper rings, earrings, bracelets of copper and iron, leather pouches, mortars and pestles, small bells, navy buttons, Aleutian axes, flannel blankets, calico shirts, caps, cloth dresses, other items of European clothing, and window glass (Zagoskin, 1967, pp. 148, 161, 170, 184, 246–247, 255). We can be sure that just as European clothing was pushed in order to hasten the time when the Indians and Eskimos no longer depended on furs for clothing, so food items were probably traded only in small quantities so that the people would continue to maintain their hunting skills.

This appears to be the extent of the information on specific trade goods offered by the Russians and on this basis only the following items in the Kijik collection can be considered as being even possibly of Russian origin: window glass, perhaps some of the non-Indian pottery, beads, mirrors, splitting wedges, iron rings, copper and cast iron kettles, pipe stems, and textile fragments. This is certainly not a very impressive or diagnostic list. All of the objects listed could just as easily belong to the American period as to the Russian. It is virtually certain, for example, that most of the window glass and non-Indian pottery was obtained from the Alaska Commercial Company posts or from one of its competitors. Yet it also must be noted that glass was available as early as 1842, at least to the Eskimos of southwestern Alaska (Zagoskin, 1967, p. 255), and there are indications, as we have noted, that much of the crockery traded by the Russian-American Company was not actually made in Russia and therefore would have no specifically Russian diagnostic marks. Although attempts have been made in the past to identify certain colors and shapes of glass beads as "Russian" beads, we consider it very unlikely, in the light of our knowledge concerning beads excavated from sites elsewhere in southwestern Alaska (see particularly VanStone, 1968), that this particular trade item can be classified chronologically by any known criteria. It is perhaps the copper and cast iron kettles in the Kijik collection that are the most likely to be of Russian origin,

although it is certain that these, too, were stocked by the posts well into the American period.

Since traditional Tanaina houses may have been absent from the very beginning at Kijik, we can perhaps assume that here we are seeing primarily the result of Russian rather than American influence. Earlier we have mentioned some of the possible reasons for the rapid acceptance of new methods of house construction and also noted the skill which the Kijik Tanaina achieved in horizontal log construction as witnessed in the partially standing church structure.

A significant but less tangible result of the Russian presence in the Lake Clark area was Christianity and it should perhaps be considered the most lasting influence of all. We have noted that the famous martyr, Father Juvenal, was the first to bring Christianity to the interior Tanaina in the late eighteenth century and fairly regular visits by an Orthodox priest or lay reader appear to have taken place after 1845. It is not possible to determine with certainty when the church building mentioned above was constructed, or whether indeed it was the first such structure at Kijik. It is likely that the village received more frequent visits from churchmen after it was transferred from the jurisdiction of the mission at Nikolayevski Redoubt to the one at Aleksandrovski in 1853, but even then it would seem that they made, at the most, no more than two visits a year to the settlement as they did to settlements on the Nushagak River and on Iliamna Lake. Although the externals of Christianity were without doubt successfully implanted under these circumstances, it is reasonable to wonder whether the ethical concepts of religion played a very important role in the lives of the people. Nevertheless, the influence of Orthodox Christianity was strong enough so that it has remained the predominant denomination to the present day. There seems to be no reason to doubt that all or most of the residents of Kijik throughout most of its occupation were baptized Christians. Furthermore, it seems likely that a church was built some time after the village began to receive regular visits from a priest or lay reader in the 1850's.

1868–1906

Whatever may have been the specifics of culture change during the Russian period at Kijik, it is an acknowledged fact that when the settlement was described by American observers for the first and only time, its most noteworthy characteristics, in the minds of the

describers, was the extent to which the residents were already familiar with the white man's material culture. In 1891, Schanz was very much impressed with the items of European household furnishings that he observed as well as European dress, and he further noted that these things had been obtained through commerce with the posts on Cook Inlet (Porter, 1893, pp. 94–95). These facts struck Schanz as impressive probably because he was under the impression that he was the discoverer of the lake which he named. He seems also to have been under the impression that the trade items he was seeing were of Russian origin when, in fact, most of them were probably the result of trade with American posts.

At the time of the sale of Alaska to the United States, the assets of the Russian–American Company, as we noted earlier in the historical chapter, were purchased by Hutchinson, Kohl & Company of San Francisco, a firm that was quickly reorganized to form the Alaska Commercial Company. The company not only continued to maintain the old posts which the interior Tanaina had frequented, but they opened additional stores. Rival companies also began to operate in the area, and by 1900 the residents of Kijik had access to a private trading company at New Iliamna. Although in the early years of the American period the inventories of trade goods carried by these posts may not have differed much from those of the late Russian period, we have noted in the previous chapter how the stocks of trade goods increased until, by 1876, they encompassed nearly every trade item to be found in the archaeological collection.

It would be difficult to account precisely for all the reasons behind this increase in trading vigor in the Tanaina area. Competition, improved transportation and communication, and the general opening up of southwestern Alaska doubtless all played a part. Also, the Tanaina social system, which depended, at least in part, on the acquisition and display of trade goods to establish prestige and acquire status, would certainly have encouraged enthusiastic trade.

It seems certain that competition in the area, particularly between the Alaska Commercial Company and the Western Fur and Trading Company, both of which had stores at Old Iliamna, drove up the prices paid for furs. Good trappers were provided with almost unlimited credit and helped in times of trouble by one company in return for exclusive rights to their furs. In 1883, however, the Western Fur and Trading Company went out of business and the main rival of the Alaska Commercial Company was eliminated. Subsequently, the policies of this firm became less paternalistic. Credit ceased to

be extended and attempts were made to collect outstanding debts. Real hardship often occurred among the Indian population when the people were forced to conform to the more rigorous requirements of a privately financed American business operating in a near monopoly situation.

Whatever hardship this may have worked on the fur trappers, it seems certain that once the people had adjusted to the new requirements, they participated more vigorously than ever in the trade and thus acquired the great variety of goods which are represented in the collection. It is also possible, in fact even probable, that some elements of a cash economy had begun to play a role in the relations between Kijik residents and traders before the abandonment of the village. The traders paid cash for furs and the Indians purchased items in the store with the money they received. It is likely, too, that by 1900 certain outside sources for earning money began to be available and some of these may have been connected with a flurry of interest in gold mining that arose in the upper Mulchatna region toward the close of the nineteenth century and in the early years of the twentieth.

Although the upper Mulchatna area was never a highly successful region for gold mining, it is perhaps worth noting some of the activity that did take place there and that may have involved some residents of Kijik. A government report on placer mining in Alaska in 1903 noted that although no major strikes had been made on the Mulchatna, a prospector could make from $4.00 to $5.00 a day working placers (Brooks, 1904, p. 48). A similar report for 1909 discusses routes into the Mulchatna country from Iliamna Lake and Lake Clark. It mentions that there were 16 men in the region during the summer of 1909, six of whom planned to remain during the winter (Katz, 1910, pp. 201–202). Although Kijik may have been largely abandoned by this time, it seems certain that in the closing years of the settlement's occupancy, the village had contact with miners, particularly during the summer months when the Indians may have acted as guides into the upper Mulchatna country and in this manner, perhaps, have been introduced into a wage economy. However, it is doubtful if there were ever enough prospectors in the region for a sufficient length of time to act as effective agents of change. It should also be remembered that there was at least one permanent white resident at Kijik in the closing years of its occupancy and it would be well not to underestimate the possible influence of this indi-

vidual in prolonged and continuous interaction with the Indians of the settlement.

Something should also be said about the possible impact on the inhabitants of Kijik of the commercial salmon fishery that began to develop in Bristol Bay and Cook Inlet during the ninth decade of the last century. Although Eskimos and Indians did not immediately take part in the fishing on a large scale, as the fishermen and cannery workers were primarily Euro-Americans and orientals, it is possible that at least some Indians were employed from the earliest years of the fishery. At the very least, Indians traveling to Cook Inlet to trade would be certain to visit the canneries and come under the influence of those employed there. Again, it should be stressed that this influence would effect only the closing years of occupancy at Kijik, but it would not be surprising if some villagers received an introduction to wage labor under these circumstances just as did the Eskimos of the Nushagak River region (see VanStone, 1967, Ch. IV). It is probable, too, that new types of trade goods may have entered the village in this manner.

Turning once again to a consideration of Christianity in the Lake Clark area, we note that after the sale of Alaska to the United States, there was a marked decline in mission activity. It will be remembered that Kijik was under the jurisdiction of the Russian Orthodox mission at Nushagak. The priest was withdrawn from that settlement in 1868, a move that seems to have been prompted by a fear that it would be very difficult, if not impossible, for the parish to exist without the logistic support of the Russian-American Company. Until 1877 or 1878, therefore, villages under the jurisdiction of Nushagak presumably were visited only by a lay reader and then only at infrequent intervals. By that year there was once again a priest at Nushagak, the church authorities having become gradually reconciled to the possibility of working out satisfactory relations with the Alaska Commercial Company (VanStone, 1967, pp. 33–35).

The influence of Orthodox missionaries from 1870 until the abandonment of the settlement probably was not great. The Nushagak priest had a difficult time making even annual visits to the outlying villages under his jurisdiction and although, many, perhaps even most, of the residents of Kijik were nominal members of the Orthodox Church, there would appear to have been very little real understanding of Christianity or the rituals of the Orthodox Church. It would be wrong to imply, however, that at the time the village was abandoned the residents were virtually as pagan as they were when

first visited by missionaries early in the nineteenth century. The villagers presumably had their chapel which they continued to maintain and there is every indication that, with or without the visit of a priest, they continued to practice at least some version of the Orthodox faith. Missionaries of fundamentalist denominations began to come into the area in the first decade of the twentieth century (Townsend, 1965), but it is doubtful if they had any effect on the residents of Kijik.

As part of our consideration of time and change, it seems worthwhile to devote some attention to a reconstruction of the seasonal round of subsistence activities at Kijik near the turn of the century, or just before the settlement was abandoned. Of necessity, this must to some extent be conjectural as the activities of the Lake Clark Tanaina are seldom mentioned in historic sources and there are only a few informants in the area today who can provide detailed information about the past.

To begin with, it can be noted that unlike many Eskimo villages of interior southwestern Alaska, Kijik, for all practical purposes, appears to have been a year 'round community. It would seem that Kijik hunters and trappers left their families in the village at all times except perhaps when they made distant trips to Cook Inlet to trade.

Fall and winter

By way of introduction, it is worth noting that most of the northern Athapaskans depend for food primarily on fish and secondarily on land mammals (Osgood, 1937, p. 26). The Tanaina alone have sea mammals in their environment and they are also fortunate in that land animals are perhaps somewhat more abundant than in other areas occupied by northern Athapaskans. The Lake Clark Tanaina did not, of course, enjoy access to sea mammals to the same extent as their Cook Inlet relatives, and thus their way of life resembled more closely that of other interior Athapaskans. Sea mammals could be obtained, however, by a comparatively short trip to Cook Inlet. Moreover, harbor seals were available in nearby Iliamna Lake, one of the few freshwater lakes in the world where these creatures are present. As late as 1906, the Iliamna Tanaina, and perhaps their Kijik relatives as well, were hunting lake seals at breathing holes with harpoons during the winter. The Lake Clark Tanaina also profited from the extremely varied land fauna and bird life that characterized the Tanaina area as a whole.

It is likely that trapping in the Kijik area began in the early fall and continued more or less steadily throughout the entire winter. Fall and spring, however, were the most important periods. Marten, wolverine, lynx, ermine, fox, mink, beaver, and land otter were plentiful in the general vicinity of Kijik and traps, snares, and deadfalls were set for them. It is likely that toward the end of the occupation at Kijik most trappers were provided with metal traps, but it is also probable that traditional means of taking these animals continued to be important, at least until the turn of the century. For several weeks each fall, women and young girls would move to individual camps in the mountains to snare ground squirrels and other small animals, and to collect berries. These furs were usually made into parkas and other clothing for local use by the villagers themselves rather than for trade.

Caribou were doubtless more important to the people of Kijik than they were to the coastal Tanaina. It is probable that the best caribou hunting was along the Kijik River and in the relatively high, open country to the north. Possibly Kijik hunters captured caribou in a carefully constructed surround as did the Upper Inlet Tanaina. Dogs were also used to surround a herd of caribou and drive them toward the hunters (Osgood, 1937, p. 33). Moose, although comparatively scarce in some parts of southwestern Alaska around the turn of the century, appear to have been reasonably plentiful in the Lake Clark area and were probably tracked through the deep snow in the manner described by Osgood (1937, p. 34) that is characteristic of most northern Athapaskans.

Black and brown bears are particularly plentiful in the interior Tanaina country and the most intensive and successful hunting of these animals would take place in winter when the bears were in hibernation. Again, Osgood has described in detail the means by which a bear's lair was located and the animal killed (1937, pp. 32–33). Bears were also taken with snares and deadfalls. Rabbits and ptarmigan are also certain to have been plentiful during the winter months and could easily be taken with snares. In fact, it is likely that these creatures were a staple that could be depended upon when supplies of dried fish were running low and larger game animals were scarce.

When ice began to form on Lake Clark toward the end of October or early in November, grayling and trout were taken with hooks through holes. For trout a small bone or antler lure was used to attract the large fish close to the hole where they would be harpooned

with a harpoon dart. Bone and antler hooks were also used for pike and trout (Townsend, 1965, p. 179).

Spring and summer

In late February or early March trapping would begin again with the taking of beaver, muskrat, land otter, and other fur-bearing animals. It appears that beaver were taken mainly by breaking into their houses and hooking the animals out with a gaff (Osgood, 1937, p. 35). Doubtless the use of metal traps, deadfalls, and shooting also characterized the taking of this important fur bearer. Caribou were again hunted extensively in the open country to the west and north of the village.

It was probably early or middle June before Lake Clark was completely free of ice, although open areas would occur much earlier, particularly at places like the mouth of the Kijik River. At this time the Kijik families would begin to prepare for salmon fishing even though it would be some time yet before the runs of red salmon reached the village. Traps constructed of split spruce strips were repaired so that they could be used effectively when the fish began to run. These basket traps, in the typical funnel shape, were also made of alder branches with birch hoops as braces. Later, when trade goods became more common, the Iliamna Tanaina, and presumably the Kijik Indians, too, used old barrel hoops for this purpose. The traps themselves were occasionally made from flour sacks (Townsend, 1965, pp. 182–183). Set nets, seins, wiers, dip nets, and unilaterally-barbed spears were also used for the taking of salmon.

Most of the fishing for red salmon by the inhabitants of Kijik seems to have taken place at a fish camp located on the Kijik River about 5 km. above the main village at a point where a tributary of the river flows out of a small lake (see appendix 3). Beginning around the middle of July, red salmon began to ascend the Kijik River to spawn in this small lake, designated as Kijik Lake on some maps but nameless on others. The camp was located just below the place where the creek flows out of the lake and at a point where the water is extremely shallow. Today when the salmon are seen ascending this small tributary toward the lake, their backs are well out of the water as they pass the former location of the fish camp and they literally must flop themselves upstream toward deeper water.

It is not difficult to imagine that the fish were relatively easy to catch in this area. Wiers may have been constructed to force the tired fish into an area where they could easily be netted or taken in

traps. The appearance of the old Kijik fish camp site today suggests that there were few if any cabins and therefore the people must have lived in tents during the fishing season, perhaps returning frequently to the main village by means of a trail that is clearly visible along most of its length at the present time.

Some of the red salmon taken at the fish camp were eaten almost immediately as these fish were a staple during the summer months. Many more, however, were split and dried on racks to be eaten in winter by both people and dogs. It is likely that bundles of dried fish were taken back to the main village and cached there, but some appear to have been stored in well-built elevated caches at the camp site from which they were doubtless retrieved as required during the winter months. Most of the red salmon had spawned by the end of August and as early fall approached, the fish camp would be abandoned.

Wild food plants were also collected during the summer. The small, white grains of a rice-like plant were boiled and flavored with grease. Wild celery was also a favorite. In August many types of berries ripened and these would have been collected in abundance by the Kijik Indians.

Some hunting of game animals continued through the summer, but with the approach of fall, the attention of the men would once more turn to caribou hunting because it was at this time of the year that many skins could be secured for winter clothing. In summer and fall both moose and caribou were occasionally speared as they swam in lakes. A few late salmon were taken in fall in the small lakes where they spawned and, because of the lateness of the season, these fish could be split and dried in the cool air. If the weather was cold enough, however, they were simply hung by the heads to dry and freeze. By mid-September, or somewhat later, the fur of the beaver was again in prime condition and these animals were taken, as previously noted, in traps, with wooden deadfalls, or by destroying their dams and houses. Thus, fall activities would be well under way and the seasonal cycle completed.

Conclusions

It has been emphasized in the preceding sections of this study that the principle handicap in dealing with the collections from Kijik has been the absence of a recognizable division between the Russian and American periods of influence. This has prevented us from drawing the kinds of detailed conclusions we would like concerning the comparative impact of the Russian and American presence in the Lake Clark area as it related to material culture. The seriousness of this drawback is somewhat mitigated, however, by the existence of detailed inventories of trade goods for the early American period (Oswalt, 1967). As noted in the previous two chapters, we were able to identify most of the exotic objects in the Kijik collection from these inventories and there seems little doubt that, whatever may have been the Russian impact on the material culture at Kijik, what we are seeing in the collection is a representative cross-section of nonperishable material items in use at the time the settlement was abandoned. Thus, we are forced to conclude that in terms of changes over time, the Kijik collection really tells us very little. About the best we can say, therefore, is that apparently it was the influx of trade goods during the early American period and probably after 1875–1880 that practically obliterated almost everything that was distinctively Athapaskan about the material culture of the Indians at Kijik. We have already noted that this is in marked contrast to the tendency of neighboring Eskimos to retain much of their aboriginal material culture in the face of a similar influx of trade goods and some reasons for this contrast have been suggested. Although these may seem like statements of very modest import, the fact remains that the artifacts recovered from the Kijik site represent the largest collection of trade goods ever excavated in Alaska. As such, it is to be hoped that they will eventually form a useful link in our understanding of nineteenth century Alaskan culture change, an understanding which obviously must rest on the excavation of many more sites.

Another point of interest that should be discussed here concerns the question of whether all the houses at Kijik were occupied at the same time and if not, which are the oldest. This is a question that

cannot be answered on the basis of information revealed by the excavated materials. A sufficiently large number of trade items can be roughly dated and the period of occupation at Kijik determined within fairly definite limits. However, such information can also be derived from other sources, most notably historical documentation. What is needed is precise dating and this, for the most part, is lacking. Pottery, cartridge cases, and weapons parts provide the most precise dates because they are frequently marked with the manufacturer's identification marks. But such dated objects are not sufficiently numerous, nor are they distributed throughout the structures in such a manner as to provide meaningful information about relative date of occupation. This fact can be illustrated by reference to certain types of dated artifacts and their occurrence in particular structures at the Kijik site.

We have already noted that pottery type 5 is considered by Oswalt to be from "early" (ca 1841–1867) stratigraphic levels and structures at the Kolmakovski site on the middle Kuskokwim River. At Kijik this type occurs most abundantly in houses 1 (KS-1) and 9 (KS-14), but is also found in many other structures (see trait list). Type 14b is also "early" but at Kijik it is represented by only three sherds so its significance can be considered extremely limited. Pottery type 6, on the other hand, is "late" (ca 1901–1918) at Kolmakovski. At Kijik it occurs most abundantly in house 9 (KS-14), but is also found in six other structures. These are the only pottery types with chronological significance that are common to both sites. It will be noted that the so-called "early" and "late" types both occur most frequently in house 9 and thus do not provide us with much useful information about the period of occupancy of that structure in relation to others on the site.

Turning to a consideration of pottery marks, we have noted that the only registration mark in the collection falls within the years 1889–1890. It is associated with a sherd of the type 3 transfer print found in house 9. If we were to make the very dubious assumption that all the type 3 pottery at the site bore this registration mark, we would note that 66 sherds were found in house 9 and 28 in house 1, with only six sherds occurring in other structures. Thus, houses 1 and 9 might be said to have been occupied around the year 1890. However, this is doubtless true whether or not our assumption about the association between type 3 and the single registration mark is correct, and it does not help us to date the occupation of these houses in relation to other structures on the site. The re-

maining pottery marks found on Kijik sherds are not helpful in the present context either because they cannot be dated within narrow limits or because they are not definitely associated with types of pottery found in sufficient quantities with meaningful distribution.

Cartridge cases and weapon parts, though reasonably plentiful in the collection, are likewise of little use in dating specific structures in relation to one another. The cartridge cases, most of which were first manufactured between 1860 and 1890, provide good general dates for the site as a whole. However, the majority of them also continued to be made and used long after Kijik was abandoned. Also, even though the total collection of cases from the site is sizeable, only a very small number of types occur in sufficient quantities to make their distribution throughout the various structures significant. Using these few types and considering the dates when they were first manufactured, we can note that out of a total of twelve 22 shorts, a cartridge introduced in 1857, five occur in house 6 (KS-9) and five in house 12 (KS-18). Out of a total of fourteen 22 longs first manufactured in 1871, eleven occur in house 12. The only other cartridge cases with suggestive distribution are the 44 Henry, introduced in 1860, and the 30–30 Winchester, first manufactured in 1895. There are 36 of the former, 14 of which were recovered from house 9 (KS-14), and six from house 6. Thirty-seven of the 30–30 cases occur in the collection, 22 of them from house 12.

It will be immediately apparent that little significance can be attached to these distributions, and the same can be said of the dated weapons parts shown in the trait list. In this connection it should be remembered that there was a ban on the sale of breech-loading guns to the Eskimos which was in effect until 1896. Although apparently not totally effective, it was sufficiently so to insure that muzzle-loading weapons remained in use and in demand much longer than would otherwise have been the case. Similarly, the existence of this ban doubtless means that the earlier cartridges recovered from the site probably were not used there at or near the date of their first manufacture.

On the basis of this brief discussion of the dated pottery, cartridge cases and weapons parts from the Kijik site, it is clear that they are not of significant value for the dating of specific structures. A much larger number of precisely dated artifacts in a meaningful distribution would be necessary before such comparative dating would be possible.

Turning to a consideration of the structures themselves, it is tempting to consider as old, those which seem to most closely resemble aboriginal types. We have noted that there are no aboriginal houses at Kijik. However, certain features, particularly the existence of multiple rooms in some structures, suggest the aboriginal house more than they do Euro-American cabin construction. On this basis houses 6 (KS-9) and 9 (KS-14) would be considered old, and perhaps house 4 (KS-7). Houses 6 and 9 contained more aboriginal artifacts than any of the others, but this may simply be an aspect of the fact that these are the structures which produced the most artifacts in all categories. It may be, too, that we can consider these structures peripheral to the central core of the settlement as being the most recent. In this case, houses 11 (KS-18), 12 (KS-17), 2 (KS-2), and 5 (KS-8) would be more recent than the others. In any case, these structures are not multi-roomed and in other ways as well resemble the white man's log cabin.

On the basis of the above suppositions, it seems clear that the relative ages of the structures on the Kijik site must remain a matter of conjecture. It may very well be that all the houses were occupied at approximately the same time, in which case the plan of the settlement, as it is shown on the map of the excavated site, may be essentially the one that existed when the village flourished during the middle and late decades of the last century.

The variations in plan that are characteristic of the residential structures can, as was pointed out earlier, be explained in part by reference to socio-economic differences. The large, multi-roomed structures (houses 6 (KS-9) and 9 (KS-14)) may have belonged to wealthy men who, even at the beginning of the twentieth century when prices paid for furs had already begun to decline, were still able to maintain households of poor relatives who served them. The long, rectangular structures (houses 1 (KS-1), 3 (KS-3), and 4 (KS-7) could have been the dwellings of less affluent extended families, while the small, single-room cabins (houses 2 (KS-2), 5 (KS-8), 7 (KS-10), 8 (KS-13), 10 (KS-16), 11 (KS-17), and 12 (KS-18)) were possibly occupied by poorer people who, by necessity or choice, lived in nuclear family units.

It is also conceivable that structures in close proximity to one another may have had some specific significance as far as the settlement pattern was concerned. Thus, house 1 (KS-1), KS-3, and KS-2 may have belonged to one large extended family group. In this case,

house 1 would have been the dwelling unit and KS-3 the smokehouse, while KS-2, tentatively identified as a dwelling, would have been the bathhouse. By the same token, house 4 (KS-7) might have been a smokehouse associated with house 6 (KS-9). At any rate, it is at least possible that we see in the Kijik dwelling structures a transition in Tanaina social organization away from large dependent households which reflected prosperity at the height of the fur trade, toward the nuclear family residential unit which is characteristic of Tanaina social organization at the present time.

Because of the marked differences in size of the various dwellings at Kijik, it is difficult to estimate the number of people who might have lived in the village if all the houses were occupied at approximately the same time. But the number would certainly have been at least 150 and possibly more. This number is in line with population estimates based on historical sources which were noted in an earlier chapter. It is quite certain, in our opinion, that the area around Kijik could have supported a community of at least 150 permanent residents throughout the nineteenth century, especially when it is remembered that there were apparently no other villages on the lake during this period. In fact, one might fairly question why such a rich and diversified environment did not attract an even larger population. Perhaps the area was more heavily occupied during the prehistoric period, but it is apparent that most nineteenth century Tanaina preferred to live closer to the sources of trade goods which supported a social system based on the importance of wealth in the form of acquired material possessions.

It is *de rigueur* at the conclusion of an archaeological site report to speak of the need for future research. We would like to think that this is more than just a site report because we have utilized the methods of history and ethnography as well as archaeology in an attempt to reconstruct as much as possible of nineteenth century Tanaina Indian life in the Lake Clark area. Representing as it does the peripheries of Tanaina Indian expansion inland, we believe that the Iliamna–Lake Clark area is an extremely important one from the standpoint of our growing understanding of Eskimo–Athapascan boundaries and the problems of contact between the two groups.

More specific than this, however, is the importance of the Lake Clark region itself for an understanding of nineteenth century Tanaina expansion. In earlier sections of this report we noted the general belief that the Tanaina moved into the area under discussion from the coast at a relatively late date, probably after, and possibly

as a result of, initial contacts with the Russians. Presumably, at approximately the same time that the Kijik settlement was established, other villages grew up, notably at the mouth of Moose Creek, a small upper Mulchatna tributary, on the Stony River above the present location of Hungry Village, and on Lake Telequana. We have not seen these sites and know virtually nothing of their age and size. There can be little doubt, however, that together with Kijik they represent a regional specialization of nineteenth century Tanaina culture about which it would be well for us to know much more than we have learned on the basis of the Kijik excavations alone. The upper Mulchatna country has never been visited by an archaeologist and there may well be other sites in the area that would throw light on problems concerning both Indian and possible Eskimo occupation of this region. It seems clear to us that the upper Mulchatna–Stony River area, together with Lake Clark, affords an ideal location in which to focus on the development of regionally specialized contact Tanaina culture.

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Appendix 1

Kijik Trait List

APPENDIX 1

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
LOCALLY MANUFACTURED												
CHIPPED STONE												
End blade												
chert, complete (Pl.10,1)									1			
basal fragment, schist (Pl.10,2)									1			
chert, tip, fragment (Pl.10,4)									1			
End blade blank, schist, complete (Pl.10,6)												
chert, fragment												
Foliate blade, schist (Pl.10,3)									1			
chalcedony (Pl.10,5)												
Skin scraper, sandstone (Pl.10,10-11)	1							1				
schist (Pl.9,9)	1		1							1		
Chert chip					2			2	29			
GROUND STONE												
Whetstone												
type 1 (Pl.10,7–8)	4			1		1			2	1		
type 2 (Pl.11,4–6)	3	1					2	2	4			
type 3 (Pl.11,1,3)												
Hammerstone									1			
Bullet mould half (Pl.11,2)	1											
Bullet mould half fragment												
BONE AND ANTLER												
Net sinker												
complete, antler (Pl.11,11)												
complete, bone (Pl.11,12)								1				
Lure-hook shank, antler (Pl.11,7)												
Salmon harpoon												
dart head												
complete, antler (Pl.11,8–10)	1		1					1	1			
fragment, antler								1	1			
Arrowhead												
type 1, antler (Pl.12,7)									2			
type 2, antler (Pl.12,8)						1		1	1			
Powder horn, antler (Pl.12,10)												
Splitting wedge												
complete, antler (Pl.12,3)								1				
complete, bone (Pl.12,4)												
Awl, bone (Pl.12,2,6)			1			1	1	1	3			

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1–6
					1													
					1													
													1					
			1															
1	1			1								45						
2	5											3		4				
2	2																	
2												2					1	
	1			1														
1	2																	
	1																	
											1						1	
	2																	
	1													1				
	1																	
														1				
	1																	

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Skin scraper, bone (Pl.12,12)									4			
Crooked knife handle, bone (Pl.12,1)												
End bladed knife handle, antler												
type 1 (Pl.12,9)												
type 2 (Pl.12,5)							1					
Screwdriver handle, antler (Pl.12,11)												
Sled shoe section,												
antler (Pl.13,12)		1	2						3			
bone			1						1			
very narrow, antler (Pl.13,16)			2									
Unidentified object (Pl.13,3–4,8)								1	1			
Cut bone fragment	32	1	8			2	4	34	66	5		8
Cut antler fragment							1	1	9	1		
METAL												
Blunt arrowhead (Pl.13,6)			1						1			
Projectile point (Pl.13,10)												
Lance blade made from bayonet (Pl.13,17)												
End bladed knife blade, complete (Pl.13,2,7,11)									1			
fragment	1						2		2			
Semi-lunar blade (Pl.13,1,9)		1	1						1			
Crooked knife blade (Pl.13,5,14–15)		1						2				
Dish (Pl.14,16)	1								1	1		
Pothook (?) (Pl.13,13)												
Wedge or crow bar(?) (Pl.14,18)								2				
Sled shoe section (Pl.14,1)	1		1						1			
Stove pipe sleeve						1						
Reinforcement piece						2		1	3			
Cartridge case bead separator (Pl.14,10)	1											
Ring												
copper strip (Pl.14,3)	1							1				
wire (Pl.14,4)				1	1							
Clasp (Pl.14,5)				1								
Pendant (Pl.14,2)												
Unidentified object (Pl.14,9)	1						1		1			
Cut cartridge case (Pl.14,11)	1	1	2					1	1	1		

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
	2																	
	1																	
	3																	
	1																	
														1				
	6												1					
												2		2			1	
												1		1				
													1					
5	79		3	3					1			9	34	8				
	4		1			3						4	3	1				
	3											1						
	1																	
			1															
1	2																	
												1		1				
1	2																	
	1				2				1			1		2			1	
	1																	
					1	1												
					2	1												
	1																	
	1																	
	1																	
1	1				2							1						

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Can sections wired together									1			
Cut light metal fragment			1						2			
Cut can fragment	2		3			3			1	1		
Fragment of cut brass or copper	5	2	1					3	20	5	1	
GLASS												
Scraper, bottle glass	3								1			
Window glass scraper	1								1			
LEATHER												
Cut fragment	6								1			1
TEXTILE												
Cut fragment	1								1			
RUBBER												
Cut fragment of rubberized material							1					
Reworked comb, fragment, handle(?) (Pl.14,6)												
BARK												
Cut fragment								1	1			
NON-INDIAN POTTERY												
Sherd with drilled hole	1											
IMPORTED MANUFACT'D												
NON-INDIAN POTTERY												
Plain fragment	54	31	9			13	4	2	87			
Plain, saucer fragment	1	2										
Plain, cup fragment	2						1		1			
Plain, soup plate fragment	1											
Transfer prints												
brown and blue willow ware (type 1) (Pl.14,7,8)	32	3	4			1	1		18	3		
light blue floral (type 2) (Pl.14,12)	18	17	3	1		1	1	4	12			
dark blue floral geometric border (type 3) (Pl.14,15)	28					4						
light brown floral (type 4) (Pl.15,4)	9	2	1			2			4			
geometric floral design in brown, blue, red (type 5) (Pl.15,6)	7		1				1	1		1		
brown geometric floral pictorial (type 6) (Pl.16,1)	3					1		1	4			
large red and blue (type 7) (Pl.14,17)	1			1								
grey floral (type 8) (Pl.16,8)	2								2	1		
light blue striped rim (type 9) (Pl.16,5)			1									
blue pictorial (type 10A) (Pl.15,1)												

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1–6
	1																	
												2		2		1	1	
1	10											1	1	1				
	1																	
1					2		1							4				
														2				
1																		
	1																	
12	162		5		17							4	18	14		1	2	
1	3			1										1				
	2											1						
17	81		8	1	1					7			18	4		1	1	
	43												1	8		1		
1	66																1	
4	33				5							1	6	3		1	1	
	18												4	2			1	
	7				6									1				
3	15																3	
	1											1						
	3												2					
	2																	

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
brown floral with geometric elements (type 10b–e) (Pl.14, 13,14; Pl.15,2,3)									2			
large grey floral (type 10f) (Pl.15,5)												
blue-grey floral (type 10g) (Pl.15,9)												
Hand painted floral designs in red, blue, green (type 11a–b) (Pl.15,8; Pl.16,5)	3											
Hand painted and stamped floral design red, blue, green (type 12a) (Pl.16,9)												
Stamped floral designs in dark red, green (type 13a–b) (Pl.16,4,7)												
Glazed kitchenware brown glaze (type 14a) (Pl.16,3)	4								1			
blue and white glaze (type 14b) (Pl.16,2)							1					
Unidentified decorated fragments	4	3	7	1		1			5	4		
GLASS												
Button, 4 hole, white	6		4					2	6			
Button, 4 hole, colored (Pl.18,12,14)	3		2					2	2	2		
Button, 2 hole, white (Pl.18,15)			1									
Button, 2 hole, colored (Pl.18,13)	1											
Button, ovoid with iron wire eye												
Button, black, molded glass with iron wire eye (Pl.18,18)								2				
Window glass	79		2				12	23	37	2		1
Bottle, whisky, round complete (Pl.17,5)								1				
Bottle, whisky, round, fragment			9					3				
Bottle, whisky, rectangular, fragment									2			
Bottle, ink(?), rectangular, fragment								1				
Bottle, patent medicine type, complete (Pl.17,1)												
Bottle, patent medicine type, fragment	2						1		2			
Bottle, catsup(?) round, partly complete												1

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
	1				1									1				
														1				
				1														
	19		1							1			8	3		1		
													1					
	7												1					
	2																	
3	25				2	1								5				
1	5				6	1										1		
	1				3				1									2
	1																	
	1 6		2		9	1						1	1	6				1
											2							
											1							
	1				4												1	

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Bottle, condiment(?) complete (Pl.17,4)			1									
Bottle, ovoid shape, complete (Pl.17,3)								1				
Bottle, ground glass neck, complete (Pl.17,2)								1				
Bottle, fragment (Pl.18,24)	5		1			1	1	31	12		4	14
Bottle, stopper (Pl.18,19)	1											
Drinking glass fragment		6							2			
Cosmetic(?) jar												
Mirror, fragment												
Lens for sun glasses(?)												
Kerosene lamp base(?) fragment									4			
Beads												
white	46	11	7				4	161	51	15		1
blue, faceted	7	2	1				1	1	2			
white-lined red	1		1				1	29	2			
blue	8		1					42	9	2		1
brown-lined red								1	4			
yellow								9				
clear								5				
green								18				
red								3				
polychrome								19				1
pink								15				
black								14	1			
METAL												
BUILDING HARDWARE												
nail												
common wire (Pl.18,1-11)	13							75	6			13
square cut (Pl.18,26-32)	11		2			1	2	23	8		1	5
unidentified	9		1				1	11	5			2
cut tack								3				
cut spike												
wood screw	1					1			1			
nut and bolt								1				
brass hinge, fragment	2											
key hole plate(?) complete (Pl.18,16)										1		
key hole plate(?) fragment (Pl.18,17)												
TOOLS AND IMPLEMENTS												
Axe head, complete (Pl.19,1)												
Axe head, fragment		1	1									
Wedge (Pl.19,2)	1											
Shovel, fragment							1					
Rat-tailed file, tapered (Pl.18,22)												
Rat-tailed file, triangular cross section (Pl.18,23)	1											

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
	13				10							2	2	3				
	3																	
					1													
					4													
					1													
					54								9					
10	386				13						1					1		
	19				29													
1	60				16													
	39				8													
	7																	
	10																	
	25				16													
	1				1													
	1				83													
	4				1													
	6			3	20	1							1	3				
1	43			1	6	1						1		3				
	9			1	2													
					1													
	2																	
	2																	
	1																	
	1																	
					3													

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Saw blade (Pl.18,21)	1											
Iron ring, round (Pl.18,20)								2				
Iron ring, oblong (Pl.18,25)												
Buckle (Pl.19,6)												
Brass rivet								3				1
Brass rivet washer								4				1
Trap jaw (Pl.19,3)												
Trap pan									1			
Lead net sinker (Pl.19,4–5)								3				
Multi-strand wire	2								1			
Heavy single-strand wire				1				2	4			
Iron rod								16				
HOUSEHOLD ARTICLES												
Stove, fragment			15	5		1		1	12			
Kettle fragment, sheet iron										3		
Kettle fragment, copper			1									
Kettle fragment, cast iron (Pl.20,1)									1			
Lug for kettle handle, iron (Pl.19,8)			1						5			
Lug for kettle handle, copper (Pl.19,7)			1						1			
Kettle handle, cast iron									1			
Kettle or pan lid				1			1	1	1			
Tea kettle fragment	2			2					1			
Baking pan						1						
Pan fragment				1						1		
Frying pan		1										
Frying pan, fragment				1								
Pail												
Wash basin									1			
Teaspoon (Pl.19,9)												
Teaspoon, fragment	3			1								
Table spoon, fragment												
Serving spoon, fragment												
Table knife (Pl.19,14)			1									
Table fork (Pl.19,13)								2				
Kitchen knife (Pl.19,10–12)	1											
Scissors (Pl.20,8)									1			
Scissors, fragment	3											
Tarpaulin grommet (Pl.20,4)	2											
Padlock (Pl.20,3)												
Drinking cup	1											
FIREARMS AND AMMUNITION												
Firearms lock plate, U. S. rifle model 1841 (Pl.20,9)												

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
					1													
					1													
	1																	
	2																	
2																		
					1								1					
1	1			1	13	1						8		5				
					2													
					2													
1	6		1						1									1
	1																	
					1													
	1					1						1		1				
														1				
				1														
												1						
	1				1													
														1				
	2																	
					1													
1					1													

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
butt plate, U. S. rifle model 1841 (Pl.20,7)	1											
barrel band, brass (Pl.20,5)									1			
hammer, U. S. musket model 1816(?) (Pl.20,2)												
frame, Winchester model 1866 (Pl.21,1)							1					
butt plate, Winchester model 1866 (Pl.20,10)							1					
lever, Winchester model 1866 (Pl.20,11)	1											
butt plate, iron, similar to Winchester model 1866												
barrel of government musket	1											
trigger guard of government musket or rifle(?)	1											
percussion shotgun lock (Pl.21,7)												
percussion shotgun lock plate, fragment												
percussion shotgun hammer												
lock main spring									1			
lock sear												
lock sear spring	1											
cartridge carrier Winchester model 1866 (Pl.20,6)									1			
breech block, Winchester model 1886 (Pl.21,5)												
frame fragment (Pl.21,9)												
butt plate, iron fragment (Pl.21,3)												
butt plate, brass, fragment	1											
butt plate, hard rubber												
butt plate, hard rubber, fragment												
trigger mechanism, fragment	1											
trigger guard, fragment												
muzzle-loading gun barrel, complete												
muzzle-loading gun barrel, fragment								1	1			
gun barrel fragment			1									
CARTRIDGES												
Rimfire												
22 short								5				
22 long									1			
22 Winchester (WRF)												
44 Henry	2	2	1				1	3	6	1		
Centerfire, internally primed												
50 government (50–70)												

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
					1													
	1																	
														1				
												1						
	2																	
	1																	
	2																	
	2																	
	1																	
					2													
					1													
1																		
1																		
												1						
				1														
														1				
														1				
					2													
					1													
	2				5													
	1			1	11													
					1													
	14		1		1								3	1				
	1																	

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Centerfire, externally primed												
7.65 mm. (UMC)	1		1									
30–30 Winchester	2					2			3	1		
30–40 Krag									5	1		
303 Savage	2								1			1
32 Winchester special												
32 Smith & Wesson			1									
38 Smith & Wesson								1	1			
38–40 Winchester												
38–55 Winchester									2			
40–65 Winchester												
40–82 Winchester	1		1									
44–40 Winchester	6		1					2	4	1		
45 Webley												1
45–60 Winchester									2			
45 Government (45–70)	5			1		1	3		1			
45–90 Winchester			1			1						
50 Government (50–70)									1			
50–110 Winchester						1						
Shotgun shells												
12 gauge, Winchester	1											
12 gauge, U. S.								1	1			
12 gauge UMC								4				
10 gauge Winchester	1											
Bullets												
45 caliber (Pl.21,6)									1			
Primer	5		3				1	56	33	4		
Percussion cap, pistol or revolver									1			
Percussion cap, musket or rifle	2	1						3			1	
Shot								31				
Bar of lead (Pl.21,8)	1											
Melted lead fragment	1							9				
Cap box	1							1				
Cap box top	2							1	2			
Reloading tool handle (Pl.21,2)									1			
Gunpowder can fragment, ovate (Pl.21,11)			1									
Ovate gunpowder can lid (Pl.21,10)			1						3	1		
PERSONAL POSSESSIONS												
Cigarette holder (Pl.21,4)												
Tobacco can fragment, square			1									
Lead foil liner for tobacco can(?)								3				
Snuff can(?) (Pl.22,1)												
Foil cap with tax stamp for whiskey bottle (Pl.22,5,9)								1				
Liberty head half dollar (Pl.22,7)									1			
Liberty head nickel (Pl.22,6)								1				

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
				4	22	1								2				
				1										2				
					1									2				
					3													
				1	4													
				1														
					1													
					1													
1					2	1								1				
	2			1	3	1						1	2					1
					1													
				1	2													
	57				8													
	5																	
	9																	
	5				1													
	1																	
	1																	
	1			1	1									1		1	1	
	2												2	1				
					1													
					5													
	1																	

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
Jacknife fragment (Pl.22,10)	1											
Finger ring (Pl.22,16)												
Thimble (Pl.22,3)								1				
Pocket watch, fragment (Pl.22,11)	1								1			
Watch fob(?) fragment (Pl.22,4)												
Harmonica reed plate (Pl.22,2)												
Safety pin fragment												
Orthodox cross (Pl.22,12)		1										
Suspender buckle (Pl.22,8)	1	1	1				1		1			
Vest or overall buckle (Pl.22,19)												
Belt buckle (Pl.22,26,27)								1	1			
Straight-sided ring (Pl.22,13)												
Galosh fastener (Pl.22,15)	1											
Buttons												
type 1 (Pl.22,24)							1					
type 2 (Pl.22,21)												
type 3 (Pl.22,17)	2							1	1			
type 4 (Pl.22,18)	5		3	1			1	7	1			
type 5 (Pl.22,23)												
Snap fastener	1							2				
Boot or shoe-pac hook									1			
SUBSISTENCE												
Cans and identifiable fragments												
type 1			3	1		1		2	7			
type 2								1				
type 3			3			1		1	2			
type 4						1		1	1	2		1
type 5			2			1		1	1			
type 6	1					2		1	1			1
type 7						1		1				
type 8						1		1	1			
type 9												
type 10						1						
type 11						1						
type 12				1					1			
type 13	1					1			1			
Key opener (Pl.22,25)	2							5				1
Opener strip								3	2			
Can bottom or top fragment (Pl.22,14)	1		2			3	1		7	4		
Unworked can fragment	102	7	263	83		69	12	917	406	35	9	129
Unidentified object (Pl.23,2,3,8,10,14,16)	19	1	4		2		6	18				3

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1 6
					1													
	1																	
	1																	
					2													
					1													
1	1																	
					2													
	2																	
	1				1													
	1				2									1				
	4				3													
														1				
	1																	
				1	5													
				1	2									2				
					1													
					4													
					1													
					1													
	1																	
														1				
					4													
	2				3	3						2		1				
44	410		37	28	77	12			1			23	7	52		2	41	
15		1	2	11	1			1			3			8				

APPENDIX 1 (*contd.*)

ITEM	KS 1	KS 2	KS 3	KS 4	KS 5	KS 6	KS 7	KS 8	KS 9	KS 10	KS 11	KS 12
TEXTILE												
Felt hat fragment			2					2				
Worsted woolen fragment	2					1	1	5	6			
Backed cloth fragment	2								2			
Broadcloth fragment									2			
Cotton satine fragment								2				
LEATHER												
Shoe or boot fragment, man's (Pl.23,4,18)	1	1						1	2			
Shoe fragment, woman's (Pl.23,17)	1											
Belt or strap, fragment (Pl.23,13,15)								2				
Dog harness, fragment(?) (Pl.23,12)			1			1		6	1			
Purse, fragment								2				
Unidentified leather fragment	1		4			3		10	1			
RUBBER												
Man's overshoe									1			
Man's hip boot, fragment	1											
Boot or overshoe fragment								1	6			
Pipe stem (Pl.23,9)												
Comb fragment (Pl.23,11)									2			
Button (Pl.22,22)									1			
Unidentified fragment (Pl.23,1)									1			
MISCELLANEOUS MATERIALS												
Pencil (Pl.22,20)												
Pencil lead							4					
Knife handle, wooden (Pl.23,5)	1								1			
Plastic comb fragment (Pl.23,7)												
Celluloid or plastic ruler fragment (Pl.23,6)												
Wall paper fragment								8				
Playing card									1			
Cord with bituminous covering								35				

KS 13	KS 14	KS 15	KS 16	KS 17	KS 18	KS 19	KT 1	KT 2	KT 3	KT 4	KT 5	KT 6	KT 7	KT 8	KT 9	KT 10	KT 11	KC 1-6
	8																	
	3												1					
	3																	1
	1				5													
																		1
					1													
					1													
	3				1					3		2		2				
					2													
	1																	
					2													
	1				1							1						
																	1	
					1													

Appendix 2

Single House Southeast of Village

Approximately 150 m. southeast of the Kijik site along the lake shore is a single structure which was excavated in one day at the end of the field season. Very close to this structure are the remains of a log cabin, the base logs of which are still visible. Next to it are the posts of a long since collapsed elevated cache. The shore line of Lake Clark in this area is characterized by a relatively thick stand of willows and spruce growing to within 20 m. of the water's edge. At least three old beach lines were noted in this area. These are covered with a very thin sod layer and grass as well as the trees just mentioned. The structure is located on the first beach line back of the present one and resting directly on the beach gravel. As a result, there was no obvious occupation layer but the gravel was darkened down to a point believed to be the floor; below that it was clean and sterile.

This lone structure is believed to have been a house and it consists of two virtually square rooms, one slightly larger than the other (fig. 28). Base wall logs were located along two walls in the larger room and along one in the smaller. In the short passage which joins the two rooms, a pair of narrow planks was encountered lying at the lower limits of the occupation layer. These could be part of a door that had fallen down or they may be the remains of a plank floor. There is little else to indicate the structural features of this house.

The following artifacts were recovered from this structure:

3 fragments of a cast iron *stove.*

1 *tea kettle* lid with wooden knob missing.

1 fragment of a tea kettle spout.

1 *teaspoon* with stamped scroll design on the handle.

1 blade for a *kitchen knife.*

1 *tin can* similar to type 1 from the Kijik site together with a top or bottom from the same type of can.

1 lid of a hole-in-top can 12.5 cm. in diameter. It appears to have been opened with a key opener.

1 brass centerfire *cartridge case,* headstamped "WRA CO / 44 WFC" similar to those described under no. 12 in the main text.

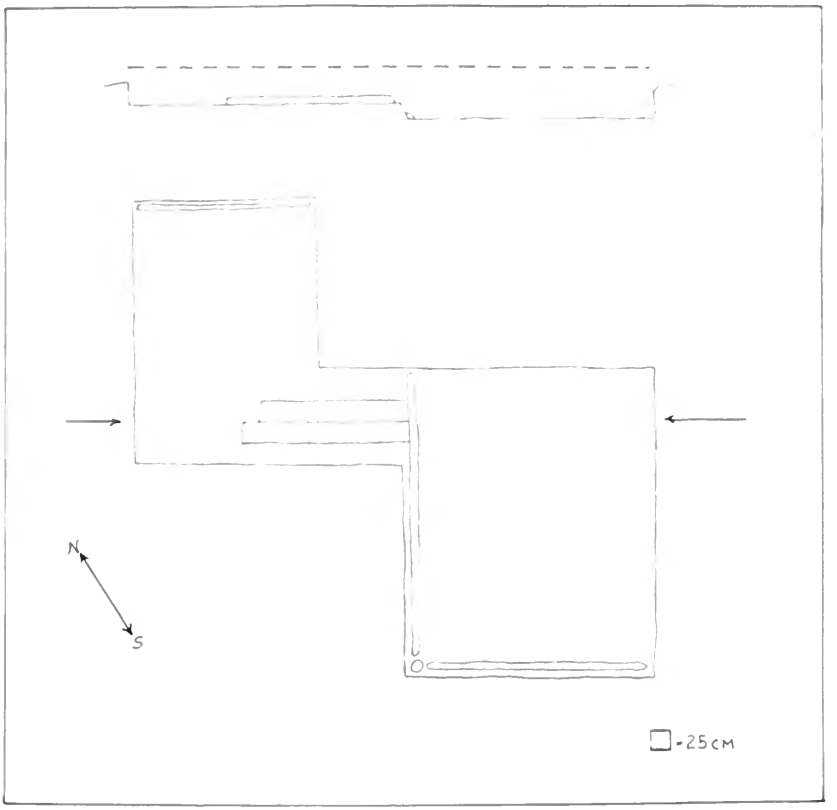

FIG. 28. Single house along the beach southeast of Kijik.

1 *button* of two-piece construction similar to type 5 from Kijik but with a "classical" scene on the face.
1 brass *grommet* from a tarpaulin or tent.
1 fragment of an ironstone china *saucer* with a gray, transfer printed floral design.
2 white-lined red Cornaline d'Allepo *beads*, type A (see fig. 26).

There is little that can be said about this non-diagnostic group of artifacts except that they represent types that also occur in the collection from the main settlement. Therefore, it seems likely that this structure is contemporaneous with at least part of the occupation at Kijik, probably the latter part. Perhaps it was occupied at a time when much of Kijik had already been abandoned.

Appendix 3

The Kijik Lake Fish Camp

It will be recalled that in the chapter on time and change, reference was made to a fish camp used by the residents of Kijik. This camp was located along the banks of that branch of the Kijik River which flows out of Kijik Lake and joins the main river about 5 km. above its mouth. According to informants at Nondalton, this camp was called *Xhoyavenah, xhoya* meaning "red salmon" and *venah* meaning "lake." The reference, of course, is to the fact that Kijik Lake is an important spawning ground for red salmon which move up the Kijik River in large numbers every summer. VanStone and one assistant spent six days at the Kijik Lake fish camp making test excavations. Their work was hampered by bad weather throughout this brief period.

The site is situated along both banks of the river about half a kilometer below the point where it flows out of Kijik Lake. This river flows almost exactly east and west, so the long axis of the site can be said to be oriented in these directions. Along the north side of the river the fish camp site appears as a long, narrow, cleared area about 2 m. above the water level and covered with an extremely luxuriant growth of bunch grass. The site is flat and so is the broad valley of the Kijik River which stretches to the north and east. A thick growth of spruce with a few willows and cottonwoods surrounds the site but does not appear to be encroaching on it to any noticeable extent. The cleared area is approximately 200 m. long and about 50 m. deep at its deepest point which is approximately in the center.

The river at this point appears to be about 30–35 m. wide and is extremely shallow with a hard gravel bottom. A person could easily wade across it at virtually any location opposite the formerly occupied area. In fact, as we have previously noted, in some places the backs of the salmon are clearly visible as they struggle up the river toward the lake to spawn.

That part of the site situated on the south bank of the river is much smaller, both in length and depth. This has been conditioned

at least in part by the fact that a steep hill, rising eventually to a height of more than 650 m., begins virtually at the river bank. Thus, there is a gentle upward slope to the site on this side. The west end of this cleared area begins approximately opposite that portion of the site on the north bank, but it extends, at most, about 60 m. along the bank and is nowhere more than 30 m. deep. The vegetation on this side of the river includes a greater number of deciduous trees. Cottonwood and birch are particularly plentiful and there are some spruce. Cottonwoods appear to have encroached on the formerly occupied area to some extent. A characteristic feature of this southern section is that the river bank is less than a meter above the water level. This has made it necessary for structures to be located further up the slope and virtually against the hillside.

Turning now to a more detailed consideration of that section of the Kijik Lake fish camp on the north side of the river, a careful examination failed to reveal the remains of any permanent living structures similar to those excavated at Kijik. According to informants at Nondalton, summer residents of the camp lived either in tents or in temporary dwellings of frame construction covered with strips of birch bark. Osgood (1937, p. 63) mentions bark-covered "secondary dwellings" for several groups of aboriginal Tanaina. Neither this type of dwelling nor tents would be likely to leave any permanent indication of their former location. At the peripheries of the site are many pits that very closely resemble those identified as cache pits at Kijik.

In the absence of any clearly visible structures, an area for testing was selected at about the middle of the site toward the front and not far from the river bank. Here the ground was slightly higher than the surrounding area and covered with an unusually luxuriant growth of grass, suggesting the presence of a midden deposit. A test trench 3 m. by 2 m. was opened and excavated in arbitrary 15 cm. levels to a depth of 75 cm. below the sod where sterile yellow clay was encountered. The midden material consisted of a mixture of rich, black earth, wood chips, fire-cracked rocks, charcoal, and large quantities of cut birch bark. The presence of so many sections of cut bark lends weight to informants' statements concerning its use as a covering for living structures. It may also, of course, have been used as a covering for fish drying and smoking racks to enclose the fish and protect them from rain.

The following artifacts, listed according to the level in which they were found, were recovered from the test trench:

Sod

3 fragmentary chipped stone *skin scrapers* of fine-grained schist.

3 pointed antler fragments which may be *awls.*

1 semi-lunar *knife blade,* 13 cm. long, apparently cut from the top of a can.

1 flat, rectangular metal *adze blade* 8 cm. long and 4 cm. wide.

1 crude *dish* made from can metal and similar to the illustrated specimen from Kijik (Pl. 14,16).

2 *can* tops or bottoms similar to the illustrated Kijik specimen (Pl. 21,10).

11 can fragments.

2 fragments of copper or brass.

15 hand-painted ironstone china fragments with floral designs similar to those from the Kijik site (Pl. 15,8). Among these pieces are two that can be identified as *saucer fragments,* while one is from a large *soup plate.*

8 transfer printed china fragments with floral designs in brown and blue. All designs are represented in the Kijik collection. Only one can be identified as a saucer fragment.

9 ironstone china fragments which show no designs and are too small for shapes to be determined.

8 white glass *beads,* five belonging to type A and three to type E (see fig. 26).

2 four-hole *shirt buttons* of white milk glass.

1 fragment of a wooden knife handle.

Level 1 (0–15 cm.)

1 chipped stone *skin scraper* of medium-grained schist 12 cm. long and roughly similar to illustrated specimens from Kijik (Pl. 10,10,11).

5 fragmentary *whetstones* of very fine-grained siltstone. All these implements show wear on at least two surfaces and are similar to illustrated specimens from Kijik (Pl. 11,4–6). The largest fragment is 9 cm. long and the smallest 3.5 cm. in length.

3 small fragments of *can* metal.

7 hand-painted ironstone china fragments all of which are too small for shapes to be determined. The design is similar to an illustrated specimen from Kijik (Pl. 15,8).

5 transfer printed ironstone china fragments with floral designs in green and blue similar to illustrated Kijik specimens. There are two saucer fragments among them.

8 fragments of ironstone china too small to show either shape or design.

1 fragment of *window glass*.

1 four-hole *shirt button* of white milk glass.

47 white glass *beads*, 18 belonging to type B, 17 to type E, and 12 to type A (see fig. 26).

Level 2 (15–30 cm.)

1 fragmentary whetstone of fine-grained schist showing wear on two surfaces and similar to the illustrated specimen from Kijik (Pl. 11,4–6).

1 fragmentary ground slate *blade* apparently characterized by a hollow ground groove running parallel to the entire length of the blade.

1 fragmentary and badly corroded *jackknife*.

2 unidentified metal fragments.

2 small fragments of ironstone china, one with a blue and yellow transfer printed design.

1 fragment of window glass retouched as a *scraper*.

12 white glass *beads*, seven type B and five type E.

2 blue glass beads, one type A and one type B.

Level 3 (30–45 cm.)

1 chipped stone *scraper blade* of fine-grained sandstone, possibly intended for use unhafted. The implement, which tapers toward toward the proximal end and is concave on the inner surface, measures 8 cm. in length and 5 cm. in width at the distal end.

1 fragment of clear chalcedony showing chipping along one edge.

1 unidentified metal fragment.

1 piece of ironstone china too small to show shape or decoration.

9 white glass *beads*, one type A, four type B, four type E.

Level 4 (45–60 cm.)

No artifacts recovered.

Level 5 (60–75 cm.)

No artifacts recovered.

On the basis of such a small number of recovered artifacts, it is difficult to determine if there is any significance to the above stratigraphic divisions. It is clear, however, that the cultural deposit is not deep and, in fact, the sterile yellow clay actually extended into levels 4 and 5 in a few places. It also seems certain that there is no

prehistoric component and that, as might be expected, the artifacts, on the whole, resemble those from the Kijik site. Considering the small size of the collection, the presence of so many objects of native manufacture may be significant, particularly when it is remembered how few such objects occur in the Kijik collection. Of some interest, too, is the absence of such characteristic Kijik trade goods as cartridge cases, nor are there any objects specifically associated with fishing. However, perhaps this test pit was too small to allow for drawing conclusions regarding the presence or absence of specific types.

One artifact in the collection that requires further discussion is the fragmentary ground slate blade with a hollow ground groove that was recovered from level 2. This is the only ground slate object found in the entire Kijik excavations and it has generally been assumed that this particular technique, examples of which are common in prehistoric and historic Eskimo sites, was not practiced by Athapaskans. Since we have already noted Eskimo influence on traditional Tanaina material culture, it should perhaps not be surprising to come across another example of it here. On the other hand, this object may actually have been obtained from Eskimos with whom the Kijik people came in contact during trading trips.

Six additional test trenches were opened on the north side of the river, all of them measuring 1.5 m. square. All were taken down to sterile clay without reference to levels and, with the exception of a few pieces of crockery, no artifacts were recovered. These trenches do show that the cultural layer on this side of the river varies in depth throughout the site, tending to be thicker along the river bank and leaching out around the peripheries. However, even in the center of the site, the thickness varies greatly, ranging from 20 to 75 cm. depending on the presence or absence of certain sporadically located deposits of midden debris. Fire-cracked rocks, charcoal, and birch bark were the most common ingredients in the middens and the sterile sub-soil seemed to be a yellow clay throughout the occupied area.

With reference to the occupation of the north side of the river as a whole, we have already noted that it is characterized by an apparent absence of surface structures and by the presence of large numbers of pits, identified as cache pits, at the peripheries, particularly at the east and west ends. It is possible, therefore, to visualize the camp as consisting of a number of tents or other temporary structures located near the center of the site in front of which small midden deposits would accumulate. Elsewhere within the general occupied

area would have been located drying racks and smokehouses with underground fish caches occurring around the edges close to the forest border.

On the south bank of the river, we have already noted that a steep hill begins virtually at the river bank, thus limiting the area suitable for occupation. Approximately 10 m. in from the water's edge and in the center of the occupied area the grass appeared to be particularly thick and high suggesting the existence of some midden deposit. At this point a test trench 3 m. by 2 m. was opened. Although some midden debris was encountered, it was very thin, consisting of little more than a narrow line of charcoal and cut birch bark fragments with some fire-cracked rocks just below the sod. The sod itself contained five undecorated ironstone china fragments, several can fragments, a piece of shoe leather, and some pieces of unworked bone. Below the sod, the soil was dark but the entire cultural deposit was nowhere more than 20 cm. deep and it rested directly on unconsolidated bed rock. Toward the rear of the site, another test trench 1 m. square was opened and bed rock was encountered directly beneath the sod which was less than 15 cm. thick.

About 5 m. beyond the first trench are the remains of what were presumed to be three cabins extending in an even row from east to west and very close to one another. The base logs of these cabins could be seen on the surface, although they were covered with grass and a thin layer of sod. A number of fairly large spruce trees had grown up within the cabin walls and disturbed the logs to the point where it was difficult to be certain of the exact size and shape of the structures. The largest cabin is at the eastern end of the row, consists of two rooms, and is approximately 8 m. by 3.5 m. West of this structure is a one-room cabin 4 m. by 2.5 m. and west of that another one-room structure about 8 m. by 6 m. In addition to these cabins, there are, in the general area, four collapsed elevated caches, one at either end of the row of houses and two toward the rear of the site up against the steep hillside. It is possible that fish racks stood at the front of the site along the river bank as a number of log poles were located beneath the thick grass in this area. The cabins apparently had plank floors which rested almost directly on the gravel and unconsolidated bed rock that underlies the site on this side of the river.

Of these four collapsed caches, three had trees growing out of them. The fourth was clear and the logs appeared to be in an excellent state of preservation. Partly for this reason, and partly because

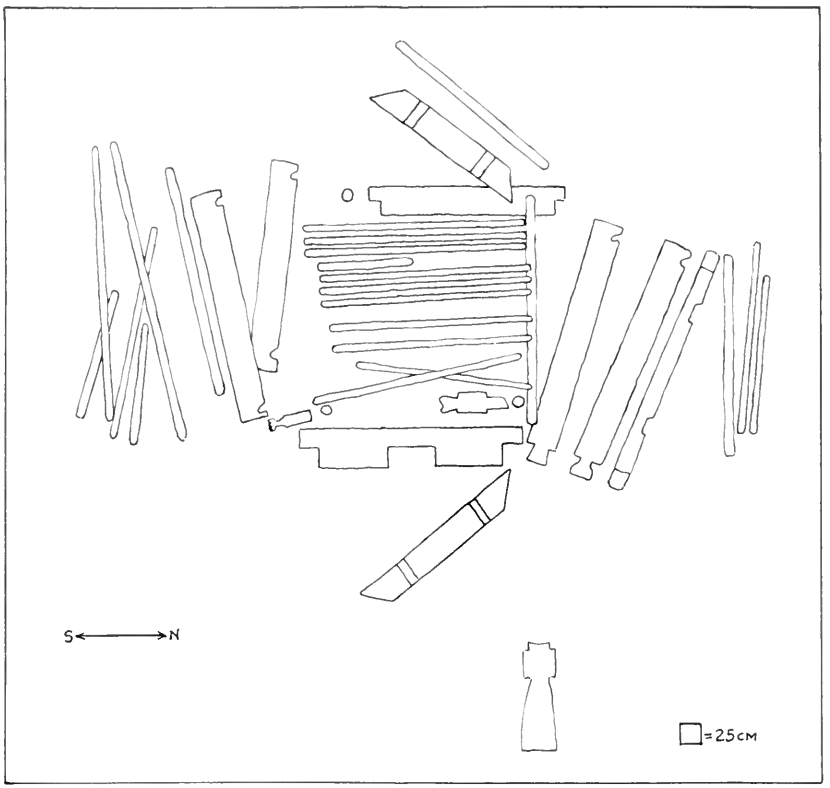

FIG. 29. Collapsed cache at the Kijik fish camp.

it seemed likely that information could be obtained concerning the manner in which a cache would collapse, this structure was excavated. It also seemed important to learn more about caches here because none of the elevated variety were located at Kijik. Excavation in this case involved simply pulling the grass and thin sod layer from the logs and planks, the presence of which could be felt when walking over the thin covering.

In its manner of construction, this cache (fig. 29), which was 2.75 m. square and rested on four posts, one of which was still standing at a height of 1.40 m. above the ground, appears to resemble almost exactly the type described by Osgood (1937, pp. 65–66). One notable feature, somewhat more elaborate than Osgood's description, is the construction of the posts on which the cache stood. They have an overhang about half way up, presumably to prevent small animals from climbing into the structure and getting at the materials stored

there. At the top of these posts is a concave notch into which were fitted the four poles which formed the square floor and on which the superstructure of the cache rested. The floor itself appears to have been constructed of narrow poles with the bark removed placed at intervals to allow for ventilation. Since many pieces of cut birch bark were found lying directly on these poles, it may be that the floor was covered with this material. On the other hand, the birch bark may have fallen in from the roof which was almost certainly covered with it.

The four walls of the cache were constructed of wide, hewn log planks, notched at the end. Not all of these logs were uncovered, but those that were indicate that the side walls were simply halved logs, some as much as 35 cm. wide, with the flat side facing in and the ends carefully notched. The end planks had been skillfully hewn and those at the front of the structure were as much as 42 cm. in width. The gabled sections at each end were grooved for vertical supports which may have run from the floor of the cache to the roof.

The structure almost certainly had an inverted V-shaped roof with a single ridge pole and short poles, like those used for the floor, running from the top wall log to the ridge. This arrangement, however, cannot be determined definitely from the excavations. An interesting feature is observable on one side wall log which was presumably near the top (north end of fig. 29). There are two notches, one near each end, which may be for thin, horizontal cross pieces running across the inside of the structure. These may be the horizontal "supports" unclearly referred to by Osgood (1937, p. 65) or they may be for a rack inside the cache.

As we have noted, the roof of the cache was almost certainly covered with birch bark and perhaps also sod. The fact that virtually nothing remained of the roof may be due to disruption at the time of the collapse or to the fact that the roofing material would have been exposed on the surface and perhaps rotted away before a covering of sod and grass accumulated to protect the rest.

The predominant impressions created by the remains of this cache are of solidarity, weight, and permanence. Under the circumstances it is surprising that the remains of similar caches were not discovered at Kijik if, in fact, this type of storage was in use there and not dismantled when the village was moved. As noted in our reconstruction of the seasonal round at Kijik, it is likely that such a cache would be

used primarily for the storage of dried fish and that the villagers may have made frequent trips to the camp in winter to pick up the fish stored there.

Two subjects of possible speculation with reference to the Kijik Lake fish camp concern the absence of observable structures on the north bank of the river and whether both sides were occupied simultaneously. In a way, the two problems are related since the absence of structures on the north side may be due to the fact that the occupation there was earlier and the remains of more or less permanent structures have disappeared. Although the use of tents and other temporary structures has been postulated for this area and can be observed in modern Tanaina fish camps, the presence of cabin remains cannot be completely ruled out since the grass is much higher on the north side and the occupied area larger making a thorough search difficult. And it is not difficult to imagine that with the passage of even a relatively short amount of additional time, the visible structural features on the south side would no longer be discernible. This is particularly true of the cache remains described above. Even now, all the collapsed logs are covered with sod and grass, and the structure was discovered only because of the one standing support. The cabin remains are visible today only because the trees growing out of them have inhibited the growth of tall grass in the area. Nevertheless, it is tempting to suggest that the original Kijik Lake fish camp was on the north side of the river and that only later did the inhabitants expand to the south side. Thus, the north side may be considered as being contemporaneous with the final occupation at Kijik and it may even be that the fish camp continued to be used by seasonal occupants of the Lake Clark area after Kijik itself had been abandoned. Against this interpretation must be placed the statements of informants at Nondalton who insisted, without being able to elaborate, that both sides of the river were occupied at the same time. This could, of course, have been true without necessarily negating the supposition that the north bank of the river was utilized somewhat earlier.

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